

Chapter 1 : What is Cross-Sectional Research Design | IGI Global

Study design depends greatly on the nature of the research question. In other words, knowing what kind of information the study should collect is a first step in determining how the study will be carried out (also known as the methodology).

Healthcare[edit] Cross-sectional studies involve data collected at a defined time. They are often used to assess the prevalence of acute or chronic conditions, but cannot be used to answer questions about the causes of disease or the results of intervention. Cross-sectional data cannot be used to infer causality because temporality is not known. They may also be described as censuses. Cross-sectional studies may involve special data collection, including questions about the past, but they often rely on data originally collected for other purposes. They are moderately expensive, and are not suitable for the study of rare diseases. Difficulty in recalling past events may also contribute bias. Advantages[edit] The use of routinely collected data allows large cross-sectional studies to be made at little or no expense. This is a major advantage over other forms of epidemiological study. A natural progression has been suggested from cheap cross-sectional studies of routinely collected data which suggest hypotheses, to case-control studies testing them more specifically, then to cohort studies and trials which cost much more and take much longer, but may give stronger evidence. In a cross-sectional survey, a specific group is looked at to see if an activity, say alcohol consumption, is related to the health effect being investigated, say cirrhosis of the liver. If alcohol use is correlated with cirrhosis of the liver, this would support the hypothesis that alcohol use may be associated with cirrhosis. Disadvantages[edit] Routine data may not be designed to answer the specific question. Routinely collected data does not normally describe which variable is the cause and which the effect. Cross-sectional studies using data originally collected for other purposes are often unable to include data on confounding factors, other variables that affect the relationship between the putative cause and effect. For example, data only on present alcohol consumption and cirrhosis would not allow the role of past alcohol use, or of other causes, to be explored. Most case-control studies collect specifically designed data on all participants, including data fields designed to allow the hypothesis of interest to be tested. However, in issues where strong personal feelings may be involved, specific questions may be a source of bias. For example, past alcohol consumption may be incorrectly reported by an individual wishing to reduce their personal feelings of guilt. Such bias may be less in routinely collected statistics, or effectively eliminated if the observations are made by third parties, for example taxation records of alcohol by area. Weaknesses of aggregated data[edit] Cross-sectional studies can contain individual-level data one record per individual, for example, in national health surveys. However, in modern epidemiology it may be impossible to survey the entire population of interest, so cross-sectional studies often involve secondary analysis of data collected for another purpose. In many such cases, no individual records are available to the researcher, and group-level information must be used. Major sources of such data are often large institutions like the Census Bureau or the Centers for Disease Control in the United States. Recent census data is not provided on individuals, for example in the UK individual census data is released only after a century. Instead data is aggregated, usually by administrative area. Inferences about individuals based on aggregate data are weakened by the ecological fallacy. Also consider the potential for committing the "atomistic fallacy" where assumptions about aggregated counts are made based on the aggregation of individual level data such as averaging census tracts to calculate a county average. For example, it might be true that there is no correlation between infant mortality and family income at the city level, while still being true that there is a strong relationship between infant mortality and family income at the individual level. All aggregate statistics are subject to compositional effects, so that what matters is not only the individual-level relationship between income and infant mortality, but also the proportions of low, middle, and high income individuals in each city. Because case-control studies are usually based on individual-level data, they do not have this problem. Economics[edit] In economics, cross-sectional analysis has the advantage of avoiding various complicating aspects of the use of data drawn from various points in time, such as serial correlation of residuals. It also has the advantage that the data analysis itself does not need an assumption that the nature of the relationships between variables is stable over time, though this comes at the

cost of requiring caution if the results for one time period are to be assumed valid at some different point in time. An example of cross-sectional analysis in economics is the regression of money demand – the amounts that various people hold in highly liquid financial assets – at a particular time upon their income, total financial wealth, and various demographic factors. Each data point is for a particular individual or family, and the regression is conducted on a statistical sample drawn at one point in time from the entire population of individuals or families. The cross-sectional study has the advantage that it can investigate the effects of various demographic factors age, for example on individual differences; but it has the disadvantage that it cannot find the effect of interest rates on money demand, because in the cross-sectional study at a particular point in time all observed units are faced with the same current level of interest rates. International Journal of Public Health. International Journal of Epidemiology.

Chapter 2 : Cross Sectional Study - A Snapshot of a Population

A cross-sectional study involves looking at people who differ on one key characteristic at one specific point in time. The data is collected at the same time from people who are similar in other characteristics but different in a key factor of interest such as age, income levels, or geographic location.

Introduction to study designs - cross-sectional studies Introduction Learning objectives: You will learn about commonly used epidemiological measurements to describe the occurrence of disease. The essence of epidemiology is to measure disease occurrence and make comparisons between population groups. The current section introduces you to the commonly used measures that facilitate understanding of distribution of disease in a given population. This section also covers the following areas: Issues in the design of cross-sectional studies 2. Potential bias in cross-sectional studies 3. Analysis of cross-sectional studies 4. Strengths and weaknesses of cross-sectional studies Read the resource text below. Resource text A cross-sectional study examines the relationship between disease or other health related state and other variables of interest as they exist in a defined population at a single point in time or over a short period of time e. Cross-sectional studies can be thought of as providing a snapshot of the frequency of a disease or other health related characteristics e. Cross-sectional studies are used to assess the burden of disease or health needs of a population and are particularly useful in informing the planning and allocation of health resources. Types of cross-sectional study Descriptive A cross-sectional survey may be purely descriptive and used to assess the burden of a particular disease in a defined population. For example a random sample of schools across London may be used to assess the prevalence of asthma among year olds. Analytical Analytical cross-sectional surveys may also be used to investigate the association between a putative risk factor and a health outcome. However this type of study is limited in its ability to draw valid conclusions as to the association between a risk factor and health outcome. In a cross-sectional survey the risk factors and outcome are measured simultaneously, and therefore it may be difficult to determine whether the exposure proceeded or followed the disease. In practice, cross-sectional studies will include an element of both types of design. Issues in the design of cross-sectional surveys Choosing a representative sample A cross-sectional study should be representative of the population if generalizations from the findings are to have any validity. For example, a study of the prevalence of diabetes among women aged years in Town A should comprise a random sample of all women aged years in that town. Sample Size The sample size should be sufficiently large enough to estimate the prevalence of the conditions of interest with adequate precision. Sample size calculations can be carried out using sample size tables or statistical packages such as Epi Info. Potential bias in cross-sectional studies Non-response is a particular problem affecting cross-sectional studies and can result in bias of the measures of outcome. This is a particular problem when the characteristics of non-responders differ from responders. Analysis of cross-sectional studies In a cross-sectional study all factors exposure, outcome, and confounders are measured simultaneously. The main outcome measure obtained from a cross-sectional study is prevalence, that is: Note that for continuous variables such as blood pressure or weight, prevalence may only be calculated when the variable is divided into those which fall below or above a particular pre-determined level. Alternatively, mean or median levels may be calculated. In analytical cross-sectional studies, the odds ratio can be used to assess the strength of an association between a risk factor and health outcome of interest, provided that the current exposure accurately reflects the past exposure. Strengths and weaknesses of cross-sectional studies Strengths Relatively quick and easy to conduct no long periods of follow-up. Data on all variables is only collected once. Able to measure prevalence for all factors under investigation. Multiple outcomes and exposures can be studied. The prevalence of disease or other health related characteristics are important in public health for assessing the burden of disease in a specified population and in planning and allocating health resources. Good for descriptive analyses and for generating hypotheses. Weaknesses Difficult to determine whether the outcome followed exposure in time or exposure resulted from the outcome. Not suitable for studying rare diseases or diseases with a short duration. As cross-sectional studies measure prevalent rather than incident cases, the data will always reflect determinants of survival as well as aetiology¹. Unable to measure incidence. Associations

identified may be difficult to interpret. Susceptible to bias due to low response and misclassification due to recall bias.

Chapter 3 : Study Design and Sampling - Research Methodology Course

In medical research and social science, a cross-sectional study (also known as a cross-sectional analysis, transverse study, prevalence study) is a type of observational study that analyzes data from a population, or a representative subset, at a specific point in time—that is, cross-sectional data.

This article has been cited by other articles in PMC. Abstract Cross-sectional study design is a type of observational study design. In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time. Unlike in case-control studies participants selected based on the outcome status or cohort studies participants selected based on the exposure status, the participants in a cross-sectional study are just selected based on the inclusion and exclusion criteria set for the study. Once the participants have been selected for the study, the investigator follows the study to assess the exposure and the outcomes. Cross-sectional designs are used for population-based surveys and to assess the prevalence of diseases in clinic-based samples. These studies can usually be conducted relatively faster and are inexpensive. They may be conducted either before planning a cohort study or a baseline in a cohort study. These types of designs will give us information about the prevalence of outcomes or exposures; this information will be useful for designing the cohort study. However, since this is a 1-time measurement of exposure and outcome, it is difficult to derive causal relationships from cross-sectional analysis. We can estimate the prevalence of disease in cross-sectional studies. Furthermore, we will also be able to estimate the odds ratios to study the association between exposure and the outcomes in this design. Cross-sectional studies, design, limitations, strengths Introduction Cross-sectional study design is a type of observational study design. As discussed in the earlier articles, we have highlighted that in an observational study, the investigator does not alter the exposure status. The investigator measures the outcome and the exposures in the population, and may study their association. Design In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time. After the entry into the study, the participants are measured for outcome and exposure at the same time [Figure 1]. The investigator can study the association between these variables. It is also possible that the investigator will recruit the study participants and examine the outcomes in this population. The investigator may also estimate the prevalence of the outcome in those surveyed.

Chapter 4 : Study Design, Precision, and Validity in Observational Studies

A cross-sectional survey collects data to make inferences about a population of interest (universe) at one point in time. Cross-sectional surveys have been described as snapshots of the populations about which they gather data.

Open in a separate window Cross-sectional studies A cross-sectional study is an observational study in which exposure and outcome are determined simultaneously for each subject. Cross-sectional studies are most appropriate for screening hypotheses because they require a relatively shorter time commitment and fewer resources to conduct. The cross-sectional study design has been used to understand the prevalence of various conditions, treatments, services or other outcomes and the factors associated with such outcomes. For example, we have used a cross-sectional study 7 to identify the specific services provided to patients who enrolled with hospice and the extent to which services varied across hospices. The cross-sectional study design was an efficient way to evaluate a large sample of patients receiving hospice, to understand the prevalence of specific services, and to generate hypotheses regarding why service delivery might vary across hospices. Similarly, we used a cross-sectional design to estimate the association between hospice ownership and the provision of specific types of hospice services. First, the primary limitation of the cross-sectional study design is that because the exposure and outcome are simultaneously assessed, there is generally no evidence of a temporal relationship between exposure and outcome. That is, although the investigator may determine that there is an association between an exposure and an outcome, there is generally no evidence that the exposure caused the outcome. Of course, if the exposure is a characteristic such as gender or race and the outcome developed over time, the temporal nature of the exposure-outcome association is more plausible; however, for studies in which the exposure is not an inherent trait but one that developed over time, causality is often unclear. Second, a cross-sectional study evaluates prevalent rather than incident outcomes and thus excludes people who develop the outcome but die before the study. The measured association in a cross-sectional study is between exposure and having the outcome as opposed to exposure and developing the outcome. As such, there is a bias toward including in the study individuals with more favorable survivorship. Cross-Sectional Study If causality is asserted, is it appropriate? Is the distinction between prevalent and incident cases a factor? Have alternative explanations been ruled out? Cohort studies The identifying feature of a cohort study design is that the subjects are followed over time. Cohort studies begin with individuals who are exposed and not exposed to a factor and then evaluate the subsequent development of an outcome. Cohort studies may be concurrent or retrospective, the distinction being when, relative to the current time, the subjects are identified Fig. Cohort studies are an appropriate study design when: Cohort designs can yield incidence rates as well as relative risks, and cohort studies may be able to assess causality due to the temporal nature of the study design.

Chapter 5 : Introduction to study designs - cross-sectional studies | Health Knowledge

Cross-sectional research is used to examine one variable in different groups that are similar in all other characteristics. Learn more about cross-sectional research in this lesson and test your.

Study Design and Sampling Study Design Cross-sectional studies are simple in design and are aimed at finding out the prevalence of a phenomenon, problem, attitude or issue by taking a snap-shot or cross-section of the population. This obtains an overall picture as it stands at the time of the study. For example, a cross-sectional design would be used to assess demographic characteristics or community attitudes. These studies usually involve one contact with the study population and are relatively cheap to undertake. Such studies are often used to measure the efficacy of a program. These studies can be seen as a variation of the cross-sectional design as they involve two sets of cross-sectional data collection on the same population to determine if a change has occurred. Retrospective studies investigate a phenomenon or issue that has occurred in the past. Such studies most often involve secondary data collection, based upon data available from previous studies or databases. For example, a retrospective study would be needed to examine the relationship between levels of unemployment and street crime in NYC over the past years. Prospective studies seek to estimate the likelihood of an event or problem in the future. Thus, these studies attempt to predict what the outcome of an event is to be. General science experiments are often classified as prospective studies because the experimenter must wait until the experiment runs its course in order to examine the effects. Longitudinal studies follow study subjects over a long period of time with repeated data collection throughout. Some longitudinal studies last several months, while others can last decades. Most are observational studies that seek to identify a correlation among various factors. Thus, longitudinal studies do not manipulate variables and are not often able to detect causal relationships. **Sample** Once the researcher has chosen a hypothesis to test in a study, the next step is to select a pool of participants to be in that study. However, any research project must be able to extend the implications of the findings beyond the participants who actually participated in the study. For obvious reasons, it is nearly impossible for a researcher to study every person in the population of interest. The researcher must put some careful forethought into exactly how and why a certain group of individuals will be studied. This is also known as random sampling. A researcher can simply use a random number generator to choose participants known as simple random sampling , or every nth individual known as systematic sampling can be included. Researchers also may break their target population into strata, and then apply these techniques within each strata to ensure that they are getting enough participants from each strata to be able to draw conclusions. For example, if there are several ethnic communities in one geographical area that a researcher wishes to study, that researcher might aim to have 30 participants from each group, selected randomly from within the groups, in order to have a good representation of all the relevant groups. **Non-Probability Sampling**, or convenience sampling, refers to when researchers take whatever individuals happen to be easiest to access as participants in a study. This is only done when the processes the researchers are testing are assumed to be so basic and universal that they can be generalized beyond such a narrow sample. **Snowball sampling** is not a stand-alone tool; the tool is a way of selecting participants and then using other tools, such as interviews or surveys. **Sampling Challenges** Because researchers can seldom study the entire population, they must choose a subset of the population, which can result in several types of error. Sometimes, there are discrepancies between the sample and the population on a certain parameter that are due to random differences. This is known as sampling error and can occur through no fault of the researcher. Far more problematic is systematic error, which refers to a difference between the sample and the population that is due to a systematic difference between the two rather than random chance alone. The response rate problem refers to the fact that the sample can become self-selecting, and that there may be something about people who choose to participate in the study that affects one of the variables of interest. For example, in our eye care case, we may experience this kind of error if we simply sample those who choose to come to an eye clinic for a free eye exam as our experimental group and those who have poor eyesight but do not seek eye care as our control group. It is very possible in this situation that the people who actively seek help happen to be more proactive

than those who do not. Because these two groups vary systematically on an attribute that is not the dependent variable economic productivity , it is very possible that it is this difference in personality trait and not the independent variable if they received corrective lenses or not that produces any effects that the researcher observes on the dependent variable. This would be considered a failure in internal validity. Another type of systematic sampling error is coverage error, which refers to the fact that sometimes researchers mistakenly restrict their sampling frame to a subset of the population of interest. This means that the sample they are studying varies systematically from the population for which they wish to generalize their results. This leaves out all of the more rural populations in developing countries, which have very different characteristics than the urban populations on several parameters. Thus, the researcher could not appropriately generalize the results to the broader population and would therefore have to restrict the conclusions to populations in urban areas of developing countries. Errors in sampling can often be avoided by good planning and careful consideration. However, in order to improve a sampling frame, a researcher can always seek more participants. The more participants a study has, the less likely the study is to suffer from sampling error. In the case of the response rate problem, the researcher can actively work on increasing the response rate, or can try to determine if there is in fact a difference between those who partake in the study and those who do not. The most important thing for a researcher to remember is to eliminate any and all variables that the researcher cannot control. While this is nearly impossible in field research, the closer a researcher comes to isolating the variable of interest, the better the results. *Conducting Research in Psychology: Measuring the Weight of Smoke*, 3rd Edition. Wadsworth Publishing February 27,

Chapter 6 : Cross-sectional and Repeated Measures Studies - Oxford Scholarship

A cross-sectional study examines the relationship between disease (or other health related state) and other variables of interest as they exist in a defined population at a single point in time or over a short period of time (e.g. calendar year).

Check new design of our homepage! Understanding the Pros and Cons of Cross-sectional Research
Cross-sectional research is used in different areas like psychology, business, epidemiology, etc. Let us learn some more about it in this article. EduZenith Staff Last Updated: Apr 9, By function, this research refers to the study of a vast group of people as an observation of their behavior at the particular point of time. The result of the research forms the basis of case studies and analysis. There is no standard definition to this concept, but it can be defined as a study of a specified group of people who vary in a certain specific variables, such as age at a particular point of time. Its application ranges in different areas, but most widely used in the study of epidemiology, market research, and psychology. In epidemiology, the study conducted tries to establish a relationship between a disease and some traits that a specified subset of population may exhibit. Let us take a look at the purpose of its design. Design While conducting a cross-sectional research, the important points one needs to remember are: The structure of the research paper depends on the type of research that needs to be carried out. Studies are categorized as pre-experimental, quasi-experimental, and true experimental. The purpose for which the research is carried out determines the design which is to be used. Longitudinal Research While cross-sectional research is used to study the groups of participating population at a particular time, longitudinal research differs in the sense, that it studies the sample group over a period of time. This period of time is dependent on the type of study. It can range from a few months to an entire life-time. Often, development researchers have to decide as to which research method will be more beneficial to them. A longitudinal study allows a researcher to observe the developments taking place in the sample. It helps them track certain behavior and habits of the population of the sample. But, longitudinal research also comes with many disadvantages. It takes a lot of time and effort to keep a track of a large group of population. One of the common observations in the longitudinal method is that, people tend to show completely different behavior when they are being observed or under scrutiny. This process of research is quicker and does not require too much of capital. One also does not need to keep a track of the entire population over a period of time, as in longitudinal research. But, it lacks the in-depth analysis of longitudinal research. Let us try to understand this with the help of an example. An Example If you visit a college and ask the students about the education standard of the college, you will only get to know the general opinion that they have of the professors, faculty, etc. This can be categorized as a cross-sectional research, as you do not know what caused them to have an opinion, whether good or bad about the college. Longitudinal study allows you to measure the changes over a course of time. Let us take the same example as above. You visit a college and take the feedback of the faculty from a specific set of students. You then keep a track of this group of students for a period of time, say a year or two, and then you again take their feedback. If they do not speak highly about the college, you can relate it to the reasons that might have influenced their opinions. These can be the faculty not being supportive enough or the professors being too strict in their behavior towards the students. So, to summarize this kind of research analysis, the population at just a point of time to gather the data, whereas, longitudinal research studies the changes and their impacts on a population over a course of time. Advantages Reviews into the aspects of this research has revealed that the process involved is relatively simple and cheap, morally secure, and retrieval of data is evidently easy. Comparison of data on a subject at a certain point in time. Facilitates researchers to examine different variables at the same time. Disadvantages The results fetched could be very confusing. The link between the cause and effect is murky. The data on the subject researched is not conserved.

Chapter 7 : Understanding the Pros and Cons of Cross-sectional Research

Cross-sectional study is defined as a observational research type that analyzes data of variables collected at one given point of time across a population or a pre-defined subset.

Introduction Before beginning your paper, you need to decide how you plan to design the study. The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data. Note that your research problem determines the type of design you should use, not the other way around! Research Design in Social Research. Research Methods Knowledge Base. General Structure and Writing Style The function of a research design is to ensure that the evidence obtained enables you to effectively address the research problem logically and as unambiguously as possible. In social sciences research, obtaining information relevant to the research problem generally entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe and assess meaning related to an observable phenomenon. With this in mind, a common mistake made by researchers is that they begin their investigations far too early, before they have thought critically about what information is required to address the research problem. Without attending to these design issues beforehand, the overall research problem will not be adequately addressed and any conclusions drawn will run the risk of being weak and unconvincing. As a consequence, the overall validity of the study will be undermined. The length and complexity of describing research designs in your paper can vary considerably, but any well-developed design will achieve the following: Identify the research problem clearly and justify its selection, particularly in relation to any valid alternative designs that could have been used, Review and synthesize previously published literature associated with the research problem, Clearly and explicitly specify hypotheses [i. However, you can get a sense of what to do by reviewing the literature of studies that have utilized the same research design. Also included is a collection of case studies of social research projects that can be used to help you better understand abstract or complex methodological concepts. The Research Methods Videos database hours of tutorials, interviews, video case studies, and mini-documentaries covering the entire research process. Qualitative, Quantitative, and Mixed Methods Approaches. Sage, ; De Vaus, D. Creating Robust Approaches for the Social Sciences. Sage, ; Leedy, Paul D. Pearson, ; Vogt, W. Gardner, and Lynne M. When to Use What Research Design. Action Research Design Definition and Purpose The essentials of action research design follow a characteristic cycle whereby initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventionary strategy. Then the intervention is carried out [the "action" in action research] during which time, pertinent observations are collected in various forms. The new interventional strategies are carried out, and this cyclic process repeats, continuing until a sufficient understanding of [or a valid implementation solution for] the problem is achieved. The protocol is iterative or cyclical in nature and is intended to foster deeper understanding of a given situation, starting with conceptualizing and particularizing the problem and moving through several interventions and evaluations. What do these studies tell you? This is a collaborative and adaptive research design that lends itself to use in work or community situations. Design focuses on pragmatic and solution-driven research outcomes rather than testing theories. When practitioners use action research, it has the potential to increase the amount they learn consciously from their experience; the action research cycle can be regarded as a learning cycle. Action research studies often have direct and obvious relevance to improving practice and advocating for change. There are no hidden controls or preemption of direction by the researcher. It is harder to do than conducting conventional research because the researcher takes on responsibilities of advocating for change as well as for researching the topic. Action research is much harder to write up because it is less likely that you can use a standard format to report your findings effectively [i. Personal over-involvement of the researcher may bias research results. The cyclic nature of action research to achieve its twin outcomes of action [e. Advocating for change usually requires buy-in from study participants. Coghlan, David and Mary Brydon-Miller. The Sage Encyclopedia of Action

Research. Action Research in Education: Guilford, ; Gall, Meredith. Chapter 18, Action Research. Norman Denzin and Yvonna S. SAGE, , pp. Writing and Doing Action Research. Sage, ; Reason, Peter and Hilary Bradbury. Handbook of Action Research: Participative Inquiry and Practice. Case Study Design Definition and Purpose A case study is an in-depth study of a particular research problem rather than a sweeping statistical survey or comprehensive comparative inquiry. It is often used to narrow down a very broad field of research into one or a few easily researchable examples. The case study research design is also useful for testing whether a specific theory and model actually applies to phenomena in the real world. It is a useful design when not much is known about an issue or phenomenon. Approach excels at bringing us to an understanding of a complex issue through detailed contextual analysis of a limited number of events or conditions and their relationships. A researcher using a case study design can apply a variety of methodologies and rely on a variety of sources to investigate a research problem. Design can extend experience or add strength to what is already known through previous research. Social scientists, in particular, make wide use of this research design to examine contemporary real-life situations and provide the basis for the application of concepts and theories and the extension of methodologies. The design can provide detailed descriptions of specific and rare cases. A single or small number of cases offers little basis for establishing reliability or to generalize the findings to a wider population of people, places, or things. Design does not facilitate assessment of cause and effect relationships. Vital information may be missing, making the case hard to interpret. The case may not be representative or typical of the larger problem being investigated. If the criteria for selecting a case is because it represents a very unusual or unique phenomenon or problem for study, then your interpretation of the findings can only apply to that particular case. Chapter 4, Flexible Methods: Columbia University Press, ; Gerring, John. Past, Present and Future Challenges. Encyclopedia of Case Study Research. The Art of Case Study Research. Applied Social Research Methods Series, no. Most social scientists seek causal explanations that reflect tests of hypotheses. Causal effect nomothetic perspective occurs when variation in one phenomenon, an independent variable, leads to or results, on average, in variation in another phenomenon, the dependent variable. Conditions necessary for determining causality: Empirical association -- a valid conclusion is based on finding an association between the independent variable and the dependent variable. Appropriate time order -- to conclude that causation was involved, one must see that cases were exposed to variation in the independent variable before variation in the dependent variable. Nonspuriousness -- a relationship between two variables that is not due to variation in a third variable. Causality research designs assist researchers in understanding why the world works the way it does through the process of proving a causal link between variables and by the process of eliminating other possibilities. There is greater confidence the study has internal validity due to the systematic subject selection and equity of groups being compared. Not all relationships are casual! The possibility always exists that, by sheer coincidence, two unrelated events appear to be related [e. Conclusions about causal relationships are difficult to determine due to a variety of extraneous and confounding variables that exist in a social environment. This means causality can only be inferred, never proven. If two variables are correlated, the cause must come before the effect. Beach, Derek and Rasmus Brun Pedersen. Causal Case Study Methods: Foundations and Guidelines for Comparing, Matching, and Tracing. University of Michigan Press, ; Bachman, Ronet. Chapter 5, Causation and Research Designs. Sage, , pp. Chapter 11, Nonexperimental Research: Cohort Design Definition and Purpose Often used in the medical sciences, but also found in the applied social sciences, a cohort study generally refers to a study conducted over a period of time involving members of a population which the subject or representative member comes from, and who are united by some commonality or similarity. Using a quantitative framework, a cohort study makes note of statistical occurrence within a specialized subgroup, united by same or similar characteristics that are relevant to the research problem being investigated, rather than studying statistical occurrence within the general population. Using a qualitative framework, cohort studies generally gather data using methods of observation. Cohorts can be either "open" or "closed. Date of entry and exit from the study is individually defined, therefore, the size of the study population is not constant. In open cohort studies, researchers can only calculate rate based data, such as, incidence rates and variants thereof. Closed Cohort Studies [static populations, such as patients entered into a clinical trial] involve participants who enter into the

study at one defining point in time and where it is presumed that no new participants can enter the cohort. Given this, the number of study participants remains constant or can only decrease. The use of cohorts is often mandatory because a randomized control study may be unethical. For example, you cannot deliberately expose people to asbestos, you can only study its effects on those who have already been exposed. Research that measures risk factors often relies upon cohort designs.

Chapter 8 : Methodology Series Module 3: Cross-sectional Studies

This lesson explores the process and requirements in using a cross-sectional design. Two examples are used, one common and one uncommon, to demonstrate how cross-sectional designs can be used in.

More Essay Examples on Design Rubric Cross-sectional and longitudinal designs study the changes that occur in an individual over time. In longitudinal, a particular behavior is observed in one person or group, and the changes or developments of the specific behaviors are repeatedly observed and recorded over time. Cross-sectional design aims to do the same thing, but rather than take a single group of the same ages and repeatedly test them as they grow older, this design takes a group of individual of different ages of developmental stages, and compare how the specific behavior is different from one age group to another. For example, the premise is that a researcher wants to study how the reading skills progress in an individual. In a longitudinal design, the researcher will assemble a group of children of the same age, give a baseline assessment of their reading skills, and then observe how these reading skills develop as time passes. Obviously, employing the longitudinal design requires a huge investment in time because there is no way to make the children grow older faster. The researcher must patiently wait for this natural process take place.

Advantages of the Cross-sectional Method Using the cross-sectional method for collecting data is very informative because it can document differences as a function of the developmental phase. All at once, you can analyze how the reading skills are different at different age levels. Consequently, because the data can be gathered in less time, it also means that it is less costly to pursue. If you are studying reading skills, all you have to do is assemble a group of children at various developmental ages and then observe, record, and analyze their behavior. All the data that you need can be gathered in a few quick sessions and all the participants are available; assembled together in one place and time. Another very important advantage of using the cross-sectional design for data gathering is that there is less attrition in terms of your participants. Attrition in this case refers to a situation where the children no longer want to participate in the study. Because the individuals are observed all in one go, in one or two sessions, the risk of them losing interest in participating is very low. For a researcher, this is very important because changing the subjects of your study in the middle of the experiment puts the validity of the research at risk. A research presupposes homogeneity in the subjects being studied. With a longitudinal design, there is a greater possibility for the participants to drop out of the study because of the time element.

Disadvantages of the Cross-sectional Method Of course it is worth noting that a cross-sectional design also has its limitations. One common criticism is that the cross-sectional design is prone to selection bias. This means that the researcher may have some hidden reasons for choosing the participants of the study. In other words, the selection may not be as random as the research requires. There are underlying reasons why a researcher chooses one child over another, and the researcher must be aware of these reasons, and give it proper consideration. The possibility of a selection bias cannot be discounted into the equation. This is very important to keep in mind because the selection might be made in order to get the desired results or prove the premise of the researcher. This threatens the internal validity of the experiment. Moreover, there are individual differences among the participants, such differences may be socio-economic, emotional, cognitive, among others, which can affect the behavior. The researcher must always take these differences into account when analyzing the data. Another common criticism of the cross-sectional design is that while it does give a good description of a particular behavior across different cohorts of age groups, using the cross-sectional design cannot capture the actual developmental processes or stages of the target behavior as it occurs in an individual. The cross-sectional method cannot say whether the change or changes in the behavior took place in a fluid, continuous manner or in discrete, staggered steps.

Uses of the Cross-sectional Method Both the cross-sectional and longitudinal designs are of particular importance in developmental psychology because age is considered as the major determinant of the changes that children undergo as they get older. The concept of developmental milestones is the result of exhaustive researches made using data gathered from cross-sectional and longitudinal designs. These developmental milestones are certain behavioral, cognitive, physical, and emotional characteristics that take place universally

among all individuals, from birth until 7 years old. While the development may be slower in some individuals and faster in others, they occur more or less around the same time. A significant delay in the manifestation of these developmental milestones may point to an underlying cause which may or may not be medical in nature. Cross-sectional is ideally used to describe observed behavior changes across cohorts. From these questions, a more comprehensive and complex study can then be undertaken. For example, a researcher has observed that individuals of various ages handle peer pressure differently. The researcher then proceeds to prove the hypothesis by conducting a study using the cross-sectional design. From the data, the researcher was able to conclude that younger people are more prone or vulnerable to peer pressure and thus, have a greater need to feel accepted within their own social group. From the findings of the cross-sectional designed study, the same researcher or other researches, getting their cue from the findings, can then proceed to study other related aspects of the initial experiment. From the cross-sectional findings, researches can then use the longitudinal method to determine how the ability to handle peer pressure develops as one matures in age. Indeed, a strong cross-sectional study is the foundation of sound researches in developmental psychology. By confirming that differences indeed exist or developments indeed are taking place, then researches can then proceed to finding out why the differences in behavior exist at different age levels and how these differences develop or take place. In a sense, the cross-sectional method of data gathering is the reason why developmental psychology exists in the first place. Developmental psychology is anchored in the concept that development takes place universally among all individuals. These developments are manifested in behavioral, cognitive, emotional, and physical changes. And given one specific behavior or domain, the cross-sectional method allows researches to capture the differences that exist in individuals of different ages and confirm that such differences indeed are present. From here, researches can make a generalization, and proceed to finding out more about how the development occurs in each person and what are the factors that encourages or suppresses said development. Studies can also be made to analyze the occurrences of deviant behaviors and how they can be prevented or repaired. Lawrence Erlbaum Associates Bremner, G, et al. *An Introduction to Developmental Psychology*. Handbook of Research Methods in Clinical Psychology. Blackwell Publishing Morf, C.

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A cross sectional study design was used to investigate the extent of chronic fatigue and the associated psychosocial exposures in a developing country. The setting was a primary health centre catchment area in Goa, India. Participants were women aged years. The primary outcome was reporting of.

The column covered over 35 common research terms used in the health and social sciences. The complete collection of defined terms is available online or in a guide that can be downloaded from the website. August Study design depends greatly on the nature of the research question. In other words, knowing what kind of information the study should collect is a first step in determining how the study will be carried out also known as the methodology. Do we want to compare cholesterol levels among different populations of walkers and non-walkers at the same point in time? Or, do we want to measure cholesterol levels in a single population of daily walkers over an extended period of time? The first approach is typical of a cross-sectional study. The second requires a longitudinal study. To make our choice, we need to know more about the benefits and purpose of each study type. Cross-sectional study Both the cross-sectional and the longitudinal studies are observational studies. This means that researchers record information about their subjects without manipulating the study environment. In our study, we would simply measure the cholesterol levels of daily walkers and non-walkers along with any other characteristics that might be of interest to us. We would not influence non-walkers to take up that activity, or advise daily walkers to modify their behaviour. The defining feature of a cross-sectional study is that it can compare different population groups at a single point in time. Think of it in terms of taking a snapshot. Findings are drawn from whatever fits into the frame. To return to our example, we might choose to measure cholesterol levels in daily walkers across two age groups, over 40 and under 40, and compare these to cholesterol levels among non-walkers in the same age groups. We might even create subgroups for gender. However, we would not consider past or future cholesterol levels, for these would fall outside the frame. We would look only at cholesterol levels at one point in time. The benefit of a cross-sectional study design is that it allows researchers to compare many different variables at the same time. We could, for example, look at age, gender, income and educational level in relation to walking and cholesterol levels, with little or no additional cost. However, cross-sectional studies may not provide definite information about cause-and-effect relationships. This is because such studies offer a snapshot of a single moment in time; they do not consider what happens before or after the snapshot is taken. Longitudinal study A longitudinal study, like a cross-sectional one, is observational. So, once again, researchers do not interfere with their subjects. However, in a longitudinal study, researchers conduct several observations of the same subjects over a period of time, sometimes lasting many years. The benefit of a longitudinal study is that researchers are able to detect developments or changes in the characteristics of the target population at both the group and the individual level. The key here is that longitudinal studies extend beyond a single moment in time. As a result, they can establish sequences of events. To return to our example, we might choose to look at the change in cholesterol levels among women over 40 who walk daily for a period of 20 years. The longitudinal study design would account for cholesterol levels at the onset of a walking regime and as the walking behaviour continued over time. Therefore, a longitudinal study is more likely to suggest cause-and-effect relationships than a cross-sectional study by virtue of its scope. In general, the research should drive the design. But sometimes, the progression of the research helps determine which design is most appropriate. Cross-sectional studies can be done more quickly than longitudinal studies. Then they would set up a longitudinal study to study cause and effect. Stay Connected Stay up to date on the latest research, events and news. Subscribe to our monthly e-newsletter. Our mission is to promote, protect and improve the safety and health of working people by conducting actionable research that is valued by employers, workers and policy-makers.