

Research Methodology in Nursing

INTRODUCTION

In numerous academic fields, including health, education, psychology, social work, nursing, public health, library studies, marketing research, and pharmaceutical sciences, research technique is taught as a supporting subject in a variety of ways. Although the content of these fields varies, I am of the opinion that their general approaches to research questions are comparable, which serves as the fundamental philosophical foundation for this work.

A research methodology is a set of guidelines for how an investigation should be carried out; in other words, it is a procedure for effectively resolving research-related issues. It comprises examining the assumptions, overarching ideas, and research techniques employed in a particular area of study.

The techniques and approaches used to conduct research are referred to as research methods, while the methodology used to answer problems in depth is known as research methodology. A science has been developed to examine the methodological aspects of research. The researcher in this area introduces himself by outlining the many procedures often used to investigate a research problem. Methodology is the term used to describe the scientific strategy used to undertake a research project.

The approach you plan to use to conduct your research is encapsulated in your research methodology. Included in this is your approach to topics like data gathering techniques, statistical analysis, participant observations, and more.

The Meaning of Research

Research can be very broadly described as the methodical collection of facts and information and its analysis with the purpose of advancing knowledge in any field. Through the use of organized techniques, research seeks to provide answers to theoretical and practical concerns. The definition of research according to Webster's Collegiate Dictionary is "studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in light of new facts, or practical application of such new or revised theories or laws." Some people view research as a transition from the familiar to the unfamiliar.

Research Methods versus Methodology

At this point, it appears necessary to clarify the distinction between research methodologies and research techniques. The term

"Research methods" can be used to refer to any procedures or techniques used to do research. Thus, research methods or procedures refer to the techniques that researchers employ when carrying out research operations. Alternatively, research methods are all those techniques that the researcher employs when analyzing his research problem. Since the goal of research, especially

applied research, is to find a solution for a particular problem, a solution can only be found by connecting the known and unknown parts of the problem. Considering this, the three categories of research methodologies are as follows:

1. The approaches that are concerned with data collection are included in the first group. When the information presently available is insufficient to reach the necessary conclusion, these procedures will be applied:
2. The statistical approaches used to identify correlations between the data and the unknowns make up the second group.
3. The methods used to assess the accuracy of the results attained make up the third group.

The last two kinds of research methodologies mentioned above are typically regarded as the research's analytical instruments. A method for methodically resolving the research challenge is called research methodology. It might be thought of as the study of scientific research methodology. In it, we examine the many procedures a researcher typically uses to analyze his research problem as well as the reasoning behind them.

The researcher must be familiar with both the methodology and the research methods and techniques. In addition to knowing how to create specific tests or indices, compute the mean, mode, median, standard deviation, or chi-square, and apply specific research techniques, researchers also need to know which of these methods or techniques are pertinent and which are not, as well as what they would mean, indicate, and justify.

Additionally, researchers must be aware of the underlying presumptions of different methodologies and the standards by which they can determine which methods and processes are appropriate for which challenges.

All of this means that the researcher must create his approach specifically for his topic because methodologies might vary from problem to problem. For instance, when designing a structure, an architect must carefully assess the rationale behind his choices. He must consider, for instance, why and on what basis he chooses a specific size, quantity, and placement for doors, windows, and ventilators, or why he employs a certain material rather than another.

Similar to this, the scientist must subject research decisions to evaluation prior to implementation. In order for his judgments to be assessed by others as well, he must be very specific about what he chooses and why. According to what has been said so far, research methodology comprises a variety of components, and research techniques do make up a part of the research methodology.

Unlike research methodologies, research methodology has a broader application. Therefore, when we discuss research methodology, we not only discuss the research methods but also take into account the reasoning behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others, so that research results can be assessed both by the researcher and by others.

When we discuss research methodology in relation to a research problem or study, we typically provide answers to questions like why a research study was conducted, how the research

problem was defined, how and why the hypothesis was formulated, what data were collected, what particular method was used, why a particular technique of data analysis was used, and a host of other questions of a similar nature.

Research Process: It is useful to provide a brief summary of the research process before getting into the specifics of research methodology and methodologies. The steps that make up the research process are those that must be taken in the correct order in order to be carried out successfully. A research process is effectively depicted in the chart in Figure. The graphic shows that the research process is made up of severally connected activities, as indicated by I through VII. But rather than adhering to a rigidly set sequence, such activities continuously overlap.

Sometimes the initial step dictates the kind of last step that needs to be performed. Serious problems could occur, and the study might not be finished if later procedures weren't considered in the beginning phases. It's important to keep in mind that the various parts of a research process are not exclusive to one another or independent from one another.

They do not necessarily occur in that order, so the researcher must constantly be on the lookout for the needs of the upcoming phases at every stage of the research process. Nevertheless, the following sequence of phases offers helpful methodological guidance for the research process:

1. defining the research problem,
2. conducting a thorough review of the literature,
3. making the hypothesis,
4. creating the research design,
5. choosing the sample design,
6. Gathering the data is one of the first three steps in conducting a study.
7. Execution of the project,
8. data analysis,
9. hypothesis testing,
10. generalizations and interpretations,
11. Preparation of the report or presentation of the results, i.e., the formal articulation of conclusions obtained, are the other steps in the project cycle.

It will be useful to give a quick explanation of the steps mentioned above.

1. **Defining the research problem**

There are two categories of research issues: those that deal with the laws of nature and those that deal with the connections between different factors. The researcher must first identify the issue he wants to investigate, i.e., choose the general field of interest or facet of a subject he wants to delve into. The problem can be expressed in broad terms at first, and then any ambiguities should be clarified if there are any. The viability of a certain solution must therefore be taken into account before a working formulation of the problem can be established. Thus, the first stage in a scientific inquiry is the articulation of an all-encompassing topic into a particular study problem. The process of defining a research problem essentially consists of two steps: first, a full knowledge of the issue at hand; second, a rephrasing of the issue in meaningful terms from an analytical standpoint.

Discussing the issue with one's own co-workers or those who have knowledge of the subject is the best approach to comprehending it. In an academic setting, the researcher can ask a guide—typically an experienced man with a list of potential study issues—for assistance. Often, the manual presents the issue in broad words; it is up to the researcher to focus on it and formulate it in operational terms. When an issue arises in a private company unit or a governmental organization, the administrative agencies are typically designated as the point of contact with whom the researcher can discuss the problem's origins and the factors that might be taken into account in potential remedies. In order to familiarize himself with the chosen issue, the researcher must simultaneously review all of the material that is available.

The conceptual literature, which discusses concepts and theories, and the empirical literature, which consists of research conducted in the past that is comparable to the one presented, are the two categories of literature that he may review. The primary result of this review will be the researcher's understanding of the data and other materials that are readily available for operational reasons, which will allow the researcher to define his own research problem in a meaningful context. Following this, the researcher rephrases the issue in analytical or operational terms, trying to be as explicit as possible.

Throughout the entire research process, the work of creating or identifying a research problem is of utmost significance. For the purpose of separating relevant data from irrelevant data, the problem that has to be studied must be clearly specified. To be sure that the background information provided about the issue is accurate and objective, however, care must be taken. The objective statement is fundamentally important since it specifies the data that will be collected, as Professor W. A. Mismanage rightly notes. The important data features, the relationships to be investigated, the techniques to be employed in these investigations, and the format of the final report. If there are any relevant terminologies, they should be specified in full, along with the duty of articulating the issue. In fact, the problem is frequently formulated in a sequential manner, with each formulation being more detailed than the one before it, more analytically formulated, and more realistic in light of the available information and resources.

2. Conducting a thorough review of the literature

After the issue has been identified, a concise summary should be recorded. Writing a synopsis of the subject and submitting it for approval to the relevant committee or the research board is required of anyone conducting research for a Ph.D. degree. Now is the time for the researcher to conduct a thorough literature review related to the issue.

The first resource to consult for this purpose is the published or unpublished bibliographies, as well as the abstracting and indexing journals. Depending on the nature of the issue, it may be necessary to consult academic publications, conference proceedings, government reports, books, etc. Remember that one source will lead to another throughout this process. It is important to thoroughly review any prior research that is comparable to the study, if any. At this point, the researcher will benefit greatly from an excellent library.

3. Making the hypothesis

After a thorough review of the literature, the researcher should clearly express their working hypothesis or hypotheses. A working hypothesis is a speculative assumption that is created to explore and test the logical or empirical implications. As a result, since research hypotheses serve as the central question, how they are generated is crucial.

They also have an impact on the way tests must be carried out during data analysis and, indirectly, on the caliber of the data that is needed for the study. The creation of a working hypothesis is crucial for the majority of study types. Since the hypothesis needs to be tested, it should be extremely detailed and restricted to the current research project. By defining the scope of the study, the hypothesis serves to direct the researcher and keep him on the right path. It hones his reasoning and directs focus to the aspects of the issue that are more crucial. It also specifies the kinds of data that must be used and the kinds of data analysis techniques that must be applied.

How is it done to create working hypotheses? The following strategy offers the solution:

1. Discussions with colleagues and subject-matter experts about the issue, its causes, and the goals of finding a solution;
2. Examination of data and records, if available, pertaining to the issue for potential trends, peculiarities, and other clues;
3. Review of similar studies in the region or of the studies on similar problems; and
4. Exploratory personal investigation that entails limited-scale original field interviews with interested parties and people with a view on the issue

Working hypotheses therefore derive from a priori consideration of the matter, analysis of the pertinent research and data, and consultation with experts and interested parties. Working hypotheses are more beneficial when expressed in specific, well-defined language. It's important to keep in mind that, occasionally, we may run into a situation in which working hypotheses are not necessary. This is especially true for exploratory or formulary research, which has no intention of verifying the hypothesis. However, in most research topics, the formulation of working hypotheses constitutes a further fundamental phase in the research process.

4. Creating the research design

The researcher must establish a research design, which entails stating the conceptual framework within which the research would be carried out, after clearly defining the research problem. By creating such a design, research can be conducted as effectively as possible, resulting in the greatest amount of knowledge.

In other words, the goal of study design is to make it possible to get pertinent data while spending the least amount of time, money, and effort possible. However, the research goal will determine how all of these can be accomplished. Four sorts of research objectives are possible:

- ❖ Exploration,
- ❖ Description,
- ❖ Diagnosis, and
- ❖ Experimentation.

If the goal of the research study is exploration, then a flexible research design that allows for the consideration of numerous distinct facets of a subject is thought to be acceptable. The best design, however, will be one that reduces bias and maximizes the reliability of the data collected and analyzed when the goal is to accurately describe a scenario or a connection between variables.

The testing of hypotheses can be done experimentally or non-experimentally, for example, and there are many other study designs. Experimental designs can be informal (such as before-and-after without control, after-only with control, before-and-after with control), formal (such as completely randomized design, randomized block design, Latin square design, simple and complex factorial designs), or a combination of both. The researcher must choose one of these for his own study.

When creating a study design that is suited for a given research problem, the following factors are typically taken into account:

- How to get the information
- The researcher's and his staff's (if any) availability and expertise;
- An explanation of how the decision to use a certain method of gathering information will be structured and the justification for the choice;
- The research time that is available; and
- The expense of the research or the funding available for the endeavor

5. Choosing the sample design

The "universe" or "population" refers to all the objects that are being considered in any subject of study. A census inquiry is an exhaustive count of every component of the "population." When every aspect of the investigation is covered, it can be assumed that there is no chance factor left and the utmost level of accuracy is attained. However, in actuality, this could not be the case. As the number of observations rises, even the smallest bias in such an investigation will become ever more evident. Additionally, there is no other method to determine the presence of bias or the extent of it than by conducting a survey or using sample checks. In addition, this kind of research takes a lot of time, money, and effort. Additionally, there are several situations in which conducting a census is not practical. For instance, blood tests are only performed on a sample basis. As a result, we frequently choose only a small number of objects from the universe to investigate. The objects chosen in this manner make up the so-called sample in technical parlance.

The sample design, also known as the sample selection method, must be decided by the researcher. To put it another way, a sample design is a predetermined strategy made before any data is actually gathered for the purpose of selecting a sample from a particular population. As a result, the idea to pick 12 of the 200 drug stores in a city in a particular way qualifies as a sample design. Both probability samples and no probability samples are acceptable as samples. When using probability samples, the researcher can calculate the likelihood that each element will be present in the sample, but this is not possible when using non-probability samples. In contrast to non-probability samples, which are those based on convenience sampling, judgment sampling, and quota sampling procedures, probability samples are those that are based on simple random sampling, systematic sampling, stratified sampling, and cluster/area sampling. These significant sample designs are briefly mentioned below:

- **Deliberate sampling** is often referred to as purposeful or no-probability sampling. With this sampling technique, specific cosmological units are purposefully or consciously chosen to form a sample that is representative of the entire universe. Convenience sampling refers to the process of choosing demographic components for the sample based on their accessibility. If a researcher wants to collect information from people who buy gasoline, for example, he can choose a set number of gas stations and interview people there. This is an illustration of a convenience sample of gas purchasers. Sometimes, especially when the population is not homogeneous, such an approach may produce severely biased results. On the other hand, in judgment sampling, the researcher's judgment is employed to select things that he deems to be representative of the population. For instance, a sample of college students might be collected to gather responses to a novel teaching strategy. When developing hypotheses rather than seeking to generalize to wider populations, judgment sampling is widely utilized in qualitative research.
- **Simple random sampling:** In this type of sampling, also referred to as chance sampling or probability sampling, every component of the population has an equal chance of being included in the sample, and in the case of a finite universe, each potential sample also has an equal chance of being chosen. For instance, we could write down the names or numbers of all 15,000 items on slips of paper and hold a lottery if we had to choose a sample of 300 items from the universe. Another technique for random sampling is to use random number tables. Each item is given a number between 1 and 15,000 to help choose the sample. Then, 300 five-digit random numbers are chosen at random from the table. Starting in the second column of the fourth row, we might move to the bottom of the column before moving to the top of the following column to the right. When a number goes beyond the frame's upper limit, in this example, over 15,000, it is simply passed over, and the following number is chosen that does fall within the necessary range. The resultant sample is random since all of the numbers in the table were generated at random. Each item has an equal chance of being chosen under this approach. A random sample's selection of each item is determined by the same probability in the event of an infinite population, and subsequent selections are independent of one another.
- **Systematic sampling:** In some cases, the most useful method of sampling is to choose every 15th name on a list, every 10th house on one side of a street, and so forth. Systematic sampling is the term for this kind of sample. This type of sampling typically includes a random component by selecting the initial unit using random integers. This method is helpful when the sampling frame is presented as a list. In such a design, the selection

process begins by choosing a random element from the list, after which every subsequent element is chosen until the target number is obtained.

- **Stratified sampling:** This technique is used to obtain a representative sample when the population from which a sample is to be taken does not consist of a homogeneous group. This method divides the population into a number of distinct subpopulations, or strata, and sample items are chosen from each stratum. Stratified random sampling refers to the process in which stratification is done first, followed by simple random sampling of the items from each stratum.
- **Quota sampling:** In stratified sampling, the expense of gathering random samples from individual strata is frequently so high that interviewers are simply given quotas to fill from various strata, with the actual selection of items for the sample being left to the interviewer's discretion. This is referred to as quota sampling. Each stratum's quota is typically proportional to how large it is in the population. Thus, quota sampling is a crucial type of non-probability sampling. Typically, quota samples are judgment samples rather than random sampling.
- **Cluster sampling and area sampling:** Cluster sampling includes grouping the population before choosing the groups or clusters rather than the individual elements to be included in the sample. Let's imagine that a retail store wants to sample its credit card users. 15,000 clients have received cards from it. Keep the sample size at, say, 450. The 15,000 cardholders on this list might be divided into 100 clusters, each with 150 cardholders, for the purpose of cluster sampling. The sample might then be randomly drawn from three clusters. Because the cluster sampling procedure commonly amplifies the potential for order bias and other kinds of error, the sample size must frequently be greater than the basic random sample to guarantee the same degree of accuracy. However, the clustering strategy can facilitate sampling and boost fieldwork productivity, particularly when doing in-person interviews. When the entire geographic area of interest is large, area sampling—which is somewhat similar to cluster sampling—is frequently discussed. In area sampling, we first divide the entire area into a number of smaller, non-overlapping areas, sometimes referred to as geographical clusters, and then a number of these smaller areas are randomly picked, with all units in these small areas being included in the sample. When we don't have a list of the relevant population, area sampling is especially useful. Additionally, because the interviewer can do numerous interviews at each place, field interviewing is more effective.
- **Multi-stage sampling** is a progression of the concept of cluster sampling. This approach is designed for large-scale queries covering a very wide geographic area, such as a whole nation. With multi-stage sampling, the first step may be to choose sizable primary sampling units, such as states, districts, and towns, and then particular families within those towns. Multi-stage random sampling is the term used to describe sampling techniques when random sampling is used at every stage.
- **Sequential sampling** is a relatively sophisticated sample design in which the final sample size is set by mathematical calculations based on the data gathered as the survey goes on. In the context of statistical quality control, this design is typically used under an acceptance sampling strategy.

It is possible in practice to combine many of the aforementioned sample techniques in the same study, which is known as mixed sampling. In order to remove bias and assess sample error, it may be pointed out that one should typically use random sampling. Purposive sampling, however, is seen as preferable when a known aspect of the universe needs to be investigated in depth and the universe is small. Furthermore, there are circumstances in which sample designs

other than random sampling may be preferable due to factors including practicality and affordability. The researcher must choose the sample design to be employed while taking the investigation's purpose and other relevant elements into account.

6. **Gathering the data is one of the first three steps in conducting a study.**

It is common to discover that the data at hand is insufficient when attempting to solve any real-world situation, necessitating the collection of more suitable data. There are various methods for gathering the correct data, and they vary widely in terms of the amount of money, time, and other resources that the researcher has available. Both experiments and surveys can be used to gather primary data. When a researcher runs an experiment, he collects data—quantitative measurements—that he can use to evaluate whether his hypothesis is true or false. However, information can be gathered for a survey in at least one of the following ways:

- ❖ **Through observation:** This approach suggests gathering data through the investigators own observation without speaking with the respondents. The information received is relevant to the present and is not affected by the respondents' previous actions, their intentions for the future, or their views now. This approach is without a doubt expensive, and the information it yields is also relatively limited. This approach is therefore inappropriate for studies involving large samples.
- ❖ **Through a personal interview,** the investigator adheres to a strict process and looks for responses to a predetermined set of questions. This approach to gathering data is typically structured, with a considerable degree of output depending on the interviewer's skill.
- ❖ **Phone interviews:** This technique for gathering data entails speaking with the respondents on the phone. Although this approach is not very common, it is crucial in industrial surveys conducted in industrialized countries, especially when there is a short window of time available.
- ❖ **When a survey is conducted** using this method, the respondent and the researcher are in communication. The recipients of questionnaires are asked to return them after completing them by mail. It is the technique that is most frequently employed in various economic and commercial surveys. Typically, a pilot study is conducted to assess the questionnaire prior to the application of this method, revealing any faults the questionnaire may have. To ensure that the questionnaire is successful in gathering the necessary data, it must be carefully written.
- ❖ **Through schedules:** Using this technique, enumerators are chosen and trained. They receive schedules, including pertinent questions. With these schedules, these enumerators visit the respondents. On the basis of the responses provided by respondents, data is gathered by enumerators filling out the schedules. When it comes to this strategy, a lot depends on the enumerators' skills. The enumerators' work may be periodically checked in the field to verify honesty. The nature of the investigation, the purpose and scope of the inquiry, the financial resources, the available time, and the required level of accuracy should all be taken into consideration by the researcher before choosing one of these methods for data collection. All of these aspects should be taken into

consideration, but the researcher's skills and background play a significant role. Dr. ALGOL makes a very good point in this context when he says that experience is the best teacher and common sense is the most important requirement while collecting statistical data.

7. **Execution of the project:** One of the most crucial stages in the research process is project execution. The information that will be gathered will be sufficient and reliable if the project is carried out according to plan. The researcher needs to make sure the project is completed on schedule and in a methodical manner. Data can be easily handled by a machine if the survey is carried out using structured questionnaires. Both the queries and the potential responses may be coded in such a scenario. Interviewers should be carefully chosen and trained if the data is to be acquired through interviews. Instruction booklets that clearly outline the role of the interviewers at each stage may be used to assist in providing the training. To make sure that the interviewers are carrying out their given duties honestly and effectively, there should occasionally be field inspections. To keep the poll as realistic as possible, a close eye should be kept out for any unexpected circumstances. To put it another way, this means that actions should be taken to guarantee that the survey is under statistical control and that the information gathered complies with the established accuracy level.

If some of the respondents refuse to comply, some appropriate solutions should be developed to address this issue. Making a list of the non-respondents and selecting a small subset of them is one way to approach the non-response issue. Then, with the assistance of specialists, active attempts may be made to secure a response.

8. **Analysis of data:** The researcher then begins the process of data analysis after the data have been gathered. A variety of closely connected processes are necessary for the analysis of data, including the creation of categories, the application of these categories to raw data through coding, tabulation, and the drawing of statistical judgments. For further examination, the voluminous data must necessarily be reduced to a small number of digestible groupings and tables. As a result, the researcher needs to group the raw data into some useful categories. This is often the stage where the data categories are converted into symbols so they may be tabulated and counted. The process of editing raises the standard of the data before coding. The stage is set for tabulation with coding. The technical process of tabulation involves arranging the categorized data into tables. At this point, the mechanical devices can be used. Computers tabulate a lot of data, particularly in huge investigations. In addition to saving time, computers also allow for the simultaneous analysis of numerous factors affecting a situation.

After tabulation, analysis work often involves applying a variety of well-defined statistical equations to compute various percentages, coefficients, etc. Tests of significance should be applied during the analysis to associations or differences that support or contradict original or novel hypotheses in order to establish the validity with which data may be said to imply any conclusion(s). If, for example, there are two samples of weekly earnings and each sample is taken from a different factory in the same city and yields two different mean values, then our issue may be whether the two mean values are statistically different or the variation is merely due to chance.

Statistical tests can be used to determine if a difference is genuine or the consequence of random fluctuations. If the difference turns out to be genuine, it will be assumed that the two samples

came from distinct universes, and if it is just a coincidence, it will be assumed that they are from the same universe. Similar to this, the technique of analysis of variance can assist us in determining whether or not three or more different seed kinds cultivated on certain fields provide noticeably different results. To put it briefly, the researcher can use a variety of statistical measures to examine the data that has been obtained.

9. **Hypothesis-testing:** After analyzing the data as stated above, the researcher is in a position to test the hypotheses, if any, he had formulated earlier. Do the facts support the hypotheses, or do they happen to be contrary? This is the usual question that should be answered while testing hypotheses. Various tests, such as Chi

The square test, t-test, and F-test have been developed by statisticians for this purpose. The hypotheses may be tested through the use of one or more of such tests, depending upon the nature and object of the research inquiry. Hypothesis testing will result in either accepting the hypothesis or rejecting it. If the researcher had no hypotheses to start with, generalizations established on the basis of data may be stated as hypotheses to be tested by subsequent research in the years to come.

10. **Generalizations and interpretation:** If a hypothesis is tested and upheld several times, it may be possible for the researcher to arrive at a generalization, i.e., to build a theory. As a matter of fact, the real value of research lies in its ability to arrive at certain generalizations. If the researcher had no hypothesis to start with, he might seek to explain his findings on the basis of some theory. It is known as interpretation. The process of interpretation may quite often trigger new questions, which in turn may lead to further research.
11. **Preparation of the report or the thesis:** Finally, the researcher has to prepare a report of what has been done by him. The writing of a report must be done with great care, keeping in view the following: The layout of the report should be as follows:
 - i. The preliminary pages
 - ii. The main text, and
 - iii. The end matter

In its preliminary pages, the report should carry a title and date, followed by an acknowledgement and foreword. Then there should be a table of contents, followed by a list of tables and a list of graphs and charts, if any, given in the report.

The importance of research in nursing and midwifery

Nurses and midwives are increasingly expected to adopt an evidence-based practice (EBP), which is broadly defined as the use of the best clinical evidence in making patient care decisions. Nurses are accepting the need to base specific nursing actions and decisions on evidence indicating that the actions are clinically appropriate, cost-effective, and result in positive outcomes for clients.

The importance of research in nursing Nursing research is essential if nurses are to understand the varied dimensions of their profession. Research enables nurses to describe the characteristics of a particular nursing situation about which little is known; to explain phenomena that must be considered in planning nursing care; to predict the probable outcomes of certain nursing

decisions; to control the occurrence of undesired outcomes; and to initiate activities to promote desired client behavior.

Purposes of Scientific Research- Description: It means an observational account of occurrences pertinent to midwifery. Example: patients who are unconscious and have bed sores. The researcher wants to record how severe the bed sores are.

In a DESCRIPTIVE study, researchers observe, count, delineate, and classify.

- Numerous phenomena have been discussed by nurse researchers. Patients' stress and coping mechanisms, pain management, adaptability strategies, and health beliefs are a few examples.
- Description can be a major purpose for both
- Qualitative and quantitative researchers. Quantitative
- The description focuses on the prevalence, incidence,
- size and measurable attributes of phenomena
- Qualitative researchers, on the other hand, use in-depth methods to describe the dimensions, variations,
- and the importance of phenomena.

IN NURSING, THERE ARE THREE TYPES OF METHODOLOGY

- Task-oriented nursing (functional nursing): In this approach, each nurse is given a specific task, such as dressing, administering medication, or taking vital signs. It is effective and cost-effective, but it can jeopardize continuity and care quality.
- Patient-centered approaches: These approaches put each patient's requirements and preferences as their primary concern. They consist of primary, team, and individual nursing. Although it may be impracticable and expensive, individual nursing assigns one nurse to each patient, guaranteeing individualized and comprehensive care. In team nursing, a group of nurses are assigned to a group of patients, fostering cooperation and communication, but it could also lead to confusion over roles and conflict. While primary nursing fosters trust and accountability by designating one nurse to be in charge of a patient's overall care throughout their stay, it may also result in an increase in workload and stress.
- Volume-based approaches: These approaches base the number and composition of nurses on the volume of clients or services. They consist of expert judgment, patient-to-nurse ratios, patient prototypes and classifications, and timed task methodologies. The nurse managers' expertise and intuition serve as the basis for their professional judgment, which can be arbitrary and inconsistent. Patient-to-nurse ratios dictate a set number of patients per nurse but may not take into account the complexity and acuity of the patients. Patient prototyping or classification places patients in groups based on their requirements and characteristics, although it might be time-consuming and unreliable. Timed-task methodologies estimate the amount of time needed for each task and activity; however, they might not account for the diversity and unpredictability of nursing labor.

.CONCLUSION

Methodology is defined as 'the study of methods and not simply the specific techniques themselves. Without causing confusion when I've been trying to do the opposite, although the

concepts are now clearly different, methodology and method cannot be regarded in isolation. Method and methodology are interdependent, for instance, in research proposal development and in carrying out the best possible research studies. For research to be in one particular thematic area, such as feminism, the methods used must reflect both the feminist philosophy and methodology. It is the epistemology, the methodology, and the concepts from which they arose, not the methods themselves that characterize the research.

Towards the end of the main text, the researcher should again put down the results of his research clearly and precisely. In fact, it is the final summation.

At the end of the report, appendices should be enlisted with respect to all technical data. A bibliography, i.e., a list of books, journals, reports, etc., consulted, should also be given at the end. An index should also be given, especially in a published research report.

Reports should be written in a concise and objective style in simple language, avoiding vague expressions such as 'it seems,' 'there may be', and the like.

Charts and illustrations in the main report should be used only if they present the information more clearly and forcibly.

Calculated 'confidence limits' must be mentioned, and the various constraints experienced in conducting research operations may as well be stated.

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The approach you plan to use to conduct your research is encapsulated in your research methodology. Included in this is your approach to topics like data gathering techniques, statistical analysis, participant observations, and more.

The Meaning of Research

Research can be very broadly described as the methodical collection of facts and information and its analysis with the purpose of advancing knowledge in any field. Through the use of organized techniques, research seeks to provide answers to theoretical and practical concerns. The definition of research according to Webster's Collegiate Dictionary is "studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in light of new facts, or practical application of such new or revised theories or laws." Some people view research as a transition from the familiar to the unfamiliar.

Research Methods versus Methodology

At this point, it appears necessary to clarify the distinction between research methodologies and research techniques. The term

"Research methods" can be used to refer to any procedures or techniques used to do research. Thus, research methods or procedures refer to the techniques that researchers employ when carrying out research operations. Alternatively, research methods are all those techniques that the researcher employs when analyzing his research problem. Since the goal of research, especially applied research, is to find a solution for a particular problem, a solution can only be found by connecting the known and unknown parts of the problem. Considering this, the three categories of research methodologies are as follows:

1. The approaches that are concerned with data collection are included in the first group. When the information presently available is insufficient to reach the necessary conclusion, these procedures will be applied:
2. The statistical approaches used to identify correlations between the data and the unknowns make up the second group.
3. The methods used to assess the accuracy of the results attained make up the third group.

The last two kinds of research methodologies mentioned above are typically regarded as the research's analytical instruments. A method for methodically resolving the research challenge is called research methodology. It might be thought of as the study of scientific research methodology. In it, we examine the many procedures a researcher typically uses to analyze his research problem as well as the reasoning behind them.

The researcher must be familiar with both the methodology and the research methods and techniques. In addition to knowing how to create specific tests or indices, compute the mean, mode, median, standard deviation, or chi-square, and apply specific research techniques,

researchers also need to know which of these methods or techniques are pertinent and which are not, as well as what they would mean, indicate, and justify.

Additionally, researchers must be aware of the underlying presumptions of different methodologies and the standards by which they can determine which methods and processes are appropriate for which challenges.

All of this means that the researcher must create his approach specifically for his topic because methodologies might vary from problem to problem. For instance, when designing a structure, an architect must carefully assess the rationale behind his choices. He must consider, for instance, why and on what basis he chooses a specific size, quantity, and placement for doors, windows, and ventilators, or why he employs a certain material rather than another.

Similar to this, the scientist must subject research decisions to evaluation prior to implementation. In order for his judgments to be assessed by others as well, he must be very specific about what he chooses and why. According to what has been said so far, research methodology comprises a variety of components, and research techniques do make up a part of the research methodology.

Unlike research methodologies, research methodology has a broader application. Therefore, when we discuss research methodology, we not only discuss the research methods but also take into account the reasoning behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others, so that research results can be assessed both by the researcher and by others.

When we discuss research methodology in relation to a research problem or study, we typically provide answers to questions like why a research study was conducted, how the research problem was defined, how and why the hypothesis was formulated, what data were collected, what particular method was used, why a particular technique of data analysis was used, and a host of other questions of a similar nature.

Research Process:

It is useful to provide a brief summary of the research process before getting into the specifics of research methodology and methodologies. The steps that make up the research process are those that must be taken in the correct order in order to be carried out successfully. A research process is effectively depicted in the chart in Figure. The graphic shows that the research process is made up of severally connected activities, as indicated by I through VII. But rather than adhering to a rigidly set sequence, such activities continuously overlap.

Sometimes the initial step dictates the kind of last step that needs to be performed. Serious problems could occur, and the study might not be finished if later procedures weren't considered in the beginning phases. It's important to keep in mind that the various parts of a research process are not exclusive to one another or independent from one another.

They do not necessarily occur in that order, so the researcher must constantly be on the lookout for the needs of the upcoming phases at every stage of the research process. Nevertheless, the following sequence of phases offers helpful methodological guidance for the research process:

1. defining the research problem,
2. conducting a thorough review of the literature,
3. making the hypothesis,
4. creating the research design,
5. choosing the sample design,
6. Gathering the data is one of the first three steps in conducting a study.
7. Execution of the project,
8. data analysis,
9. hypothesis testing,
10. generalizations and interpretations,
11. Preparation of the report or presentation of the results, i.e., the formal articulation of conclusions obtained, are the other steps in the project cycle.

It will be useful to give a quick explanation of the steps mentioned above.

1. Defining the research problem

There are two categories of research issues: those that deal with the laws of nature and those that deal with the connections between different factors. The researcher must first identify the issue he wants to investigate, i.e., choose the general field of interest or facet of a subject he wants to delve into. The problem can be expressed in broad terms at first, and then any ambiguities should be clarified if there are any. The viability of a certain solution must therefore be taken into account before a working formulation of the problem can be established. Thus, the first stage in a scientific inquiry is the articulation of an all-encompassing topic into a particular study problem. The process of defining a research problem essentially consists of two steps: first, a full knowledge of the issue at hand; second, a rephrasing of the issue in meaningful terms from an analytical standpoint.

Discussing the issue with one's own co-workers or those who have knowledge of the subject is the best approach to comprehending it. In an academic setting, the researcher can ask a guide—typically an experienced man with a list of potential study issues—for assistance. Often, the manual presents the issue in broad words; it is up to the researcher to focus on it and formulate it in operational terms. When an issue arises in a private company unit or a governmental organization, the administrative agencies are typically designated as the point of contact with whom the researcher can discuss the problem's origins and the factors that might be taken into account in potential remedies.

In order to familiarize himself with the chosen issue, the researcher must simultaneously review all of the material that is available.

The conceptual literature, which discusses concepts and theories, and the empirical literature, which consists of research conducted in the past that is comparable to the one presented, are the two categories of literature that he may review. The primary result of this review will be the researcher's understanding of the data and other materials that are readily available for operational reasons, which will allow the researcher to define his own research problem in a meaningful context. Following this, the researcher rephrases the issue in analytical or operational terms, trying to be as explicit as possible.

Throughout the entire research process, the work of creating or identifying a research problem is of utmost significance. For the purpose of separating relevant data from irrelevant data, the problem that has to be studied must be clearly specified. To be sure that the background information provided about the issue is accurate and objective, however, care must be taken. The objective statement is fundamentally important since it specifies the data that will be collected, as Professor W. A. Mismanage rightly notes. The important data features, the relationships to be investigated, the techniques to be employed in these investigations, and the format of the final report. If there are any relevant terminologies, they should be specified in full, along with the duty of articulating the issue.

In fact, the problem is frequently formulated in a sequential manner, with each formulation being more detailed than the one before it, more analytically formulated, and more realistic in light of the available information and resources.

2. Conducting a thorough review of the literature

After the issue has been identified, a concise summary should be recorded. Writing a synopsis of the subject and submitting it for approval to the relevant committee or the research board is required of anyone conducting research for a Ph.D. degree. Now is the time for the researcher to conduct a thorough literature review related to the issue.

The first resource to consult for this purpose is the published or unpublished bibliographies, as well as the abstracting and indexing journals. Depending on the nature of the issue, it may be necessary to consult academic publications, conference proceedings, government reports, books, etc. Remember that one source will lead to another throughout this process. It is important to thoroughly review any prior research that is comparable to the study, if any. At this point, the researcher will benefit greatly from an excellent library.

3. Making the hypothesis

After a thorough review of the literature, the researcher should clearly express their working hypothesis or hypotheses. A working hypothesis is a speculative assumption that is created to explore and test the logical or empirical implications. As a result, since research hypotheses serve as the central question, how they are generated is crucial.

They also have an impact on the way tests must be carried out during data analysis and, indirectly, on the caliber of the data that is needed for the study. The creation of a working hypothesis is crucial for the majority of study types. Since the hypothesis needs to be tested, it

should be extremely detailed and restricted to the current research project. By defining the scope of the study, the hypothesis serves to direct the researcher and keep him on the right path. It hones his reasoning and directs focus to the aspects of the issue that are more crucial. It also specifies the kinds of data that must be used and the kinds of data analysis techniques that must be applied.

How is it done to create working hypotheses? The following strategy offers the solution:

1. Discussions with colleagues and subject-matter experts about the issue, its causes, and the goals of finding a solution;
2. Examination of data and records, if available, pertaining to the issue for potential trends, peculiarities, and other clues;
3. Review of similar studies in the region or of the studies on similar problems; and
4. Exploratory personal investigation that entails limited-scale original field interviews with interested parties and people with a view on the issue

Working hypotheses therefore derive from a priori consideration of the matter, analysis of the pertinent research and data, and consultation with experts and interested parties. Working hypotheses are more beneficial when expressed in specific, well-defined language. It's important to keep in mind that, occasionally, we may run into a situation in which working hypotheses are not necessary. This is especially true for exploratory or formulary research, which has no intention of verifying the hypothesis. However, in most research topics, the formulation of working hypotheses constitutes a further fundamental phase in the research process.

4. Creating the research design

The researcher must establish a research design, which entails stating the conceptual framework within which the research would be carried out, after clearly defining the research problem. By creating such a design, research can be conducted as effectively as possible, resulting in the greatest amount of knowledge.

In other words, the goal of study design is to make it possible to get pertinent data while spending the least amount of time, money, and effort possible. However, the research goal will determine how all of these can be accomplished. Four sorts of research objectives are possible:

1. Exploration,
2. Description,
3. Diagnosis, and
4. Experimentation.

If the goal of the research study is exploration, then a flexible research design that allows for the consideration of numerous distinct facets of a subject is thought to be acceptable. The best design, however, will be one that reduces bias and maximizes the reliability of the data collected and analyzed when the goal is to accurately describe a scenario or a connection between variables.

The testing of hypotheses can be done experimentally or non-experimentally, for example, and there are many other study designs. Experimental designs can be informal (such as before-and-after without control, after-only with control, before-and-after with control), formal (such as completely randomized design, randomized block design, Latin square design, simple and complex factorial designs), or a combination of both. The researcher must choose one of these for his own study.

When creating a study design that is suited for a given research problem, the following factors are typically taken into account:

How to get the information

1. The researcher's and his staff's (if any) availability and expertise;
2. An explanation of how the decision to use a certain method of gathering information will be structured and the justification for the choice;
3. The research time that is available; and
4. The expense of the research or the funding available for the endeavor
5. Choosing the sample design

The "universe" or "population" refers to all the objects that are being considered in any subject of study. A census inquiry is an exhaustive count of every component of the "population." When every aspect of the investigation is covered, it can be assumed that there is no chance factor left and the utmost level of accuracy is attained. However, in actuality, this could not be the case. As the number of observations rises, even the smallest bias in such an investigation will become ever more evident. Additionally, there is no other method to determine the presence of bias or the extent of it than by conducting a survey or using sample checks. In addition, this kind of research takes a lot of time, money, and effort. Additionally, there are several situations in which conducting a census is not practical. For instance, blood tests are only performed on a sample basis. As a result, we frequently choose only a small number of objects from the universe to investigate. The objects chosen in this manner make up the so-called sample in technical parlance.

The sample design, also known as the sample selection method, must be decided by the researcher. To put it another way, a sample design is a predetermined strategy made before any data is actually gathered for the purpose of selecting a sample from a particular population. As a result, the idea to pick 12 of the 200 drug stores in a city in a particular way qualifies as a sample design. Both probability samples and non-probability samples are acceptable as samples. When using probability samples, the researcher can calculate the likelihood that each element will be present in the sample, but this is not possible when using non-probability samples. In contrast to non-probability samples, which are those based on convenience sampling, judgment sampling, and quota sampling procedures, probability samples are those that are based on simple random sampling, systematic sampling, stratified sampling, and cluster/area sampling. These significant sample designs are briefly mentioned below:

1. **Deliberate sampling** is often referred to as purposeful or non-probability sampling. With this sampling technique, specific cosmological units are purposefully or consciously chosen to form a sample that is representative of the entire universe. Convenience sampling refers to the process

of choosing demographic components for the sample based on their accessibility. If a researcher wants to collect information from people who buy gasoline, for example, he can choose a set number of gas stations and interview people there. This is an illustration of a convenience sample of gas purchasers. Sometimes, especially when the population is not homogeneous, such an approach may produce severely biased results. On the other hand, in judgment sampling, the researcher's judgment is employed to select things that he deems to be representative of the population. For instance, a sample of college students might be collected to gather responses to a novel teaching strategy. When developing hypotheses rather than seeking to generalize to wider populations, judgment sampling is widely utilized in qualitative research.

2. **Simple random sampling:** In this type of sampling, also referred to as chance sampling or probability sampling, every component of the population has an equal chance of being included in the sample, and in the case of a finite universe, each potential sample also has an equal chance of being chosen. For instance, we could write down the names or numbers of all 15,000 items on slips of paper and hold a lottery if we had to choose a sample of 300 items from the universe. Another technique for random sampling is to use random number tables. Each item is given a number between 1 and 15,000 to help choose the sample. Then, 300 five-digit random numbers are chosen at random from the table. Starting in the second column of the fourth row, we might move to the bottom of the column before moving to the top of the following column to the right. When a number goes beyond the frame's upper limit, in this example, over 15,000, it is simply passed over, and the following number is chosen that does fall within the necessary range. The resultant sample is random since all of the numbers in the table were generated at random. Each item has an equal chance of being chosen under this approach. A random sample's selection of each item is determined by the same probability in the event of an infinite population, and subsequent selections are independent of one another.
3. **Systematic sampling:** In some cases, the most useful method of sampling is to choose every 15th name on a list, every 10th house on one side of a street, and so forth. Systematic sampling is the term for this kind of sample. This type of sampling typically includes a random component by selecting the initial unit using random integers. This method is helpful when the sampling frame is presented as a list. In such a design, the selection process begins by choosing a random element from the list, after which every subsequent element is chosen until the target number is obtained.
4. **Stratified sampling:** This technique is used to obtain a representative sample when the population from which a sample is to be taken does not consist of a homogeneous group. This method divides the population into a number of distinct subpopulations, or strata, and sample items are chosen from each stratum. Stratified random sampling refers to the process in which stratification is done first, followed by simple random sampling of the items from each stratum.
5. **Quota sampling:** In stratified sampling, the expense of gathering random samples from individual strata is frequently so high that interviewers are simply given quotas to fill from various strata, with the actual selection of items for the sample being left to the interviewer's discretion. This is referred to as quota sampling. Each stratum's quota is typically proportional to how large it is in the population. Thus, quota sampling is a crucial type of non-probability sampling. Typically, quota samples are judgment samples rather than random sampling.
6. **Cluster sampling and area sampling:** Cluster sampling includes grouping the population before choosing the groups or clusters rather than the individual elements to be included in the sample. Let's imagine that a retail store wants to sample its credit card users. 15,000 clients have received cards from it. Keep the sample size at, say, 450. The 15,000 cardholders on this list might be divided into 100 clusters, each with 150 cardholders, for the purpose of cluster sampling. The sample might then be randomly drawn from three clusters. Because the cluster

sampling procedure commonly amplifies the potential for order bias and other kinds of error, the sample size must frequently be greater than the basic random sample to guarantee the same degree of accuracy. However, the clustering strategy can facilitate sampling and boost fieldwork productivity, particularly when doing in-person interviews. When the entire geographic area of interest is large, area sampling—which is somewhat similar to cluster sampling—is frequently discussed. In area sampling, we first divide the entire area into a number of smaller, non-overlapping areas, sometimes referred to as geographical clusters, and then a number of these smaller areas are randomly picked, with all units in these small areas being included in the sample. When we don't have a list of the relevant population, area sampling is especially useful. Additionally, because the interviewer can do numerous interviews at each place, field interviewing is more effective.

7. **Multi-stage sampling** is a progression of the concept of cluster sampling. This approach is designed for large-scale queries covering a very wide geographic area, such as a whole nation. With multi-stage sampling, the first step may be to choose sizable primary sampling units, such as states, districts, and towns, and then particular families within those towns. Multi-stage random sampling is the term used to describe sampling techniques when random sampling is used at every stage.
8. **Sequential sampling** is a relatively sophisticated sample design in which the final sample size is set by mathematical calculations based on the data gathered as the survey goes on. In the context of statistical quality control, this design is typically used under an acceptance sampling strategy.

It is possible in practice to combine many of the aforementioned sample techniques in the same study, which is known as mixed sampling. In order to remove bias and assess sample error, it may be pointed out that one should typically use random sampling. Purposive sampling, however, is seen as preferable when a known aspect of the universe needs to be investigated in depth and the universe is small. Furthermore, there are circumstances in which sample designs other than random sampling may be preferable due to factors including practicality and affordability. The researcher must choose the sample design to be employed while taking the investigation's purpose and other relevant elements into account.

6. **Gathering the data is one of the first three steps in conducting a study.**

It is common to discover that the data at hand is insufficient when attempting to solve any real-world situation, necessitating the collection of more suitable data. There are various methods for gathering the correct data, and they vary widely in terms of the amount of money, time, and other resources that the researcher has available. Both experiments and surveys can be used to gather primary data. When a researcher runs an experiment, he collects data—quantitative measurements—that he can use to evaluate whether his hypothesis is true or false. However, information can be gathered for a survey in at least one of the following ways:

- Through observation: This approach suggests gathering data through the investigator's own observation without speaking with the respondents. The information received is

relevant to the present and is not affected by the respondents' previous actions, their intentions for the future, or their views now. This approach is without a doubt expensive, and the information it yields is also relatively limited. This approach is therefore inappropriate for studies involving large samples.

- Through a personal interview, the investigator adheres to a strict process and looks for responses to a predetermined set of questions. This approach to gathering data is typically structured, with a considerable degree of output depending on the interviewer's skill.
- Phone interviews: This technique for gathering data entails speaking with the respondents on the phone. Although this approach is not very common, it is crucial in industrial surveys conducted in industrialized countries, especially when there is a short window of time available.
- When a survey is conducted using this method, the respondent and the researcher are in communication. The recipients of questionnaires are asked to return them after completing them by mail. It is the technique that is most frequently employed in various economic and commercial surveys. Typically, a pilot study is conducted to assess the questionnaire prior to the application of this method, revealing any faults the questionnaire may have. To ensure that the questionnaire is successful in gathering the necessary data, it must be carefully written.
- Through schedules: Using this technique, enumerators are chosen and trained. They receive schedules, including pertinent questions. With these schedules, these enumerators visit the respondents. On the basis of the responses provided by respondents, data is gathered by enumerators filling out the schedules. When it comes to this strategy, a lot depends on the enumerators' skills. The enumerators' work may be periodically checked in the field to verify honesty.
- The nature of the investigation, the purpose and scope of the inquiry, the financial resources, the available time, and the required level of accuracy should all be taken into consideration by the researcher before choosing one of these methods for data collection. All of these aspects should be taken into consideration, but the researcher's skills and background play a significant role. Dr. ALGOL makes a very good point in this context when he says that experience is the best teacher and common sense is the most important requirement while collecting statistical data.

7. Execution of the project: One of the most crucial stages in the research process is project execution. The information that will be gathered will be sufficient and reliable if the project is carried out according to plan. The researcher needs to make sure the project is completed on schedule and in a methodical manner. Data can be easily handled by a machine if the survey is carried out using structured questionnaires. Both the queries and the potential responses may be coded in such a scenario. Interviewers should be carefully chosen and trained if the data is to be acquired through interviews. Instruction booklets that clearly outline the role of the interviewers at each stage may be used to assist in providing the training. To make sure that the interviewers are carrying out their given duties honestly and effectively, there should occasionally be field inspections. To keep the poll as realistic as possible, a close eye should be kept out for any unexpected circumstances. To put it another way, this means that actions should be taken to guarantee that the survey is under statistical control and that the information gathered complies with the established accuracy level.

If some of the respondents refuse to comply, some appropriate solutions should be developed to address this issue. Making a list of the non-respondents and selecting a small subset of them is one way to approach the non-response issue. Then, with the assistance of specialists, active attempts may be made to secure a response.

8. **Analysis of data:** The researcher then begins the process of data analysis after the data have been gathered. A variety of closely connected processes are necessary for the analysis of data, including the creation of categories, the application of these categories to raw data through coding, tabulation, and the drawing of statistical judgments. For further examination, the voluminous data must necessarily be reduced to a small number of digestible groupings and tables. As a result, the researcher needs to group the raw data into some useful categories. This is often the stage where the data categories are converted into symbols so they may be tabulated and counted. The process of editing raises the standard of the data before coding. The stage is set for tabulation with coding. The technical process of tabulation involves arranging the categorized data into tables. At this point, the mechanical devices can be used. Computers tabulate a lot of data, particularly in huge investigations. In addition to saving time, computers also allow for the simultaneous analysis of numerous factors affecting a situation.

After tabulation, analysis work often involves applying a variety of well-defined statistical equations to compute various percentages, coefficients, etc. Tests of significance should be applied during the analysis to associations or differences that support or contradict original or novel hypotheses in order to establish the validity with which data may be said to imply any conclusion(s). If, for example, there are two samples of weekly earnings and each sample is taken from a different factory in the same city and yields two different mean values, then our issue may be whether the two mean values are statistically different or the variation is merely due to chance.

Statistical tests can be used to determine if a difference is genuine or the consequence of random fluctuations. If the difference turns out to be genuine, it will be assumed that the two samples came from distinct universes, and if it is just a coincidence, it will be assumed that they are from the same universe. Similar to this, the technique of analysis of variance can assist us in determining whether or not three or more different seed kinds cultivated on certain fields provide noticeably different results. To put it briefly, the researcher can use a variety of statistical measures to examine the data that has been obtained.

9. **Testing hypotheses:** After examining the data as described above, the researcher is in a position to test any hypotheses he had previously developed. Or do the facts just so happen to be in opposition to the hypotheses? When testing hypotheses, this is typically the first question that should be addressed. Statistics experts have created a number of tests for this purpose, including the Chi-square test, t-test, and F-test. Depending on the nature and goal of the research enquiry, one or more of these tests may be used to examine the hypotheses. Either the hypothesis will be accepted or rejected as a consequence of hypothesis testing. Generalizations based on data may be made even if the researcher didn't start with any hypotheses. **Generalizations and interpretation:** If a hypothesis is tested and upheld several times, it may be possible for the researcher to arrive at a generalization, i.e., to build a theory. As a matter of fact, the real value of research lies in its ability to arrive at certain generalizations. If the researcher had no hypothesis to start with, he might seek to explain his findings on the basis of some

theory. It is known as interpretation. The process of interpretation may quite often trigger new questions, which in turn may lead to further research.

10. Report or thesis preparation: The researcher must, in the end, create a report outlining his work. When preparing a report, extreme caution must be used, bearing in mind the following: The report's format should be as follows: the first few pages;

11. The body of the book; and the epilogue. The report should begin on its first few pages with a title, date, acknowledgement, and foreword. The report should then have a table of contents, a list of tables, and a list of any graphs or charts that were included.

The importance of research in nursing and midwifery

Evidence-based practice (EBP), which is roughly defined as the use of the best clinical evidence in patient care choices, is becoming a more common expectation for nurses and midwives. The necessity to base particular nursing activities and decisions on data demonstrating that the actions are clinically acceptable, economical, and produce favorable client outcomes is becoming more widely accepted among nurses.

The importance of research in nursing If nurses are to comprehend the many facets of their vocation, nursing research is crucial. Nurses can use research to describe a specific nursing situation's characteristics, explain phenomena that must be taken into account when planning nursing care, predict the likely results of specific nursing decisions, prevent the occurrence of undesirable outcomes, and start initiatives to encourage desired client behavior.

Purposes of Scientific Research Description: An observational report of events relevant to midwifery is what it signifies. A patient with bed sores and unconsciousness is an example. The extent of the bed sores is something the researcher wants to document.

In a DESCRIPTIVE study, researchers observe, count, delineate, and classify.

- Nurse researchers have talked about a lot of phenomena. Examples include the patients' stress management techniques, pain management techniques, adaptation techniques, and health attitudes.
- Qualitative and quantitative researchers may find that description serves a significant purpose. Quantitative
- The description concentrates on the frequency, size, incidence, and other quantifiable characteristics of phenomena.
- Instead, qualitative researchers describe the dimensions, variability, and significance of events using in-depth methodologies.

THERE ARE THREE TYPES OF METHODOLOGY

- Task-oriented nursing (functional nursing): In this approach, each nurse is given a specific task, such as dressing, administering medication, or taking vital signs. It is effective and cost-effective, but it can jeopardize continuity and care quality.
- Patient-centered approaches: These approaches put each patient's requirements and preferences as their primary concern. They consist of primary, team, and individual nursing. Although it may be impracticable and expensive, individual nursing assigns one nurse to each patient, guaranteeing individualized and comprehensive care. In team nursing, a group of nurses are assigned to a group of patients, fostering cooperation and communication, but it could also lead to confusion over roles and conflict. While primary nursing fosters trust and accountability by designating one nurse to be in charge of a patient's overall care throughout their stay, it may also result in an increase in workload and stress.
- Volume-based approaches: These approaches base the number and composition of nurses on the volume of clients or services. They consist of expert judgment, patient-to-nurse ratios, patient prototypes and classifications, and timed task methodologies. The nurse managers' expertise and intuition serve as the basis for their professional judgment, which can be arbitrary and inconsistent. Patient-to-nurse ratios dictate a set number of patients per nurse but may not take into account the complexity and acuity of the patients. Patient prototyping or classification places patients in groups based on their requirements and characteristics, although it might be time-consuming and unreliable. Timed-task methodologies estimate the amount of time needed for each task and activity; however, they might not account for the diversity and unpredictability of nursing labor.

.CONCLUSION

Methodology is defined as ‘the study of methods and not simply the specific techniques themselves. Without causing confusion when I’ve been trying to do the opposite, although the concepts are now clearly different, methodology and method cannot be regarded in isolation. Method and methodology are interdependent, for instance, in research proposal development and in carrying out the best possible research studies. For research to be in one particular thematic area, such as feminism, the methods used must reflect both the feminist philosophy and methodology. It is the epistemology, the methodology, and the concepts from which they arose, not the methods themselves that characterize the research. Towards the end of the main text, the researcher should again put down the results of his research clearly and precisely. In fact, it is the final summation. At the end of the report, appendices should be enlisted with respect to all technical data. A bibliography, i.e., a list of books, journals, reports, etc., consulted, should also be given at the end. An index should also be given, especially in a published research report.

Reports should be written in a concise and objective style in simple language, avoiding vague expressions such as ‘it seems,’ ‘there may be’, and the like.

Charts and illustrations in the main report should be used only if they present the information more clearly and forcibly.

Calculated ‘confidence limits’ must be mentioned, and the various constraints experienced in conducting research operations may as well be stated.

BIBLIOGRAPHY

- Ackoff, Russell L. (1961). *The Design of Social Research*, University of Chicago Press: Chicago.
- Allen, T. Harrell, (1978). *New Methods in Social Research*, Praeger Publication: New York.
- Baker, R.P. & Howell, A.C. (1958). *The Preparation of Reports*, Ronald Press: New York.
- Barzun, Jacques & Graff. F. (1990). *The Modern Researcher*, Harcourt, Brace Publication: New York.
- Berelson Conard & Colton, Raymond. (1978). *Research and Report Writing for Business and Economics*, Random House: New York.
- Best, John, W.& Kahn, James. (1986). *Research in Education*, 5th ed., Prentice–Hall of India Pvt Ltd: New Delhi.
- Bhattacharya, Srinivas. (1972). *Psychometrics & Behavioural Research*, Sterling Publishers Pvt.Ltd.: New Delhi.
- Burgess, Earnest. (1960). *Research Methods in Sociology*, New York Philosophical Library: New York.
- Chaturvedi, J.C. (1970). *Mathematical Statistics*, Nok Jonk Karyalaya: Agra.
- Clover, Vernon T. & Balsley, Howard L. (1984). *Business Research Methods*, Grid, Inc: Columbus.
- Cochran, W.G. (1963). *Sampling Techniques*, John Wiley & Sons: New York.
- Deming, W. Edwards. (1980). *Sampling Designs in Business Research*, John Wiley & Sons: New York.
- Dennis, Child. (1980). *The Essentials of Factor Analysis*, Rinehart & Winston: New York.

- Sadhu, A.N. & Amarjit. (1990). Research Methodology in Social Sciences, Himalayan Publishing House :Bombay.
- Sharma, B .A, V. et al (1998). Research Methods in Social Sciences, Sterling Publishers Pvt. Ltd.: New Delhi.
- Siegel, S. (1970). Nonparametric Statistics for the Behavioural Sciences, McGraw-Hill Publishing Co: New York.
- Tondon, B.C. (1989). Research Methodology in Social Sciences, Chaitanya Publishing House: Allahabad.
- Yamane, T. (1973). Statistics: An Introductory Analysis, Harper and Row: New York.
- Young Pauline V. (1960). Scientific Social Surveys and Research, 3rd ed., Prentice–Hall: New York.

Reference

- polit D. & Beck C. (2014). Essentials of nursing research: appraising evidence for nursing practice (8th ed), Philadelphia: Lippincott; Williams and Williams.
- Polit D. & Beck C (2018). Essentials of nursing research: appraising evidence for nursing practice (9th ed), Philadelphia: LIPPINCOTT WILLIAMS & WILKINS,a WOLTERS KLUWER



