**16/MHS02/020**

**NSC 414: RESEARCH METHODS IN NURSING**

**DATA COLLECTION METHODS**

Data collection involves all the processes of collecting information from relevant sources to find solutions to a research problem, test the hypothesis and evaluate the outcomes. A proper data collection process ensures that the data gathered are both defined and accurate, ensuring that subsequent decisions based on research problems are made using valid data. Data collection methods can be divided into two categories: secondary methods of data collection and primary methods of data collection.

**Secondary Data Collection Methods**

Secondary data is a type of data that has already been published in books, newspapers, magazines, journals, online portals etc.; they include second hand data. Therefore, application of appropriate set of criteria to select secondary data to be used in the study plays an important role in terms of increasing the levels of [research validity and reliability](https://research-methodology.net/research-methodology/reliability-validity-and-repeatability/).

These criteria include, but are not limited to the date of publication, credential of the author, reliability of the source, quality of discussions, depth of analyses, the extent of contribution of the text to the development of the research area etc.

One of the advantages of the secondary data is that it is easily available and hence, requiring less time to gather all the relevant information. In addition, it is less expensive than the primary data. However, the data might not be specific to the research topic and at the same time, incomplete to reach a conclusion. In addition, the authenticity of the research results might be questionable.

**Primary Data Collection Methods**

Primary data collection methods are first hand data derived from the field during research; it can be divided into two groups: quantitative and qualitative.

**Quantitative Data Collection Methods**

Quantitative research can be described as ‘entailing the collection of numerical data and exhibiting the view of relationship between theory and research as deductive, a predilection for natural science approach, and as having an objectivist conception of social reality’. In other words, quantitative studies mainly examine relationships between numerically measured variables with the application of statistical techniques.

Quantitative research methods describe and measure the level of occurrences based on numbers and calculations that is, numerical values with questions such as “how many?” and “how often?” asked during data collection. [Quantitative data collection methods](https://research-methodology.net/research-methods/quantitative-research/) are based on mathematical calculations in various formats with emphasis on random sampling and structured data collection instruments making its findings being easy to present, summarize, compare and generalize.

Quantitative methods are cheaper to apply and they can be applied within shorter duration of time compared to qualitative methods. Moreover, due to a high level of standardization of quantitative methods, it is easy to make comparisons of findings. Methods of quantitative data collection and analysis include questionnaires with closed-ended questions, methods of correlation and regression analysis and mean, mode and median

Others include:

* [**Surveys**](https://www.scribbr.com/methodology/survey-research/)**:** List of closed or multiple choice questions distributed to a [sample](https://www.scribbr.com/methodology/sampling-methods/).
* [**Experiments**](https://www.scribbr.com/methodology/experimental-design/)**:** Situation in which [variables](https://www.scribbr.com/methodology/types-of-variables/) are controlled and manipulated to establish cause-and-effect relationships.
* **Observations:** Observing people in a natural environment where variables cannot be controlled.
* [**Content analysis**](https://www.scribbr.com/methodology/content-analysis/)**:**Systematically recording the presence of certain words or themes in a set of texts to analyze communication patterns.

The table below illustrates strength and weaknesses associated with quantitative data collection methods and quantitative research:

|  |  |
| --- | --- |
| **Strengths** | **Limitations** |
| Findings can be generalised if selection process is well-designed and sample is representative of study population | Related secondary data is sometimes not available or accessing available data is difficult/impossible |
| Relatively easy to analyse | Difficult to understand context of a phenomenon |
| Data can be very consistent, precise and reliable | Data may not be robust enough to explain complex issues |

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**Qualitative Research Methods**

Qualitative data collection methods are exploratory in nature and are mainly concerned with gaining insights and understanding of underlying reasons and motivations. Qualitative data collection methods emerged after it become known that traditional [quantitative data collection methods](https://research-methodology.net/research-methods/quantitative-research/) were unable to express human feelings and emotions since its main method of data collection relates only to numerical values, but qualitative methods on the other hand, acknowledged abstraction and generalization and is closely associated with words, sounds, feeling, emotions, colours and other elements which are non-quantifiable.

It is noted that “qualitative methods are often regarded as providing rich data about real life people and situations and being more able to make sense of behaviour and to understand behaviour within its wider context. However, qualitative research is often criticised for lacking generalizability, being too reliant on the subjective interpretations of researchers and being incapable of replication by subsequent researchers.”

The most popular qualitative methods of data collection and analysis in business studies are [interviews](https://research-methodology.net/research-methods/qualitative-research/interviews/), [focus groups](https://research-methodology.net/research-methods/qualitative-research/focus-group/), [observation](https://research-methodology.net/research-methods/qualitative-research/observation/), [case studies](https://research-methodology.net/research-methods/qualitative-research/case-studies/), games and role playing etc.

The table below illustrates strength and weaknesses associated with qualitative data collection methods and qualitative research:

|  |  |
| --- | --- |
| **Strengths** | **Limitations** |
| Complement and refine quantitative data | Findings usually cannot be generalised to the study population or community |
| Provide more detailed information to explain complex issues | More difficult to analyse; don’t fit neatly in standard categories |
| Multiple methods for gathering data on sensitive subjects | Data collection is usually time consuming |
| Data collection is usually cost efficient |  |

**Differences between Quantitative and Qualitative Research Methods**

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| --- | --- |
| **Quantitative research** | **Qualitative Research** |
| Focuses on testing theories and hypotheses | Focuses on exploring ideas and formulating a theory or hypothesis |
| Is analyzed through math and [statistical analysis](https://www.scribbr.com/statistics/statistical-tests/) | Is analyzed by summarizing, categorizing and interpreting |
| Mainly expressed in numbers, graphs and tables | Mainly expressed in words |
| Requires many respondents | Requires few respondents |
| Closed (multiple choice) questions | Open-ended questions |
| Key terms are: testing, measurement, objectivity, replicability | Key terms are: understanding, context, complexity, subjectivity |
| Examples include; questionnaires with closed-ended questions, methods of correlation and regression analysis and mean, mode and median | Examples include; [interviews](https://research-methodology.net/research-methods/qualitative-research/interviews/), [focus groups](https://research-methodology.net/research-methods/qualitative-research/focus-group/), [observation](https://research-methodology.net/research-methods/qualitative-research/observation/), [case studies](https://research-methodology.net/research-methods/qualitative-research/case-studies/), games and role playing etc. |