

Research Designs

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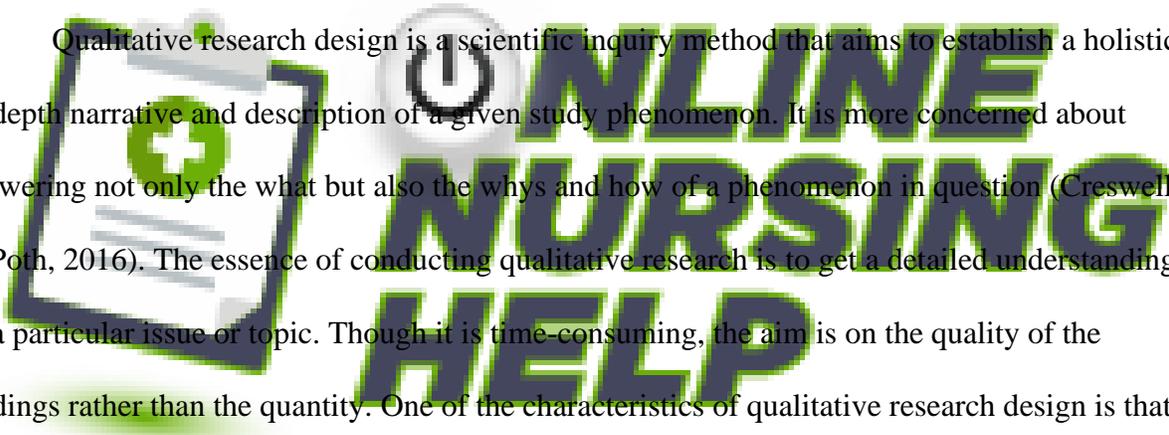
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Research Designs

Whether qualitative or quantitative, research designs provide the framework in which a study follows through the processes of planning, implementation, and analysis of a given phenomenon. The choice of the research design depends on the phenomena under study, the question or hypothesis, and the ability of the researcher to work with either of the designs. However, some studies combine multiple qualitative and quantitative designs in the same study. This paper aims to review the various aspects of quantitative and qualitative research designs using documented research reports of actual studies done in both categories.

Qualitative Research



Qualitative research design is a scientific inquiry method that aims to establish a holistic, in-depth narrative and description of a given study phenomenon. It is more concerned about answering not only the what but also the whys and how of a phenomenon in question (Creswell & Poth, 2016). The essence of conducting qualitative research is to get a detailed understanding of a particular issue or topic. Though it is time-consuming, the aim is on the quality of the findings rather than the quantity. One of the characteristics of qualitative research design is that it is subjective and uses more descriptive data and less numerical manipulations (Creswell & Poth, 2016). The research approach has some flexibility in data collection as the researcher can determine the questions to ask and mostly uses semi-structured methods such as participant observation, focus groups, and interviews. The type of questions asked is open-ended to gather more information (Creswell & Poth, 2016). An excellent example in which a qualitative research approach can be applied in a nursing study is when assessing the challenges that nurses face in a clinical setting; this would require nurses to explain their experiences, and the researcher may also observe how the nurses narrate their ordeals and the environment they work. The study

approach aims to break complex issues by breaking them down into meaningful interpretations that are easy to understand.

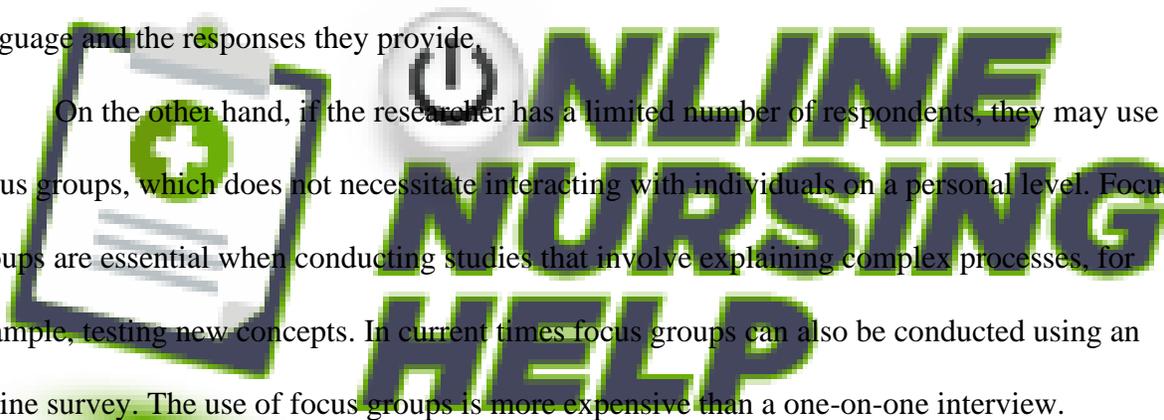
Qualitative research methodologies.

There are different qualitative research methodologies such as focus groups, case study, content analysis, in-depth interviews, and ethnographic research (Creswell & Poth, 2016). One of the common methods is one-on-one interviews, which involves the researcher and the respondent. Their conversations open the opportunity to get in-depth details from the respondent to collect meaningful data. The interview can also be performed on the phone and video calls. Still, face to face is preferable as the researcher has the opportunity to read the respondent's body language and the responses they provide.

On the other hand, if the researcher has a limited number of respondents, they may use focus groups, which does not necessitate interacting with individuals on a personal level. Focus groups are essential when conducting studies that involve explaining complex processes, for example, testing new concepts. In current times focus groups can also be conducted using an online survey. The use of focus groups is more expensive than a one-on-one interview.

Another qualitative research methodology is ethnographic research, an in-depth observation method of studying elements or people in their natural environments. This approach is highly dependent on the researcher's expertise to analyze and infer data since they have to adapt to the target audience's environment to understand their experiences, challenges, and such (Creswell & Poth, 2016). While geographical constraints can be a problem in ethnographic research, it can also be challenging and time-consuming since observation may take hours and even days or years.

Strengths and weaknesses of qualitative research.



The strength of the qualitative research approach is that it allows room for flexibility with open-ended questions; thus, the researcher can access meaningful data that would not be revealed with closed questions (Creswell & Poth, 2016). The approach explains rich and complex phenomena such as experiences of subjects, settings factors affecting the study, and other unusual details that are hard to fathom. The other strength is that based on the research results, the study's focus can be altered. On the other hand, the qualitative research approach is time-consuming, especially with data collection and analysis. Interpretation of data is also subjective as it depends on the expertise of the researcher, which creates room for bias. Lastly, the approach utilizes a small sample that may also be unique from the larger population, making the conclusions of the study hard to generalize.

Application of Qualitative research design in research.

The paper will assess the study by Eslamian, Moeini & Soleimani (2015) that aims to review some of the challenges experienced in nursing continuing education. The study utilizes a qualitative research design that I consider appropriate for this study since it aims to understand the various experiences that nursing practitioners face in continuing education, and that can only be explained descriptively and considering each learner's experience may be different. The study has to meet ethical standards of research of which were considered by seeking permission from the ethics committee of the involved university and providing the goals and the regulations of the study to participants, their right to terminate, and including written consent from participants.

Sampling method and recruitment strategy used.

The sampling method used in the study was purposive and involved only relevant participants to the study, which includes nurses' continuing education, education supervisors, staff nurses, head nurses, and related personnel in continuing education. The study used focus

groups to aid the education supervisor to choose participants eligible for the study, but the study also appreciated available nurses continuing education who voluntarily chose to attend the research. Purposive sampling in this study was appropriate since it saves on time and costs by focusing on relevant participants involved in nursing continuing education. The study used 39 participants, including nurses from 3 hospitals and educational authorities from the University of Medical Sciences in Iran.

Data collection method(s)

The study by Eslamian, Moeini & Soleimani (2015) combined the use of semi-structured individual interviews for 5 participants and a semi-structured interview for the focus groups.

Considering the aim of the study is to understand the challenges nurses face in continuing education, conducting a semi-structured personal interview with participants from the education institution, hospitals, and nursing association supplements the data collected from focus groups with in-depth details. The use of focus groups rather than individual interview for all participants provides an opportunity to save time while gathering diverse information for the same type of questions which is rich for the study. The sessions were recorded using digital voice recorders.

Apart from interviews, the study also used non-official observations and fieldwork notes.

Data analysis method(s)

Data analysis involved coding as the findings were assigned 175 different codes, which raised five themes and eight sub-themes. The study utilized Brown and Clark thematic inductive content analysis for the recorded interview sessions after the information was transcribed word by word. Since the data collected was transformed into words, it was easier to analyze the various themes provided by participants, which is an aspect common with qualitative studies that

aim to understand a phenomenon such as experiences of nurses that cannot be explained numerically.

The rigor of a qualitative project

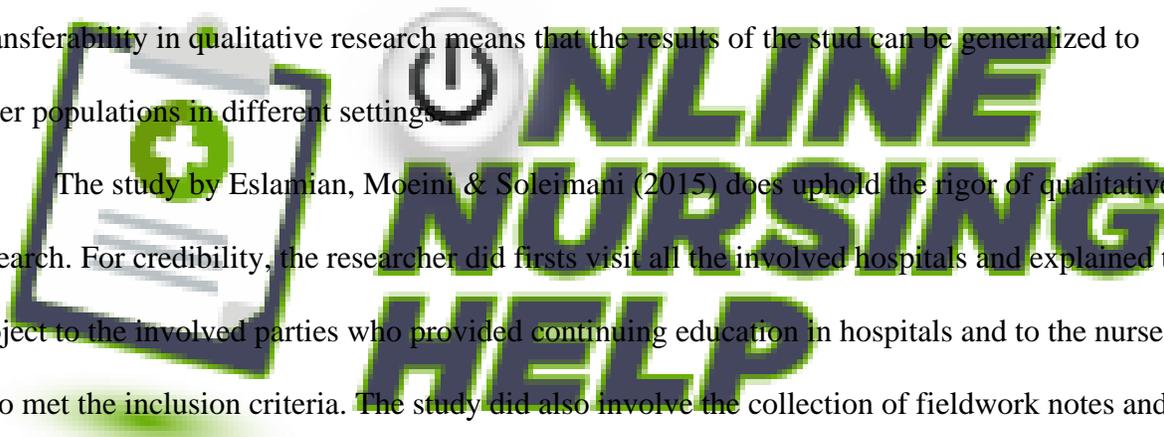
The four criteria in which rigor can be assessed in qualitative research are through credibility, dependability, confirmability, and transferability. Credibility affirms the confidence that the results of the study are true and believable, mostly from the perspective of the participants (Forero et al., 2018). Dependability establishes that the results of a qualitative study are likely to be safe if the research was done again in the same participants (Forero et al., 2018). Confirmability supports that the same results can be confirmed by other researchers.

Transferability in qualitative research means that the results of the study can be generalized to other populations in different settings.

The study by Eslamian, Moeini & Soleimani (2015) does uphold the rigor of qualitative research. For credibility, the researcher did first visit all the involved hospitals and explained the project to the involved parties who provided continuing education in hospitals and to the nurses who met the inclusion criteria. The study did also involve the collection of fieldwork notes and non-official observations. The views of the participants are also quoted throughout the study.

Dependability in the study by Eslamian, Moeini & Soleimani (2015) can be proven by the detailed protocols on how the study was undertaken from preparation, settings, demographics of the participants, data collection methods used, and the analysis and interpretation procedures.

The introduction and literature review of the study has numerous data sources and references that show correlating results the same to those of the study on the challenges in nursing continuing education proving confirmability. The use of purposeful sampling in the study by Eslamian,



Moeini & Soleimani (2015) provides an avenue to generalize the results in other settings proving affirming transferability.

Findings and limitations of the study.

The study did show that the various challenges faced in continuing education among nurses are related to teachers, learners, inadequate facilities, defective evaluation, and educational process-related factors. The study shows that there needs to be adequate planning and frequent assessment of the educational processes in nursing institutions while also considering the issues facing learners and educators to enhance learning and facilitate holistic care. One of the limitations of the study is on the size of the sample used, which is small, and the nature of qualitative research is subjective; thus, the results cannot be generalized to all educational authorities and nurses.

Qualitative research does gather multiple forms of data and breaks them down to develop meaningful inferences, but the trustworthiness of the study is reviewed in the preparation of the study, sampling, data collection processes, and scientific analysis of data. Such processes guarantee the applicability of the study in multiple contexts. Qualitative research is significant in the discipline of nursing, especially to matters that involve human interactions, perceptions, and feelings since some can be complex issues.

Quantitative Research

Quantitative research designs involve rigorous, objective, and systematic strategies to produce and refine new knowledge mostly by quantifying connections between and among variables. The quantitative research design involves the development of a theory whose concepts are broken down into variables, and then the evidence is collected or tested to assess whether the theoretical inferences are supported (Bloomfield & Fisher, 2019). The quantity aspect in

quantitative research design implies that there are amounts involved and are numerically represented as statistical evidence. Quantitative research involves the use of variables mainly dependent, independent, and extraneous variables.

Quantified data are measured using structured research instruments, and sample sizes used in quantitative research are large and representative of the larger population (Bloomfield & Fisher, 2019). Quantitative research design uses defined questions that require objective answers during data collection. There is the use of statistic manipulations with data presented in charts, tables, figures, and among other means that are non-textual. Findings from quantitative research can be used to investigate causal relationships, predict future outcomes, and even generalize concepts (Bloomfield & Fisher, 2019). There are various nursing issues that can be studied using a quantitative research approach, for example, a study to assess patient age and development of diabetes or assessing wound healing and the type of wound dressing where the former is the dependent variable and the latter independent variable.

Quantitative research designs can be broken down into various designs that are either experimental or non-experimental. Observational research design is a non-experimental approach in which the researcher observes study participants assess the relationships between factors and outcomes. Observational research design differs from interventional research design in that it is experimental, and the researcher intercedes to observe the outcomes, for example, in evaluating impacts of treatment on a disease. Experimental and quasi-experimental research designs involve a researcher manipulating some independent variables to measure the outcome (Bloomfield & Fisher, 2019). The difference between experimental and quasi-experimental research is that in the former participants are randomly assigned to the control or treatment group, whereas on the latter, there is no random assignment to participants. In a quasi-experiment, the treatment and



control groups differ completely on how they are treated in the experiment and also other forms that the researcher needs to account for.

Inferential and descriptive statistics

Inferential statistics aims to draw conclusions about a larger population from a sample that accurately reflects the population (Bloomfield & Fisher, 2019). The analysis tools used in inferential statistics include confidence intervals, hypothesis tests, and regression analysis. On the other hand, descriptive statistics involve recording data about a sample to present their properties; in short, it describes a sample. Unlike inferential statistics, descriptive statistics is certain as it explains the samples that are actually measurable and not a population that is inferred. Common tools used in descriptive statistics include measures of central tendencies, dispersion, and skewness.

Assessment of qualitative research report

This section will utilize the study by Zyga et al. (2016), which acknowledges some of the stressors that affect nurses leading to the development of negative emotions and reduced productivity. Some stressors include exposure to stressful events, job requirements, balancing between personal and professional life, and problems with patients. The quantitative, cross-sectional study by Zyga et al., (2016) aims to review some of the strategies that nursing staff adopt to cope with stressful situations based on job and sociodemographic characteristics

Blinding and Randomization

There are many factors that may affect a study if not controlled, and researchers need to account for such influences. To deter bias in clinical trials, researchers use blinding and randomization. Blinding ensures the participants and the researcher are unaware of the medication that the study takes to avoid biased outcomes. On the other hand, randomization ensures equality

among the treatment groups and avoids biases that may be created if researchers decide which subjects get what treatment. In the study by Zyga et al. (2016), the study uses both blinding and randomizations. Blinding was implemented on the ways of coping questionnaires as all the nurses involved had no idea of what to expect in the study. On the other hand, randomization was used in the selection of the participants as all nurses in the Peloponnese region were included regardless of their education level, gender, job position, or nursing department.

Ethical issues regarding the confidentiality of the participants' identity and information were highly maintained, including anonymity of the study results, which were strictly for research. The study did have ethical approval from the scientific and Ethical Committees of all involved hospitals.

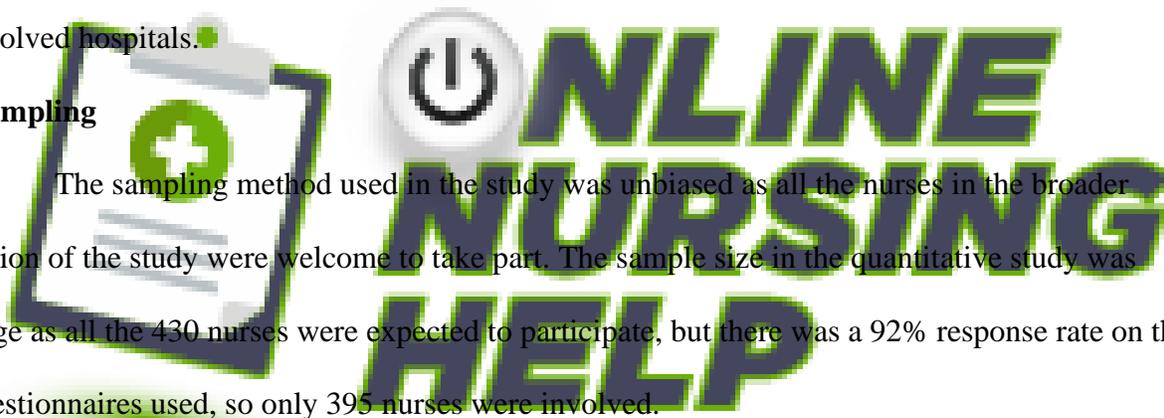
Sampling

The sampling method used in the study was unbiased as all the nurses in the broader region of the study were welcome to take part. The sample size in the quantitative study was large as all the 430 nurses were expected to participate, but there was a 92% response rate on the questionnaires used, so only 395 nurses were involved.

Data collection

Data collection involved the use of the Greek version of the Ways of Coping Questionnaire that had 38 items. Each item had a four-point Likert Scale rating from 0-3 representing never, rarely, sometimes, and often respectively. Higher scores indicate that the ways of coping strategy were highly preferred. The questionnaire did also collect educational, job characteristics, and sociodemographic data of the participants.

Validity and Reliability

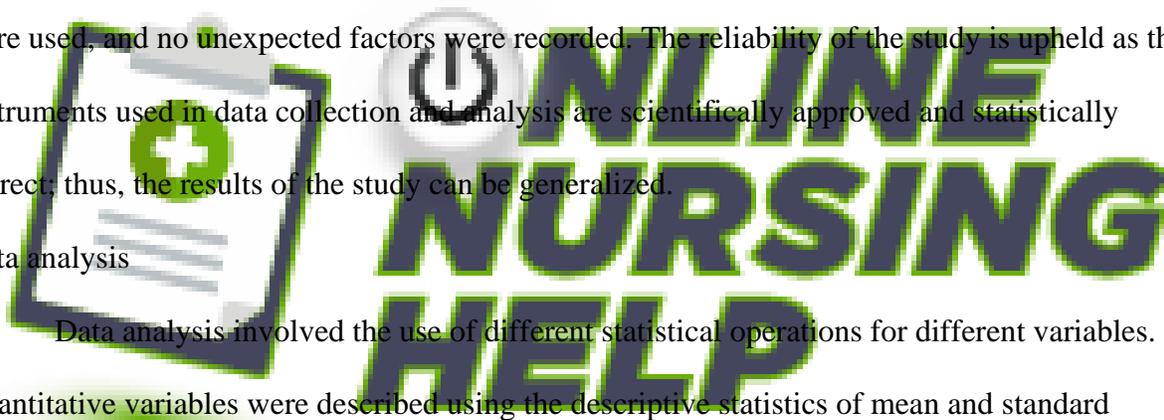


There are two forms of validity in quantitative research, internal and external validity. Internal validity is observed when the recordings of the independent variable affect the dependent variable directly without interruption from extraneous factors. Internal validity is affirmed by the proper implementation of the research methodology. External validity, on the other hand, represents the extent to which results of a study can be generalized in different settings. Errors in external validity can occur if mistakes are made during sampling and testing procedures when the heterogeneous characteristics of the population are included. The study by Zyga et al. upholds validity as the methodology used is properly implemented, there were no mortalities recorded in participants, no measuring variables were changed, no extreme scores were used, and no unexpected factors were recorded. The reliability of the study is upheld as the instruments used in data collection and analysis are scientifically approved and statistically correct; thus, the results of the study can be generalized.

Data analysis

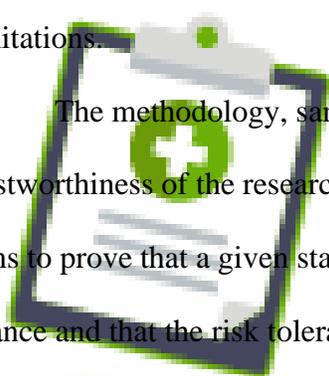
Data analysis involved the use of different statistical operations for different variables. Quantitative variables were described using the descriptive statistics of mean and standard deviation. The demographic characteristics and ways of coping strategies were described using absolute and relative frequencies. The difference between two independent groups was assessed using the parametric t-test and the non-parametric Mann-Whitney test. Correlation among quantitative variables was determined by the Pearson's r. Major statistical analysis was manipulated using the IBM SPSS Statistics v22 software. The study used a level of significance of 5%.

Findings and limitations



Out of the 395 nurses that took part in the study, nurses showed varied ways of coping with stress. Experienced nurses, postgraduate nurses, and head nurses coped with stress by trying to solve the problem. Nurses in ICU apply coping strategies of denial. While marital status and age of nurses had no significant impact on the choice of coping strategies, female nurses adopted strategies that focused on emotions. The study is resourceful to nursing as it provides an insight into ways in which the physical and mental health of nurses can be promoted, for example, by training them in management of anxiety or developing psychological support programs since nursing remains a challenging profession, not for the faint-hearted. Data collection on stress, its identification, effects, as well as coping by individuals, is crucial. The study has no outlined limitations.

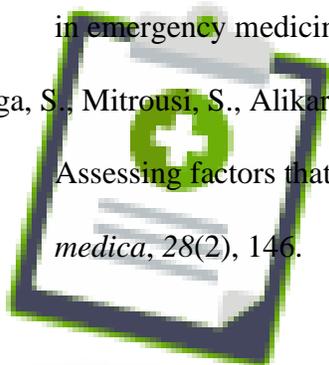
The methodology, sampling, and testing procedures that the study use upholds the trustworthiness of the research and its applicability in multiple contexts. Statistical significance aims to prove that a given statistic is reliable. It shows that the units used are not due to random chance and that the risk tolerated and confidence level is at the stated level. For example, the Study by Zyga et al. (2016) has a 5% significant level that means that the study is 95% to be real, and it may have a 5% chance of being wrong. Statistical significance is tested using a probability value of a given effect from the sample used.



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