

Qualitative Methods in Health Care Research

Abstract

Healthcare research is a systematic inquiry intended to generate robust evidence about important issues in the fields of medicine and healthcare. Qualitative research has ample possibilities within the arena of healthcare research. This article aims to inform healthcare professionals regarding qualitative research, its significance, and applicability in the field of healthcare. A wide variety of phenomena that cannot be explained using the quantitative approach can be explored and conveyed using a qualitative method. The major types of qualitative research designs are narrative research, phenomenological research, grounded theory research, ethnographic research, historical research, and case study research. The greatest strength of the qualitative research approach lies in the richness and depth of the healthcare exploration and description it makes. In health research, these methods are considered as the most humanistic and person-centered way of discovering and uncovering thoughts and actions of human beings.

Keywords: *Ethnography, grounded theory, qualitative research, research design*

Introduction

Healthcare research is a systematic inquiry intended to generate trustworthy evidence about issues in the field of medicine and healthcare. The three principal approaches to health research are the quantitative, the qualitative, and the mixed methods approach. The quantitative research method uses data, which are measures of values and counts and are often described using statistical methods which in turn aids the researcher to draw inferences. Qualitative research incorporates the recording, interpreting, and analyzing of non-numeric data with an attempt to uncover the deeper meanings of human experiences and behaviors. Mixed methods research, the third methodological approach, involves collection and analysis of both qualitative and quantitative information with an objective to solve different but related questions, or at times the same questions.^[1,2]

In healthcare, qualitative research is widely used to understand patterns of health behaviors, describe lived experiences, develop behavioral theories, explore healthcare needs, and design interventions.^[1-3] Because of its ample applications in healthcare, there has been a tremendous increase in the number of

health research studies undertaken using qualitative methodology.^[4,5] This article discusses qualitative research methods, their significance, and applicability in the arena of healthcare.

Qualitative Research

Diverse academic and non-academic disciplines utilize qualitative research as a method of inquiry to understand human behavior and experiences.^[6,7] According to Munhall, "Qualitative research involves broadly stated questions about human experiences and realities, studied through sustained contact with the individual in their natural environments and producing rich, descriptive data that will help us to understand those individual's experiences."^[8]

Significance of Qualitative Research

The qualitative method of inquiry examines the 'how' and 'why' of decision making, rather than the 'when,' 'what,' and 'where.'^[7] Unlike quantitative methods, the objective of qualitative inquiry is to explore, narrate, and explain the phenomena and make sense of the complex reality. Health interventions, explanatory health models, and medical-social theories could be developed as an outcome of qualitative research.^[9] Understanding the richness and complexity of human behavior is the crux of qualitative research.

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Differences between Quantitative and Qualitative Research

The quantitative and qualitative forms of inquiry vary based on their underlying objectives. They are in no way opposed to each other; instead, these two methods are like two sides of a coin. The critical differences between quantitative and qualitative research are summarized in Table 1.^[1,10,11]

Qualitative Research Questions and Purpose Statements

Qualitative questions are exploratory and are open-ended. A well-formulated study question forms the basis for developing a protocol, guides the selection of design, and data collection methods. Qualitative research questions generally involve two parts, a central question and related subquestions. The central question is directed towards the primary phenomenon under study, whereas the subquestions explore the subareas of focus. It is advised not to have more than five to seven subquestions. A commonly used framework for designing a qualitative research question is the 'PCO framework' wherein, P stands for the population under study, C stands for the context of exploration, and O stands for the outcome/s of interest.^[12] The PCO framework guides researchers in crafting a focused study question.

Example: *In the question, "What are the experiences of mothers on parenting children with Thalassaemia?", the population is "mothers of children with Thalassaemia," the context is "parenting children with Thalassaemia," and the outcome of interest is "experiences."*

The purpose statement specifies the broad focus of the study, identifies the approach, and provides direction for the overall goal of the study. The major components of a purpose statement include the central phenomenon under investigation, the study design and the population of interest. Qualitative research does not require a-priori hypothesis.^[13-15]

Example: *Borimnejad et al. undertook a qualitative research on the lived experiences of women suffering*

from vitiligo. The purpose of this study was, "to explore lived experiences of women suffering from vitiligo using a hermeneutic phenomenological approach."^[16]

Review of the Literature

In quantitative research, the researchers do an extensive review of scientific literature prior to the commencement of the study. However, in qualitative research, only a minimal literature search is conducted at the beginning of the study. This is to ensure that the researcher is not influenced by the existing understanding of the phenomenon under the study. The minimal literature review will help the researchers to avoid the conceptual pollution of the phenomenon being studied. Nonetheless, an extensive review of the literature is conducted after data collection and analysis.^[15]

Reflexivity

Reflexivity refers to critical self-appraisal about one's own biases, values, preferences, and preconceptions about the phenomenon under investigation. Maintaining a reflexive diary/journal is a widely recognized way to foster reflexivity. According to Creswell, "Reflexivity increases the credibility of the study by enhancing more neutral interpretations."^[7]

Types of Qualitative Research Designs

The qualitative research approach encompasses a wide array of research designs. The words such as types, traditions, designs, strategies of inquiry, varieties, and methods are used interchangeably. The major types of qualitative research designs are narrative research, phenomenological research, grounded theory research, ethnographic research, historical research, and case study research.^[1,7,10]

Narrative research

Narrative research focuses on exploring the life of an individual and is ideally suited to tell the stories of individual experiences.^[17] The purpose of narrative research is to utilize 'story telling' as a method in communicating

Table 1: Differences between quantitative and qualitative research

Areas	Quantitative Research	Qualitative Research
Nature of reality	Assumes there is a single reality.	Assumes existence of dynamic and multiple reality.
Goal	Test and confirm hypotheses.	Explore and understand phenomena.
Data collection methods	Highly structured methods like questionnaires, inventories and scales.	Semi structured like in-depth interviews, observations and focus group discussions.
Design	Predetermined and rigid design.	Flexible and emergent design.
Reasoning	Deductive process to test the hypothesis.	Primarily inductive to develop the theory or hypothesis.
Focus	Concerned with the outcomes and prediction of the causal relationships.	Concerned primarily with process, rather than outcomes or products.
Sampling	Rely largely on random sampling methods.	Based on purposive sampling methods.
Sample size determination	Involves a-priori sample size calculation.	Collect data until data saturation is achieved.
Sample size	Relatively large.	Small sample size but studied in-depth.
Data analysis	Variable based and use of statistical or mathematical methods.	Case based and use non statistical descriptive or interpretive methods.

an individual's experience to a larger audience.^[18] The roots of narrative inquiry extend to humanities including anthropology, literature, psychology, education, history, and sociology. Narrative research encompasses the study of individual experiences and learning the significance of those experiences. The data collection procedures include mainly interviews, field notes, letters, photographs, diaries, and documents collected from one or more individuals. Data analysis involves the analysis of the stories or experiences through "re-storying of stories" and developing themes usually in chronological order of events. Rolls and Payne argued that narrative research is a valuable approach in health care research, to gain deeper insight into patient's experiences.^[19]

Example: Karlsson et al. undertook a narrative inquiry to "explore how people with Alzheimer's disease present their life story." Data were collected from nine participants. They were asked to describe about their life experiences from childhood to adulthood, then to current life and their views about the future life.^[20]

Phenomenological research

Phenomenology is a philosophical tradition developed by German philosopher Edmond Husserl. His student Martin Heidegger did further developments in this methodology. It defines the 'essence' of individual's experiences regarding a certain phenomenon.^[1] The methodology has its origin from philosophy, psychology, and education. The purpose of qualitative research is to understand the people's everyday life experiences and reduce it into the central meaning or the 'essence of the experience'.^[21,22] The unit of analysis of phenomenology is the individuals who have had similar experiences of the phenomenon. Interviews with individuals are mainly considered for the data collection, though, documents and observations are also useful. Data analysis includes identification of significant meaning elements, textural description (what was experienced), structural description (how was it experienced), and description of 'essence' of experience.^[1,7,21] The phenomenological approach is further divided into descriptive and interpretive phenomenology. Descriptive phenomenology focuses on the understanding of the essence of experiences and is best suited in situations that need to describe the lived phenomenon. Hermeneutic phenomenology or Interpretive phenomenology moves beyond the description to uncover the meanings that are not explicitly evident. The researcher tries to interpret the phenomenon, based on their judgment rather than just describing it.^[7,21-24]

Example: A phenomenological study conducted by Cornelio et al. aimed at describing the lived experiences of mothers in parenting children with leukemia. Data from ten mothers were collected using in-depth semi-structured interviews and were analyzed using Husserl's method of phenomenology. Themes such as "pivotal moment in life", "the experience of being with a seriously ill child",

"having to keep distance with the relatives", "overcoming the financial and social commitments", "responding to challenges", "experience of faith as being key to survival", "health concerns of the present and future", and "optimism" were derived. The researchers reported the essence of the study as "chronic illness such as leukemia in children results in a negative impact on the child and on the mother."^[25]

Grounded Theory Research

Grounded theory has its base in sociology and propagated by two sociologists, Barney Glaser, and Anselm Strauss.^[26] The primary purpose of grounded theory is to discover or generate theory in the context of the social process being studied. The major difference between grounded theory and other approaches lies in its emphasis on theory generation and development. The name grounded theory comes from its ability to induce a theory grounded in the reality of study participants.^[7,27] Data collection in grounded theory research involves recording interviews from many individuals until data saturation. Constant comparative analysis, theoretical sampling, theoretical coding, and theoretical saturation are unique features of grounded theory research.^[26-28] Data analysis includes analyzing data through 'open coding,' 'axial coding,' and 'selective coding.'^[1,7] Open coding is the first level of abstraction, and it refers to the creation of a broad initial range of categories, axial coding is the procedure of understanding connections between the open codes, whereas selective coding relates to the process of connecting the axial codes to formulate a theory.^[1,7] Results of the grounded theory analysis are supplemented with a visual representation of major constructs usually in the form of flow charts or framework diagrams. Quotations from the participants are used in a supportive capacity to substantiate the findings. Strauss and Corbin highlights that "the value of the grounded theory lies not only in its ability to generate a theory but also to ground that theory in the data."^[27]

Example: Williams et al. conducted a grounded theory research to explore the nature of relationship between the sense of self and the eating disorders. Data were collected from 11 women with a lifetime history of Anorexia Nervosa and were analyzed using the grounded theory methodology. Analysis led to the development of a theoretical framework on the nature of the relationship between the self and Anorexia Nervosa.^[29]

Ethnographic research

Ethnography has its base in anthropology, where the anthropologists used it for understanding the culture-specific knowledge and behaviors. In health sciences research, ethnography focuses on narrating and interpreting the health behaviors of a culture-sharing group. 'Culture-sharing group' in an ethnography represents any 'group of people who share common

meanings, customs or experiences.’ In health research, it could be a group of physicians working in rural care, a group of medical students, or it could be a group of patients who receive home-based rehabilitation. To understand the cultural patterns, researchers primarily observe the individuals or group of individuals for a prolonged period of time.^[1,7,30] The scope of ethnography can be broad or narrow depending on the aim. The study of more general cultural groups is termed as macro-ethnography, whereas micro-ethnography focuses on more narrowly defined cultures. Ethnography is usually conducted in a single setting. Ethnographers collect data using a variety of methods such as observation, interviews, audio-video records, and document reviews. A written report includes a detailed description of the culture sharing group with emic and etic perspectives. When the researcher reports the views of the participants it is called emic perspectives and when the researcher reports his or her views about the culture, the term is called etic.^[7]

Example: The aim of the ethnographic study by LeBaron et al. was to explore the barriers to opioid availability and cancer pain management in India. The researchers collected data from fifty-nine participants using in-depth semi-structured interviews, participant observation, and document review. The researchers identified significant barriers by open coding and thematic analysis of the formal interview.^[31]

Historical research

Historical research is the “systematic collection, critical evaluation, and interpretation of historical evidence”.^[1] The purpose of historical research is to gain insights from the past and involves interpreting past events in the light of the present. The data for historical research are usually collected from primary and secondary sources. The primary source mainly includes diaries, first hand information, and writings. The secondary sources are textbooks, newspapers, second or third-hand accounts of historical events and medical/legal documents. The data gathered from these various sources are synthesized and reported as biographical narratives or developmental perspectives in chronological order. The ideas are interpreted in terms of the historical context and significance. The written report describes ‘what happened’, ‘how it happened’, ‘why it happened’, and its significance and implications to current clinical practice.^[1,10]

Example: Lubold (2019) analyzed the breastfeeding trends in three countries (Sweden, Ireland, and the United States) using a historical qualitative method. Through analysis of historical data, the researcher found that strong family policies, adherence to international recommendations and adoption of baby-friendly hospital initiative could greatly enhance the breastfeeding rates.^[32]

Case study research

Case study research focuses on the description and in-depth analysis of the case(s) or issues illustrated by the case(s). The design has its origin from psychology, law, and medicine. Case studies are best suited for the understanding of case(s), thus reducing the unit of analysis into studying an event, a program, an activity or an illness. Observations, one to one interviews, artifacts, and documents are used for collecting the data, and the analysis is done through the description of the case. From this, themes and cross-case themes are derived. A written case study report includes a detailed description of one or more cases.^[7,10]

Example: Perceptions of poststroke sexuality in a woman of childbearing age was explored using a qualitative case study approach by Beal and Millenbrunch. Semi structured interview was conducted with a 36- year mother of two children with a history of Acute ischemic stroke. The data were analyzed using an inductive approach. The authors concluded that “stroke during childbearing years may affect a woman’s perception of herself as a sexual being and her ability to carry out gender roles”.^[33]

Sampling in Qualitative Research

Qualitative researchers widely use non-probability sampling techniques such as purposive sampling, convenience sampling, quota sampling, snowball sampling, homogeneous sampling, maximum variation sampling, extreme (deviant) case sampling, typical case sampling, and intensity sampling. The selection of a sampling technique depends on the nature and needs of the study.^[34-40] The four widely used sampling techniques are convenience sampling, purposive sampling, snowball sampling, and intensity sampling.

Convenience sampling

It is otherwise called accidental sampling, where the researchers collect data from the subjects who are selected based on accessibility, geographical proximity, ease, speed, and or low cost.^[34] Convenience sampling offers a significant benefit of convenience but often accompanies the issues of sample representation.

Purposive sampling

Purposive or purposeful sampling is a widely used sampling technique.^[35] It involves identifying a population based on already established sampling criteria and then selecting subjects who fulfill that criteria to increase the credibility. However, choosing information-rich cases is the key to determine the power and logic of purposive sampling in a qualitative study.^[1]

Snowball sampling

The method is also known as ‘chain referral sampling’ or ‘network sampling.’ The sampling starts by having a few initial participants, and the researcher relies on these

early participants to identify additional study participants. It is best adopted when the researcher wishes to study the stigmatized group, or in cases, where findings of participants are likely to be difficult by ordinary means. Respondent ridden sampling is an improvised version of snowball sampling used to find out the participant from a hard-to-find or hard-to-study population.^[37-38]

Intensity sampling

The process of identifying information-rich cases that manifest the phenomenon of interest is referred to as intensity sampling. It requires prior information, and considerable judgment about the phenomenon of interest and the researcher should do some preliminary investigations to determine the nature of the variation. Intensity sampling will be done once the researcher identifies the variation across the cases (extreme, average and intense) and picks the intense cases from them.^[40]

Deciding the Sample Size

A-priori sample size calculation is not undertaken in the case of qualitative research. Researchers collect the data from as many participants as possible until they reach the point of data saturation. Data saturation or the point of redundancy is the stage where the researcher no longer sees or hears any new information. Data saturation gives the idea that the researcher has captured all possible information about the phenomenon of interest. Since no further information is being uncovered as redundancy is achieved, at this point the data collection can be stopped. The objective here is to get an overall picture of the chronicle of the phenomenon under the study rather than generalization.^[1,7,41]

Data Collection in Qualitative Research

The various strategies used for data collection in qualitative research includes in-depth interviews (individual or group), focus group discussions (FGDs), participant observation, narrative life history, document analysis, audio materials, videos or video footage, text analysis, and simple observation. Among all these, the three popular methods are the FGDs, one to one in-depth interviews and the participant observation.

FGDs are useful in eliciting data from a group of individuals. They are normally built around a specific topic and are considered as the best approach to gather data on an entire range of responses to a topic.^[42] Group size in an FGD ranges from 6 to 12. Depending upon the nature of participants, FGDs could be homogeneous or heterogeneous.^[1,14] One to one in-depth interviews are best suited to obtain individuals' life histories, lived experiences, perceptions, and views, particularly while exporting topics of sensitive nature. In-depth interviews can be structured, unstructured, or semi-structured. However, semi-structured interviews are widely used in qualitative research. Participant observations are

suitable for gathering data regarding naturally occurring behaviors.^[1]

Data Analysis in Qualitative Research

Various strategies are employed by researchers to analyze data in qualitative research. Data analytic strategies differ according to the type of inquiry. A general content analysis approach is described herewith. Data analysis begins by transcription of the interview data. The researcher carefully reads data and gets a sense of the whole. Once the researcher is familiarized with the data, the researcher strives to identify small meaning units called the 'codes.' The codes are then grouped based on their shared concepts to form the primary categories. Based on the relationship between the primary categories, they are then clustered into secondary categories. The next step involves the identification of themes and interpretation to make meaning out of data. In the results section of the manuscript, the researcher describes the key findings/themes that emerged. The themes can be supported by participants' quotes. The analytical framework used should be explained in sufficient detail, and the analytic framework must be well referenced. The study findings are usually represented in a schematic form for better conceptualization.^[1,7] Even though the overall analytical process remains the same across different qualitative designs, each design such as phenomenology, ethnography, and grounded theory has design specific analytical procedures, the details of which are out of the scope of this article.

Computer-Assisted Qualitative Data Analysis Software (CAQDAS)

Until recently, qualitative analysis was done either manually or with the help of a spreadsheet application. Currently, there are various software programs available which aid researchers to manage qualitative data. CAQDAS is basically data management tools and cannot analyze the qualitative data as it lacks the ability to think, reflect, and conceptualize. Nonetheless, CAQDAS helps researchers to manage, shape, and make sense of unstructured information. Open Code, MAXQDA, NVivo, Atlas.ti, and Hyper Research are some of the widely used qualitative data analysis software.^[14,43]

Reporting Guidelines

Consolidated Criteria for Reporting Qualitative Research (COREQ) is the widely used reporting guideline for qualitative research. This 32-item checklist assists researchers in reporting all the major aspects related to the study. The three major domains of COREQ are the 'research team and reflexivity', 'study design', and 'analysis and findings'.^[44,45]

Critical Appraisal of Qualitative Research

Various scales are available to critical appraisal of qualitative research. The widely used one is the Critical

Appraisal Skills Program (CASP) Qualitative Checklist developed by CASP network, UK. This 10-item checklist evaluates the quality of the study under areas such as aims, methodology, research design, ethical considerations, data collection, data analysis, and findings.^[46]

Ethical Issues in Qualitative Research

A qualitative study must be undertaken by grounding it in the principles of bioethics such as beneficence, non-maleficence, autonomy, and justice. Protecting the participants is of utmost importance, and the greatest care has to be taken while collecting data from a vulnerable research population. The researcher must respect individuals, families, and communities and must make sure that the participants are not identifiable by their quotations that the researchers include when publishing the data. Consent for audio/video recordings must be obtained. Approval to be in FGDs must be obtained from the participants. Researchers must ensure the confidentiality and anonymity of the transcripts/audio-video records/photographs/other data collected as a part of the study. The researchers must confirm their role as advocates and proceed in the best interest of all participants.^[42,47,48]

Rigor in Qualitative Research

The demonstration of rigor or quality in the conduct of the study is essential for every research method. However, the criteria used to evaluate the rigor of quantitative studies are not appropriate for qualitative methods. Lincoln and Guba (1985) first outlined the criteria for evaluating the qualitative research often referred to as “standards of trustworthiness of qualitative research”.^[49] The four components of the criteria are credibility, transferability, dependability, and confirmability.

Credibility refers to confidence in the ‘truth value’ of the data and its interpretation. It is used to establish that the findings are true, credible and believable. Credibility is similar to the internal validity in quantitative research.^[1,50,51] The second criterion to establish the trustworthiness of the qualitative research is transferability, Transferability refers to the degree to which the qualitative results are applicability to other settings, population or contexts. This is analogous to the external validity in quantitative research.^[1,50,51] Lincoln and Guba recommend authors provide enough details so that the users will be able to evaluate the applicability of data in other contexts.^[49] The criterion of dependability refers to the assumption of repeatability or replicability of the study findings and is similar to that of reliability in quantitative research. The dependability question is ‘Whether the study findings be repeated of the study is replicated with the same (similar) cohort of participants, data coders, and context?’^[1,50,51] Confirmability, the fourth criteria is analogous to the objectivity of the study and refers the degree to which the

study findings could be confirmed or corroborated by others. To ensure confirmability the data should directly reflect the participants’ experiences and not the bias, motivations, or imaginations of the inquirer.^[1,50,51] Qualitative researchers should ensure that the study is conducted with enough rigor and should report the measures undertaken to enhance the trustworthiness of the study.

Conclusions

Qualitative research studies are being widely acknowledged and recognized in health care practice. This overview illustrates various qualitative methods and shows how these methods can be used to generate evidence that informs clinical practice. Qualitative research helps to understand the patterns of health behaviors, describe illness experiences, design health interventions, and develop healthcare theories. The ultimate strength of the qualitative research approach lies in the richness of the data and the descriptions and depth of exploration it makes. Hence, qualitative methods are considered as the most humanistic and person-centered way of discovering and uncovering thoughts and actions of human beings.

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