SPECIAL ARTICLE: EDUCATION

Elaboration of a research project using qualitative methodology[☆]

Elaboración de un proyecto de investigación con metodología cualitativa

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Introduction

Qualitative research can be defined as a systematic and subjective approach to describe or understand life experiences and make sense of them. This type of methodology is used for different purposes: to gain an overall understanding of a phenomenon or situation; to study the depth, richness, and complexity of phenomena; to create emergent or data-driven theories inductively; to understand human experiences, processes, or group culture and how these are experienced by the people who shape them. It focuses, therefore, on the natural settings where humans interact and communicate, and on the influence of the surrounding context of events or actions. It also considers the values that influence problem analysis and the construction of theories and models.[1]

The individuals and groups studied are also actively involved throughout the study, and can even review and discuss the final report. Information is obtained from the participants' words, from which codes or units of analysis are identified and grouped into subcategories and categories that will produce the major themes emerging from the phenomenon studied.

A research project consists of describing what it will investigate, justifying it, establishing its theoretical and conceptual basis, methodological components and the human and material resources required to conduct the research. Table 1 shows the structure of a research project with qualitative methodology as an example, although the project's presentation must conform to the regulations of the entity to which it is submitted.

Structure of a research project with qualitative methodology

Title

The title should cover the subject (what), the participants (who), the context (where) and the method (how) and not exceed 15 words.[2] For example, a title could be ''The expe-

Table 1 Structure of a quantitative research project.

1. Title
2. Research team
3. Abstract and keywords
4. Introduction
   - Background and current status of the subject
   - Conceptual or theoretical framework (if applicable)
   - Justification for the study
   - Research question
5. References
6. Objectives
7. Methodology
   - Paradigmatic position
   - Study method
   - Scope of the study
   - Participants
   - information gathering techniques
   - Data analysis
8. Criteria of quality and rigour
9. Ethical considerations
10. Limitations and difficulties
11. Applicability and practical usefulness
12. Timeline
13. Budget
14. Annexes

rience of the mechanically ventilated patient admitted to a critical care unit: a phenomenological study''. In short, it is important to include brief, precise and informative terms that are closely related to the content of the project.[3]

Research team

The criteria to be met by each member of the research team for them to be considered authors of the project are to have made substantial contributions to the conception and design, drafting, or critically reviewing the content, and final approval of the version submitted.[4,5]

Abstract and keywords

As a rule, an abstract contains between 250–350 words. The content can be presented in structured or unstructured form, and in some cases the number of words will depend on this. It should contain a general objective, methodology (scope of study, participants, information gathering techniques, type of analysis), ethical considerations and applicability, and practical usefulness as its basic sections.

The abstract is accompanied by 4–7 keywords. These are terms that define the core subject of the study. They should correspond to a controlled dictionary of terms such as DeCS (Descriptors in Health Sciences: http://decs.bvs.br/E/homepagee.htm) and MeSH (Medical Subject Headings de la U.S. National Library of Medicine: https://www.ncbi.nlm.nih.gov/mesh).[2]

Introduction

The drafting of this section takes the conceptual form of an inverted pyramid, i.e., from the most general to the most specific and ending with the research question. It includes 4 different parts:

- Background and current status of the subject: this comprises the contextualisation of the study subject (definition of concepts) and presentation of the results derived from research relating to the subject of the study.
- Conceptual or theoretical framework: this section will be present if a theory is explicitly used to guide the research process. For example, if the aim is to understand the experience of the transfer of the critical patient from the intensive care unit (ICU) to the hospital ward, we could use the literature review as a conceptual or theoretical framework, i.e., the state-of-the-art on the question to be studied, or Meleis' Transitions Theory, which should be explained in this section.
- Justification for the study: this sets out the need for and importance of researching the chosen subject based on existing knowledge.
- Research question: this is the core that underpins the study, it is the backbone that supports and guides the process, it gives coherence and consistency to the methodological design, to the collection of data, and to the analysis and interpretation of the data.[6] Thus, the research question must be consistent with the methodology proposed in the study, and the question must reflect the investigator's research paradigm.[7]

References

This section can be included after the introduction section or at the end of the project. In the first case, normally associated with the standard forms of the funding bodies, the aim is to present the most relevant and current references (<5 years) and should not exceed one page in length. In the second case, the references are presented at the end of the document (before the annexes section) as in a final degree, master's degree, or doctoral thesis.

The references must be well cited in the text, and correctly cited in the list of references, following the rules proposed by the American Psychological Association (https://www.apa.org/index) for qualitative research.

Objectives

The general objective directly relates to the research question, and the specific objectives that report the dimensions of the phenomenon to be studied are drawn from it. These should be written in the infinitive (to understand, to identify, to describe, to explore...), they should be clear and achievable, and their wording should include what, who and how. For example, if a study related to families in the ICU is proposed, and the research question is ''What is the experience of the families of patients admitted to the ICU?'', the general objective could be to understand the experience of the families of patients admitted to the ICU.

Table 2 Paradigm dimensions.

Paradigm	Constructivism	Critical theory	Participatory
Ontological dimension	Relativism: local and specific constructed and co-constructed realities	Historical realism: virtual reality shaped by social, political, economic, ethnic and gender values; crystallised in time	Participatory reality: subjective-subjective reality; co-created by the mind and the given universe
Epistemological dimension	Transactional/subjectivist: findings created	Transactional/subjectivist: value-mediated findings	Critical subjectivity in participatory transaction with the universe; extended epistemology of experiential, propositional and practical knowledge; co-created findings
Methodological dimension	Hermeneutic, dialectical	Dialogical, dialectical	Political participation in collaborative research-action; primacy of the practical; use of language based on a shared experiential context

Source: Guba and Lincoln.[8]

Methodology

This section includes the paradigmatic position (it can also come at the end of the introduction), the method of study, the scope of the study, the participants, the information gathering techniques and the data analysis.

Paradigmatic position

The investigator's paradigmatic position refers to the set of beliefs and values that enable her to identify, structure, interpret and solve problems in a particular way. Therefore, it is essential that the researcher is clear about her paradigmatic position in relation to the phenomenon, and that she states it in the research project, which enables us to understand the perspective from which the phenomenon will be studied. It will also help the investigator to choose the method, techniques and analysis that are most consistent with the research question. Table 2 shows the different dimensions of the paradigms relating to qualitative research in simplified form: constructivism, critical theory and participatory.

Study method

The choice of study method is determined by the paradigmatic position, the research question, and the research objective. Phenomenology, grounded theory, ethnography, and participatory action research are the four methods basically used in qualitative research in the health sciences. Table 3 shows each of these methods associated with the objective and the associated information gathering techniques.

Scope of the study

The place or places (settings) where the study is to be carried out, and the period it will last, must be specified. A thorough description of the setting is essential to understand people's experiences in relation to a given phenomenon (reality is always context-dependent), and to meet certain criteria of rigour[12] such as transferability (extent of application of the results to other cultural, social, temporal, and spatial contexts), and dependability (replicability).

Participants

This section defines the study population, sample, sampling, and recruitment of participants.

The study population is a subset of the target population defined by the selection criteria, and accessible to the investigator because it meets certain geographical and temporal characteristics.[13] It is, therefore, the population that is really intended to be studied. An example of a population would be all patients admitted to intensive care from January to December 2020.

The sample comprises the participants or study subjects (individuals, groups, communities) that represent the social structure where the phenomenon occurs. Therefore, several characteristics will determine the sample. Following the above example, the sample would be conscious and oriented critically ill patients (Glasgow 15), with a minimum stay of 72 h, and between the ages of 65 and 80 years.

Sampling is non-probabilistic, tentative (it can be adjusted at any time during the study) and is developed according to the information provided by the participants. Therefore, it is usual for the project to consider a certain type of sampling, such as accidental or convenience sampling, and for it to be modified during the research to theoretical or purposive sampling.

The types of non-probability sampling are[14]:

- Convenience or accidental: all individuals who meet the sample characteristics, considering their presence in a specific place and at a specific time.
- Avalanche or snowball: in difficult-to-access populations, from a local group or individual, these lead to others with the same characteristics.
- Theoretical or purposive: this is conducted by considering profiles defined a priori that can be modified throughout

Table 3 Relationship between methods, objectives and information gathering techniques.

Methods	Objective	Techniques
Phenomenology	To describe a lived experience from people who have experienced it or to interpret the meanings that individuals attach to their experience	In-depth interviews, reflective diaries of participants, field diary
Grounded theory	To generate theoretical constructs or emergent conceptualisations to explain a phenomenon and understand the nature of thinking, behaviours, and negotiations in different environmental circumstances	Individual and group interviews, participant observation, field diary.
Ethnography	To describe and explain behaviour patterns, beliefs, values, ways of life, customs, ways of decision-making of a group of people (cultural group)	In-depth interviews, participant observation, documents (maps, social diagrams, …), field diary
Participatory action research	To produce individual and collective changes, understand practices or improve a given situation, and emancipate, liberate, or transform people, groups, or communities in situations of vulnerability	Individual and group interviews, observation, documents (records, reports…), field diary

Source: Morse[10,11] and Delgado-Hito.[9]

Table 4 Characteristics of the techniques and the field diary.

Techniques	Characteristics
In-depth interview	A non-directed interview modality in which flexibility and the intention to examine in depth some aspect of the respondent's lived experience prevail. The essential aspects for optimally conducting the interview are the type of interaction established between interviewer-respondent, the use of different strategies to obtain information such as the funnel technique, reflection, structuring, interpretation, or resumption and, finally, ensuring control by the interviewer by identifying idealisations, leaks, or inconsistencies in the respondent's discourse
Group interview	A carefully planned and designed conversation to gain information about a defined area of interest, in a permissive and non-directive environment to elicit self-confessions from respondents. It is based on the following premises: the explicit use of interaction to produce data that would be less accessible without group interaction, the belief that attitudes and views about a given phenomenon do not develop in isolation but in interaction with others, and the importance of similar and different opinions. The stages are preparatory, implementation and closing.
Participant observation	This is the interaction between the investigator (observer) and the informants (observed) in their environment, where information is collected systematically and respectfully. The fundamental objective is to describe and understand groups and collectives (cultural, professional, health, etc.) through the experiences and phenomena of the study participants. To do this, the investigator/observer must be present in the context and adapt to the observed environment (not the other way around), observe events unfold, keep their observations up to date (notes, audio, or video), and be able to report on what they have observed
Field diary	Narrative-descriptive format on observations, reflections, and reactions in relation to that experienced, perceived, and felt by the investigator, as well as first intuitions, interpretations, analyses, and hypotheses. Methodological, descriptive, theoretical, and personal notes are included in the field diary.

Source: Delgado-Hito,[9] Callejo,[16] Guasch[17] and Vallés.[18]

the data collection process. These can be of maximum variation, homogeneous, extreme, or typical cases.
- Quota: different groups are formed according to characteristics of interest.

The number of participants depends on the objective of the study, the quality of the informants and the type of sampling chosen. Sampling continues until theoretical saturation is reached when the data provide no new ideas or better understanding or conceptualisation of the phenomenon.

Recruitment refers to the ways of gaining access to participants and obtaining their consent to participate. Various strategies can be used including placing an advertisement where the participants are located or holding an informative meeting.

Information gathering techniques
The techniques that are used most frequently are the in-depth interview, focus group discussion and participant observation.[15] In addition, regardless of the method and technique used, the investigator uses instruments (interview script, observation grid, etc.) and documentary and audio-visual media. The possibility of using several techniques to minimise disadvantages and increase rigour should also be considered. Finally, the investigator always has a field diary

Table 5 Types of analysis.

Types of analysis	Characteristics
Content analysis	This describes what people have said or done by systematically and objectively identifying specific features of the text at the syntactic (form of the text, finding and counting particular words or characters), semantic (meaning of words and analysis of proposed or emergent categories) and pragmatic (circumstances in which communication takes place) levels. It should identify the manifest content (obvious and visible components in the data) and, in some cases, the latent content, i.e., hidden meanings
Discourse analysis	The main objective is to describe and make evident the latent meanings of the respondents' discourse, to analyse the signs and symbols used to communicate a human experience, seeking to reveal the spatial, temporal, and social elements embedded within the language. They interpret discourse as a set of linguistic practices that promote and maintain certain social relationships, the results being more complex conceptual elaborations
Analysis according to grounded theory	Constant comparison method. This consists of creating concepts from categories that allow an emergent theoretical framework to form around a key concept termed the core variable. Stages: open, axial, selective coding and drafting of the final theory. It is essential to use theoretical or purposive sampling to capture new cases to profile the concepts and the emergent theory.
Generic analysis	Phases of the process: Discovery, analysis, and verification/interpretation phase.

Source: Strauss and Corbin,[19] Amezcua and Gálvez,[20] Coffey and Atkinson[21] and Gibbs.[22]

regardless of the technique used. Table 4 shows a description of the different techniques and the field diary.

Data analysis
The data analysis section details the type of analysis (Table 5), the stages to be followed, and the support of a computer programme (NVivo, ATLAS-ti, etc.).

Quality criteria and rigour

Quality and rigour criteria are a requirement of any research process. Therefore, in a qualitative research project there is a specific section for rigour that must specify the criteria and strategies to be used to preserve the rigour of the research.

The criteria normally used are those of reliability (credibility, transferability, dependability, and confirmability) and authenticity,[12] the investigator's reflexivity in relation to how their own perceptions, their relationship with the participants and the research process can influence the way the study develops, and finally triangulation, which involves using different types of data, theories, investigators, methods, and methodologies in the same study.

Ethical considerations

The investigator must consider current legislation, including informed consent, anonymity and confidentiality of the data, the approval of the Clinical Research Ethics Committee (CREC) and the authorisation of the participating centres.

Limitations and difficulties

This section includes limitations and potential difficulties that could arise as each of the study stages are developed and how the investigator intends to minimise them should they occur.

Applicability and practical usefulness

This details the implications for clinical practice, teaching, management, and nursing research that the results of the study may have.

Timeline

The timeline should list all activities to be conducted during the study, their duration, and the members of the research team. It must be consistent in terms of time and resources.

Budget

The budget section combines 3 aspects: (1) it details the material and human resources available for conducting the study, (2) it justifies the material and human resources required and (3) it presents the budget for each concept included in each item. The items for which funding can be applied depend on the criteria established in each call for research grants. There are usually 3 types of items: personnel (interns, administrative staff, etc.), goods and services (transcription of interviews, digital recorder, data analysis software, translation of manuscripts for publication, etc.), and travel and expenses (travel during fieldwork, attendance at conferences to disseminate the results).

Annexes

This last section includes the documents that will be used in the study, such as the interview script or the observation grid, the informed consent, the approval of the ethics committee and other documents used. These annexes should always be referenced in the text.

Conflict of interests

The authors have no conflict of interests to declare.

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