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Coding and Categorization of Qualitative Data in the Area of Health

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Abstract

The objective of this study was to describe the procedures for coding and categorizing qualitative research data applied in the health area. It describes the steps for the integration of processes to construct categories, the criteria for selection and exclusion of categories, the transformation of qualitative data into quantitative, typification, and the adaptability of codes based on the data. Conclusion: qualitative research in health sciences requires the processes of categorization and coding during the analysis and interpretation of the theoretical content to increase the reliability of the results.

Keywords: categorization of qualitative data, Coding, Qualitative and quantitative research.

Introduction

The methods used to validate scientific research are diverse. In qualitative research, the analysis of information results can be expressed by the storage of data or elements with common similarities that when grouped can be considered as categories.

By proceeding to analyze the information that is obtained from the development of a study or scientific research, ordering the data under parameters of similarities, allows the grouping of this information into categories. These procedures play an important role in comparative studies where the identification of similar or different aspects of the data is the axis of the research.

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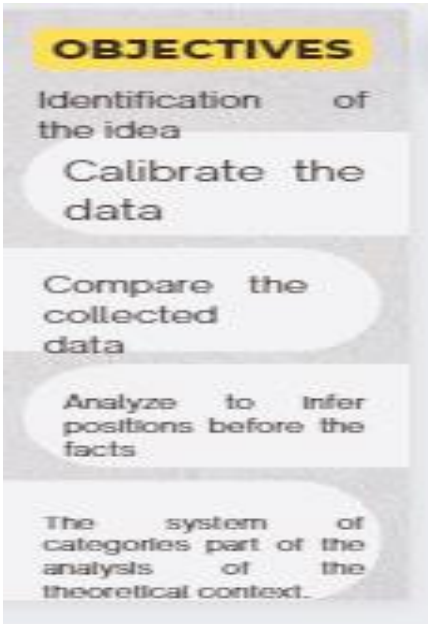
Similarly, the basis of comparative qualitative research, especially in health sciences, is the ways in which data are analyzed based on the identification of their specific properties. From this process, it is possible to establish comparisons and interrelationships that allow validating criteria and improving the reliability of any study.

In qualitative research in health sciences, it is very important to identify the information, order the data, assign numbers to the observed data of the variables or systemize the thematic idea. This complex procedure relates to the research question and reduces the dispersion of the data. Coding is a process with multiple applications in the health area. Through it, we can not only transform theoretical variables into quantifiable ones, but it can also allow data to be recorded and shared.



Logical coherence of qualitative studies applied to the health area.

Definition of analytical units

Deductive categorization

Inductive categorization

Subcategories

Management of information by assignment of codes

Identify the idea

The importance and relevance of qualitative research applied to the area of health will depend on the extent to which the idea conceived to carry out a study correlates with an adequate delimitation of the problematic situation worthy of being studied. The validity of the findings will depend largely on the methodological design, the way in which the data were collected and

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subsequently analyzed, and the robustness of the conclusions drawn. In this way, it will only be possible to obtain reliable results in qualitative research applied to the health area, if the researcher evaluates the specific behavior of the contextualization of the problem and manages to connect it with his research plan or protocol.

If categorization is understood as a process of grouping and ordering data whose behavior, meaning or criterion are similar, which are intended to specify, specify or clarify data and that allow a subsequent interpretation and analysis ordered and structured thereof, it is also necessary to understand that any correct process of evaluation of the data, It will only be possible if the stereotypes or the categorized theoretical framework is identified with the central idea. For this reason, the categorization process can guarantee the success of qualitative research. After establishing the categories that must be perfectly delimited, it is necessary to take into account the coherent relationship that must exist between each one, and that the information obtained from the sum of each of the categories corresponds to the objectives of the study.

Analyze to infer positions before the facts.

After grouping and sorting the data by affinity into categories and reaching the theoretical saturation state, we proceed to perform the complex process of analysis and interpretation of the findings. Through this procedure and after evaluating the common characteristics that relate to the categories, the researcher proceeds to form an explanatory context of the phenomenon studied.

One of the methods that provide guidance in the analysis of results in qualitative research in the area of health is comparison. By using the comparative process, it is possible to determine variations between categories, Strauss and Coabin (2002).

Discernment between categories

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This process allows the separation of categories that have different characteristics. The objective of this separation is to group only categories that correspond to each variable. That is, all the possibilities of variation of a variable are taken into account and grouped into categories that will respond to those variations. Categories should be specific and reject ambiguity. It has been proposed that the success or failure in developing the categories will depend on whether they correspond to specific and well-defined variables so that they facilitate their understanding. In the same way, this correlation will allow to clarify and explain a phenomenon. If the causes of a problematic situation are identified, specified, stratified, or ordered separately and these causes can be measurable and reproducible, the understanding of this situation and the prospects for obtaining answers will increase exponentially.

Process of integration of the categories

It is possible to generate broad content concepts that group data with common traits. It is necessary to understand that in the elaboration of categories, the object of the research must be sufficiently clear, that the study problem is delimited and that the variables of the research have been adequately defined. Therefore, for the construction of objective scientific knowledge in the area of health at the expense of subjective data and in turn to obtain validity and reliability of the findings, it is necessary that the analytical interpretation be based on well-elaborated categories. In this way, these categories must be detailed by the presence of microelements or subcategories that provide appropriate information (fig 1).

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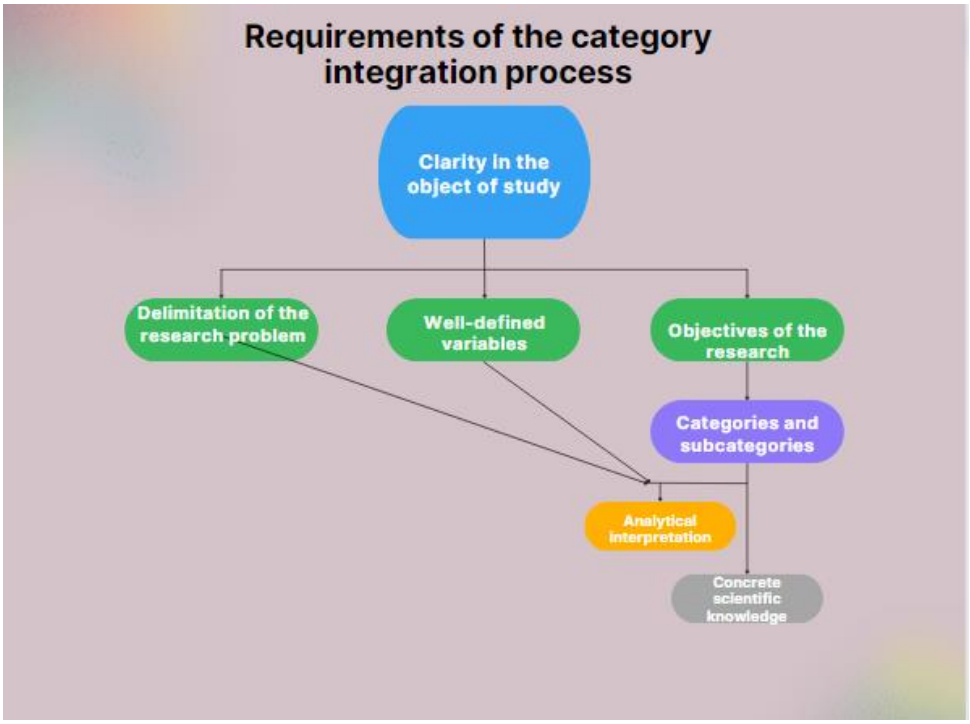

Fig 1 Requirements for the interpretation and analysis of data in qualitative research

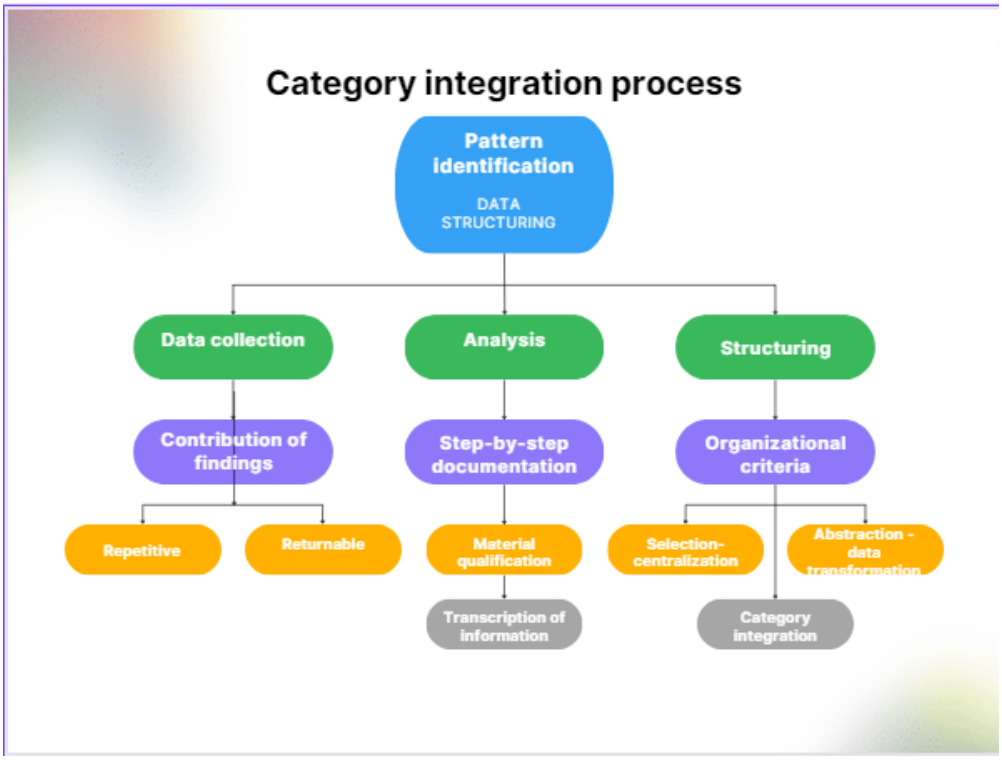

Fig 2-Stages for structuring data in the integration of categories

Category analysis

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During the analysis process, the researcher is the one indicated to fix the meaning of the data obtained. In this way, the success or failure of qualitative research will depend on the rigor of information collection. One of the big problems is to ensure that categorization ensures and corresponds to an adequate analysis of qualitative data, Moreover, when textual data will be transformed into numerical through a process of categorization, coding, and tabulation. The analysis of the categories is based on the sum of individual or singular data whose conglomeration allows us to obtain a more realistic analysis of the meanings. In health sciences, the validity and reliability of a qualitative study will depend on the possibility of transforming the summations of common meanings into the addition of frequency of the data. In this way, subjectivity in a study undergoes a process of significant reduction and that is a necessary condition for credibility in health research.

The process of categorization and the validity of research

The correct selection of categories is interrelated with the data collection technique or protocol. The most common forms of categorization are: deductive, inductive, or abductive. The categorization process will depend on the organization and grouping of similar characteristics. That is, concepts are built whose elements have common properties or qualities. The main objective is to classify by grouping elements with characteristics similar to the expressions that are developed on a concept. In many cases, this classification is a product or result derived from subunits or subcategories. In category construction, the specific objectives are the identification and location of similar elements. In this way, categorization becomes a vital aspect of the analysis and interpretation of findings in qualitative research.

Selection criteria and inclusion in the categories

-Identification: implies the recognition of the analogous aspects with each variable of the study. This allows reviewing and unifying the elements in a concept or category.

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-Particularity: just as a research problem is delimited, each category also has a delimitation of the elements that compose it in a concrete way.

-Reciprocal exclusion: elements or data that have been classified and grouped in one category should not be repeated or placed in other categories

-Interrelation: coherence between categories. Each of them provides unique information. However, each data is related to all the data provided, each category is specific and has logical relationships with the other categories.

Construction of specific analytical categories

The generation of theories as a product of an analytical process requires permanent revision. That is, the construction of categories in their initial phases can start from descriptive data. It is through an organizational, selective and filtering process that concepts with a broad content can be generated.

Transformation of qualitative data into quantitative data

The presence of mixed methods where quantitative and qualitative analyses are mixed has allowed the incorporation of researchers although confusion is generated in this regard, Creswell (2015). The function of this type of method, also called multi-methods, is to integrate qualitative and quantitative contributions to produce new knowledge, Strange, Crabtree, and Miller (2006).

It is important to remember that in studies related to health sciences, there is a greater need for interpretations and inferences than in other areas where there is a predisposition to descriptive studies or with only an exploratory character in research. In the area of health, the need for scientific support must be recognized when transforming, analyzing, and interpreting data in qualitative research. Similarly, it is possible to achieve a reduction in bias, subjectivity, and lack of precision, and or simple speculation in the analysis of data and study conclusions.

There are epidemiological aspects that often go unnoticed such as how patients visualize or experience a condition, how a disease acts on behavior, and even

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how there are behavioral modifications in the environment that surrounds these patients. These largely qualitative data must be recorded, and their analysis must be carried out as objectively as possible. For this reason, the methodological complement will allow data to be grouped by their similarity and then analyzed in a particular way in the subcategories, allowing the quantification of the meanings of the data. These aspects have been mentioned by Amezcua and Carricondo (2000), under these premises it is possible to understand that qualitative approaches are not understood without methodological complementarily. Thus, and if there were not this complementarily, many of the results presented in qualitative research in the area of health would be a mirage that could hide the true reality of the facts.

Although there are reflective and critical aspects of philosophy in the area of health, it is no less true that the analysis and interpretation of qualitative research data in this area are marked by the intention of being able to order and classify the inquiry objectively, to then infer the findings and prevent subjective results from prevailing as a philosophy of science. Therefore, creativity, sensitivity and flexibility are not enough to fill the gap in the process of analysis and interpretation of results, especially when it comes to health studies. From this point of view, the process of data analysis requires the execution of a complementary stage that will give importance to quantification and statistics.

Coding as a process in qualitative research

The analysis of data in qualitative research, despite being diligent, does not always have a sequential structure. This is why the data collected does not always have uniformity. Coding is a mechanism that allows contributing to the ordering and initial analysis of the data according to the design of the research. Codes serve to signal theoretical contexts. They represent the idea or the segment of it that allows identifying the elements of greatest utility for the researcher. In the same way, the labeling of the texts will depend on the objectives of the study. In health sciences, it is possible, for example, to label the adoption of decisions on prevention, specific treatment, control, financial

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impact, family burden, and impact on society, among others. These codes can be elaborated in a deductive, inductive, or mixed way.

Studies in health sciences require the use of codes that lead to analysis and not simple descriptions. There are authors who propose a sequential analysis of the data, Flick (2004).

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