The use of the qualitative methodology of the Grounded Theory in Nursing research

O uso da metodologia qualitativa da Teoria Fundamentada nos Dados na pesquisa em enfermagem

El uso de la metodología cualitativa de Teoría Fundamentada en los Datos en la investigación en Enfermería

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ABSTRACT

Objective: To discuss the use of the qualitative methodology of the Grounded Theory (GT), according to the strands of Strauss and Corbin (2008), in Nursing research, using data from a doctoral research. Methodology: A qualitative research study, using the Grounded Theory as methodological framework. Data collection took place with 13 participants, between October/2017 and August/2019, in two High-Complexity Oncology Care Centers. Results and Discussion: Strauss and Corbin’s (2008) approach contributes to the understanding of the method, as it provides a clearer view on the stages of data analysis. Its use should be encouraged more, especially for researchers who wish to approach the method. Conclusion and implications for practice: The methodology is learned experimentally and each research study involving it is an opportunity to learn and improve knowledge, becoming a resource that favors Nursing research, as it contributes to improving practices during care.

Keywords: Grounded Theory; Qualitative Research; Data Collect; Nursing Research; Nursing.

RESUMO

Objetivo: Discutir o uso da metodologia qualitativa da teoria fundamentada nos dados (TFD), segundo a vertente de Strauss e Corbin (2008), na pesquisa em enfermagem, utilizando dados de uma pesquisa de doutorado. Metodologia: Pesquisa qualitativa, tendo como referencial metodológico, a teoria fundamentada nos dados. A coleta de dados ocorreu com 13 participantes, entre outubro/2017 e agosto/2019, em dois Centros de Assistência de Alta Complexidade em Oncologia. Resultados e Discussão: A vertente de Strauss e Corbin (2008) contribuiu para uma compreensão do método, pois propicia uma visão mais clara sobre as etapas de análise de dados. Seu uso deve ser mais incentivado, especialmente para os pesquisadores que desejam se aproximar do método. Conclusão e implicações para a prática: A metodologia é aprendida experimentalmente e cada pesquisa envolvendo-a é uma oportunidade de aprender e aprimorar conhecimentos, fazendo-se um recurso que favorece a pesquisa em enfermagem, pois contribui para aperfeiçoar as práticas durante a assistência.

Palavras-chave: Teoria Fundamentada; Pesquisa Qualitativa; Coleta de Dados; Pesquisa em Enfermagem; Enfermagem.

RESUMEN

Objetivo: Discutir el uso de la metodología cualitativa de la teoría fundamentada en los datos (TFD), de acuerdo con las líneas de Strauss y Corbin (2008), en la investigación en Enfermería, utilizando datos de una investigación doctoral. Metodología: Investigación cualitativa, sobre la base de la teoría fundamentada como marco metodológico. La recolección de datos se realizó con 13 participantes, entre octubre de 2017 y agosto de 2019, en dos Centros de Atención de Alta Complejidad en Oncología. Resultados y Discusión: El enfoque de Strauss y Corbin (2008) contribuye para una comprensión del método, ya que proporciona una visión más clara de las etapas del análisis de datos. Debería fomentarse más su uso, especialmente para los investigadores que deseen acercarse al método. Conclusión e implicaciones para la práctica: La metodología se aprende experimentalmente y cada investigación que la involucra es una oportunidad para aprender y mejorar el conocimiento, convirtiéndose en un recurso que favorece la investigación en Enfermería, ya que contribuye a mejorar las prácticas durante el cuidado.

Palabras clave: Teoría Fundamentada; Investigación Cualitativa; Recolección de Datos; Investigación en Enfermería; Enfermería.
INTRODUCTION

Qualitative research is a type of approach that comprises a set of interpretive techniques with the objective of expressing and translating the meaning of the events of the social world through the verification of the meanings of human relationships. In this research modality, the use of some criteria that help in the foundation and credibility of the research is recommended, such as COREQ - Consolidated criteria for reporting qualitative research.2

In qualitative research, the researchers must choose a methodological framework for their study, as is their perspective on the phenomenon. The Grounded Theory (GT) became popular worldwide in the Nursing area in the 1980s and 1990s, and the use of this method has been presenting contributions for a better understanding of the human being in its different life phases, where its study object covers human interaction.3

Thus, a research study with the GT as methodological framework does not have the purpose of testing existing theories, but rather of investigating what is not yet mastered through the understanding of the study object, enabling the researchers to construct an informed theory, which arises from the data of their research.3

In this sense, qualitative research studies are gaining prominence in the Nursing area, because they enable knowledge of the world from the social sciences and contribute to the optimization of care provided to patients in the face of a specific disease.4

However, it is observed that the GT, although being increasingly used in the Nursing area and contributing to the improvement of the quality of care, is a methodology still used in a very heterogeneous way, employing the mixture of views from different authors, both in the formal structure of the research and in the data analysis process. Thus, the aim of this article is to discuss the use of the qualitative methodology of the Grounded Theory (GT), according to Strauss and Corbin, in Nursing research, using data from a doctoral research study.

METHOD

A qualitative research study, which used Symbolic Interactionism (SI) and the Grounded Theory (GT) as theoretical and methodological frameworks, respectively. The GT version used, as data analysis strategy, was that of Strauss and Corbin, published in 2008.5

Approximation with the methodological framework occurred in the graduate program, starting at the master’s degree, through readings of books, articles, participation in disciplines of a qualitative approach, and also on the method in question, in addition to the support of the dissertation guiding professor, who already worked with the method. This stage was essential to start constructing the knowledge, because it provided subsidies for the organization and understanding of concepts related to the origin of the methodological framework and its operational application.

The opportunity to work with this same framework, in the doctorate, allowed deepening the knowledge about its operational application, in addition to knowing a little about the different authors and their different views on this methodology: Glaser, Strauss and Corbin and Kathy Charmaz. At this stage, the support of the thesis guiding professor was essential.

Thus, in order to better exemplify the practical application of the GT, for the elaboration of this article, data from the doctoral thesis entitled “The sexual practice of young women with breast cancer” were used.6 A study approved by the Ethics Committees [CAAE 69123517.2.0000.5393] and [CAAE 69123517.2.3002.8043] respecting the recommendations of Resolution No. 466, 12/12/2012, of the National Health Council.7

The inclusion criteria were as follows: women diagnosed with breast cancer for a maximum of one year, who were undergoing treatment for the disease (surgery or chemotherapy or radiotherapy or hormone therapy), aged between 18 and 40 years old and who had a sexual partner since diagnosis of the disease. The exclusion criterion was the following: women who were undergoing palliative treatment.

The identification of the possible study participants occurred by collecting data in the medical records and by the approximation of the researcher with them. The invitation to participate in the research and clarifications regarding the ethical procedures occurred on the days and times when they were performing treatments for breast cancer, in the chemotherapy and radiotherapy sectors of the High-Complexity Oncology Care Centers (Centros de Assistência de Alta Complexidade em Oncologia, CACONs).

Data collection for the research took place in two High-Complexity Oncology Care Centers (CACONs A and B), located in the states of São Paulo and Minas Gerais, respectively, between October/2017 and August/2019. The interviews took place in a private location, with audio recording and notes in a field diary, with a mean duration of 28 minutes. The guiding question was: “Tell me how your sexual life was and how it is now after you have been diagnosed with cancer”.

The respective survey included 13 social actresses. It is worth mentioning that there were no withdrawals and no need to repeat interviews, which were closed by understanding the object under study and by the appearance of repeated information, without adding value to the understanding of the phenomenon under investigation, culminating in theoretical saturation of the categories that make up the study in dimensions, properties and variations.5

The interviews were conducted individually, by one of the researchers of this study, and also with manual transcription. Data analysis and interpretation were performed by this same researcher, who was supported by the other authors of the article.

The validation of the GT occurred through two experts, one from the research theme and the other from the methodology, and also by a research participant (E8).
RESULTS AND DISCUSSION

The Grounded Theory (GT)

The GT was initially developed by sociologists Barney G. Glaser and Anselm L. Strauss in the 1960s, culminating in the publication of the first work on the use of the method, in 1967, referred to as “The Discovery of Grounded Theory”. Subsequently, these authors began to diverge in some aspects of the methodology, as they have trainings of different natures: Glaser, a graduate from the Columbia University, an educational institution that was guided by training focused on quantitative methods and sociological theory, and Strauss, who came from a background with a strong tradition in qualitative research and a critical approach to the development of theories, from the University of Chicago.

As time passed, Glaser and Strauss began to present divergent opinions on the GT methodological procedures. Glaser continued to defend the principles initially proposed to the method, based on objective empiricism for the direction of research. Strauss, on the other hand, transported the method for verification and incorporated new analysis tools, such as interpretive description of the data, which leads to the disruption between these authors, who now start to travel different paths within the methodological precepts of the GT.

Thus, Strauss goes on to work together with Juliet Corbin and publishes the book entitled “Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory” in 1990. In the perspective of the method, proposed by these authors, instruments were presented for the application of the GT as a scientific method and, for the generation of the study theory, the collaborative relationship between researcher and research participants, meeting the subjectivist or relativistic perspective proposed to the method, by these authors.

It is important to report that Corbin was responsible for considerable changes in the methodology, since Strauss died in 1996, before they completed the second version, which was published in 2008: “Qualitative research: Techniques and procedures for developing the Grounded Theory”. And so, even without her peer Strauss, Juliet Corbin continued to improve the method and, in 2015, launched the third version of the book: “Basics of qualitative research: Techniques and procedures for developing the Grounded Theory”.

In the 2000s, following up on the improvement and development of the method, another respectable name appears that brought contributions about the GT. This author was a student of Glaser’s and introduced her own version of the method, initiating the constructivist aspect through the publication of the bibliography entitled “The construction of the Grounded Theory: Practical guide for qualitative analysis”. The reading on the different aspects of the method, presented by the aforementioned authors, makes it clear that they differ as to the GT methodological procedures, in relation to the philosophical basis or epistemological paradigm, use of literature and the data analysis system.

Glaser, the author of the classical strand, preserves moderate positivism, the use of literature only at the end of data analysis and that, to discover the theory, the researcher must deduce hypotheses that can be analyzed by means of existing theories, thus arriving at the study theory. Strauss and Corbin, on the other hand, from the subjectivist or relativist perspective, with a post-positivism and Symbolic Interactionism (SI) suggest consulting the literature in all stages of the research and, for the creation of the theory, adjustment, understanding, theoretical generalization and control must be carried. Finally, Charmaz, from the constructivist and SI strand, also suggests using the literature in all stages of the research, which should be compiled at the end and, for the construction of the theory; Charmaz gives the researcher freedom to follow the guidance of Glaser or Strauss.

The authors also differ in relation to the data analysis procedure. Glaser suggests coding through two stages (open and selective coding); Strauss and Corbin instruct three stages (open, axial and selective coding) and Charmaz, two stages, which he called initial and focused coding.

When using the term “grounded theory”, the authors wanted to mention that the theory that is built using this methodology results from the analysis of the research data, which are systematically gathered and analyzed. Thus, grounded theories, as they emerge from the data, provide more understanding and become an important guide for action.

GT data collection and theoretical sampling

Speaking on data, in the GT, the main technique used for their collections is the interview but, depending on the research problem, other techniques can be used, such as focus groups, group interviews, observation, graphic expressions, and analysis of photographs/figures/documents.

Defining, then, the data collection technique, the researchers go on to define their theoretical sampling, which begins with data collection, with data sources and/or people, who are believed to be appropriate to answer the research question and the study objective(s). According to the data collected and analyzed, the next research subjects will be selected as the need is verified to deepen on certain knowledge, in addition to filling the gaps arising about the research object. This shows us that it is data analysis that will guide the researchers on the next data that they must collect, in order to develop the theory of their study, which is under construction.

Sampling is then based on representativeness and not on the number of individuals, and the study sample is built by the search for elements that allow understanding the phenomenon through the composition of categories in dimensions, properties and variations. In this sense, the properties refer to the characteristics or attributes, general or specific to a category; the dimensions wave the location of a property along a line or strip. The properties change along their dimensional scopes and this variation allows us to expand knowledge about the object under study.

Thus, data collection must be carried out until the time when data are repeated and the subjects do not have relevant information for the discovery of other aspects about the phenomenon under investigation and research theme. Thus, the decision to interrupt collection is due to theoretical saturation of the categories that
will compose the theory based on the data, in their dimensions, properties and variations.\(^5\)

The methodological framework allows data collection in more than one location and also the restructuring of an instrument with changes in the focus of the questions or in the way the questioning is carried out, in order to obtain maximum information and understanding of the research subjects,\(^5\) being that this happens as the hypotheses are constructed, because they show us new reflections on the research problem and on the questions that will guide the next interview.\(^13\)

The methodology requires that the researchers have theoretical skill and sensitivity to distinguish and give significance to the data that arise from their data collection, recognizing variations and differences in the data, in conceptual terms, throughout the process of interpretation of meanings and codification. Theoretical sensitivity allows the researcher to go deeper into the theory, expand it and remain faithful to the data that emerge.\(^3\)

The researchers' ability to achieve this theoretical sensitivity comes from scientific literature, their personal, professional experiences and the analytical process.\(^4,5\)

This makes the GT to be considered as an art and science. Art, due to the researcher's ability to assign names to categories, subcategories, ask questions, make comparisons and group raw data, all through an integrative and innovative scheme; science, due to the fact that the methodology has its scientific and methodological rigors, which must be followed during data collection and analysis.\(^4,5\)

**Data coding and analysis**

What will be presented is a practical example of how the three stages of data analysis were carried out, according to authors Strauss and Corbin\(^5\) in the thesis entitled “The sexual practice of young women with breast cancer”.\(^6\)

After each interview, they were transcribed and analyzed and, only afterwards, the researcher returned to the field to interview another participant, as recommended by the method.

In the first stage of data analysis, called open coding, a reading was carried out with a focus on identifying open (similar) codes, to which phrases/expressions were assigned in order to delimit and visualize the emerging data. In this stage, verbs in the gerund were used for the elaboration of phrases/expressions, as this resembles movement, a circular process, something under construction and still subjected to change, as provided for in the methodology. To facilitate the return to the open code and the context of the subject’s speech, the lines were enumerated, during the process of transcribing the interview.

The interactive process of data collection and analysis enabled the development of hypotheses that helped in the understanding of the study object and in the achievement of the research objective, in addition to the elaboration of memos (methodological, theoretical and observation notes), constituting the record on the construction of the theory and contributing so that it was possible to visualize the gaps that were emerging and that needed to be better explored in the next interviews.

Thus, it is worth describing a little about the memos. The methodological notes are the criticisms and reminders that the researchers make about their own strategies for collecting new data and better understanding some others that emerge from their analysis. The theoretical notes are the interpretations of the facts that the researcher becomes aware of and, finally, the observation notes are the descriptions of the hearing and observation in the research field, carried out by the researcher.\(^5\) These notes can be made in a field diary or electronically, at the researcher's discretion.

Following the description on the stages of data analysis, in the second stage, axial coding, the open codes identified in the previous stage were grouped into subcategories and categories, which allowed for a better view of the facts and the approximation with the study object, making it possible to reflect on the data that emerge from the research.

This stage requires attention and several readings and reinterpretations of open codes so that it is possible to direct them correctly to the subcategories and categories, which are also being elaborated, and which will enable the understanding of the phenomenon under study, in addition to searching the literature for elements that help to understand the data that emerge from data collection and analysis (theoretical sensitivity). The subcategories and categories must be given a name that can be modified throughout the data analysis process, according to the new facets that arise in relation to the phenomenon under investigation, as the process of grouping and regrouping the codes in subcategories and categories is very dynamic.

This constant and frequent coming and going to these data, according to the methodological framework, is called circularity. The data collected will be analyzed and compared simultaneously and successively (back and forth, circular process), and the “fulfillment” of a stage of data analysis does not prevent the researchers from returning to the data again and performing a new analysis, if they deem it pertinent and necessary, as the constant comparison between the codes constitutes the guideline for the search for new data\(^2\) and enables the identification of gaps, which still need to be filled, and whether or not they need to elaborate hypotheses, to be confirmed or denied. This circularity ends up influencing theoretical sampling, an intentional process for the selection of subjects participating in the research\(^2\) and to fill the study categories and subcategories along their properties, dimensions and variations.

Thus, due to dynamism, many codes can arise, so it is important that the researcher is well organized in order to avoid the loss of important information and failures in the data analysis process. For this, a useful tip that can make a difference in the conduction of this process is to highlight open codes (similar) with colors. The adoption of this color scheme to the codes and the subcategories and categories to which they are directed helps in the researcher's organization in this stage of the research.

All the recommendations described above were followed and resulted in what we represent below, with the construction of Chart 1.
During this process (open and axial coding), the researcher will group, regroup and rearrange the codes into subcategories and categories, as many times as necessary, thus changing the number of subcategories and categories of the research until they understand the phenomenon which is under study and is evidenced during this dynamic process.

The important thing is that, in the end, the subcategories and categories are dense, with sufficient information and bridges of links between the various categories, thus making it possible to carry out the third stage of data analysis: selective coding.

It is worth emphasizing that, during these stages, the researcher must gradually draw diagrams and graphical representation of the study categories and subcategories, in addition to the representation of the central category of the research findings (central phenomenon).

The final diagram shows the relationship between the study categories and will represent the integration of all research categories, culminating in the Grounded Theory, the theory that emerged from the study results. The diagram(s) make it possible to visualize and better understand the actions and interactions of the categories and subcategories, in addition to assisting the researcher in the construction of the central category and the theoretical scheme, which will represent the experience of the research subjects in relation to the phenomenon under investigation.

**Chart 1. Open and axial coding, according to the GT model.**

<table>
<thead>
<tr>
<th>Line</th>
<th>Excerpt from the interview</th>
<th>Essence of the story</th>
<th>Open Coding</th>
<th>Methodological note</th>
<th>Theoretical note</th>
<th>Axial Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>“Look, today it’s obvious it’s not what it was before, due to my indisposition, these things! It is not (...), let us say that it is not with the same frequency now, that’s all! The only thing that changed is that it is not as frequently! It is not something like I told you that it is daily, but it is super easy though (...)! (E1) “And, the second, was the sexual part, which I tell you that”</td>
<td>it’s not like it was before, because of my indisposition it changed, it’s not as often! It’s not daily!</td>
<td>Researching on factors that alter the sexual practice. Changing the sexual practice due to indisposition Changing the frequency Ceasing to be daily</td>
<td>The continuity of sexual life or its interruption followed by resumption depends on the couple’s previous intimacy, interaction, communication, assessment of frequency, satisfaction and quality attributed to the sexual practice.</td>
<td>Factors that affected the sexual practice</td>
<td></td>
</tr>
</tbody>
</table>

Source: Prepared by the authors.
It is important to remember that the diagram(s) can be modified and are constructed and reconstructed with the researchers’ ability to look at the data of their research. Below we include the diagrams created after these first two stages of data analysis (Figures 1 and 2).

Theorization occurs through inductive and deductive operations. Inductive because it starts from the specific to the general, that is, from the data to the theory, and the researcher does not build preliminary hypotheses, since it is the data that will lead to the understanding of the phenomenon under study. And deductive,
because the researchers will therefore create their hypotheses as the data is collected and analyzed. These operations contribute to a more detailed and complex understanding of the object under investigation, since the data that emerge from the research will be constantly subjected to questions (circularity), making the theoretical explanation about the phenomenon under study increasingly consistent. Thus, in this process of building the Grounded Theory, at all times the data are being tested and confirmed with the research participants, whether returning to the participants to confirm or deny elaborated hypotheses, or including new participants, in order to better clarify the hypotheses, thus confirming that the data that emerge fit the studied reality and that important information has not been omitted from the theoretical scheme that is being constructed.

At this point in the analysis, theorization is advanced and, therefore, in the third stage of data analysis (selective coding), the study categories must be refined, thus identifying the central phenomenon, that category which will represent all the experience of the subjects participating in the research in relation to the phenomenon under study (Figure 3). And then, at the end of the third stage of data analysis, selective coding, the methodology still guides the confirmation of the applicability of the theory created about the phenomenon under study through the validation of the theory. The purpose of this validation is to confer scientific rigor and consolidate the research results. The methodological precepts proposed by Strauss and Corbin guide four criteria to judge the applicability of the theory created about the phenomenon, the way of applying them being is free and the researchers can use their creativity in the process. Namely:

1. Adjustment: If the theory is true to life, it must fit the studied substantive area;
2. Understanding: The theory must be understandable and meaningful to both the people studied and the students of the focus area;
3. Theoretical generalization: If the study is based on understandable data and extensive conceptual interpretation, the theory must be sufficiently abstract and include enough variation to make it applicable to other contexts related to that phenomenon;
4. Control: The theory must provide control, since the hypotheses proposing relationships between concepts can be used to guide further actions.

A practical example of how this can occur is to validate the scheme with one or more research participants; return to the raw data and compare if the scheme fits the reports of the interviewees and, also, present the theoretical scheme to the experts(s) on the subject area and on the methodology (Figure 4).

Therefore, the validation of the theory indicates that the constructed theoretical scheme represents the investigated reality and that it is also possible to debate its applicability in other contexts of time and space, accepting changes and inclusion of new elements that enable the improvement of information regarding the phenomenon under study. That is, the construction of a formal theory based on a substantive theory.

Although this methodological framework is most often used in the construction of substantive theories, authors Glaser and Strauss claim that it is possible to construct a theory at a substantive or formal level. For them, the substantive theory refers to that generated from a specific context, which can be applied to the investigated field. The formal theory, on the other hand, requires an in-depth study of the phenomenon in a broader reality. Thus, the substantive theory constitutes the foundation for the formal theory, and the three methodological perspectives of the GT (by authors Glaser, Strauss and Corbin, and Charmaz) adopt the same definition in relation to the distinctions of these two types of theory.

CONCLUSIONS AND IMPLICATIONS FOR THE PRACTICE

The methodology (GT) used in this study, which culminated in the generation of a theory (theoretical scheme), allows us to...
recognize problems related to certain contexts of our professional performance, making it an important resource that favors research in the Nursing and/or health areas, as it contributes to improving practices during care. The method allows us to understand facts/situations/contexts, among others little understood, leading us to reflection and, at times, providing a new perspective on reality.

The GT is learned experimentally, and each research study involving it is always a new opportunity to learn and improve knowledge about this methodology, in addition to better understanding, in the perspective of the research subject, the object under study, as the emerging theory can be deepened and expanded with new research participants and emerging data, which thus favors new studies in relation to research and application of the methodology.

Strauss and Corbin’s approach, published in 2008, contributes to a better understanding of the method and its use must be encouraged, especially for researchers who wish to approach the method.

A limitation seen in the use of this methodology would be due to the fact that its stages of data analysis are complex and detailed, which requires great efforts from the researchers who want to work with the method.

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AUTHOR’S CONTRIBUTIONS


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