







## **GROUNDING THEORY: USE IN SCIENTIFIC ARTICLES PUBLISHED IN BRAZILIAN NURSING JOURNALS WITH QUALIS A CLASSIFICATION**

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### **ABSTRACT**

**Objective:** to analyze the use of Grounded Theory as a methodological framework in scientific articles published in Brazilian Nursing journals with Qualis Capes A1 and A2.

**Method:** descriptive, documentary study with a quantitative approach. Five Brazilian nursing journals with Qualis A1 and A2 in the 2016 assessment were used as sources. Data were collected on the website of each journal through the Scientific Electronic Library Online (SciELO), by consulting the numbers published in the 2013-2016 quadrennium. Data were analyzed using descriptive statistics.

**Results:** 49 articles were selected, most of them published by the *Texto & Contexto Enfermagem* journal (34.6%). Regarding the methodological aspect, the use of the Straussian perspective predominated (79,6). Regarding the methodological characteristics, most articles used theoretical sampling (63.3%), theoretical saturation (53.1%), comparative analysis (69.4%), and presented the development of a theoretical model or central category in the results (75.6%). However, only seven (14.3%) studies specified the use of memos, 22 (44.9%) mentioned the use of diagrams and 16 (32.7%) described the theory validation step.

**Conclusion:** the need for consensus among Brazilian nursing researchers on the methodological characteristics to be described in studies using the Grounded Theory is highlighted.

**DESCRIPTORS:** Research. Qualitative research. Nursing research. Grounded theory. Methods of analysis.

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## TEORIA FUNDAMENTADA NOS DADOS: UTILIZAÇÃO EM ARTIGOS DE REVISTAS BRASILEIRAS DE ENFERMAGEM COM QUALIS A

### RESUMO

**Objetivo:** analisar a utilização da Teoria Fundamentada nos Dados como referencial metodológico em artigos científicos publicados nos periódicos brasileiros da área da enfermagem com Qualis Capes A1 e A2.

**Método:** estudo descritivo, documental e com abordagem quantitativa. As fontes utilizadas foram os cinco periódicos brasileiros da área da enfermagem com Qualis A1 e A2 na avaliação de 2016. A coleta dos dados se realizou no *website* de cada periódico através do *Scientific Electronic Library Online (SciELO)*, mediante consulta aos números publicados no quadriênio 2013-2016. Os dados foram analisados por meio de estatística descritiva.

**Resultados:** foram selecionados 49 artigos, sendo a maioria publicada pela Revista *Texto & Contexto Enfermagem* (34,6%). Em relação à vertente metodológica, predominou a utilização da perspectiva straussiana (79,6). Quanto às características metodológicas, a maioria dos artigos utilizou amostragem teórica (63,3%), saturação teórica (53,1%), análise comparativa (69,4%), e apresentou o desenvolvimento de modelo teórico ou categoria central nos resultados (75,6%). No entanto, somente sete (14,3%) estudos especificaram o uso de memorandos, 22 (44,9%) mencionaram a utilização de diagramas e 16 (32,7%) descreveram a etapa de validação da teoria.

**Conclusão:** ressalta-se a necessidade de um consenso entre os pesquisadores da enfermagem brasileira quanto às características metodológicas a serem descritas nos estudos utilizando a Teoria Fundamentada nos Dados.

**DESCRITORES:** Pesquisa. Pesquisa qualitativa. Pesquisa em enfermagem. Teoria fundamentada. Métodos de análise.

## TEORÍA FUNDAMENTADA EN LOS DATOS: USO EN ARTÍCULOS CIENTÍFICOS PUBLICADOS EN REVISTAS DE ENFERMERÍA BRASILEÑAS CON QUALIS A

### RESUMEN

**Objetivo:** analizar el uso de la teoría fundamentada en los datos como referencial metodológico en artículos científicos publicados en revistas brasileñas de enfermería con Qualis Capes A1 y A2.

**Método:** estudio documental descriptivo con enfoque cuantitativo. Las fuentes utilizadas fueron las cinco revistas brasileñas de enfermería con Qualis A1 y A2 en la evaluación de 2016. La recopilación de datos se ha desarrollado en el sitio web de cada revista a través de la *Scientific Electronic Library online (SciELO)*, consultando los números publicados en el periodo cuatrienal entre 2013-2016. Los datos se analizaron mediante estadística descriptiva.

**Resultados:** se seleccionaron 49 artículos, la mayoría de ellos publicados por la *Revista Texto & Contexto Enfermagem* (34,6%). En cuanto al aspecto metodológico, predominó el uso de la perspectiva straussiana (79,6). Con respecto a las características metodológicas, la mayoría de los artículos utilizaron muestreo teórico (63,3%), saturación teórica (53,1%), análisis comparativo (69,4%), y presentaron el desarrollo del modelo teórico o categoría central en los resultados (75,6%). Sin embargo, solo siete (14,3%) estudios especificaron el uso de memorandos, 22 (44,9%) mencionaron el uso de diagramas y 16 (32,7%) describieron el paso de validación de la teoría.

**Conclusión:** Se resalta la necesidad de consenso entre los investigadores de enfermería brasileña sobre las características metodológicas que se describirán en los estudios que utilizan la teoría fundamentada en los datos.

**DESCRITORES:** Investigación. Investigación cualitativa. Investigación en enfermería. Teoría fundamentada. Métodos de análisis.

## INTRODUCTION

Grounded Theory (GT) was developed in sociology by Barney Glaser and Anselm Strauss in the United States in the 1960s. It is a method and set of systematic procedures for the development of a theory from data, through intuitive and explanatory abductive reasoning. Thus, GT allows the understanding of reality from the knowledge of the meaning that a certain context or object have for the person who experiences the investigated phenomenon. After the publication of the seminal work of GT, methodological differences began to emerge between the two creators of the method. As a result, each followed an independent line of work, fostering the development of different perspectives of the method.<sup>1-3</sup>

Barney Glaser remained true to the original principles of GT and became the representative of what is considered the classical perspective. Anselm Strauss, in partnership with Juliet Corbin, proposed new analytical tools and started the Straussian approach. The third best-known aspect of GT is the constructivist by Kathy Charmaz, who introduced the perspective of constructivism to the method. Despite this variety, the different aspects of the method have the main characteristics of GT in common: theoretical sampling, simultaneity between data collection and analysis, concept elaboration and use of memos and diagrams. Thus, the essence of GT, based on the criterion of discovery rather than verification, remains unchanged.<sup>2-4</sup>

In recent years, GT has gained ground in academic discussions as well as empirical research in various areas of knowledge. In the area of nursing, GT has been highlighted as a method that enables the understanding of the meaning of health care related phenomena for the subjects in the context in which they are inserted.<sup>2,5</sup> This process leads to the emergence of a theory at the end of the study, which enables the qualification of care through guiding models of practice.<sup>2,5-6</sup> GT also enables nurses to theorize from the data and situations experienced in professional practice.<sup>6</sup>

The growing use of GT in nursing research has fostered the continuous growth of theoretical and methodological studies on the characteristics and operational aspects of the method, both in the Brazilian context,<sup>2,5,7-10</sup> and in the international scenario.<sup>11-15</sup> However, only one study on the use of GT in scientific articles from Brazilian nursing journals was identified through an integrative review of 12 articles published until 2013.<sup>5</sup> Thus, the relevance of new studies on the use of GT in scientific articles arising from research that adopted this method is evident.

The option for the Brazilian nursing journals with Qualis A1 and A2 as a source for consulting scientific articles is seen as an innovation for this work. The Qualis assessment is conducted annually by the Higher Education Personnel Improvement Coordination (Capes) to analyze the quality of the intellectual production of postgraduate professors through their scientific journals, classifying them, in descending order, into; A1; A2; B1; B2; B3; B4; B5; and C. Thus, journals with Qualis A1 and A2 have a higher impact factor for each area of evaluation.<sup>16</sup>

Based on the above, the objective of this study was to analyze the use of Grounded Theory as a methodological framework in scientific articles published in Brazilian Nursing journals with Qualis Capes A1 and A2.

## METHOD

A descriptive, documentary study with a quantitative approach. The sources used were the Brazilian Nursing journals with Qualis A1 and A2 in the 2016 evaluation: *Revista Latino-Americana de Enfermagem* (RLAE), *Acta Paulista de Enfermagem* (APE), *Revista Brasileira de Enfermagem* (REBEn), *Revista da Escola de Enfermagem da USP* (REEUSP) and *Revista Texto & Contexto Enfermagem* (TCE).

Data collection was performed between April and May 2017, directly on the website of each journal through the Scientific Electronic Library Online database (SciELO), by consulting the abstracts of each of the articles published by the magazines in the 2013-2016 quadrennium. Initially, articles that reported the use of GT as a methodological reference in the abstract were selected. From the total of 2,375 original articles published in the five journals (356 in the APE; 469 in the REBEEn; 562 in the REEUSP; 505 in the RLAE; and 483 in the TCE), 49 which used GT were included in this study.

From this, the 49 articles were consulted in their entirety in order to organize a database with the following characterization elements: journal, year of publication, article title, authors, home institution, descriptors and objectives. The methodological characteristics analyzed in relation to GT were defined from the relevant literature and are presented in Chart 1.

**Chart 1 – Methodological characteristics of Grounded Theory.**

| Characteristics               | Description   |
|-------------------------------|---|
| Methodological strands        | The three main strands of Grounded Theory are classical (Glaser), Straussian (Strauss and Corbin), and constructivist (Charmaz). <sup>2-4</sup> Some authors also consider the existence of two other approaches: dimensional analysis (Schatzman), and analysis. (Clarke). <sup>1,17</sup>   |
| References used               | References cited by the authors to methodologically support the research.   |
| Theoretical framework         | Set of concepts and theories adopted as theoretical support of the study.   |
| Data Collection Techniques    | Strategies cited by the authors of the articles to obtain data for research development.  |
| Theoretical sampling          | Selection of participants for the purpose of exploring emerging categories of data, developing, explaining, and testing theory as data analysis is performed. <sup>18</sup>   |
| Sample group                  | Strategy used to obtain theoretical sampling. It consists of the initial definition of subjects with experience in relation to the phenomenon investigated to participate in the research. After data collection and analysis with these participants, a hypothesis is elaborated to define a new sample group. <sup>18</sup>   |
| Constant comparative analysis | Systematic, simultaneous, circular and continuous collection, coding and analysis of data throughout the research process. <sup>18-19</sup>   |
| Theoretical saturation        | The moment in which data collection can be interrupted, because the categories are saturated and the addition of information does not change the understanding of the phenomenon under investigation. <sup>18-19</sup>  |
| Coding system                 | Process adopted to divide data into fragments, which may occur line by line or incident by incident, aiming to identify codes, concepts and categories. According to the methodological perspective, the most common coding systems are: (1) classical perspective: open, selective and theoretical coding, <sup>20</sup> (2) straussian perspective: open, axial and selective coding/integration <sup>18,21</sup> and (3) constructivist perspective: initial and focused coding. <sup>19</sup> |
| Software Usage                | Technological tools to support the recording, visualization, organization and systematization of qualitative data. <sup>22</sup>  |
| Memos                         | Theoretical, methodological, reflexive or observational notes that help in understanding the phenomenon under study. <sup>18</sup>  |
| Diagrams                      | Unwritten visual memos that help represent the relationships between concepts and categories, assisting in theory development.  |
| Results presentation          | Identification if the article presented the theory or theoretical model in its entirety or categories referring to the research phenomenon.   |
| Validation                    | Consistency assessment between raw data, elaborated concepts and abstract construction presented in theory. It also makes it possible to identify if any important element was not covered in the theoretical model. <sup>18,23</sup>   |

For data extraction, four PhD students accessed the full texts to obtain the characterization elements and to check the methodological characteristics of the articles. The absence of explicit information about the use of an element was considered unspecified or unused. It is important to mention that a researcher with experience in GT was consulted when there was doubt or divergence regarding recording information.

For data analysis, the results extracted from the articles were organized in a Microsoft Excel® spreadsheet and analyzed using descriptive statistics. Results are presented in absolute and relative numbers.

It was not necessary to submit the project to the Research Ethics Committee because it was a documentary study, based on open access scientific articles. However, the ethical principles in research were respected.

## RESULTS

Among the 49 articles found, 17 (34.6%) were published in the TCE Journal. 2015 had the largest number of publications (n=16; 32.7%). Regarding the institution of origin, the selected articles were published by 172 different authors, 51 (29.7%) of them linked to the Universidade Federal de Santa Catarina (UFSC) (Table 1).

**Table 1** – Characterization of the studies according to the journal, the year and the institution of origin of the authors. Florianópolis/SC, Brazil, 2017. (n = 49).

| Characteristics                        | N  | %    |
|--|----|------|
| Journal                                |    |      |
| Texto & Contexto Enfermagem            | 17 | 34.6 |
| Revista Brasileira de Enfermagem       | 14 | 28.6 |
| Revista Latino-Americana de Enfermagem | 12 | 24.5 |
| Revista da Escola de Enfermagem da USP | 4  | 8.2  |
| Acta Paulista de Enfermagem            | 2  | 4.1  |
| Year                                   |    |      |
| 2015                                   | 16 | 32.7 |
| 2014                                   | 12 | 24.5 |
| 2013                                   | 11 | 22.4 |
| 2016                                   | 10 | 20.4 |
| Institution of origin of the authors   |    |      |
| Universidade Federal de Santa Catarina | 51 | 29.7 |
| Universidade Federal do Rio de Janeiro | 23 | 13.4 |
| Universidade Federal do Rio Grande     | 14 | 8.1  |
| Universidade Estadual Paulista         | 10 | 5.8  |
| Universidade de São Paulo              | 10 | 5.8  |
| Other                                  | 64 | 37.2 |

The use of 121 different descriptors and/or keywords was identified in the studies selected in this paper. The most frequent were: “Nursing” (n=23; 19.2%), “Family” (n=10; 8.3%), “Nursing Care” (n=7; 5.8%) and “Primary Health Care” (n=7; 5.8%).

Regarding the objective, the use of the verb “to understand” (n=27; 55.1%) was the main objective. The use of the verb “know” (n=5; 10.2%) and “analyze” (n=4; 8.2%) also stood out. The

verbs “build”, “elaborate” and “present” (a theoretical matrix) were cited in the main objective of five (10.2%) publications. As a secondary objective, the use of the verb “construct”, “elaborate”, “formulate” or “configure” a theoretical model was identified in seven (14.3%) articles. Regarding the terms present in the research objectives, the terms “meaning” (n=15; 30.6%), “experience” (n=10; 20.4%) and “strategies” (n=4; 8.2%) are highlighted.

Regarding GT and the adopted methodological references, the Straussian strand was predominant. Regarding the use of theoretical framework, the use of Symbolic Interactionism was evidenced in 15 (30.6%) studies. However, the adoption of a theoretical framework was not specified in 23 (47.0%) articles (Table 2).

**Table 2** – Characterization of the studies regarding the Grounded Theory strand, the methodological references and the theoretical framework. Florianópolis, SC, Brazil, 2017. (n=49).

| Characteristic  | n  | %    |
|---|----|------|
| Methodological strand                                     |    |      |
| Straussian  | 39 | 79.6 |
| Not specified   | 5  | 10.2 |
| Classic   | 3  | 6.1  |
| Constructivist  | 2  | 4.1  |
| Methodological References                                 |    |      |
| Strauss and Corbin  | 31 | 63.4 |
| Scientific articles on Grounded Theory by Various Authors | 8  | 16.3 |
| Glaser and Strauss and Corbin                             | 3  | 6.1  |
| Glaser  | 2  | 4.1  |
| Strauss and Corbin and scientific article                 | 2  | 4.1  |
| Charmaz and Glaser  | 1  | 2    |
| Charmaz and scientific article                            | 1  | 2    |
| Heidegger   | 1  | 2    |
| Theoretical framework                                     |    |      |
| Not specified   | 23 | 47   |
| Symbolic Interactionism                                   | 15 | 30.6 |
| Complexity Theory   | 10 | 20.4 |
| The Archaeology method of Michel Foucault                 | 1  | 2    |

Interviewing was the most frequently used data collection technique in the studies (n=44; 89.9%). Regarding data analysis, most studies adopted the constant comparative analysis process (n=34; 69.4%) and the open, axial and selective coding steps (N=33; 67.4%), without the use of software (n=38; 77.5%) (Table 3).

The use of theoretical sampling (n=31; 63.2%), formation of sample groups (n=34; 69.4%) and range of theoretical saturation of data (n=26; 53.1%) were specified in most of the studies. In studies using the interview for data collection, the number of participants in the theoretical sample ranged from five to 72, with an average of 23 subjects. However, in most studies the use of memos (n=27; 55.1%) and diagrams (n=42; 85.7%) was not specified (Table 3).

Regarding the results of the studies, the presentation of the full theoretical model predominated (n=21; 42.9%). However, most studies did not mention the validation of the theoretical model or

elaborated theory (n=33; 67.3%). Among the studies that specified this step, validation was highlighted with research participants (n=7; 14.3%), researchers with expertise in the method (n=7; 14.3%) and subjects not participating in the research, but with experience in the investigated phenomenon (n=3; 6.1%) (Table 3).

**Table 3** – Methodological procedures of the studies. Florianópolis, SC, Brazil, 2017. (n = 49).

| <b>Characteristic</b>  | <b>n</b> | <b>%</b> |
|--|----------|----------|
| Data collection  |          |          |
| Interviews   | 44       | 89.8     |
| Interviews and observations  | 3        | 6.2      |
| Document Analysis  | 1        | 2        |
| Interview and photo elicitation  | 1        | 2        |
| Theoretical sampling   |          |          |
| Yes  | 31       | 63.3     |
| Not specified  | 18       | 36.7     |
| Sample group   |          |          |
| Yes  | 34       | 69.4     |
| Not specified  | 15       | 30.6     |
| Theoretical saturation   |          |          |
| Yes  | 26       | 53.1     |
| Not specified  | 23       | 46.9     |
| Comparative analysis   |          |          |
| Yes  | 34       | 69.4     |
| Not specified  | 15       | 30.6     |
| Coding system  |          |          |
| Open, axial and selective  | 33       | 67.4     |
| Not specified  | 5        | 10.3     |
| Open and axial   | 2        | 4.1      |
| Open and categorization  | 2        | 4.1      |
| Substantive and theoretical  | 2        | 4.1      |
| Open and focused   | 1        | 2        |
| Open or substantive, provisional categorization, theoretical or categorization and selective     | 1        | 2        |
| Preliminary, conceptual codes and categories   | 1        | 2        |
| Data coding, category formulation, reduction, integration and identification of central category | 1        | 2        |
| Microanalysis, open, axial and selective   | 1        | 2        |
| Software Usage   |          |          |
| Not specified  | 38       | 77.5     |
| NVivo®   | 7        | 14.3     |
| Atlas ti®  | 3        | 6.1      |
| OpenLogos®   | 1        | 2        |
| Memos  |          |          |
| Not specified  | 42       | 85.7     |
| Yes  | 7        | 14.3     |

**Table 3 – Cont.**

| <b>Characteristic</b>                                     | <b>n</b> | <b>%</b> |
|---|----------|----------|
| Diagrams  |          |          |
| Not specified   | 27       | 55.1     |
| Yes   | 22       | 44.9     |
| Results   |          |          |
| Full Theoretical model                                    | 21       | 42.9     |
| Categories, mentioning the central phenomenon or category | 16       | 32.7     |
| Categories only   | 11       | 22.4     |
| Description of findings, without categories               | 1        | 2        |
| Validation  |          |          |
| Not specified   | 33       | 67.3     |
| Yes   | 16       | 32.7     |

## DISCUSSION

The largest number of articles was published in the TCE Journal, founded in 1992 by the UFSC Nursing Graduate Program, and since then it has become a relevant means of disseminating technical and scientific production in the health area, especially regarding nursing.<sup>24</sup> Regarding the year of publication, there was an increase in the number of publications from 2013 to 2015, confirming the increase in the use of GT as a research method in Brazilian Nursing from 2008.<sup>5</sup>

The concentration of studies published by authors from UFSC confirms the findings of an integrative review on the use of GT in nursing in Brazil. This relationship may be associated with the existence of a center of nursing studies with emphasis on the use of GT as a methodological framework at the University.<sup>5</sup>

In relation to the descriptors, the most used term was “nursing”, which may indicate the search of researchers to associate their publication with the area of knowledge of the profession. However, the use of descriptors that associate the term “nursing” with the substantive area of work, for example: Emergency Nursing, Nursing Care, and Nursing Education, can more precisely delimit the focus of the research and facilitate its identification in terms of research indexing databases. The emphasis on the use of the descriptors “Family”, “Nursing Care” and “Primary Health Care” may reflect the consolidation of the Family Health Strategy as a health care model in Brazil,<sup>25</sup> encouraging studies on nursing performance in this context.

Regarding the objective of the studies, the use of the verb “understand” was highlighted. The use of the terms “meaning”, “experience” and “strategy” also stood out in the research objectives, as well as the mention of the construction or elaboration of a theoretical model. This result is in line with the essence of GT, which seeks to explore social processes or phenomena to elaborate concepts from the meanings and experiences of the people who experience them. In addition, GT aims to construct a theory capable of answering useful and effective questions about the meaning given to actions of subjects inserted in a given reality.<sup>2,18–19,26</sup>

Regarding the methodological aspect of GT, the use of the Straussian perspective and the works of Strauss and Corbin were highlighted as methodological references, corroborating findings from previous studies on the use of GT in nursing research.<sup>5,14</sup> The predominance of this strand may be related to its more didactic and systematic character in relation to other GT approaches, as Strauss and Corbin sought to make the method more accessible by establishing steps to develop a theory.



In addition, Corbin's academic background in nursing may also have contributed to the spread of his work in the field.<sup>14</sup>

In general, most articles did not adopt a theoretical framework, which suggests the use of GT as a theoretical-methodological framework.<sup>18</sup> Among the studies that used a specific theoretical framework, Symbolic Interactionism is highlighted, which is based on how the individual situates and differentiates himself from others<sup>19</sup>, confirming an important methodological tradition and findings from a previous study.<sup>15</sup> This relationship may be associated with the influence of Symbolic Interactionism on the philosophical bases of GT, since Anselm Strauss's academic background is at the University of Chicago, where the initial milestones of the symbolic interactionist movement were made.<sup>2,18</sup>

However, there is no exclusivity in the integration of GT with a given theoretical framework, as observed in the analyzed studies. Other references can be used with this method, such as the Complexity Theory, which allows the apprehension of multiple interaction and association movements in a plural and complex reality.<sup>5</sup> Thus, GT can be associated with any theoretical reference, in order to reveal how the author wants his analysis to be considered by readers, supporting his worldview.<sup>19</sup>

Regarding the data collection technique, the use of interviews was highlighted, which gives the researcher an understanding of the studied phenomenon from the participants' individual experiences.<sup>27</sup> Participant observation technique was also adopted in the selected articles. This technique is characterized by the interaction between researcher, observed subjects and the context in which they find themselves, presupposing coexistence and the exchange of experiences between the subjects.<sup>28</sup>

It must be stated that triangulation, whether of methods, data or researchers, is a factor of methodological rigor in GT. Thus, the association of multiple data collection techniques is indicated as a criterion of methodological rigor of the study, considering that different techniques tend to produce results that complement each other.<sup>29</sup> Thus, the use of participant observation coupled with interviews in GT research can provide greater data immersion and understanding of the participants' experiences.

In relation to the coding system, the open, axial and selective coding steps advocated by the Straussian strand were the most used in the articles.<sup>18</sup> This result is in line with the predominance of the Strauss and Corbin methodological framework, as previously highlighted. However, it must be noted that 11 (22.6%) studies cited steps that differ from the coding pattern proposed by the main GT strands and five (10.3%) articles did not specify which coding steps were adopted.

The presentation and description of the coding steps adopted in GT is an important methodological feature for the evaluation of the scientific rigor of the research. The significant number of studies that adopted different coding steps from those specified by the main aspects of the method may be associated with the existence of doubts among researchers about the specificities of the different approaches of the method, especially regarding data analysis. Moreover, there are two schools of thought among method scholars. Some authors defend the option of a GT approach without mixing with others and others that value the essence of the method and seek to simplify its application.<sup>1</sup> Thus, the lack of consensus on the need to specifically follow one of the GT coding systems may justify the different steps cited by the authors in the data coding process.

Regarding data analysis, constant comparative analysis is a particular feature of GT that sets it apart from other methods.<sup>30</sup> In this process, which is mentioned in most of the researched articles, data are analyzed from the beginning, without the need to wait until the end of the collection. The data are constantly compared with each other, in order to determine differences and similarities, reducing the data to concepts in order to develop concepts in their properties and dimensions, and differentiate one concept from another, providing greater data accuracy. Thus, the data themselves guide subsequent collection, leading to theoretical sampling, another substantial feature of GT.<sup>21,30</sup>

Theoretical sampling is characterized by the process of data collection through constant comparative analysis, in which the initial collection guides the collection and the subsequent analysis. It must be stated that this process requires researcher sensitivity to guide the research, identify and recruit participants with varied experiences on the object under study, who can best answer the research question, providing a range of information for the development of concepts and theory construction so as to provide knowledge from multiple dimensions of the phenomenon.<sup>21,30</sup> Sometimes, the authors understand little about this process, which causes this methodological step, although fundamental to GT, to be little discussed in the studies.<sup>27</sup>

As a strategy for theoretical sampling, 34 (69.4%) studies adopted sample groups. Data are collected and concomitantly analyzed and, by analyzing the interviews that correspond to one sample group, the researcher may feel the need to seek new participants to respond to the study objective, thus forming a second sample group. This process is repeated until the researcher reaches the saturation point, i.e., when no new data collection concepts emerge and the main categories are fully developed, which is called theoretical saturation.<sup>21</sup>

The theoretical saturation of the data was obtained in 26 (53.1%) analyzed articles. In qualitative research, the term “saturation” indicates the repetition of data and ideas by research participants, and is achieved by addressing all study questions in depth. This concept refers to the descriptive saturation of the data and differs from the theoretical saturation in GT, which is the process of developing categories until their saturation of a central variable, allowing greater explanatory power of categories. Theoretical saturation is obtained when new and relevant data on theory development is no longer observed and data collection can be finalized.<sup>27</sup>

In relation to data analysis, the use of software as a tool in the organization of the research data was specified in the minority of the analyzed articles. NVivo stood out among the articles that indicated software adoption. This program is compatible with different types of analysis, including the constant comparative analysis of GT.<sup>31</sup> The use of software can be a useful strategy to help the researcher manage large volumes of data generated in qualitative research, especially in GT. However, attention is needed so that the researcher does not lose theoretical sensitivity, distancing himself from the data and negatively influencing one of the precepts of qualitative research.<sup>32</sup>

Regarding memos and diagrams, most articles did not specify their use. This result can be explained by the authors' need to condense the information in the manuscripts in order to meet the number of words or pages allowed for each journal. The memos and diagrams make it possible to record and illustrate the researcher's reflections and insights during the process of constant comparative analysis of data in GT. This step is important for developing and deepening theory from the data.<sup>21</sup>

Regarding the presentation of the results, the predominance of the presentation of the theoretical model in its entirety or categories, but with reference to the phenomenon or central category of the research was found in the articles. This finding is in line with the objective of GT, which is the development of a conceptual theory from data.<sup>27</sup> In GT, when using the Straussian strand, it is common to publish articles which explore a category or a component of the paradigmatic model in depth. In these cases, it is important for the methodological rigor of GT to mention the theory or model of which the results presented are part. The elaboration of a theory goes beyond the description of the findings, because it requires the presentation of the concepts and the evidences that support it as a theoretical construct.

Despite the importance of the theoretical construction in GT, the minority of studies specified the completion of the validation step. It is important to stress that, unlike quantitative research, validation in GT is not intended to test. It aims to evaluate how appropriate and representative the results obtained are in view of the phenomenon investigated.<sup>18,23</sup> Among the studies that validated its theoretical construction, the performance of this step with the research participants was highlighted.

Such a strategy is coherent, since the subjects who participated in the research are able to indicate if the elaborated theory corresponds to what is happening in the reality experienced by them.

The selection of articles based on their abstracts is highlighted as a limitation of the study. Although mention of the type of study in the abstract is common, articles in which the use of GT was only mentioned in the body of the text may have been excluded from the analysis.

## CONCLUSION

Scientific productions with the use of GT in Brazilian journals contemplates different areas of nursing knowledge, with a predominance of the Straussian strand, prioritizing the search for understanding the phenomena from the subjects' perspective and confirming GT as a theoretical-methodological framework, considering that a significant portion of the articles did not use a specific theoretical framework. This study may contribute to the methodological rigor of research with GT, but adds an epistemological dilemma regarding the need for theoretical references to support the knowledge. Thus, it is necessary to have a better understanding of how to use the method itself or what it contributes to the construction of best theoretical and conceptual foundations for health care and nursing practice.

We emphasize the need for consensus among Brazilian nursing researchers on the methodological characteristics to be described in studies which use GT. It is believed that the absence of a guiding instrument for the use of the method causes articles to be published which do not address all the main methodological aspects of GT. Thus, it is suggested to expand studies on this methodology in order to develop an instrument that assists researchers to use this method, but without stifling the use of GT, which requires creativity and theoretical sensitivity of the researcher in order to understand the studied phenomenon.

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## NOTES

### CONTRIBUTION OF AUTHORITY

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Data analysis and interpretation: Santos JLG, Peiter CC, Kahl C, Copelli FHS, Cunha KS, Lacerda MR.

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There is no conflict of interest.

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