

USE OF GROUNDED THEORY IN THE EXTRACTION, CODING AND ANALYSIS OF DATA IN LITERATURE META-ANALYSES

Anderson da Silva Rêgo^{1,2} 
Cremilde Aparecida Trindade Radovanovic¹ 
Maria do Carmo Fernandez Lourenço Haddad^{1,3} 
José Luís Guedes dos Santos⁴ 
Lígia Carreira¹ 
Maria Aparecida Salci¹ 
Luciano de Andrade¹ 
Andreas Büscher⁵ 

¹Universidade Estadual de Maringá, Programa de Pós-Graduação em Enfermagem. Maringá, Paraná, Brasil.

²Health Sciences Research Unit: Nursing, Nursing School of Coimbra. Coimbra, Portugal.

³Universidade Estadual de Londrina, Programa de Pós-Graduação em Enfermagem. Londrina, Paraná, Brasil.

⁴Universidade Federal de Santa Catarina, Programa de Pós-Graduação em Enfermagem. Florianópolis, Santa Catarina, Brasil.

⁵Hochschule Osnabrück - University of Applied Sciences, Deutschen Netzwerks für Qualitätsentwicklung in der Pflege. Osnabrück, Niedersachsen, Deutschland.

ABSTRACT

Objective: to describe the conduction of data extraction, analysis and codification using the Straussian perspective of Grounded Theory, in Literature Meta-analysis.

Method: this is a theoretical-reflexive study on the data extraction from reviews with meta-analyses. To design the process of searching for qualitative studies, this study briefly addresses the sequential steps of Preferred Reporting Items for Systematic Review and Meta-Analyses and the Joanna Briggs Institute. The extraction, analysis and codification process were carried out following the assumptions of grounded theory, with the Straussian perspective. They are the theoretical-methodological bases in the first stages of the guidelines of the literature review and Meta-analyses guides, starting with the research question until reaching the review stages, divided into identification, selection, eligibility, and inclusion.

Results: the results describe the process of data extraction, analysis and codification from the Straussian perspective, using comparative analysis of data, memoranda, diagrams and possibilities of new sample groups from the detailed analytical reading of the included studies. Finally, theoretical saturation is performed, with an analysis of the findings, with examples of categories and subcategories, the emergence of the central phenomenon and presentation of the paradigmatic model.

Conclusion: the essay presents subsidies for the understanding of the conduction of extraction, analysis and codification of data in meta-analyses based on the Straussian perspective, enabling the systematized analysis of qualitative evidence and contributing to the development of models or theories of conceptual character

DESCRIPTORS: Grounded Theory. Systematic Review. Nursing Research. Qualitative Research. Methodological Research in Nursing.

HOW CITED: Rêgo AS, Radovanovic CAT, Haddad MCFL, Santos JLG, Carreira L, Salci MA, et al. Use of Grounded Theory in the extraction, coding and analysis of data in literature meta-analyses. *Texto Contexto Enferm* [Internet]. 2023 [cited YEAR MONTH DAY]; 32:e20210445. Available from: <https://doi.org/10.1590/1980-265X-TCE-2021-0445en>

UTILIZAÇÃO DA GROUNDED THEORY NA EXTRAÇÃO, CODIFICAÇÃO E ANÁLISE DE DADOS EM METASSÍNTESES DE LITERATURA

RESUMO

Objetivo: descrever a condução de extração, análise e codificação de dados utilizando a *Grounded Theory*, na perspectiva *Straussiana*, em Metassínteses de literatura.

Método: trata-se de um ensaio teórico-reflexivo sobre a condução da extração de dados de revisões com metassíntese. Para delineamento do processo de busca dos estudos qualitativos, este ensaio aborda, de forma sucinta, as etapas sequenciais do *Preferred Reporting Items for Systematic Review and Meta-Analyses* e da *Joanna Briggs Institute*. O processo de extração, análise e codificação foi realizado seguindo os pressupostos da *Grounded Theory*, com a perspectiva *Straussiana*. São as bases teórico-metodológicas nas primeiras etapas das diretrizes dos guias de revisão de literatura e Metassíntese, iniciando com a pergunta de pesquisa até chegar às etapas da revisão, divididas em identificação, seleção, elegibilidade e inclusão.

Resultados: nos resultados são descritos o processo de extração, análise e codificação de dados na perspectiva *Straussiana*, com uso de análise comparativa dos dados, memorandos, diagramas e possibilidades de novos grupos amostrais a partir da leitura analítica minuciosa dos estudos inclusos. Por fim, é realizada a saturação teórica, com síntese dos achados, com exemplos de categorias e subcategorias, emergência do fenômeno central e apresentação da modelo paradigmático.

Conclusão: o ensaio apresenta subsídios para a compreensão da condução de extração, análise e codificação de dados em Metassínteses baseada na perspectiva *Straussiana*, possibilitando, de forma sistematizada, a síntese de evidências qualitativas e contribuindo no desenvolvimento de modelos ou teorias de caráter conceitual.

DESCRITORES: Teoria fundamentada. Revisão sistemática. Pesquisa em enfermagem. Pesquisa qualitativa. Pesquisa metodológica em enfermagem.

APLICABILIDAD DE LA TEORÍA FUNDAMENTADA EN LA EXTRACCIÓN, ANÁLISIS Y CODIFICACIÓN DE DATOS EN META-ANÁLISIS DE LITERATURA

RESUMEN

Objetivo: describir la conducta de extracción, análisis y codificación de datos utilizando la Teoría Fundamentada, en la perspectiva *Straussiana*, en la Metasíntesis de la Literatura.

Método: se trata de un ensayo teórico-reflexivo sobre la conducción de la extracción de datos a partir de revisiones de metasíntesis. Para delinear el proceso de búsqueda de estudios cualitativos, este ensayo aborda brevemente los pasos secuenciales de los Elementos de informe preferidos para la revisión sistemática y los metanálisis y el Instituto Joanna Briggs. El proceso de extracción, análisis y codificación se realizó siguiendo los supuestos de la *Grounded Theory*, con la perspectiva *strausiana*. Son las bases teórico-metodológicas en las primeras etapas de los lineamientos de las guías de revisión de literatura y Metasíntesis, partiendo de la pregunta de investigación hasta llegar a las etapas de revisión, divididas en identificación, selección, elegibilidad e inclusión.

Resultados: los resultados describen el proceso de extracción, análisis y codificación de datos desde la perspectiva *strausiana*, utilizando análisis de datos comparativos, memorandos, diagramas y posibilidades de nuevos grupos de muestra a partir de una lectura analítica exhaustiva de los estudios incluidos. Finalmente, se realiza una saturación teórica, con una síntesis de los hallazgos, con ejemplos de categorías y subcategorías, emergencia del fenómeno central y presentación del modelo paradigmático.

Conclusión: el ensayo presenta subsídios para la comprensión de la extracción, análisis y codificación de datos en Metasíntesis a partir de la perspectiva *strausiana*, permitiendo, de forma sistemática, la síntesis de evidencias cualitativas y contribuyendo al desarrollo de modelos o teorías de carácter conceptual. naturaleza.

DESCRITORES: Teoría Fundamentada. Revisión sistemática. Investigación en Enfermería. Investigación cualitativa. Investigación Metodológica en Enfermería.

INTRODUCTION

Technological advances have provided a greater scope of communication services, denoted its informative character and expanded new methods for its technological capacity to store, aggregate and process information. Linked to this, the cultural changes to adapt this emerging advance - often not processed in a simplified way - culminate in the need to make the structure of this information more reputable for the end consumer¹.

Regarding the vast scientific literature, with numerous articles from research from the most varied universities and public and/or private companies, this information must follow a rigorous method, capable of answering research questions. Systematic Literature Reviews (SLR) have been an effective method for outlining and summarizing information; however, they still face difficulties, especially in the development of effective strategies for data extraction²⁻³.

In addition to dealing with the gaps and necessity of new studies, SLR can assess the relevance of research projects, elucidating important points for the development of a broader understanding of certain topics^{2,4}. Systematic methods that outline the literature are considered interactive processes, in which each study is conducted differently, an essential aspect to answer certain questions and/or research gaps⁴⁻⁵.

In this context the SLR steps need to follow methodological rigor, to avoid biases that could compromise the synthesis of information. Although SLR is not the place for dubious questions about its synthetic and methodological conduct, the variety of information can look beyond the numerical and purely statistical issue. In this context, the analysis of studies under a qualitative approach is still slowly progressing towards clarifying an adequate and rigorous conduct that contributes to robust results, in addition to those presented in theoretical and empirical research^{1-4,6}.

Research with a qualitative approach has been on the rise in recent decades, being one of the strategies most used by researchers around the world in data analysis and codification, recognizing its potential to add value to quantitative research. Nevertheless, there are controversies about the use of a qualitative approach in RSL research, as it is an activity similar to the quantitative type. However, there is intense debate about the appreciation, legitimation and ideographic strength regarding the attribution of generalization^{4,6-7}.

In this aspect, the synthesis of qualitative research is seen as pertinent to integrating results influenced by postmodern research. Quantitative research and evidence-based research emphasize the outcome, while the qualitative approach seeks the variety of research practices and implausibility at any point in the research, consummating a more interpretive integration⁶⁻⁸.

Qualitative approaches in Meta-analyses - which assume a more inductive position - are methodological characteristics compatible with Grounded Theory (GT), anchored in the Straussian perspective. These questions are based on the researchers' operationalization to obtain theoretical sensitivity to define objective and subjective concepts. This occurs with the establishment of the cyclical process of collection, extraction and coding, mainly by using open, axial and selective coding and by providing a basis for the development of models and/or theories of a conceptual nature⁶⁻⁷.

GT was created in the 1960s in the United States by sociologists Barney Glaser and Anselm Strauss. The authors of the method sought alternatives to generate explanations from the behavior of subjects in various social situations and understand how these behaviors were faced. During the period in which the method was developed, GT was considered innovative, with contributions pertinent to qualitative research and the potential to create theories with existing data or with little scientific documentation⁹⁻¹¹.

The method allows adaptation according to the objectives of the initial project proposal, as well as the phases of data collection and analysis, according to the conduct of the researcher, their experience and sensitivity to the phenomenon they propose to explain. The differences between Glaser and Strauss culminated in different lines of work. Barney Glaser continued to defend the classic line of GT, while Anselm Strauss, in partnership with Juliet Corbin, developed the Straussian perspective⁹⁻¹².

The Straussian perspective is based on systematized methodological rigor, with the construction of theory in a pragmatic way. This makes it possible to understand the phenomenon from the perception of meanings, in a process of induction and deduction. Theoretical sensitivity is the fundamental point for the researcher to elaborate concepts and understand how both relate to the questions or gaps of certain study proposals^{10-11,13}.

The main points of the perspective begin with planning the proposal, with an adequate research question and delimited objective, but with flexibility and freedom to explore the phenomenon. In addition, it is anchored in theoretical sampling - which takes place throughout the development of the research, establishing new questions or hypotheses that need to be answered. But there must be criticized for not distancing itself from the purpose of the investigation^{10-11,14}.

The sources of information or the source of the data can be diversified, such as interviews, documents, literature, videos, photos, observations, and others. The scientific databases, the theme of this study, can be books, articles, theses, dissertations, comments and/or essays^{9-10,14}. At this point, attention is paid to the exact descriptors or in association with correlates, which may expand the sample of studies to be included in the review research, for example.

Data analysis from primary and/or secondary studies follows the data coding line, divided into open, axial and selective. Open coding starts from the first reading of the material, performing comparisons and conceptualizing new data that arise during the research. Axial coding is represented by the movement of induction and deduction, with the construction of previous categories, arising from the hypotheses and questions made about the material collected in the first stage of the review^{9-10,14}.

At this stage, the paradigmatic model is used as a strategy, consisting of the conditions, a defined reason for the behavior of certain subjects and the facts that arise from these actions; the actions-interactions, which represent the response presented by the hypotheses, verified from the hidden actions of the problem-situations; and the consequences and outcomes, which encompass all aspects of the paradigmatic model. The last stage of analysis is selective coding, in which the previous categories are compared and analyzed continuously, allowing the emergence of the phenomenon^{9-10,14}.

To contextualize the methodological process of meta-analyses using GT, an excerpt from the doctoral thesis entitled "Construction and validation of quality indicators for hospital discharge of people care-dependent on home care"¹⁵ was used, which aimed to construct and validate quality indicators for hospital discharge of care-dependent people. The thesis started from the premise of the intrinsic characteristics of the hospital discharge process and the needs of the target audience, as well as the formal and/or informal caregivers and health professionals who are part of the Health Care Network.

For the development of the thesis, the following methodological steps were considered: I) literature review; II) construction; and III) validation of home care quality indicators. The literature review method, anchored in qualitative data extraction considering its application and results, sought a subjective understanding of the phenomena of interest of the theme under study. The literature review also sought to improve the relationship of the main author with qualitative epistemology and the technical domain of the method used¹⁶.

For the development of quality indicators for home care, the data collected in the first stage were coded according to the needs of people who were discharged from the hospital, but who need further care at home. The analytical coding of the reviewed studies was based on the contextualization of the population's health needs (object of study of the thesis) and the strategic actions and results evidenced from the process of analysis and coding of data from the reviewed studies.

The literature highlights contributions from the use of GT in meta-analyses research, but does not advance in terms of methodological steps, especially in the extraction, coding, and analysis of data from this framework¹⁴. In the context of Brazilian nursing, meta-analyses based on GT are incipient, which encourages the need for scientific and rigorous contributions to outline new strategies for synthesizing and extracting data from qualitative research. Thus, the aim of this study was to describe the data extraction, analysis and coding using the Straussian perspective of Grounded Theory in meta-analyses literature.

METHOD

A theoretical-reflective essay on the methodological and analytical stages of GT from the Straussian perspective. To exemplify the realization of meta-analyses in GT, fragments of the doctoral thesis mentioned above are presented¹⁵. In summary the thesis aimed to build and validate quality indicators through SLR with meta-analyses, Meta-analysis and an integrative approach based on the assumptions of the Donabedian Triad, which deals with health assessment, consisting of structure, process and result¹⁷, strengthened by the assumptions of the middle-range theory¹⁸ and transitions^{19–20} and, later, by the validation of the content by experts using the Delphi method²¹.

The study followed the steps used by the meta-analyses methodology of the Joanna Briggs Institute (JBI)²², however, to conduct the extraction, analysis, and codification of the data, using GT, the project was not submitted to JBI as it did not use its sequential process of collecting information, synthesis of findings or for the preparation of the meta-analyses. The methodological process was commenced based on the research question, the first stage described by JBI²²: what are the clinical-care actions performed by formal caregivers and health professionals upon hospital discharge for people care-dependent on home care?

The second stage of review²² was the definition of what information would be evaluated in the articles, considering the following notes: definition of home care criteria for people care-dependent after hospital discharge; determination of criteria for the optimization and organization of home care after discharge; establishment of the content of home care; identification of home care domains that require quality indicators.

Subsequently, the inclusion criteria were defined, in which the PICO strategy (Patient - people care-dependent on home care) was used; Interest - home care, home nursing, Quality indicators; and Context - home care).²² Primary and secondary studies, published in national and international journals between 2000 and 2020, in the English, Spanish or Portuguese language and which addressed the structured issues of the PICO strategy were included. Book chapters, editorials, comments, theses, and dissertations were excluded from the study, as well as scientific evidence that was not available in full.

The selection of databases occurred according to the recommendations of JBI²², in which the recommendations of the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA)⁵ were adopted in the stages of identifying the databases, descriptors and debugging the products arising from the process from the checklist. The search for studies began, in line with the systematized stages of PRISMA⁵, between 2017 and 2020, through the Capes Journals portal, with access through the Federated Academic Community (CAFe). The studies were selected from the following electronic databases: US National Library of Medicine (PubMed); Web of Science; Scopus

and Cumulative Index to Nursing and Allied Health Literature (CINAHL). Combinations with the descriptors in Medical Subject Headings (Mesh) were used through actions with Boolean and, OR and/or NOT operators^{5,22}.

The decision to use GT at this stage of the review is based on the cyclical process of coming and going, taking a methodological course from the Straussian perspective, considering the insights that arise during the evaluation process of the studies included in the review. JBI has a standardized data tool; however, the methodological framework allows the use of other tools such as software²². Thus, the studies found in the identification process were imported from each bank to the EndNote® reference manager, developed by Clarivate Analytics, in its 2013 X7 version and compatible with the 2019 version of Microsoft Word® 2019, being the fourth stage of the review, proposed by JBI²².

The articles were filtered to remove duplicate articles, by two independent authors, working in the review from the first stage, and, upon disagreement of opinion, the study under discussion was evaluated by a third member, determining its selection according to the inclusion and exclusion criteria. Despite its international and consensual use, the initial steps of PRISMA are necessary for the dynamics and methodological continuation of the use of GT in the process of data extraction, analysis, and codification due to the need to return to the studies included in the review and/or return the indexing bases with a new descriptor, when a new category or phenomenon is observed. Nevertheless, it is from the eligibility phase that GT begins its process of extracting, analyzing, and encoding the data.

At the first reading, it was verified whether the study contained information relevant to the review, in addition to its methodological quality, evaluated according to the criteria Consolidated criteria for reporting qualitative research (COREQ)²³ and Confidence in the Evidence from Reviews of Qualitative Research (GRADE-CERQual)²⁴. It was decided not to use the Critical Appraisal Checklist for Interpretive & Critical research (QARI) tool to evaluate the methodological rigor proposed by JBI, but the methodological quality was evaluated, using the instruments described above²³⁻²⁴. The stages of information recording collection, synthesis of findings and elaboration of meta-analyses, considering the methodological stages of JBI²², adapted to GT are presented in the results.

This research was conducted in accordance with the ethical aspects of resolution 466/2012 and 510/2016 of the National Health Council, whereby the project was forwarded to the Ethics Committee on research with human beings, receiving a favorable opinion for its realization. The review used as an example was filed in the International Prospective Register of Systematic Reviews (PROSPERO), under number CRD42020220894.

RESULTS AND DISCUSSION

Extraction, analysis and codification of data - Straussian perspective

At this stage, the analytical process began, using the stages of GT in 128 studies. The Straussian perspective was used due to its flexibility, which allows us to glimpse the data with meanings about the interactions between the subjects, actors of the research question of the review, besides allowing the integration with the literature during the data analysis process. An essential step to define the theoretical sampling of the review, composed of articles with a qualitative approach and with different theoretical references (Figure 1)^{7,9,14}.

The beginning of the data analysis process began with open coding, which was characterized by the thorough process of reading line by line, paragraph by paragraph and incident to incident. In this event, the formation of the first open codes began. From the evaluation, reflection, comparison and conceptualization, a preliminary code was given - called "prior category" - for each raw data analyzed in the articles that comprised the review (Figure 2)⁹⁻¹¹.

In the methodological follow-up of JBI, the JBI-SUMARI would be used for the qualitative synthesis²². However, the tool would limit the process of extracting, analyzing and coding the data in the Straussian perspective of GT. Therefore, it was decided to use software to help organize the data due to the numerous initial codes that emerged from the open coding. For this, version 2020 of the MAXQDA® mixed data analysis program was used, which facilitated the organization of data encodings and allowed an interrelationship between the codes and the construction of memos derived from the methodological approach²⁵⁻²⁶.

This methodological process from the Straussian perspective enhanced the exhaustive reading of all the studies included in the review. The vast majority evoked certain points of the care process of people care-dependent on home care. This step, with the help of memoranda and/or diagrams, enabled the process to go back and forth in the articles included in the review and, when relevant, based on the identification of the necessary articles led to the need to redo the search in the selected databases, inserting new descriptors (Figure 2).

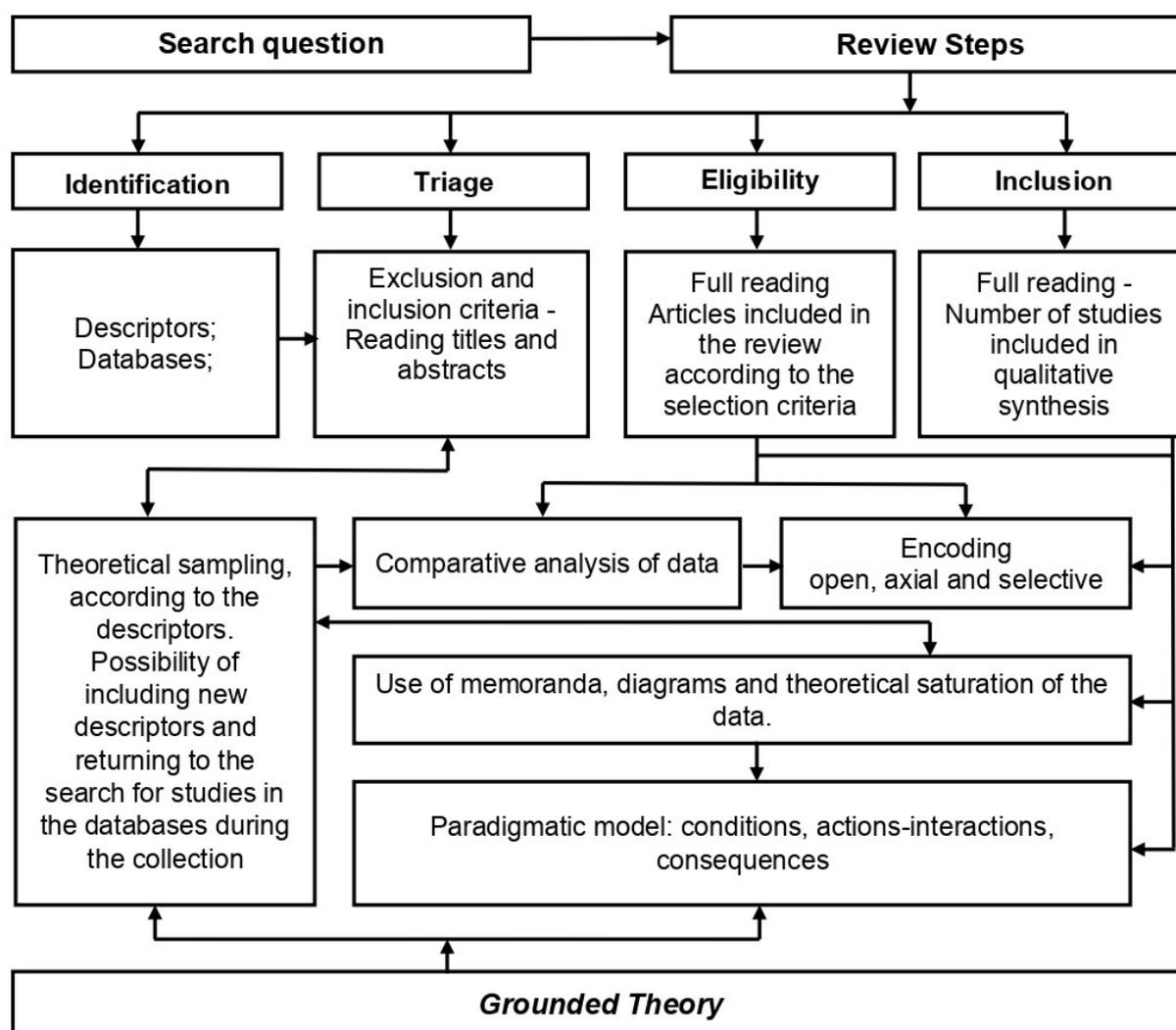


Figure 1 - Flowchart of the stages of the initial process of data collection and subsequent analysis and codification of the data. Maringá, PR, Brazil, 2022.

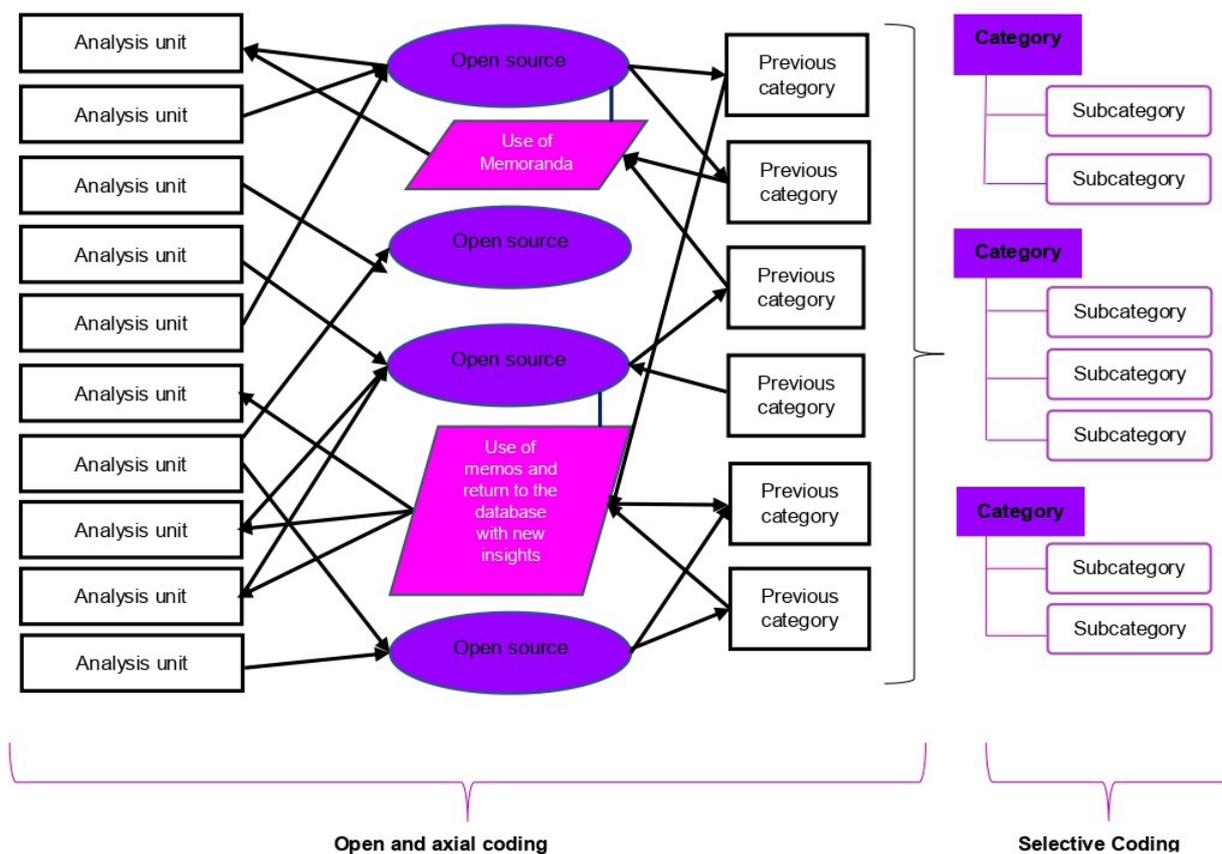


Figure 2 - Example of the data analysis and coding process. Maringá, PR, Brazil, 2022.

As shown in Figure 2, in the open and axial coding, the articles that composed the review (units of analysis) generated the first open codes, generating the possibility of returning to the articles when new concepts emerged in the analysis and codification process. In the same open coding process, the codes were analyzed inductive-deductive style, characterizing axial coding from questions to reach the previous categories¹¹⁻¹³.

The two steps were not performed sequentially, but at the same time, considering that in the mentioned codifications it is possible to develop relationships between concepts of conditional character. The raw data had different conjunctures, but were contiguous to previous categories, such as the need to have a professional tool to perform certain activities in the care of care-dependent people cared for at home, but which was also related to the communication capacity between caregiver and health professional, for example. (Table 1)¹¹⁻¹³.

In this stage of selective coding, where the process of integration and refinement of the previously elucidated categories was instituted, the paradigmatic model was used, which helped in the systematization of the previous categories arising from the axial coding from the following components: conditions, actions-interactions, and consequences. These components helped to establish relationships with the phenomenon of the study and the other categories that emerged during the data collection, as well as presenting them in a schematized manner⁹⁻¹⁰.

Selective coding allowed the emergence of categories and subcategories. From the listed categories, the central phenomenon emerged, entitled *Unveiling care practices for people care-dependent on home care*, being the main category of the study, considering the theoretical frameworks of the Donabedian Triad¹⁷, assumptions of the middle-range theory¹⁸ and the transitions (Figure 3)¹⁹⁻²⁰.

Table 1 - Arrangement of the units of analysis, open codes and previous categories derived from open and axial coding. Maringá, PR, Brazil, 2022.

Analysis Unit	Open codes	Previous category
“The teams that take care. The teams that care for people with acute infectious conditions - who started intravenous antibiotic therapy in the hospital and were followed at home for another 7 to 10 days to complete the therapeutic regimen.” ²⁷	Identifying the need for nursing services for the administration of complex medicines	Skills for medication management in home care.
“These are the teams with higher case turnover and less possibility of building bonds and care strategies, developing a more instrumental work, guided by the use of light-hard and hard technologies.” ²⁷	Identification of capacity and objective training for home care to health professionals of health institutions, such as basic health units and hospitals, involved in the care of people in home care.	Permanent education for health professionals regarding home care / Building a bond between family (caregiver/patient) and health professionals.
“In the first days of home care, there is a process of technology transfer, light-hard in most cases, by the team, which teaches the caregiver to perform different types of maneuvers and procedures that will need to be performed daily.” ²⁷	Building effective communication between caregiver and health professional/Transition of hospital/home care	Monitoring of interventions performed in home care.

Source: Biscione, 2013.²⁷

In this process, the relationship and the connection between the conditions that address issues inherent to the need of care-dependent people at hospital discharge were provided, based on the assumptions of the structure¹⁷, particulate-deterministic paradigm¹⁸ and typology and context¹⁹⁻²⁰. Actions-interactions are the responses of the studied public to the events experienced in hospital discharge, considering the quality of the care process¹⁷, to the interactive-integrative paradigm and its adaptation to the new reality¹⁷, mediated by conditions and therapy¹⁹⁻²⁰. Finally, contemplating the paradigmatic model of the Straussian perspective, we have the consequences based on the quality of the results¹⁷, which infers in the unitary-transformative paradigm¹⁸ from the response patterns, based on the theory of transitions (Figure 3)¹⁹⁻²⁰.

It is worth noting the use of the gerund to represent the actions of the data that are being analyzed and categorized and to aid in the development of the study phenomenon, characteristic of GT (Table 2)^{9-11,14}. The compilation of previous and later categories regrouped, using the MAXQDA® software, enhanced the more comprehensive coding, such as health professionals in general, who were later regrouped according to their specificity (multiprofessional team/nurse/ psychologist). The fact that they have characteristics and similarities between them makes it possible to group codes, reducing the number of analysis units¹¹.

The meta-analyses produced themes that were divided according to the assumptions of the Donabedian triad¹⁷, anchored in the middle-range theory¹⁸ and transitions¹⁹⁻²⁰, which addressed nine themes related to the quality of the structure. It was not directed only to the care setting, but to the characters who would act in home care. Six themes were related to the process of performing care in home care, and 10 themes explained the potential results from the interventions and care modes performed from the use of the indicators developed, based on the process and the result, and compiled a diagram summary on the topic addressed.

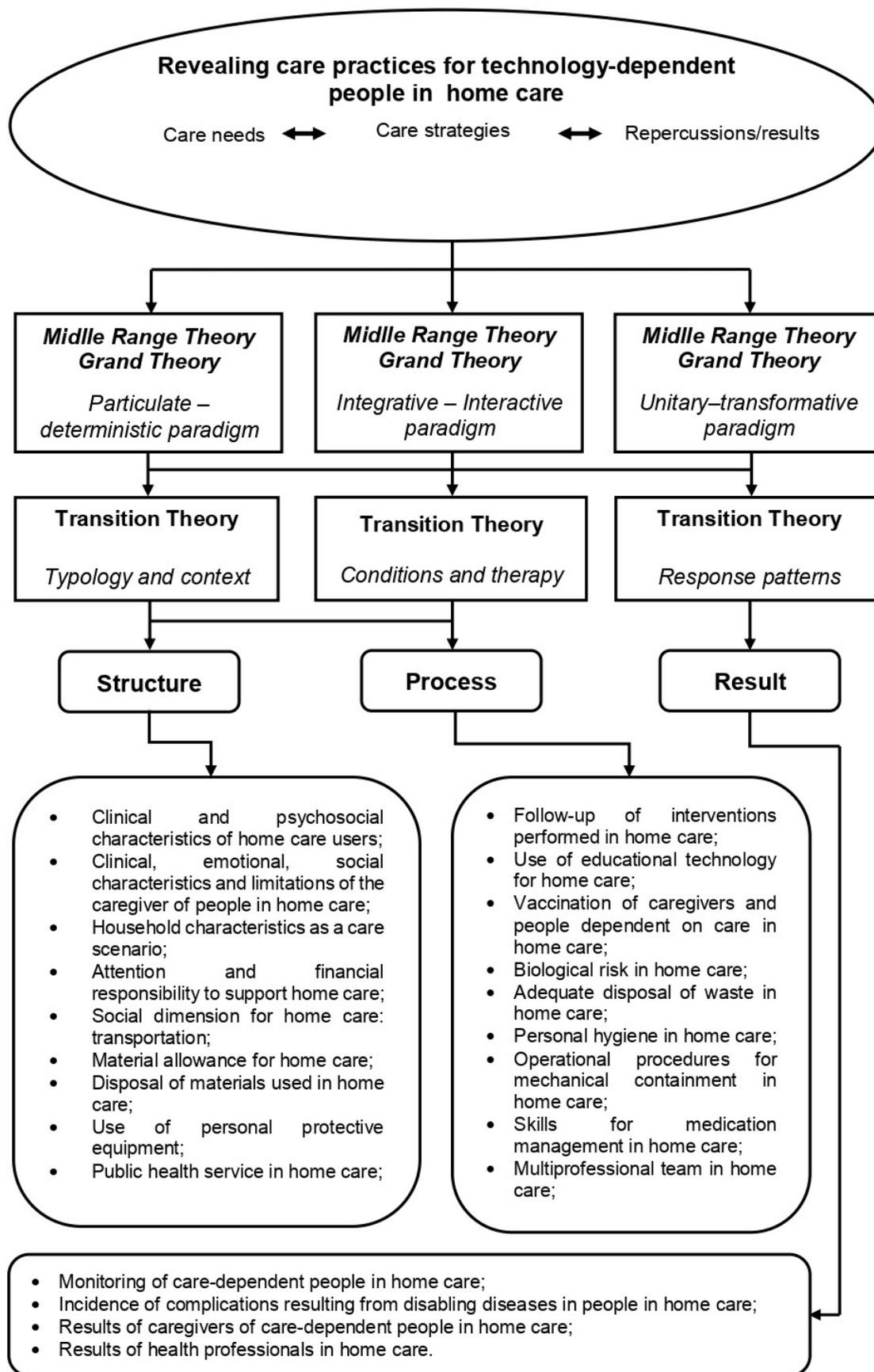


Figure 3 - Theoretical organization of the process of inferential analysis and development of meta-analyses. Maringá, PR, Brazil, 2022.

Table 2 - Example of refinement and arrangement of categories and subcategories derived from selective coding or integration. Maringá, PR, Brazil, 2022.

Category	Subcategory
Clinical and psychosocial characteristics of people dependent on technology in home care.	<ul style="list-style-type: none"> • Assessing the emotional and social needs of people dependent on technology in home care; • Evaluating the physical mobility of people dependent on care in home care; • Consolidating the therapeutic objectives of treatment in a hospital environment to ensure the physical, social and emotional recovery of people dependent on technology in home care.
Clinical, emotional, social characteristics and limitations of informal caregivers of people dependent on technology in home care.	<ul style="list-style-type: none"> • Elucidating the physical, emotional and social limitations of informal caregivers of people dependent on technology in home care; • Designating daily activities for informal caregiver of people dependent on technology in home care; • Evaluating the experience of care provided to people dependent on technology in home care; • Evaluating the need for training of caregivers of people dependent on technology in home care.
Household characteristics as a care scenario.	<ul style="list-style-type: none"> • Evaluating the physical and structural condition of the household and support to receive people dependent on technology in home care; • Checking the availability of equipment and instruments to assist people dependent on care in home care, such as beds, chairs, armchairs, etc.
Public health service in home care.	<ul style="list-style-type: none"> • Training the multidisciplinary team to monitor people dependent on technology in home care. • Evaluating the coordination and case management capacity of the multidisciplinary team to monitor people dependent on technology in home care; • Integrating multiprofessional assistance to strengthen Health Care Networks in the management of cases of people dependent on technology in home care.

Source: Own data.

This study presented the description of data extraction, analysis and coding from studies in the literature, using GT. Currently, there are several types of qualitative synthesis methods, such as meta aggregation, a tool used in JBI literature reviews, which corresponds to findings of a descriptive level, of practical use, aiding decision making²⁸⁻²⁹. The ability to develop theories, using meta-ethnography is also used for qualitative synthesis, supported by epistemological assumptions, but it differs from GT on the power of generalization²⁹⁻³⁰.

The qualitative synthesis carried out from the theoretical design of GT has the potential to provide depth and expansion through a central category. From the emergence of the study phenomenon, other conceptual categories are explained, as can be seen in Figure 3. In this context, the Straussian perspective expands contextual processes, actions-interactions, and consequences of a central category, producing a theory about existing concepts and which can be directed to practical utility. Finally, the synthesis of evidence using GT, permeates the reliability strategy of constant comparison, employing other methods to maximize the rigor of the study and theory development and dense description of the categories linked to the central phenomenon³⁰.

CONCLUSION

In this study, we sought to describe the process of using GT as a theoretical/methodological framework, together with the initial stages of PRISMA and JBI for the development of meta-analyses, using the Straussian perspective. It is worth mentioning that the choice of this perspective does not condition its use in each review, since comparative data analysis, coding, memorandum and diagrams, inherent to the methodological framework, are used.

The use of the Straussian perspective made it possible to construct a meta-analysis with methodological rigor, as it presents systematic follow-up and particular steps of GT, such as open, axial, and selective coding and the emergence of the central phenomenon of the study. It is worth mentioning the use of diagrams and memos, which allowed improving ideas and insights in the analysis coding process, providing the opportunity to return several times to the database to build new codes that emerged during the analysis.

It is reiterated that the steps of GT took place after the PRISMA and JBI steps, but due to its cyclical process of returning to the database with new descriptors due to the emergence of new sample groups. When some code emerged during any coding stage, new searches with the insertion of new descriptors were carried out with the objective of answering the research question and expanding the analysis system. The study contains subsidies for the understanding of conducting SLR research with meta-analyses based on the Straussian perspective of GT, contributing to the scientific rigor of the mentioned methodologies.

The study has the potential to guide researchers in SRL research with meta-analyses, generating codes and conceptual categories according to the Straussian perspective, which, according to the objective of the review, has differentiating characteristics, such as the possibility of using literature in all stages of data extraction, analysis, and codification, in addition to rigor to generate the theory. Moreover, the perspective under discussion is didactic and positions the researcher actively in his methodological process, ensuring a deepening in the theoretical sensitivity and identification of the central category.

The grouping of research results from different countries, with divergent care policies and practices, and qualitative approaches, with different theoretical references, linked to the methodological framework can be pointed out as limitations of the study. Thus, possible particularities may not have been contemplated in this study. Finally, we point out the use of only one perspective of GT, establishing the need for new research that addresses other modalities of the theoretical framework adopted and presented in this theoretical-reflexive essay.

REFERENCES

1. Fan D, Breslin D, Callahan JL, Iszatt-White M. Advancing literature review methodology through rigour, generativity, scope, and transparency. *Int J Manag Rev* [Internet]. 2022 [cited 2022 Jun 13];24(2):171–80. Available from: <https://doi.org/10.1111/ijmr.12291>
2. Nadkarni S, Prügl R. Digital transformation: a review, synthesis, and opportunities for future research. *Manag Rev Q* [Internet]. 2021 [cited 2022 Jun 13];71:233–341. Available from: <https://doi.org/10.1007/s11301-020-00185-7>
3. Shelton RC, Lee M, Brotzman LE, Wolfenden L, Nathan N, Wainberg ML. What is dissemination and implementation science?: an introduction and opportunities to advance behavioral medicine and public health globally. *Int J Behav Med* [Internet]. 2020 [cited 2021 Dec 28];27(1):3–20. Available from: <http://doi.org/10.1007/s12529-020-09848-x>

4. Snyder H. Literature review as a research methodology: An overview and guidelines. *J Bus Res* [Internet]. 2019 [cited 2021 Dec 28];104:333–9. Available from: <https://doi.org/10.1016/j.jbusres.2019.07.039>
5. Page MJ, Moher D, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ* [Internet]. 2021 [cited 2022 Jun 13];372:160. Available from: <https://doi.org/10.1136/bmj.n160>
6. Avila DT, Santos RI, Mendling J, Thom LH. A systematic literature review of process modeling guidelines and their empirical support. *Bus Process Manag J* [Internet]. 2021 [cited 2021 Dec 28];27(1):1–23. Available from: <https://doi.org/10.1108/BPMJ-10-2019-0407>
7. Majid U, Vanstone M. Appraising Qualitative Research for Evidence Syntheses: A Compendium of Quality Appraisal Tools. *Qual Health Res* [Internet]. 2018 [cited 2022 Jun 13];28(13):2115–31. Available from: <https://doi.org/10.1177/1049732318785358>
8. Gentles SJ, Charles C, Nicholas DB, Ploeg J, McKibbin KA. Reviewing the research methods literature: principles and strategies illustrated by a systematic overview of sampling in qualitative research. *Syst Rev* [Internet]. 2016 [cited 2021 Dec 28];5(1):172. Available from: <http://doi.org/10.1186/s13643-016-0343-0>
9. Santos JLG, Cunha KS, Adamy EK, Backes MTS, Leite JL, Sousa FGM. Análise de dados: comparação entre as diferentes perspectivas metodológicas da Teoria Fundamentada nos Dados. *Rev Esc Enferm USP* [Internet]. 2018 [cited 2021 Dec 28];52:e03303. Available from: <https://doi.org/10.1590/S1980-220X2017021803303>
10. Charmaz K, Thornberg R. The pursuit of quality in grounded theory. *Qual Res Psychol* [Internet]. 2021 [cited 2022 Jun 13];18(3):305–27. Available from: <https://doi.org/10.1080/14780887.2020.1780357>
11. Magalhães ALP, Lanzoni GMM, Koerich C, Cunha KS, Kahl C, Meireles BHS. Perspectiva straussiana da Teoria Fundamentada nos Dados. In: Lacerda MR, Santos JLG. *Teoria Fundamentada nos Dados: bases teóricas e metodológicas*. Porto Alegre, RS(BR): Moria, 2019. p. 55-79.
12. Glaser B, Strauss AL. *The discovery of Grounded Theory: strategies for qualitative research*. New York, NY(US): Aldine; 1967.
13. Strauss A, Corbin J. *Pesquisa qualitativa: técnicas e procedimentos para o desenvolvimento de teoria fundamentada*. 2th ed. Porto Alegre, RS(BR): Artmed, 2008.
14. Wolfswinkel JF, Furtmueller E, Wilderom CPM. Using grounded theory as a method for rigorously reviewing literature. *Eur J Inform Sys* [Internet]. 2013 [cited 2021 Dec 28];22(1):45–55. Available from: <https://doi.org/10.1057/ejis.2011.51>
15. Rêgo AS. *Construção e validação de indicadores de qualidade para alta hospitalar de pessoas dependentes de cuidado no domicílio [tese]*. Maringá, PR(BR): Universidade Estadual de Maringá, Programa de Pós-graduação em Enfermagem; 2021.
16. Faria-Schützer DB, Surita FG, Alves VLP, Bastos RA, Campos CJG, Turato ER. Seven steps for qualitative treatment in health research: the Clinical-Qualitative Content Analysis. *Ciênc Saúde Coletiva* [Internet]. 2021 [cited 2022 Jun 13];26(1):265–74. Available from: <https://doi.org/10.1590/1413-81232020261.07622019>
17. Donabedian A. Basic approaches to assessment: structure, process, and outcome. In: *Explorations in quality assessment and monitoring*. v. III. Ann Arbor: Health Administration Press; 1980. p. 77-125.
18. Smith MJ, Liehr PR, editors. *Middle range theory for nursing*. 4th ed. New York, NY(US): Springer Publishing Company; 2018.

19. Meleis AI. *Theoretical Nursing: Development and Progress*. Philadelphia: Lippincott Williams & Wilkins; 2011.
20. Meleis AI, editor. *Transitions theory: middle-range and situation-specific theories in nursing research and practice*. New York, NY(US): Springer; 2010.
21. McPherson S, Reese C, Wendler MC. Methodology update: delphi studies. *Nurs Res* [Internet]. 2018 [cited 2021 Dec 28];67(5):404–10. Available from: <https://doi.org/10.1097/NNR.0000000000000297>
22. Aromataris E, Munn Z, editors. *JBIM Manual for Evidence Synthesis* [Internet]. JBI; 2020 [cited 2022 Jun 13]. Available from: <https://doi.org/10.46658/JBIMES-20-01>
23. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (Coreq): a 32-item checklist for interviews and focus groups. *Inter J Qual Health Care* [Internet]. 2007 [cited 2021 Dec 28];19(6):349–57. Available from: <https://doi.org/10.1093/intqhc/mzm042>
24. Lewin S, Booth A, Glenton C, Munthe-Kaas H, Rashidian A, Wainwright M, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings: introduction to the series. *Implement Sci* [Internet]. 2018 [cited 2021 Dec 28];13(Suppl 1):2. Available from: <https://doi.org/10.1186/s13012-017-0688-3>
25. Kalpokas N, Radivojevic I. Bridging the Gap Between Methodology and Qualitative Data Analysis Software: A Practical Guide for Educators and Qualitative Researchers. *Sociol Res Online* [Internet]. 2022 [cited 2022 Jun 13];27(2):313–41. Available from: <https://doi.org/10.1177/13607804211003579>
26. Metelski FK, Santos JLG, Cechine-Peiter C, Fabrizio GC, Schmitt MD, Heilemann M. Constructivist Grounded Theory: characteristics and operational aspects for nursing research. *Rev Esc Enferm USP* [Internet]. 2021 [cited 2022 Jun 13];55:e03776. Available from: <https://doi.org/10.1590/S1980-220X2020051103776>
27. Biscione FM, Szuster DAC, Drumond E de F, Ferreira GUA, Turci MA, Lima Júnior JF, et al. Avaliação de efetividade da atenção domiciliar de uma cooperativa médica de Belo Horizonte, Minas Gerais, Brasil. *Cad Saúde Pública* [Internet]. 2013 [cited 2021 Dec 28];29(Suppl 1):s73–80. Available from: <https://doi.org/10.1590/0102-311X00017813>
28. Munn Z, Dias M, Tufanaru C, Porritt K, Stern C, Jordan Z, et al. The “quality” of JBI qualitative research synthesis: a methodological investigation into the adherence of meta-aggregative systematic reviews to reporting standards and methodological guidance. *JBIM Evid Synth* [Internet]. 2021 [cited 2022 Jun 13];19(5):1119–39. Available from: <https://doi.org/10.11124/JBIES-20-00364>
29. Hays DG, McKibben WB. Promoting Rigorous Research: Generalizability and Qualitative Research. *J Couns Develop* [Internet]. 2021 [cited 2022 Jun 13];99(2):178–88. Available from: <https://doi.org/10.1002/jcad.12365>
30. Noyes J, Booth A, Flemming K, Garside R, Harden A, Lewin S, et al. Cochrane Qualitative and Implementation Methods Group guidance series - paper 3: methods for assessing methodological limitations, data extraction and synthesis, and confidence in synthesized qualitative findings. *J Clin Epidemiol* [Internet]. 2018 [cited 2022 Jun 13];97:49–58. Available from: <https://doi.org/10.1016/j.jclinepi.2017.06.020>

NOTES

ORIGIN OF THE ARTICLE

Article extracted from the thesis - Construction and validation of quality indicators for hospital discharge of care-dependent people in home care, presented to the Programa de Pós-graduação em Enfermagem da Universidade Estadual de Maringá, in 2021.

CONTRIBUTION OF AUTHORITY

Study design: Rêgo AS, Radovanovic CAT.

Data collection: Rêgo AS, Büscher A, Radovanovic CAT.

Data analysis and interpretation: Rêgo AS, Büscher A, Radovanovic CAT.

Discussion of results: Rêgo AS, Büscher A, Radovanovic CAT.

Writing and/or critical review of the content: Rêgo AS, Haddad MCFL, Carreira L, Salci MA, Santos JLG, Büscher A, Andrade L, Radovanovic CAT.

Review and final approval of the final version: Rêgo AS, Haddad MCFL, Carreira L, Salci MA, Santos JLG, Büscher A, Andrade L, Radovanovic CAT.

FUNDING INFORMATION

Joint Program of Doctoral Scholarships in the Federal Republic of Germany, called DAAD2017SWE, with sandwich doctorate scholarship regulated by the National Council for Scientific and Technological Development, process number 290153/2017-4;

PhD scholarship granted by the Coordination for the Improvement of Higher Education Personnel, Notice Social Demand Regulation, process number 88882.449287/2019-01.

APPROVAL OF ETHICS COMMITTEE IN RESEARCH

Approved by the Ethics Committee in Research of the Universidade Estadual of Maringá, opinion no.2,698,239/2019, Certificate of Presentation for Ethical Appreciation 89274518.4.0000.0104.

CONFLICT OF INTEREST

There is no conflict of interest.

EDITORS

Associated Editors: Bruno Miguel Borges de Sousa Magalhães, Monica Motta Lino.

Editor-in-chief: Elisiane Lorenzini

HISTORICAL

Received: January 13, 2022.

Approved: July 08, 2022.

CORRESPONDING AUTHOR

Anderson da Silva Rêgo

andersondsre@gmail.com

