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# BMJ Open Application of classic grounded theory in nursing studies: a qualitative systematic review protocol

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## ABSTRACT

**Introduction** Classic grounded theory (CGT) is a valuable method for nursing research, but the application of CGT methodology in nursing studies has not been specifically investigated. With the increasing use of CGT in nursing research, attention is now focusing on the quality of studies using this methodology. In this systematic review, we aim to develop an understanding of the application of CGT methodology, specifically appraising the quality of the methodology's application in the field of nursing research. **Methods and analysis** The reporting of this review will be guided by the Preferred Reporting Items for Systematic and Meta-Analysis guidelines statement and data synthesis guided by the Synthesis Without Meta-analysis guideline. Publications will be uploaded to Rayyan. The quality of each article will be assessed using the Critical Appraisals Skills Programme qualitative research appraisal tool. Analysis of the selected studies will be performed using the Guideline for Reporting and Evaluating Grounded Theory Research Studies, explicitly the CGT guiding principles.

**Ethics and dissemination** Ethical approval is not required because only secondary data will be used in this review. The results of the final study will be published in a peer-reviewed open-access journal.

**PROSPERO registration number** CRD42021281103.

## INTRODUCTION

### Rationale

Grounded theory (GT) was initially developed by Glaser and Strauss<sup>1</sup> as a research methodology to generate theory from data. Used extensively in the discipline of nursing since 1970,<sup>2</sup> GT systematically gathers and analyses data in the generation of theory.<sup>3</sup> Theories generated via GT methods are said to be grounded in data, meaning data drives the generation of theory instead of applying a theoretical framework to the research design, data collection and analysis.<sup>4</sup> GT is a universal research method that can be undertaken using three different approaches: Classic (or Glasserian), Straussian or Constructivist.<sup>5</sup>

The aim of classic grounded theory (CGT) is to generate, develop or discover a theory,<sup>1</sup> and theories generated from CGT research can act as drivers of change.<sup>4</sup> Data collection

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Strict eligibility criteria have been established for inclusion and exclusion for selecting the primary studies for the review.
- ⇒ The validated tool, the Guideline for Reporting and Evaluating Grounded Theory, has been applied, specifically the classic grounded theory (CGT) guidelines have been used.
- ⇒ Search strategy keywords include those only directly descriptive of CGT.
- ⇒ Only publications written in English will be included for review.

and analysis occur simultaneously in CGT, with codes and categories developed from data through a constant comparative method that facilitates the emergence of a theory.<sup>3</sup> The GT method advocates line-by-line coding as a first step because it forces the researcher to take a fresh look at the data, compare data fragments and ask analytic questions about them. This method of analysis facilitates data synthesis but, more importantly, allows CGT researchers to move beyond description through forming new concepts that explicate what is happening.

The CGT approach offers valuable strategies to develop researchers' theoretical analyses<sup>6</sup> and presents important opportunities to develop, enhance and improve nurse behaviours. For example, Flenady *et al.*<sup>7</sup> undertook a CGT study to explain the behaviours of emergency department registered nurses (RNs) when they perform respiratory rate observations. Analysis of data collected from 79 RNs revealed that health sectors forced compliance in recording observations meant that this group of RNs are more than likely to record a respiratory rate without actually counting respirations.<sup>7</sup> The emergent theory called 'Rationalising Transgression' identified two significant factors that impact current practice.<sup>7</sup> First, RNs in emergency departments report suboptimal practice occurring regarding respiratory rate



collection methods and second, this poor practice occurs in part because nurses believe that respiratory rate observations are not required for every patient. Second, organisational requirements mandate that a value for this vital sign be given at each observation round are superfluous and redundant. From this CGT study, valuable insight into the behaviours of this cohort of nurses was identified and an important understanding of how these observations were collected was ascertained—both important factors that impact patient safety and quality nursing practice.<sup>7</sup>

Despite the important contribution of GT to nursing practice and knowledge, elements related to rigour are not always well understood and challenges continue to arise concerning authentication and trustworthiness when applying GT as a research methodology.<sup>8–10</sup> Moher<sup>11</sup> recommends reporting criteria as essential for researchers so that the disclosure of research methods and findings is transparent and explicit. Significant work has been undertaken in creating quality criteria and recommendations when executing qualitative research.<sup>12</sup> Yet, it has been suggested the domain of qualitative research is unnecessarily brimming with templates and standard protocols, and the use of such templates is considered to enhance the rigour of qualitative research.<sup>13</sup> It is assumed that only practices that increase methodological transparency, and thereby increase the replicability of one's research, are essential for trustworthiness.<sup>14</sup> However, there is a growing school of thought that rather than using rigid templates and protocols, the use of guiding principles and researchers' own reasoning through the application of the methodology is in itself a trustworthy template for rigour.<sup>13</sup>

The use of GT in nursing-related studies has grown significantly over the last 20 years, and with this increasing popularity, recurrent calls for enhancing rigour and quality have been made.<sup>12</sup> Ambiguity regarding rigour when dealing with narratives and people rather than numbers and statistics continues,<sup>15</sup> therefore it is beneficial that qualitative researchers have the ability to establish that their research is credible.<sup>8</sup> Tobin and Begley (p. 369)<sup>10</sup> state 'without rigour, there is the potential of fictional journalism masquerading as research!'

CGT was the sole focus of this systematic review because the authors' particular interest was to appraise the methodological accuracy of CGT studies to determine if the tenets were followed when discovering a substantive theory.

Few publications exist that appraise the accurate application of GT methodology within health research. In 2009, Ali *et al* undertook a systematic review which appraised the methodological rigour of GT research published in the field of physiotherapy.<sup>16</sup> They found one of the main problems that undermined the rigour of GT studies was the multiple versions of GT methods used. This problem manifested itself in a state of methodological incoherence whereby methods seemed mixed and matched. The authors concluded, such methodological incoherence might have prevented the analysis from

progressing beyond the concrete level of describing information because the abstract level of exploring, explaining and theorising variations within data was not present.<sup>16</sup> Similarly, Valvi *et al* undertook a critical evaluation of GT studies that focused on online and mobile customer behaviours.<sup>17</sup> Their study identified weaknesses regarding the methodological conduct of the GT which impacted the resulting generation of theory.<sup>17</sup> Valvi *et al* found that it was apparent from their critical evaluation that researchers' had pre-conceptions and inadequate knowledge of GT methodology and concluded firm knowledge of the different versions of GT ought to precede GT application.<sup>17</sup>

Likewise, Hutchison *et al* critically reviewed GT research within exercise physiology.<sup>18</sup> They reviewed 21 articles that report on GT studies conducted between 1999 and 2008 and concluded it was crucial that both authors and reviewers of future studies understand the key tenets of GT methodology and the limitations associated.<sup>18</sup> Research rigour in GT can only be judged if authors present a clear and detailed account of their research process and researchers must recognise that GT represents a complete research process where appropriate actions need to be considered at every stage.<sup>18</sup>

The earliest process of undertaking CGT as specified by Glaser and Strauss in 1967 included constant comparison, systematic coding, theoretical sampling and writing of memos. While this iterative process was evident, there was a lack of clear guidelines for researchers to follow. In response to these identified methodological deficits, a Guideline for Reporting and Evaluating Grounded Theory (GUREGT) research studies was developed by Berthelsen *et al*.<sup>19</sup> The GUREGT is a validated, 25-item checklist that, that CGT researchers can employ when they aim to produce a study, addresses the main tenants of the GT approach.<sup>19</sup> Berthelsen *et al* concluded that when the GUREGT is used for reporting or evaluating GT studies, researchers' ability to identify information missing in manuscripts, as well as preserve the theoretical sensitivity of GT studies is enhanced (p. 75).<sup>19</sup>

With the increasing use and misuse of GT in nursing research, it is essential that researchers understand and identify the differences when applying the three main types of GT methodology<sup>20</sup> and the intention of this systematic review was to focus on one iteration of GT, CGT. The GUREGT provides a benchmark for rigour in regard to the components required to produce a high-quality theory. The GUREGT also provided us with a well-defined list of divergence between the three main iterations of GT.

CGT is a valuable methodology for informing nursing-related studies.<sup>21</sup> However, there is a paucity of literature evaluating the application quality of GT studies in nursing, particularly CGT. This systematic review will apply the constructs of GUREGT to appraise how consistently researchers adhere to the principles of CGT methodology. The results of this review will provide a framework to inform the precise application of CGT in

future research. This in turn will enhance the rigour of subsequent CGT studies, which will better inform nursing practice and education going forward.

### Review aim and objectives

This systematic review aims to develop an understanding of the application of CGT methodology in the field of nursing research. Specifically, this review will appraise the quality of its application against the validated framework, the GUREGT, explicitly the CGT guiding principles.

## METHODS AND ANALYSIS

### Eligibility criteria

#### Types of studies

Studies included will be peer-reviewed journal articles that identify using a CGT methodology within the field of nursing.

#### Types of participants

Only research relating to nurses in the fields of acute, community, educational or general specialty areas will be considered. This does not include the wider medical or allied health professions, or the discipline of midwifery.

#### Patient and public involvement

There is no patient or public involvement in the design, conduct, reporting, or dissemination plans of this research.

#### Types of data

Applied nursing research studies that used CGT methodology and published between 2010 and 2022, in English peer-reviewed journals, will be used to generate the data for this systematic review.

#### Types of methods

To be included, studies must be conducted applying only CGT methodology.

### Types of outcomes

The outcomes will be based on the use of CGT as the primary and only methodology used in a study related to nursing that reports a substantive GT.

### Information sources

Literature search strategies will be developed using medical subject headings (MeSH) and text words related to CGT and nursing. We will search Cumulative Index of Nursing and Allied Health Literature, PubMed/MEDLINE and ProQuest—Nursing and Allied Health databases. The literature search will be limited to the English language and nursing-related studies. To ensure we capture all relevant literature, we will hand search the reference lists of retrieved results as well as search for included authors' previous publications to ensure we achieve literature saturation. The reporting of this review will be guided by the preferred reporting items for systematic and meta-analysis guidelines statement<sup>22</sup> and data synthesis guided by the Synthesis Without Meta-analysis guideline.<sup>23</sup>

### Search strategy

The search strategy was developed from free text and controlled (MeSH) vocabularies. A review of the search strategy was undertaken by a senior research librarian. Testing of search results was undertaken using the following Problem, Intervention and Context (PICO) framework<sup>24</sup> (table 1).

### Study records

The results from each database search will be imported to the lead researcher's endnote library to a folder labelled with the database, this will ensure the ongoing and future auditability of databases. There will also be a folder titled 'hand search results'. All files will then be copied to an overarching folder to combine results. Duplicates will be removed at this stage and the remaining results will be uploaded to the collaborative screening platform, Rayyan (<https://www.rayyan.ai/>).

**Table 1** PICO framework<sup>24</sup>

P	Problem	Classic grounded theory
I	Intervention	Research
Co	Context	Field of nursing
<b>Domains</b>		<b>Keywords</b>
P	Classic grounded theory	'Classic Grounded Theory' OR 'Classical Grounded Theory' OR 'Glaserian Grounded Theory' OR 'Classic Grounded Methodology' OR 'Glaserian grounded methodology' AND
I	Research	Research OR study OR 'research study' OR project or investigation or 'research paper' AND
Co	Nursing	nurs* OR 'registered nurs*' OR 'staff nurse' OR 'graduate nurse' OR 'qualified nurse' OR 'nurse clinicians' OR 'clinical nurse educator' or 'clinical facilitator' or 'clinical teacher' or 'clinical instructor'

**Table 2** Guidelines for reporting and evaluating grounded theory research studies (GUREGT) tool—12 main areas<sup>19</sup>

Main area	Item	Classic grounded theory methodology
Study aim	1	1. Does the grounded theory study aim presented to generate a theory of patterns of behaviour?
Philosophical framework	2	2. Is the grounded theory embedded in any philosophical background? Why and how?
The researchers' role	3	3. Is the researcher's theoretical sensitivity described according to conceptual thinking, level of insight into the research area and ability to generate meaning from data?
Data collection	4	4. Is data collection methods described and explained? 5. Has qualitative or quantitative data collection methods been used? How and why?
Memos	5	6. Has memos been written throughout the study about concepts and categories and are they used to formulate and generate the theory?
Sampling procedures	6	7. Is initial sampling conducted in the beginning of data collection described and explained? 8. Is theoretical sampling of the emerging categories and theory from the data collection described and explained? 9. Is the selection of participants guided by theoretical sampling? How?
Theoretical saturation	7	10. Is the reach of theoretical saturation explained according to no new insights relevant for the emergent theory?
Analysis and coding	8	11. Is the coding levels and concurrent process of coding described according to open, selective and theoretical coding? 12. Which concepts have guided the specific coding levels and how? 13. Is the core category identified before conducting selective coding? 14. Which theoretical codes have structured the theory to a progressive level of abstraction? 15. Is the constant comparison method used to compare incidents with incidents, incidents with categories and categories with categories? 16. Is the simultaneous data collection, analysis and coding guided by the theoretical sampling and writing memos described and explained?
Review of literature	9	17. Is the literature reviewed avoided initially in the grounded theory study? Why and how? 18. Is the literature reviewed after theory development on the basis of the emerging concepts and theory? How and on what grounds?
Results/the theory	10	19. Is the main concern present and explained? 20. Is the core category and the related categories presented and explained? 21. Does the theory account for the overall pattern of behaviour in the substantive area? 22. Is conceptualisation used rather than description using quotes when writing the theory?
Discussion	11	23. Are the key relationships between the core category and concepts discussed and related to relevant literature?
Evaluation criteria	12	24. Are the criteria of fit, work, relevance and modifiability presented and explained? 25. Are the evaluation criteria used to evaluate the theory?

### Study selection

Level 1 screening will consist of two reviewers, JC and TF, who will independently assess each study's title and abstract in Rayyan. All four reviewers, JC, TF, DM and TD, will undertake level 2 screening, reviewing the full text of each article, with discussions occurring to resolve any conflicts.

Level 1 inclusion criteria require checking titles and abstracts to ensure included studies:

- ▶ State they use a CGT methodology.
  - ▶ Are focused on the nursing discipline.
- Level 2 screening involves the researchers reading the full text of included studies to scrutinise the manuscripts for the following inclusion criteria:
- ▶ CGT is applied to the overarching nursing study
  - ▶ CGT is the only methodology applied to the study
    - CGT is not only used as a method for data collection or analysis.



- CGT not embedded into other qualitative methods (case studies, comparisons) or types of studies (literature review, scoping review).
- ▶ The aim of the CGT study was to develop a substantive GT.

While the authors recognise there may be limitations because they have searched for CGT in the title, it is frequently identified that publications state they are using CGT but are in fact using hybrid or mixtures of GT methodology. We believe it would be highly unlikely for the study to not mention Classic, or Glaserian, if the researcher followed CGT.

### Data items

Prior to starting, data extraction guidance notes will be created by JC. A data extraction table will be developed to collect the following information from each study:

- ▶ Title.
- ▶ Authors.
- ▶ Year.
- ▶ Country where the study was conducted.
- ▶ Aim and/or objectives.
- ▶ Items 1–12 from the GUREGT tool (table 2).

### Outcome of systematic review

Quality appraisal of publications will be conducted using the GUREGT and critique of the methodological quality of each individual study will be undertaken by all four researchers, JC, TF, DM and TD. The primary outcome of this review will be to apply the GUREGT to appraise the extent CGT methodology and methods have been accurately applied in published nursing studies. This will be presented in a detailed visual displaying the elements of the GUREGT that are 'evident', 'partially evident' and 'not evident' within the data set. This will inform the discussion and results of the review.

### Data extraction

Based on the GUREGT main areas and items, an Excel extraction tool was designed by JC for the extraction of data from all studies. This extraction tool was reviewed by the three other team members, and all four team members will independently extract the data, with any concerns or disagreements being resolved as a group. Using the validated GUREGT, the 12 main areas and 25 items of CGT method (see table 2) will be extracted, collated and appraised using an excel spreadsheet. Extracted data will be in the form of evident/partially evident/not evident to all areas and items of the GUREGT tool.

### Risk of bias

The risk of bias will be minimised by assessing studies using the GUREGT guidelines and the Critical Appraisals Skills Programme (CASP) checklist for systematic reviews (<https://casp-uk.net/casp-tools-checklists/>). JC will independently undertake CASP appraisal and share outcomes and discuss any concerns with the other three members of the research team. Critical appraisal skills enable

researchers to systematically assess the trustworthiness, relevance and results of published papers.

There are four assessors in this systematic review. Three are experienced qualitative researchers and the fourth (and primary author) is a PhD candidate with some experience in qualitative approaches. Three of the four have undertaken and presented peer-reviewed GT studies with one completing their PhD using CGT methodology. All are RNs with three having in excess of 25 years each nursing experience across multiple healthcare environments.

### Data synthesis

A systematic narrative synthesis will be provided with information presented in the text and tables to summarise and display the characteristics and findings of the included studies. The narrative synthesis will explore the relationship and findings both within and between the included studies, in line with the guidance from the Centre for Reviews and Dissemination. When addressing some items in the GUREGT, authors have concluded that some or all of the expected data will not be suitable for combining quantitatively. Therefore, the following seven items 2b, 4c, 6d, 8b, 8d, 9b, 9d will describe the results and outcomes in narrative form.

The data synthesis will primarily be completed by JC, with a second a full review being completed by TF, TD and DM. The results will be compared and discussed in meetings between all authors to provide feedback and resolve any outstanding concerns.

### Ethics and dissemination

Secondary data will be attained in this systematic review therefore no ethical approval is required. Other ethical issues are unexpected. The registration record of this systematic review is with the International Prospective Register of Systematic Reviews (<https://www.crd.york.ac.uk/prospero>) Protocol Registration. The results of the final study will be published in a peer-reviewed open-access journal and academic symposiums and/or conferences. It is expected that results will inform future CGT research.

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**Contributors** JC is the guarantor of the review. JC led the development of the protocol and drafted the manuscript. JC, TF, TD and DM contributed to the development of the eligibility criteria and selection process. TF, TD and DM all read drafts of the manuscript, provided feedback and approved the final manuscript.

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**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.



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