Grounded theory

Abstract

Grounded theory is a popular research approach in health care and the social sciences. This article provides a description of grounded theory methodology and its key components, using examples from published studies to demonstrate practical application. It aims to demystify grounded theory for novice nurse researchers, by explaining what it is, when to use it, why they would want to use it and how to use it. It should enable nurse researchers to decide if grounded theory is an appropriate approach for their research, and to determine the quality of any grounded theory research they read.

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GROUNDED THEORY HAS become a popular research approach for researchers in health care and the social sciences, particularly nurses and midwives (Gelling 2011, Denscombe 2014). For the nurse researcher new to qualitative research methodology, grounded theory is one of a number of approaches to consider.

It is difficult to provide a definitive description of grounded theory. There are several approaches to it (Glaser and Strauss 1967, Strauss and Corbin 1990, Clarke 2005, Charmaz 2006), which reflect how the methodology has diversified over time (Maz 2013). However, there are three basic tenets that differentiate grounded theory from other research approaches (Denscombe 2014): theory generation; an emergent theory grounded in empirical research with an emphasis on fieldwork or practical real world research; and concurrent systematic collection and analysis of data using theoretical sampling and constant comparative analysis (Box 1).

Theory generation

Grounded theory is a research approach in which a theory, an explanation for what is happening, develops from the information collected systematically during the research process (Glaser and Strauss 1967, Bryant and Charmaz 2007, Hall *et al* 2013). The researcher starts by asking an open-ended question when designing their research: 'What is happening here?' The answer to the question then emerges through the research process itself, termed an inductive approach. For example, a suitable question would be: 'Why is compliance with antibiotic therapy variable among patients in the community setting?' Grounded theory provides a methodological approach to discover the explanation for this variation in patient behaviour, elicited by undertaking fieldwork.

This method is in contrast to one in which the researcher begins the research process with a clear idea of what is happening – an existing explanation or theory – and wants to test that hypothesis in the research process. This is a deductive approach, because the researcher has already deduced what influences behaviour and wishes to test this in the research process – for example, testing the hypothesis 'Compliance with antibiotic therapy depends on how quickly a patient becomes asymptomatic'. The researcher can then design a study that tests this 'armchair theorising' (Charmaz 2014, Denscombe 2014), the results of which will either support or negate the explanation proposed.

Theory grounded in empirical research

The term grounded theory reflects the way the theory that emerges from the research is grounded, or justified, by the data collected. In contrast with theory testing, there are no preconceived ideas about what is happening to guide the research process in grounded theory. Theory is generated

during the research process itself and substantiated by it. Therefore, grounded theory is suited to areas that have not been investigated previously, or where existing research has major omissions and a new perspective may be desirable (Schreiber and Stern 2001). It has been used widely in social research, particularly in nursing, providing a means to explore and explain human social and psychological behaviour (Maz 2013).

Grounded theory also differs from other qualitative approaches in seeking an explanation for the phenomenon under investigation, rather than providing descriptive accounts of the subject matter (Denscombe 2014). The focus is seeking an understanding of what is happening, to inform patient care and future research projects. Nurse researchers who are interested in why something is happening will be drawn to this methodology, which provides an explanatory framework for the topic being investigated.

A grounded theory study by Jeff and Taylor (2014) investigated ward nurses' experience of the introduction of a programme to enhance patient recovery after colorectal surgery. The authors began with a broad aim, in keeping with grounded theory. Data collected through semi-structured interviews identified inconsistencies in the implementation of the protocol for enhanced recovery after surgery, which was explained by a theory of adaptation. Nurses in this study adapted or adjusted to the specific situations encountered in clinical practice; care was influenced by other ward and medical staff and the individual recovery trajectory of the patient. This demonstrates the grounded nature of this research approach, with an explanatory framework emerging for the social behaviour described by nurses in this study.

A core component of grounded theory is the emphasis on fieldwork, associating any explanations that emerge from a study to what happens in the real world and grounding the findings in the verbatim quotations of the participants (Carpenter 2011, Charmaz 2014, Denscombe 2014). Therefore it is suited to the study of human behaviour and interactions in nursing practice, and is pragmatic rather than abstract in nature. This is reflected in a grounded theory study conducted by Page and McDonnell (2013), who investigated physical holding of children and young people in clinical care situations. Their findings reflected the meaning nurses and allied health professionals placed on therapeutic holding and restraint, and the confusion that arises when a child becomes distressed when being held in this way. This is an example of practical research which is relevant to clinical practice.

Grounded theory creates some challenges for nurse researchers who have preconceived notions about what is happening and why from their formal and tacit knowledge base. Denscombe (2014) acknowledges this and differentiates between the blank mind, where all previous knowledge and supposition is suspended, and the open mind. An open-minded grounded theorist is aware of concepts and theories of potential relevance to the study, but avoids using this knowledge to make sense of the data, remaining open to discovering new concepts and theoretical explanations from the study itself. This is referred to as theoretical sensitivity (Glaser 1978).

Systematic data collection and analysis

Grounded theory is different from other qualitative approaches in that it requires simultaneous and systematic data collection and analysis. Other qualitative approaches are based on collecting large amounts of data and then analysing the data. In grounded theory, concepts and theory emerge through a process of constantly comparing the data, generating questions to explain behaviour and testing these with further data collection.

While grounded theory is essentially an inductive methodology, there are some elements of deduction. Since ideas about what is happening emerge in the initial data collection phases, the researcher constructs possible explanations for the observed behaviour, which indicates the next data collection step required to complete their understanding. This process is known as theoretical sampling (Figure 1) and reflects how the theory emerges and is tested on the data collected, supported by the theory generation ethic. Denscombe (2014) compares the grounded theory researcher to a detective, following a lead so that a picture of what has happened and why emerges as the enquiry continues: 'Each new phase of the investigation reflects what has been discovered

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BOX 1

Basic tenets of grounded theory

Theory generation:
▸ An explanation for what is happening.
Theory grounded in empirical research:
▸ An emphasis on fieldwork or practical, 'real world' research.
▸ An explanation derived from the data collected.
▸ An open mind.
Concurrent systematic collection and analysis of data:
▸ Constant comparative analysis.
▸ Theoretical sampling.
(Adapted from Denscombe 2014)

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so far, with new angles of investigation and new avenues of enquiry to be explored'. The end result is a detailed explanation of the phenomenon, associated with the evidence collected.

Licqurish and Seibold (2011) describe this process in their grounded theory study exploring how midwifery students achieve competence on their final clinical placement. An initial analysis of interviews directed the authors to collect data from a broader age range of participants and to interview further students to explore the relationships between students and preceptors, confidence and competence, and the effect of negative learning experiences on student competency. Through a cyclical process of constant comparison throughout data collection and analysis, the process of achieving competence emerged. This involved the students becoming aware of the reality of the clinical learning environment and its restrictions, adapting to that environment and assimilating all they had learned during their course in their final placement (Licqurish and Seibold 2011).

In the author's grounded theory study of practice variation among midwives (Harris 2005),

this process of moving backwards and forwards between collecting and analysing data led to the inclusion of midwives who worked in a variety of models of care, expressed a variety of values and beliefs about the third stage of labour, cared for women giving birth in different places, had different levels of expertise and lengths of service, experienced different forms of training, expressed different aims for care, cared for different types of women, and were employed in a variety of grades and posts. What emerged was a detailed explanation for inter-practice and intra-practice variation among midwives. Decision making about care was based on an evolving knowledge base, a number of contextual features and how the midwives interpreted their learning and the context of care through their personal value and belief systems.
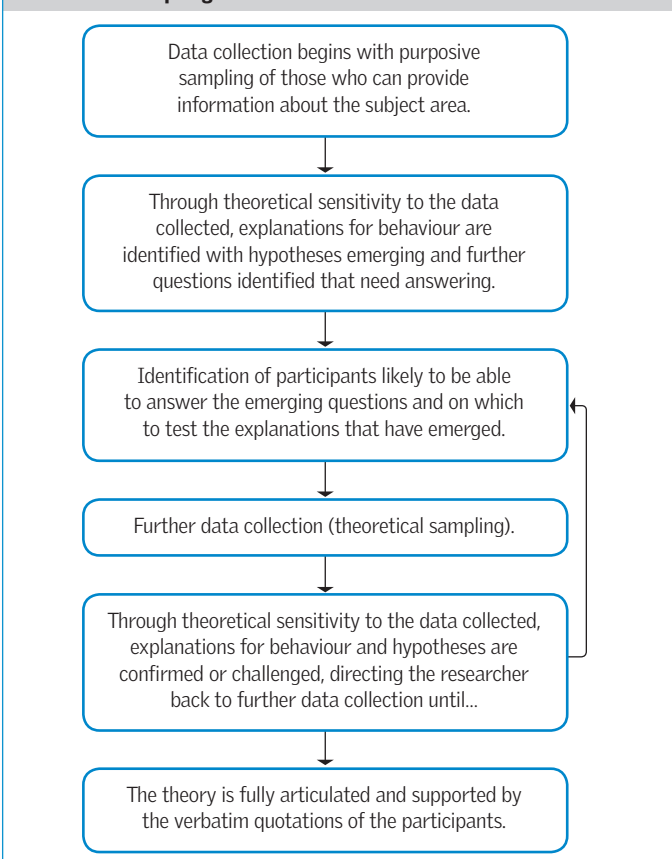
Dynamic nature of grounded theory

While accepting the basic tenets of grounded theory outlined above, the nurse researcher should consider how grounded theory has diversified since it was introduced in the 1960s. Considering the similarities and differences between grounded theory approaches enables the nurse researcher to choose whether to conduct a grounded theory study based on the original grounded theory methodology, one of the adapted versions or an adapted version of their own.

Grounded theory emerged with the publication of *The Discovery of Grounded Theory: Strategies for Qualitative Research* (Glaser and Strauss 1967), describing a methodology based on generating theory from data. This was in part a response to the dominance of theory verification in social research at the time. Grounded theory was further developed by Glaser (1978). Strauss and Corbin (1990) adapted grounded theory, introducing a framework to assist in data analysis. Their framework was informed by the theoretical underpinnings of symbolic interactionism, which focuses on the social aspects of human experience. Glaser (1992) suggested that this altered the fundamental principles of grounded theory, forcing data to fit within an analytical framework rather than allowing the theoretical framework to emerge from the data.

Two separate schools of grounded theory then emerged: Glaserian, or classical, grounded theory and Straussian grounded theory (Higginbottom and Lauridsen 2014). Researchers in both schools began to approach grounded theory in alternative ways through consideration of the ontological (relating to the nature of being) and epistemological (relating

FIGURE 1

Theoretical sampling

Data collection begins with purposive sampling of those who can provide information about the subject area.

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Through theoretical sensitivity to the data collected, explanations for behaviour are identified with hypotheses emerging and further questions identified that need answering.

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Identification of participants likely to be able to answer the emerging questions and on which to test the explanations that have emerged.

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Further data collection (theoretical sampling).

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Through theoretical sensitivity to the data collected, explanations for behaviour and hypotheses are confirmed or challenged, directing the researcher back to further data collection until...

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The theory is fully articulated and supported by the verbatim quotations of the participants.

to the theory of knowledge) underpinnings of the methodology. Second generation schools emerged as a result (Richards and Morse 2007, Higginbottom and Lauridsen 2014). These included dimensional analysis (Schatzman 1991), constructivist grounded theory (Charmaz 2000, 2006) and situational analysis (Clarke 2005). A researcher choosing to undertake grounded theory should consider the original and the adapted versions of the methodology.

Glaser continues to adhere to the original methodology (Glaser and Strauss 1967, Glaser 2002, 2003). Others have accepted the evolution of grounded theory while expressing caution about departing too far from the original authors' conception (Schreiber and Stern 2001). Other authors (Willig 2013, Morse 2009) have suggested that researchers should generate their own version of grounded theory during the research process, in response to classical views of grounded theory (Glaser 2003, 2009). Such adaptation is in keeping with the way grounded theory was originally designed, that is, to be as flexible as possible in generating theory from data (Glaser and Strauss 1967).

The challenge for the novice nurse researcher is to negotiate the ways of undertaking grounded theory, understanding that each approach has supporters and critics. It may be advisable to retain the basic tenets of grounded theory and, where appropriate, to justify any further adaptations to published versions of the methodology. Any nurse considering using grounded theory should read about the debates on the various versions of grounded theory, as well as their similarities and differences, and make an informed choice. Hunter *et al* (2011) provide insights into using three of the versions available, in a study looking at the psychosocial training needs of nurses and healthcare assistants working with people with dementia in residential care.

Using grounded theory

The remainder of this article explores the grounded theory research process, emphasising the differences between approaches and their practical implementation.

Reviewing the literature

Most research methods involve engaging with the literature before beginning data collection. However, doing this in grounded theory is a contentious issue (Walls *et al* 2010, Dunne 2011). Some authors argue against undertaking a literature review before data collection and analysis, because of the danger of imposing an existing theory and forcing the data to fit

it, rather than allowing theoretical concepts to emerge from the study (Glaser and Strauss 1967, Glaser 1992, 2003, Glaser and Holton 2004, Nathaniel 2006, Holton 2007). They advocate reviewing the literature when the theory emerges following data analysis (Glaser 1998). This demonstrates a critical realist stance. It presupposes that there is one reality that can be captured objectively from the data, provided the researcher avoids being sensitised to existing theory and suspends any previous knowledge to avoid this influencing the collection and analysis of data. There are alternative perspectives.

From a practical point of view, the decision not to undertake a literature review may be problematic. For example, postgraduate research students may be required to provide a rationale for their study, and to indicate its potential to provide an original contribution to knowledge, before they can access research funding, gain ethical approval or satisfy formal review processes (Dunne 2011). The requirement to avoid being sensitised to the literature may also present a challenge for nurse researchers, who may already be sensitised to existing theory as a result of clinical practice and previous study.

Walls *et al* (2010) suggest that previous knowledge gained through searching the literature or from clinical practice should not compromise a grounded theory study provided the researcher strives to be open-minded, is reflexive during data collection and analysis, and follows the principles of constant comparison in seeking explanatory frameworks emerging from the data collected. Reflexivity involves the researcher being aware of their own background and its possible influence on the research process and articulating this (McGhee *et al* 2007). This means the researcher is able to remain theoretically sensitive to explanations that emerge from the data, rather than deducing what may be happening using preconceived notions.

In practice, the decision to undertake a literature review is informed by the underlying philosophy that guides the research process. The critical realist grounded theorist would attempt to suspend any previous knowledge that might influence the collection and analysis of data, the symbolic interactionist grounded theorist would acknowledge the influence the researcher has on the interpretation of the data, while the constructivist grounded theorist would recognise that the theory that emerges from a study is created by the interaction between the researcher and participants and is relative to this interaction.

Novice nurse researchers should read more widely about the philosophical underpinnings of grounded theory to decide which philosophical stance to take. This will influence how they view themselves within

the research process, the requirement to undertake a literature review and the requirement to suspend all previous knowledge.

Ethical approval of grounded theory studies

Gaining ethical approval for a grounded theory study can be challenging, for a number of reasons (Carey 2010). Grounded theory methodology necessitates broad aims, yet ethics committees seek evidence that participants clearly understand the aims of a study, to ensure informed consent. Sample sizes are not prescriptive in grounded theory studies and are based not on a set number of participants, but on the principles of theoretical sampling. In addition, the grounded theory researcher often has to amend data collection tools to reflect the same principles.

Broad aims for the study can be developed to negotiate ethical approval, with a clear understanding that the focus of the study may change according to the emerging theory. If the aims are sufficiently broad, participant information sheets can be written that provide sufficient detail for informed consent, while allowing for flexibility in data collection tools and sampling techniques. A clear explanation that purposive sampling is necessary with this approach, and that saturation of data is necessary before data collection stops, may pre-empt questions about the number and type of participants and the use of interview and observation guides, rather than firm schedules.

Methods of data collection

The term 'anything goes' may be applied to choosing data collection tools in a grounded theory study. According to Glaser (1978), grounded theory 'transcends specific data collection methods' since any type of data can be used that elucidates an explanation or theory for the topic under investigation. Data 'in the field' is suited to grounded theory methodology, and is sometimes referred to as raw data (Denscombe 2014). Multiple types of data are used often, which allows for triangulation (Maz 2013) and testing of the emerging explanatory framework. Sometimes all the appropriate methods of data collection cannot be identified at the beginning of a study, but emerge as theory develops. For example, the author initially used interviewing and observation when investigating practice variation among midwives (Harris 2005). As the theory emerged, the author recognised that an alternative type of data was required to test the idea that there was an oral tradition of knowledge transfer among midwives. Therefore, a documentary analysis of historical midwifery texts was included. The new data supported the notion of an oral tradition of knowledge transfer and contributed in turn to the emerging theory concerning the

influence of learning on decision making and how the different learning experiences of midwives could, in part, explain practice variation.

Sampling

Researchers focus on a particular phenomenon when collecting data for grounded theory research. Therefore, the criterion when selecting participants is those who can provide relevant data. For example, in an investigation of the caring attributes of nurses working in emergency departments, the criterion for inclusion would be nurses working in emergency departments. This is known as a purposive sampling technique. However, the criterion for inclusion will change as the study progresses, to test emerging theoretical constructs (theoretical sampling). For example, the researcher may identify that the caring ability of some nurses in emergency departments appears to be influenced by how long they have worked in the area, with evidence of burnout over time. Therefore, the researcher may decide to include nurses who have worked in emergency departments for varying amounts of time and also nurses who have previously worked in emergency departments, but have subsequently left. In this way, the researcher can test the emerging theoretical constructs through theoretical sampling.

A different approach may emerge during interviews with nurses to explore their experience of offering compassionate care to older people. Following initial interviews and analysis of the data, the researcher may begin to consider the influence of the environment on a nurse's ability to offer compassionate care. The researcher then amends the interview guide to explore this area with new participants. They may also choose to interview nurses from another ward, perhaps one that is less busy or has a higher ratio of qualified staff to patients, to test the idea that a busier ward or a lower or higher staff-to-patient ratio may also affect the delivery of compassionate care. The researcher continues to follow leads generated from the data, which may alter the course of the research and the researcher may then collect data from different individuals, or even collect different types of data. The ongoing selection of participants or data for collection is therefore based on the concepts and theories that emerge to explain the nurses' ability to offer compassionate care to older people.

This iterative sampling technique is used throughout a grounded theory study until no new concepts or hypotheses emerge from the data. This means that before the research begins, it is difficult to determine the sample size for the study, who will be included in the sample, and all the data collection tools that will be required to explain the phenomenon under investigation. Hence, theoretical

sampling is not determined by the participants, but rather by the concepts that emerge during data collection, with the researcher adapting the sampling technique, sample size and sometimes data collection tools to elicit the answers to emerging concepts and explanations (Denscombe 2014).

In grounded theory, the point at which the researcher stops their data collection is called theoretical saturation – the point at which there are no new concepts or explanations emerging and the theory explains fully the concept being explored (Denscombe 2014). Researchers are able to identify theoretical saturation when they begin to have confirmation of all the elements of their analysis to date, with no new concepts or ideas emerging.

Theoretical sampling directs the researcher to a more in-depth focus on the concepts and hypotheses of relevance to the study. However, it is important to maintain flexibility. This allows the researcher to respond to opportunities that arise during fieldwork, and to explore new avenues of investigation not previously anticipated. Theoretical sampling in grounded theory allows researchers to be responsive to emerging theories, to be open in terms of articulating sampling decisions and flexible in generating answers to emerging analytical questions.

Analysis, coding and theory presentation

The researcher begins the process of analysis by engaging with the data as they are collected. They continue the analysis immediately afterwards, by documenting thoughts and observations about the information collected. These are called field notes.

Field notes are followed by more detailed memos about emerging concepts as the research study progresses. Field notes and memos may include descriptive and/or theoretical ideas. The researcher becomes more aware of theoretical perspectives as the research project progresses through transcription and line-by-line analysis to the construction of categories and the construction of the emerging theory. Memos are used to help record the researcher's thoughts, develop ideas, compare findings with the emerging explanatory framework and, where necessary, revise the framework. Further information on memos can be found in Charmaz (2014).

Field notes and memos are important aspects of grounded theory. They help the researcher to construct the audit trail for a theory, from the point where the data are collected through to the systematic analysis of each data bit or element, and generation of the theory. Some researchers use a computer software program to organise
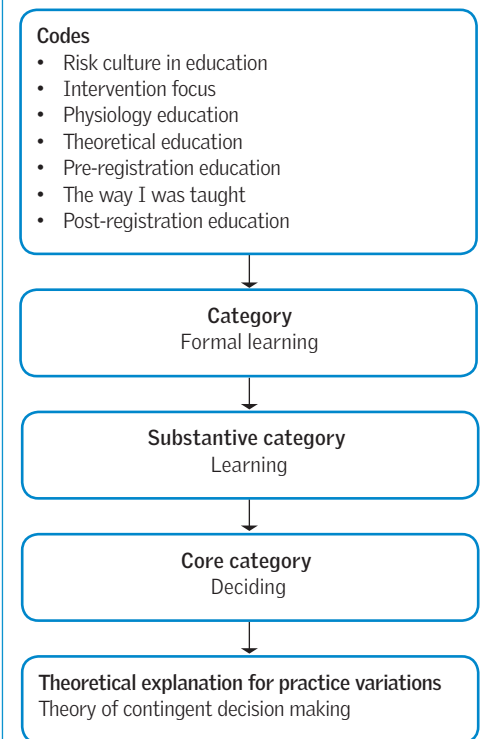
the coding and categorising of transcribed data, however, this is not essential. Software packages do not analyse the data, but provide a means for researchers to access and code the data easily.

Descriptions of the analytical processes in grounded theory vary (Dey 1993, Charmaz 2014, Corbin and Strauss 2015). However, the key principles involve moving from line-by-line coding to focused or selective coding, to develop categories and their properties, and then to establishing the complete theory, which may include the identification of a core category (Figure 2).

The initial coding involves careful scrutiny, usually in a line-by-line analysis, attributing words or sentences of data to a heading or code that represents what the data grouped under that code have in common. This is known as open coding. Open coding labels may be descriptive, labelling sets of data according to content, for example, 'classroom learning' and 'practice learning'. This is known as in vivo coding. Alternatively, open coding labels may be more abstract, where the labels reflect the analysis emerging from the data. This is in vitro coding, where codes are not necessarily reflective of what participants actually say, but rather an

FIGURE 2

Example of the structure of grounded theory from a study exploring practice variation

Codes
- Risk culture in education
- Intervention focus
- Physiology education
- Theoretical education
- Pre-registration education
- The way I was taught
- Post-registration education

↓

Category
Formal learning

↓

Substantive category
Learning

↓

Core category
Deciding

↓

Theoretical explanation for practice variations
Theory of contingent decision making

(Harris 2005)

interpretation of what they say. For example, 'classroom learning' may become 'formal learning' or 'rote learning' using in vitro coding.

A large number of open codes are generated in the first phase of analysis. The researcher should then collapse or reduce them to identify codes that are of particular relevance to the investigation. This involves a process of sifting, sorting, synthesising and analysing the data with reference to the initial coding (Charmaz 2014). The analysis continues with a more focused or selective approach, looking for links and relationships between the codes so that they can be merged under broader headings, known as categories. The key themes or substantive categories relevant to the topic being investigated, and the properties of those categories, emerge from this focused coding process. For example, the properties of a category labelled 'values' may describe different values expressed by participants and reflect the similarities or differences between them.

Strauss and Corbin (1990) created a type of categorisation, known as axial coding, to help the researcher to uncover the properties of categories. This involves a complex framework for data analysis (Strauss and Corbin 1990, 1998, Corbin and Strauss 2008, 2015) in contrast to the flexible emergent process preferred by some authors, as outlined above (Charmaz 2014).

As categories emerge they may be developed and refined by a process of revisiting the data,

constantly comparing categories with data and categories with categories. When the researcher reaches saturation of theoretical concepts within the categories, this indicates that data collection and this phase of the analysis is completed.

Establishing a complete explanatory framework for the study is the final phase in the analytical process. For some grounded theory researchers, a complete explanatory framework involves identifying key themes or substantive categories that explain what is happening. Other grounded theory researchers also aim to identify a core category, a social-psychological process that enables all the nuances of the emergent theory to be explained in a single term and expresses the relationship between different categories. For example, in the author's research, the core category 'deciding' emerged to reflect how midwives decide what action to take when managing the third stage of labour, in the theory of contingent decision making (Harris 2005) (Figure 2). 'Deciding' what to do was central to the phenomenon being studied and brought together all substantive categories to explain practice variation.

The substantive categories 'learning', 'contextualising' and 'interpreting' provided an explanation for why midwives' decisions and behaviours varied. Practice decisions were influenced by the body of knowledge midwives

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used when making decisions, contextual aspects of their practice situations, and their values and beliefs. The core category should be central to the topic of study. It associates categories, emerges naturally from the data, and is determined at the end of the analytical process after all categories have emerged (Holloway and Todres 2010).

Theory types in grounded theory

Grounded theory is most often associated with the production of a substantive theory, rather than a formal theory (Denscombe 2014). Substantive theory relates to a specific situation, while formal theory is more abstract and may relate to a variety of situations. For example, as stated by Holloway and Todres (2010): 'A specific theory of negotiating between patients and nurses about pain relief would be substantive theory. A theory about the concept of negotiation in general that can be applied to many different settings and situations becomes formal theory'.

Grounded theory researchers in nursing often focus on producing a substantive theory that is applicable to their area of interest. They aim to produce a theory with practical relevance, which may be used to improve care and add to the body of knowledge in nursing and midwifery. However, such theories may be relevant to other contexts and may subsequently be verified in a range of

settings. It is important to consider whether a theory that emerges from grounded research may be generalised. The more situations a theory can be applied to, the closer it gets to being a formal theory (Howitt 2013).

Conclusion

This article aims to demystify grounded theory methodology by exploring the fundamental principles of this approach. Grounded theory provides an explanatory framework that grounds, or explains, the theory that emerges in the 'voice' of participants. It provides a systematic way of deriving explanations for behaviour, is creative and allows the researcher to be open to what participants reveal. The systematic process of concurrent data collection and analysis is open and transparent, and leads to the development of a theoretical understanding of important areas of interest. Grounded theory enables the nurse researcher to go beyond description to create practically relevant substantive theory, which may also be relevant in other contexts **NS**

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