Grounded theory in nursing research: Part 1 – Methodology

The epistemological underpinnings of grounded theory make it valuable in the study of nursing, which is premised on an interpersonal process between nurses and clients. Further, it is a useful style of research when there is little prior information about a topic. In this article (Part 1), Terence McCann and Eileen Clark outline the key features of this methodology. In the follow-up article (Part 2, McCann and Clark 2003a), a critique is provided of grounded theory and the two main approaches to this methodology. In the final article in the series (Part 3, McCann and Clark 2003b), the authors illustrate how grounded theory can be applied to nursing research with examples from McCann’s Australian study (McCann and Baker 2001) of how community mental health nurses promote wellness with clients who are experiencing an early episode of psychotic illness.

Introduction

The concept of epistemology refers to underlying assumptions about how it is possible to acquire knowledge about social reality, and how the knowledge that exists can be made known (Blaikie 1993). The epistemological
assumptions of grounded theory are derived from symbolic interactionism, which explores the processes of interaction between people’s social roles and behaviours. Interaction is symbolic because these processes use symbols, words, interpretations and languages (Denzin 1989a). Symbolic interactionism is a branch of interpretivism, where the emphasis is on eliciting and understanding the way meaning is derived in social situations (Schwandt 1994, Stern 1994). The underlying assumption of grounded theory is that people make sense of and order their social world even though, to the outsider, their world may appear irrational. Individuals sharing common circumstances (for example, clients with mental illness) experience common perceptions, thoughts and behaviours, which are the essences of grounded theory. Researchers using this approach premise their work on the assumption that each group experiences a common social psychological problem that is not always articulated (Hutchinson 1993). The initial aim of the researcher is to identify this problem (Schreiber 2001). For instance, clients with mental illness may share similar illness experiences that are not always clearly understood by themselves or others.

**Characteristics of grounded theory**

The objective in grounded theory is to develop theory from the data, which is encompassed in a core category and related categories and concepts. As well as generating theory from the data, existing theories can be modified or further developed (Charmaz 1990). There is some confusion, however, over what constitutes ‘theory’ in grounded theory (Wiener 1990). This is not surprising when the literature, in referring to the work of theorists, has simultaneously described specific works as conceptual models, conceptual frameworks, and theories (Catanzaro 1988, Meleis 1997). Conceptual models and theories are not synonymous. A conceptual model is general and
abstract and provides a broad perspective on the metaparadigm of nursing. Theories (grand or middle-range) are more concrete, specific and limited in range than conceptual models (Fawcett 1995).

Two types of theories can be developed using grounded theory: formal or substantive. Formal theories are more general than substantive theories and deal with a conceptual area of enquiry, such as illness experience (Morse and Johnson 1991), professionalism and power relations in clinical practice. Substantive theories, which are the most common type of theories that are derived from grounded theory (Morse 2001), concentrate on specific social processes and are developed for narrower empirical areas of study, such as therapeutic touch, care of the dying and how mental health nurses develop interpersonal relationships with clients (Blaikie 1993, Heidt 1990, McCann and Baker 2001).

Other characteristics of grounded theory are the processes of induction, deduction and verification. Induction requires the researcher to use a ground-up (from practice to theory) approach, to enter the field with no pre-conceived hypotheses from the literature or elsewhere, and to be open-minded and flexible, so that the theory emerges from the data (Carpenter 1995, Glaser and Strauss 1967, Hutchinson 1993, Strauss and Corbin 1990, 1998). Only after initial data collection can provisional hypotheses be formed. Empirical verification of the hypotheses is undertaken through further data collection (Benton 1993, Charmaz 1990, Holloway and Wheeler 1996, Strauss and Corbin 1990, 1998). The theory can then be tested, allowing predictions to be developed deductively from general principles (Carpenter 1995, Stern 1980). For example, a substantive theory might emerge about how nurses develop therapeutic relationships with clients who have mental illness.

It is important that the theory is grounded in the data and not predetermined by any theoretical perspective. That is to say, the data have primacy. The researcher must be immersed in the data; the culture and setting for the study. Immersion in the data will assist the researcher to use conceptual density or ‘thick description’ of categories, enabling a thorough and clear portrayal of the situation (Denzin 1989a, 1989b). To obtain conceptual density, grounded theory methodology requires an ‘emic’ or insider approach when
collecting and analysing data. This entails having empathetic understanding of the insider’s point of view, exploring and uncovering the meanings they give to their ideas, feelings, experiences and perceptions, rather than imposing an ‘etic’ or researcher/outsider perspective (Boyle 1994, Harris 1976, Mennell 1974, Stern 1994). The insider’s perspective must be tempered with the realisation that meanings are frequently ambiguous and unclear while being dynamic and evolving (Addison 1992, Holloway and Wheeler 1996). The researcher then takes an ‘etic’ perspective to interpret the meanings of participants and provide an explanation for events and actions (Boyle 1994, Harris 1976), enabling the systematic development of the phenomenon (Banister et al 1994).

Grounded theory has seven key characteristics:

- theoretical sensitivity
- theoretical sampling
- constant comparative analysis
- coding and categorising the data
- theoretical memos and diagrams
- literature as a source of data
- integration of theory.

**Theoretical sensitivity**

Theoretical sensitivity, or entering the field with an awareness of the subtleties of the data (Glaser 1978), is used initially to sensitise the researcher. Theoretical sensitivity relates to the ability to have insight, understand and give meaning to the data, and to detach the relevant from the irrelevant (Strauss and Corbin 1990, 1998). Theoretical sensitivity can also be gained from a preliminary review of the literature (Carpenter 1999), and from professional experience. However, a distinction should be made between the identification of sensitising concepts which can help sharpen data collection, and the use of concepts to impose an existing framework on the data (Schreiber 2001).

**Theoretical sampling**

At the beginning of a study, the researcher makes preliminary sampling
decisions about recruitment of participants and the setting. This is known as purposive sampling, which is sampling using predetermined criteria, for example, gender, place of work, professional experience (Patton 1990). As initial data are collected and analysed, further decisions about participants, sample size, settings and the type of data to be collected are based on the emerging theory (Glaser 1978, Schreiber 2001). Theoretical sampling takes place when the researcher collects new data to compare emerging categories and establish conceptual boundaries that are related to the evolving theory (Charmaz 2000, Strauss and Corbin 1990, 1998). This process involves the researcher identifying emerging categories, and then analysing, checking, filling out categories and, where appropriate, returning to the field to extend categories (Charmaz 1990). For example, if the analysis indicates that professional experience is an important influence on the development of therapeutic relationships, then subsequent sampling will concentrate on this factor.

Sampling continues until theoretical saturation is reached. This occurs when no new data emerge relevant to particular categories and subcategories, categories have conceptual density, and all variations in categories can be explained. The links between categories must also be clearly explained and validated (Benton 1993, Hutchinson 1993, Olshansky 1996, Strauss and Corbin 1990, 1998). The quality of the data is more important in theoretical saturation than the frequency with which it recurs. The opportunity for theoretical saturation to occur is enhanced when the sample is clearly defined and restrictive, and the research questions are explicit (Catanzaro and Olshansky 1988, Holloway and Wheeler 1996, Morse 1995). However, while the research question should be focused, it should be flexible and open-ended enough to enable the theory to be developed (Smith and Biley 1997).

Constant comparative analysis
An important benefit of grounded theory is its flexibility and open-endedness (Charmaz 1990). This is evident in constant comparative analysis, where data collection and analysis take place simultaneously (Blaikie 1993). Constant comparative analysis is the principal approach to data analysis in the development of a grounded theory (Benton 1993, Hutchinson 1993). It
requires the researcher to tease out the categories and their related properties (Hutchinson 1993). There are four stages in the constant comparative method (Glaser and Strauss 1967):
■ comparing incidents applicable to each category
■ integrating categories and their properties
■ delimiting the theory
■ writing the theory.

The process of constant comparison continues until a theory with sufficient detail and abstraction is generated.

**Coding and categorising data**

The intent of coding is to conceptualise the data by analysing it and identifying patterns or events in the data. Coding initiates the process of theory development (Charmaz 2000). There are three steps or levels of coding: open, axial and selective.

■ **Open coding**

Open coding, also referred to as Level I or substantive coding, is the process of breaking down the data into discrete parts, in order to conceptualise and categorise them. Patterns in the raw data are coded or given conceptual labels. Conceptual labels are assigned to single events that are related to a phenomenon (Carpenter 1999, Strauss and Corbin 1990, 1998). A conceptual label in this context is less abstract than a conceptual category. The procedure entails using words that described what took place in the field of study. Raw data are analysed, initially using line-by-line coding, to break down the data (Charmaz 2000, Corbin 1986). Whenever the researcher becomes more familiar with the data and the concepts and categories being identified, coding can be done by sentence and, at times, by paragraph, in accordance with Strauss and Corbin (1990, 1998). If a new concept or category is identified, the researcher reverts to line-by-line coding. Line-by-line coding during the initial period of data collection forces the researcher to concentrate on the data and avoid undue influence by preconceived beliefs about the field of enquiry (Charmaz 1990).

There are two types of open or substantive coding: *in vivo* codes and sociological constructs. *In vivo* codes are directly related to the language of the
data and can be seen as having imagery because they give sufficient meaning to the data (Holloway and Wheeler 1996, Strauss 1987). Using in vivo codes helps avoid situations where researchers might otherwise impose their preconceived opinions on the codes (Hutchinson 1993). Sociological constructs are derived from a combination of substantive data from the field and the researcher’s scholarly knowledge and expertise. They have the advantage of enhancing a more scholarly conceptualisation of the analysis than in vivo codes, but can lack the degree of imagery that can be found with in vivo codes (Strauss 1987).

Axial coding

Strauss and Corbin (1990, 1998) introduced the technique of axial coding, also known as theoretical or Level II coding. In this technique, the data are put back together in a different way, through categorising the data and making links between a category and its subcategories (Carpenter 1995, Irurita 1996). Concepts are elevated to provisional categories. A category is a classification of concepts, arising through a process of constant comparative analysis, grouping or clustering concepts together in a higher order, more abstract concept (Holloway and Wheeler 1996, Strauss and Corbin 1990, 1998). The process requires inductive and deductive thinking, asking questions, and proposing and making comparisons with the data. Overall, a more concentrated and abstract approach takes place than in open coding.

Selective coding

The process of selective coding, also known as Level III coding, aims to identify a core or overarching category, and attempts to establish links between this and other categories (Charmaz 1990). It is important to recognise that coding, like constant comparative analysis, is a cyclical process; shifting from open to axial and then selective coding and, at times, simultaneously coding at several levels. The main processes at this stage are theoretical coding and memo writing. Theoretical coding enables the researcher to perceive the data theoretically instead of descriptively (Stern 1980). Theoretical coding in this instance is also derived from a combination of clinical and academic knowledge (Hutchinson 1993). Coding takes place using the processes of theoretical sorting and saturation. The intent of sorting is to put the data back into a meaningful whole.
For an emerging theory to be integrated, dense and saturated, a core category (or core variable) must be present (Hutchinson 1993). A core category begins to emerge only after constant comparative analysis with the data, persistent questioning and painstaking analytical thinking. Once the core category has been identified, the researcher concentrates on modification of categories and integration of the theory with the categories and subcategories (Carpenter 1995). The core category is broad in range and is able to integrate and explain the relationship between the other categories that emerge in the data. It can also account for most of the variation in events (Mullen and Reynolds 1978, Strauss 1987). The core category is integrated with other categories and links between them validated. At the same time, refinement takes place in any categories that need to be further developed.

The process of integration of the overarching category with the other categories is similar to axial coding, but requires a more abstract level of thinking, and is facilitated by explicating the story line (Strauss and Corbin 1990, 1998). The core category or theory that is derived should contain two main characteristics: it should be dense but parsimonious (comprehensive without being unwieldy), conceptualising the links between open, axial and selective coding (Hutchinson 1993); and it should help to explain variations in the categories. There are six criteria for assessing a core category (Strauss 1987):

- it appears frequently in the data
- it helps explain most of the variation in the data
- it links easily with other categories
- when identified in a substantive study, it has implications for a general or formal theory
- as it emerges from the data, the theory is able to progress forward
- it permits maximum variation in the analysis.

Theoretical memos and diagrams
Diagrams and memos are used as part of the analytical process. Diagrams visually represent the conceptual relationship that develops among categories (Strauss and Corbin 1990, 1998). They assist the researcher to identify the consistency of these relationships. Memos are notes that the researcher makes throughout the research in order to record and explicate the theory as
it is developed (Pursley-Crotteau and Stern 1996, Smith and Biley 1997). They are essential tools for capturing the idea; and for abstraction and theory development, which continues throughout the research (Charmaz 2000, Glaser 1978, Stern 1985). They reflect the researcher’s internal dialogue with the data at a point in time. Memoing is both inductive and deductive. It is inductive during the process of conceptualising the data, and deductive when the researcher assesses how the conceptual labels, categories and subcategories link together (Hutchinson 1993). Memo writing provides the researcher with a way of analysing and questioning taken for granted aspects of the research process and preconceptions about the data (Charmaz 1990).

**Literature as a source of data**

There is considerable confusion about the role of literature in grounded theory research. A preliminary review of the literature is undertaken prior to data collection and analysis to justify the need for the study, develop sensitising concepts and provide a background to the study. This avoids tainting the concepts and hypotheses that will emerge from the data. The second, and main, literature review:

...links extant research and theory with the concepts, constructs, and properties of the new theory... Literature that illuminates, supports, or extends the proposed theory is interwoven with the empirical data. Through its correspondence with the real world, literature establishes a vital connection between theory and reality. (Hutchinson 1993, p205)

Even though researchers look to the literature to relate existing theories to developing theories, they avoid imposing these on to the data (Stern 1985). There are five key benefits of using the literature (Strauss and Corbin 1990, 1998):

- preliminary review enhances theoretical sensitivity
- useful secondary source of data
- gives rise to questions about the data
- important means of theoretical sampling
- approach to validating the theory.
Integration of theory

Throughout the process of theory generation, there is interaction with the data, and the researcher uses memos to assist with conceptualisation of the theory. Three key strategies are used to develop and add density to the emergent theory (Carpenter 1995, Glaser 1978, Stern 1980):

■ Category reduction. Initially, a large number of categories are identified. Clustering categories and subsuming categories within larger categories can reduce these.
■ Selective sampling of the literature. The existing literature is another form of data, and is integrated within the emerging theory, categories and subcategories.
■ Selective sampling of the data. As the theory, categories, and subcategories are identified, more data are collected from the field in order to develop and test hypotheses and uncover properties of the main categories.

Conclusion

Social interaction is at the heart of the caring process in nursing. Grounded theory is a useful methodology for the study of interpersonal activities between nurses and patients and others. It is particularly useful when little prior research has been undertaken in a specific area of enquiry. Unlike some other approaches to qualitative study, the methodology provides a helpful framework for guiding data collection and analysis.

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