

chapter 17

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CHAPTER 17

Data Analysis: Procedures, Practices and Computers

The process of data analysis

Qualitative data analysis (QDA) is a complex, non-linear process but also systematic, orderly and structured. Not all qualitative forms of inquiry take the same approach to analysis, as can be seen in the chapters on specific approaches. Indeed, grounded theory (GT) and phenomenology in particular have very distinct ways of analysing data (and also a different approach to data collection). Data reduction or collapsing, description and/or interpretation, however, are common to many types of QDA although the approach to these procedures is flexible and creative. There is no rigid prescription as long as the eventual research account has its roots directly in the data generated by the participants. In this chapter we shall only attempt an overview of generic data analysis in qualitative research. For complete beginners an examination of relevant chapters in clearly written introductory texts might be useful, such as that of Hansen (2006).

Data analysis is an iterative activity. Iteration means that researchers move back and forth from collection to analysis and back again, refining the questions they ask from the data. Knowledge of this process means that researchers will be able to allocate and segment their time appropriately. Health researchers often lack time at the end of their study to carry out the appropriate data analysis, because they do not foresee the complexity of the data and the length of time needed for analysing them. The iterative character of qualitative research also makes it more time consuming.

Qualitative researchers usually collect and analyse the data simultaneously, unlike those involved in quantitative inquiry who complete collection before starting analysis. Indeed in GT, data collection and analysis interact (see Chapter 11), and in several other approaches researchers often use data collection and analysis in parallel and interactively (for instance in ethnography). Even when recording and transcribing initial data, researchers reflect upon them and so start the process of analysis at an early stage.

The process of analysis goes through certain stages common to many approaches:

- Transcribing interviews and sorting fieldnotes
 - Organising, ordering and storing the data
 - Listening to and reading or viewing the material collected repeatedly
- All this means immersion in and engagement with the data. Other stages depend on the approach taken by the qualitative researcher:
- Coding and categorising (this is particularly appropriate in interpretive methods)
 - Building themes
 - Describing a cultural group (in ethnography)
 - Describing a phenomenon (this is appropriate in phenomenology)

These steps also involve storing ideas, interpretations and theoretical thought which is carried out through memoing and writing fieldnotes (see Chapters 10 and 11 on fieldnotes and memos respectively)

Silverman (2006) discusses the status of interview data in particular, which must be taken into account before the process of data analysis can start. These data are rarely raw but have been processed through the mind of the interviewer and can only be seen in context. In observations too, fieldnotes do not always show how the environment might shape the interaction, in particular elements such as the presence or absence of certain people, the work climate and other factors.

Transcribing and sorting

Transcription of interviews is one of the initial steps in preparing the data for analysis. The fullest and richest data can be gained from transcribing verbatim. We advise that if possible, novice researchers transcribe their own tapes because this way they immerse themselves in the data and become sensitive to the issues of importance. Transcription takes a long time: one hour of interviewing takes between four and six hours to transcribe. For those who are not used to audio-typing, it can be much longer. Transcription is very frustrating and can take time that researchers often lack. A typist using a transcription machine could do it more quickly, but this would be expensive. On the other hand, it would give more time to the researcher to listen and analyse. The decision about this depends on the researcher. Any outsider who transcribes must, of course, be advised on the confidentiality relating to the data.

Initial interviews and fieldnotes should be fully transcribed so that the researcher becomes aware of the important issues in the data. Novice researchers

should transcribe all interviews verbatim, while more experienced individuals can be more selective in their transcriptions and transcribe that which is linked to their developing theoretical ideas. It is always better that the interviews or fieldnotes are fully transcribed by the researchers themselves if they have the time. There is danger that researchers who fail to record the interviews will overlook significant issues, which they would uncover on reflection when listening to the tape or considering the transcript. Pages are numbered, and the front sheet should contain date, location and time of interview as well as the code number or pseudonym for the informant and important biographical data (but no identifier). Many researchers number each line of the interview transcript so that they can retrieve the data quickly when revisiting the transcript. Transcription pages are most useful when put into a column which takes half the sheet while the other half is left for coding and comments.

A minimum of three copies (usually more) should be made of the transcripts and a clean copy without comments for locking away in a safe place in case other copies are lost or destroyed.

Occasionally researchers use formal transcription systems (some invent their own systems); the best known of these is Gail Jefferson's which uses symbols for non-verbal actions such as coughing, pausing, emphasising. These systems are more often applied to 'naturally occurring data' such as those from conversation or discourse analysis. However, for some approaches the type of transcribing Jefferson developed would be an anathema; Langridge (2007) reminds researchers that phenomenology in particular does not need a micro-level of transcription, and we would suggest the inappropriateness of this for ethnography and CT too. Silverman (2006) gives a list of simplified transcription symbols which could be helpful in conversation analysis and some forms of discourse analysis.

Of course, researchers transcribe in detail, and as accurately as possible, often more than they analyse as they choose sections from the data which answer their research questions. There is however the danger that they select according to their own assumptions about the importance of data rather than focusing on the participants' words, hence careful reading and listening is advised.

Taking notes and writing analytic memos

Some researchers use the tape-recorder and also take notes during the interview so that participants' facial expression, gestures and interviewers' reactions and comments can be recorded. Making notes might disturb the participant. We would suggest this only when taping is not feasible or if interviewees do not wish to be tape-recorded. Notes can also be taken immediately after the interview.

When participants deny permission for recording or when it seems inappropriate – for instance in very sensitive situations – interviewers generally take notes throughout the interview, and these notes reflect the words of the participants as accurately as possible. As interviewers can only write down a

fraction of the sentences, they select the most important words or phrases and summarise the rest, and this might distort meaning. Patton (2002) advises on conventions in the use of quotation marks while writing notes. Researchers use them only for full, direct quotations from informants. Patton suggests that researchers adopt a mechanism for differentiating between their own thoughts and informants' words. When reading transcripts and writing memos, researchers should also collect a series of pithy quotes, which are representative of the thoughts of the participants and the phenomenon or phenomena under study.

Another method of recording is to take notes after the interview is finished. This should be done as soon as possible after the interview to capture the flavour, behaviour and words of the informants and the concomitant thoughts of the researcher. It should not be done in the presence of the participants.

The process of listening to the tapes will sensitise researchers to the data and uncover ambiguities or problems within them. At this time, any theoretical or other ideas that emerge should be written down in the field diary. The process of writing fieldnotes and memos is in itself an analytic process and not just data recording. It helps the researcher to reflect on the data and engage with them.

During the process of analysis researchers write analytical memos or notes containing ideas and thoughts about the data as well the reasons for grouping them in a particular way. Sometimes researchers draw diagrams to demonstrate this, and these diagrams can be taken directly into the report when they discuss the methods and the decision trail. Researchers might develop concepts in the memos, ask analytic questions of the data, or elaborate ideas from the literature that link directly with the data. There are different ways of keeping memos: in field journals or diaries, or on a computer. This all helps 'tacking', that is, going back and forth between the data and theoretical ideas, between codes and themes. This is called 'iteration'.

Some researchers do not code or categorise because they wish to perceive the essence of the phenomenon as a whole, a *Gestalt*. Breaking the data into codes may lose this holistic view of the phenomenon and fragment the ideas contained in the data. Memoing goes on throughout the research process but is of particular importance in assisting analysis. (Specific types of analysis are discussed in the chapters on the various approaches.)

Ordering and organising the data

Qualitative researchers generate large amounts of data consisting of narratives from interviews, fieldnotes and documents, as well as a variety of memos about the phenomenon under study (Bryman, 2008). Many use the literature linked to the research as data.

Through organisation and management, the researcher brings structure and order to the unwieldy mass of data. This will help eventual retrieval and final

analysis. All transcripts, fieldnotes and other data should have details of time, location and specific comments attached. The use of pseudonyms or numbers for participants prevents identification during the long process of analysis when the data might fall into the hands of individuals other than the researcher. Everything has to be recorded, cross-checked and labelled. Then the material has to be stored in the appropriate files for later retrieval.

From the very beginning of the study, nurses and other health professionals will recognise significant ideas and themes in the material they generated. On listening to tapes, reading transcripts and other documents or looking at visual data common themes and patterns will begin to emerge and become crystallised.

Borkan (1999) discusses the initial process of analysis and describes two strategies from which researchers can choose depending on their approach, namely *horizontal* and *vertical* 'passes' of the data. The horizontal pass involves

- reading the data and looking at themes, emotions and surprises, taking in the overall picture;
- reflective and in-depth reading of the data to find supporting evidence for these themes;
- re-reading for elements that might have been overlooked;
- searching for possible alternative meanings;
- attempting to link discrepancies together.

Vertical passes involve

- concentrating on one section of the data and analysing it before moving on;
- reflecting on and reviewing the data in the section;
- looking for insights and feeding them back into the data collection process.

The horizontal is more holistic than the vertical pass. However, researchers not only analyse according to the methods they adopt, but they also have different personal styles, which demand different ways of looking at the data.

Analytical styles

Different approaches to research have different types of data analysis. Even within one approach, researchers adopt a variety of analyses. Phenomenologists, ethnographers or grounded theorists for instance, use a variety of analytic strategies. They all involve the steps of listening to, viewing and gaining a holistic view of the data as well as dividing them into units or segments of meaning. Dahlberg *et al.* (2008) ask that each part of the transcribed text, analysed for meaning, should be understood in relation to the whole of the text and the whole understood in terms of its parts.

Moustakas (1994), a hermeneutic phenomenologist, gives a general overview of analysis styles and comes up with overlapping steps in which researchers carry out the following:

- They reflect on each transcript and search for significant statements.
- They record all relevant statements.
- They delete repetitive and overlapping statements, leaving only invariant constituents of the phenomenon, and organise them.
- They link and relate these into themes.
- Including verbatim quotes from the data, they integrate the themes into a description of the texture of the experience as told by the participants.
- They reflect on this and their own experiences.
- They develop a description of the meanings of the experience.

At all times, researchers search for links and relationships between sections of data, categories or themes.

There are more detailed discussions of analytic procedures in the chapters on specific approaches.

Coding and categorising

Coding means marking sections of data and giving them labels or names. It is an early stage in analysis and proceeds towards the development of categories, themes or major constructs (the nomenclature depends on the language of the specific approach). It breaks the data into manageable sections.

Line-by-line coding identifies information which both participant and researcher consider important. In their initial coding, many researchers single out words or phrases that are used by participants – these are called *in vivo* codes. This type of coding prevents researchers from imposing their own framework and ideas on the data, because the coding starts with the words of the participants.

Example of *in vivo* coding

A transcript might contain the sentence 'I was really worried when I went to the doctor with my problem; it could have been serious'. The *in vivo* code might be: *worried when going to the doctor*. At a later stage, of course, this would have to be refined by the words of the researcher but still seen from the perspective of the participant. It might become: *Fear of diagnosis*. As the coding process goes on, the codes might become more abstract.

In the beginning, line-by-line and *in vivo* coding can be useful, but it would be difficult to carry out in all transcripts of the interviews and sets of fieldnotes.

It does, however, help researchers discern important ideas in the data initially until they become used to coding.

Initial or *open* coding gives a name to specific pieces of data. The codes may be words, expressions or other chunks of data. Researchers might start with a mass of codes and reduce them so that each of them represents a concept. These concepts are *units of meaning*. Once simple coding has been completed, researchers group together the codes with similar meanings which are linked to the same phenomenon. If different terms are applied to the same concept, the best label is used as a name for the concept. Rather than coding line by line or sentence by sentence, many researchers code paragraph by paragraph. Others search for meaningful statements in the text. Ziebland and McPherson (2006) remind researchers not only to focus on what they think is important but mainly on the ideas that emerge from the participants and what the latter think significant. This means that the collected data have primacy, and not the researchers' prior assumptions about themes. However, these authors also speak of 'anticipated' and 'emergent' themes (p. 407). When looking at the data, researchers anticipate particular elements which have roots in their experiences and disciplines. The dialogue with the literature takes place at the stage when the findings have been established. The relevant literature will then be related and integrated into the findings.

There are some problems with coding and categorising. One is the loss of the holistic view or *Gestalt* of the phenomenon, which is the aim of phenomenologists. The other, according to Silverman (2005), is the loss of important information, because it does not 'fit' the code or category, hence the importance of the search for discrepant and alternative ideas.

When analysing data from different data sources, for instance from observation, interviews and documents, researchers search for similarities and differences. All the material that has conceptual links is grouped together for later categorisation. Some researchers actually cut up the data and keep them in a file, after pasting them on pages of paper and putting them into a ring binder, others use coloured pencils or pens to identify closely linked material. Researchers need to keep a list of the categories or themes to compare each section of new data with the early-established themes. The new ideas might fit into these, or new themes have to be uncovered. Eventually, a greatly reduced list might be established to form a diagram. Often, researchers generate a hierarchy of themes and codes with more abstract and general themes at the top. They might also establish a typology. Typologies are classification systems. Bluff (2005), for instance, distinguishes between 'flexible' and 'prescriptive' midwives who had different characteristics and acted in different ways in particular situations.

Many researchers go further than merely arriving at an analytic or conceptual description. They take into account conditions under which something occurs, variations in findings according to location and time, the context in which things

happen, the strategies that participants adopt to cope with their experiences, causes of actions and events as well as their effects and consequences (See specific approaches such as GT and ethnography).

Problems of QDA

Because of the complexities of QDA, a number of problems might arise. Li and Scale (2007) list several, and one of these relates to not knowing where to start the process. This might be solved by asking novice researchers to analyse short sections of data. Many find the resulting themes or codes ambiguous, and of course, there is sometimes overlap of meaning. Reporting or recording problems can be overcome more easily. These issues are often connected with forgetting to note down the identifier of the participant, or not being able to retrieve ideas that had previously been discovered. Some new researchers over-interpret – everything has meaning for them – or they report inaccurately and give no evidence where ideas have their roots.

Inferential leaps and 'premature closure'

As part of the process of data analysis, researchers should check against inferential leaps. In our early days of research supervision, it became apparent that students would infer conclusions from the data too quickly. In their haste to make sense of the data and develop a picture, students can too readily make inferential leaps. It seems that health researchers remember concepts or frameworks previously learned or discovered as a background to the research, and they try to fit these to the data. The researcher has to return to the data continually, checking and verifying so that inferential leaps are not made. This is closely connected with the warning against premature closure (Glaser, 1978) that is one of the problems of qualitative research. Often novice researchers decide on a theme or category at an early stage of the research process. In GT in particular, the danger exists that once researchers have generated some theoretical ideas, they then sit back and decide that they arrived at full explanations for the phenomenon under study. Sometimes there has been no full investigation of the data; sometimes they close their minds to new ideas. Premature closure and inferential leaps might mean that the research is incomplete or inadequate.

Collaboration in the process of analysis and interpretation

In all types of QDA it is important that researchers stay as close to the data as possible and look at everything connected with the phenomenon under study. A completed study is never a mere description of the participants' experience. It is important to remember that the final product of research depends on the collaborative effort of participants and researcher. While those observed and interviewed

are active agents in their world rather than passive participants and construct their social reality, researcher and participant also construct meaning together. The reader of the study too, will eventually be involved in construction of meaning.

Computer-aided analysis of qualitative data

Computers can of course, carry out the process much more quickly – even when researchers do not use a computer package for the analysis of data. There are, however, arguments both for and against computer use in qualitative research. Computers have been used in the analysis of qualitative data mainly since the 1980s although they do not seem as popular as they once were. They are most useful for storing or retrieving data, and all researchers use them this way. Computers can be useful and make the process of qualitative research less cumbersome.

The type of approach influences the program for analysis of qualitative data. Managing a large volume of data by hand is boring and tiring because the search for specific ideas, words, incidents or events takes time. The computer is, however, merely a tool, if a useful one for a lengthy study with a large number of participants; it shortens routine and mechanical tasks and can be a device to save labour and time though a novice researcher might spend a lengthy span of time learning to use a particular computer package. In the past, researchers depended for their analysis to a large extent on cutting, sorting and pasting bits of paper. This meant that the researcher was left with a mass of paper cuttings, a great many boxes and envelopes and/or an elaborate card system. Computers have changed these elaborate processes. We do however believe that the researcher is more intimate with the data when the analysis is not computerised.

Several types of computer-aided QDA software (CAQDAS) exist, of which the best known are NUDIST (Non-numerical Unstructured Data Indexing, Searching and Theorising) NVivo, Ethnograph, ATLAS.ti and HyperResearch (for a list and advice for best uses of the various programs see Fielding and Lee, 1998). Ethnograph is one of the earliest packages and NUDIST is one of the most widely used (perhaps because of its name!). The packages have slightly different functions.

Since the early 1980s, when the journal *Qualitative Sociology* (1984, 7 (1) 2) published a special edition on the use of computers in qualitative research, new ideas and packages have been developed. Some programs are more sophisticated than others. Each has its own technical traits depending on the choice of the designer. For researchers who wish to use this software, it is essential to become familiar with it.

For further information and details on particular programs, we advise researchers to look at up-to-date text books such as Bazeley (2007). Older texts such as those by Kelle (1995), Fielding and Lee (1998), and the various writings of Richards (2005) who are advocates of CAQDAS. Lately Lewins

and Silver (2007) have written a step-by-step guide. In some of these books, programs and addresses can also be found. Well-known are the courses and books generated by the CAQDAS Network of the University of Surrey (see Caqdas Networking Project in References for website).

The reasons for computer use

Tesch (1993) lists a variety of tasks, formerly done manually, which can now be performed by computers, some of which we list as the most important. Although this book is now quite old, she describes the main tasks for the analyst.

- Storing, annotating and retrieving texts
- Locating words, phrases, and segments of data
- Naming or labelling
- Sorting and organising
- Identifying data units
- Preparing diagrams
- Extracting quotes

Storing, annotating and retrieving texts

Storing and retrieving texts such as interview transcripts, fieldnotes or diaries is the most common use of computer programs in qualitative research. Data are easily accessible – for instance interview transcripts and fieldnotes can be stored in separated files and memos attached to the category to which they belong – and can be called upon when needed. Researchers must always label and date these files to keep order among them. NB: Copies of files should be made on floppy disks and stored safely in different locations.

Locating words, phrases or segments of data

Researchers may want to find particular words or phrases and the context in which they occur as well as their frequency. Sentences, paragraphs and specific key words can be recalled. These can indicate the importance, which informants and researcher attach to particular words or concepts (though it is dangerous to rely on the number of instances rather than an in-depth examination of each instance).

Naming or labelling

These labels are key words that define an idea, or they can be summaries of the content of data. Categorising starts here and is based on this labelling.

Categories are concepts attached to a topic emerging from the data and a step in their interpretation. Researchers give the appropriate label to each segment of data or to instances that belong together. Revision of names in the light of further analysis then becomes less difficult. The creation of categories from the data is a step towards theory building.

Sorting and organising

Sorting and organising the data segments and topic units according to the named categories or key words attached to them is one of the procedures undertaken during the analysis process. Organising data into segments (bits, chunks or strips as they are sometimes called), means dividing them into discrete units (although these can sometimes overlap with each other). All segments with the same inherent themes or categories can be grouped together.

Identifying data units

Researchers identify data units relevant to several categories and discover relationships between them. They always try to see a structure and links between categories. While working with the data these links can be found more easily in and across particular files. This helps in the development of working hypotheses, models or typologies. Of course, the computer does none of these processes; they are based on the researcher's theoretical considerations and decisionmaking but are helped by the machine. Each proposition can be checked out. For instance, a nurse researcher may infer from examining the data that women prefer male to female doctors. This can be checked quickly through viewing the categories and the links between them.

Preparing diagrams

Diagrams illustrate the relationship between themes or categories. The graphic display can enhance the storyline and help to convey its meaning. Many of our students clarify their findings by showing links and connections through diagrams.

Approaches to qualitative computer analysis

Tesch (1991) describes three main approaches to QDA (described below) but acknowledges that these groupings and their subgroups are not neat and discrete; they overlap and do not reflect reality. Both the content of the text and the process of communication are seen as important.

Language oriented

These types of analysis are used by researchers who are primarily interested in language and its meaning – examples are conversation and discourse analysis as well as ethnography. These approaches focus not only on words and verbal interaction but also on the way in which people make sense of their world.

Descriptive/interpretive approaches

These deal with narratives and give descriptions of feelings and actions. Examples are life histories and certain types of ethnography as descriptions and interpretations of a culture. Researchers tell stories and provide interpretations of meanings that participants in the research attach to their experiences.

Theory building

In theory building, the researcher finds patterns and links between ideas and attempts to build theory. From insights generated by the data, general principles often emerge. This is more explanatory than other approaches. GT represents this type of research. The process of theory building is not routine or mechanical but demands engagement, immersion and reflection from the researcher.

The practicalities of using computer-aided analysis

Most students already use word processors for entering and storing data. It is essential for the small minority who do not do so to learn word processing skills because changing a text by correcting, cutting and pasting on the machine takes much less time than rewriting by hand or typewriter. Word processing programs create and revise text and can therefore be helpful to researchers in the transcription of interviews, fieldnotes and in writing the report.

Many researchers would like to learn the use of computers for qualitative analysis, but the practicalities of this must be sorted out before starting a project. The usefulness of computers depends on the researchers' initial knowledge of computers as well as the time span and size of the project. Some of our students started learning to use the computer for data analysis and found it impossible to do so within the allocated time.

We found it difficult to learn the use of computer packages for qualitative analysis from manuals, although some people seem to be able to do so. It is always easier to let expert users teach rather than relying on a manual, but one must be aware that very experienced individuals might be too far advanced to use beginners' terms and explain the skills in a simple way. They take the language and skills needed for computers for granted. It is far better to have a teacher who is just a few steps ahead.

Not only do researchers store and retrieve data, actions that are mechanical and routine, but they also code and categorise. These tasks involve formulating

concepts and theory and hence reflection. These two types of activities, procedures and conceptual thinking are always linked to each other and can both be helped by the use of computers.

Advantages of computer use

Researchers use computers as tools for facilitating processes that were done manually in the past; but it is a fallacy to believe that data can be analysed more quickly by computer programs, because it takes time to learn their use. Once learnt though, they can save time and help researchers to be more organised and systematic and facilitate planning. Data are more accessible and fewer hours are spent sorting and coding the data (however, this implies that all approaches use coding and categorising, and that, of course, is not so).

Cutting and pasting is easy when computers are used, and more time can be given to thinking through the analysis. Researchers should remember to back up their data by storing copies on floppy disks or other computers in several locations and update them regularly. Computers can make the process of qualitative research more manageable especially if a great number of participants are involved. They are, however, merely tools to make the analysis easier. While decisions and judgements are still made by the researcher, searching, cutting and pasting is done by machine. Computers cannot formulate categories or interpret the data, but they might make the analysis more accurate and comprehensive. Health researchers who are not familiar with computer analysis when starting research, should not attempt computer analysis unless they are able to extend their project over a lengthy time period.

Problems and critique

Certain problems emerge, however, when using computers. Seidel (1991: 107), one of the major proponents of computer use in qualitative analysis, warns of 'analytic madness' and states that the use of technology may be a problem that can interfere with appropriate qualitative analysis. He discusses a number of issues. Researchers may be tempted to collect and manage more data than necessary, especially when they have mostly used quantitative methods in the past. The overload of data might prevent them from looking for the most interesting and significant ideas. Instead of searching for deeper meaning in the data, they try to make up for the lack of depth by focusing on the volume of data. There is also the issue of the relationship between researchers and data. This might become mechanistic if analysts do not see the need to examine and evaluate the data carefully. The number of instances of a code or category is often seen as more important than a single significant occurrence just because counting is easy. The lack of scrutiny might prevent the researcher from seeing the real meaning of the phenomenon under study. This also happens occasionally

when the data are analysed manually, but the danger becomes greater through the use of computers. Morse and Richards (2002) caution against compulsive activity in computing which can interfere with the process of reflection and engagement with the data. They also maintain that researchers sometimes try to fit the research to the computer program and also homogenise the data, rather than seeing the program as a tool which assists them in the analysis.

Some researchers believe that computing skills are not only unnecessary but that their use could make qualitative research mechanistic and rigid, the very characteristics which might change its lively humanistic nature. Even now, there are some who think this. For instance, Becker (1993) warns the grounded theorist about the use of computers; she feels that computers can prevent sensitivity to the data and the discovery of meanings. Computers might distance researchers from the data. In nursing and midwifery research where emotional engagement and sensitivity is necessary, the use of computers could be problematic.

The distancing of the researcher from the data is another problem in the use of computers. The involvement with a file on a computer or a printed sheet of paper, which is coded by machine, seems less personal than coding and categorising by hand. The researchers have to keep close to the data, immerse in them and engage with them.

In spite of these potential problems, many well-known qualitative researchers use computer programs when conducting a major piece of research. Seidel himself is the developer of the much used computer package *Ethnograph* that helps researchers to identify and retrieve text from documents.

Computers have largely been accepted in qualitative research. In our experience, some funding agencies are impressed by computer packages because their members are used to computers in survey research and often worry about the scientific value of qualitative research. (Computer packages do not, of course, confirm or deny the scientific value or quality of qualitative research, as computer-aided analysis is merely an instrument and as good or bad as the thinking and judgement of the researcher who uses it.) The greatest help from computers lies in the management of data especially when there is a large amount. It is important for researchers, however, not to distance themselves from the data.

Depending on their own stance towards the use of computer-aided analysis, or their individual needs and skills, nurses and midwives can, of course, choose whether or not to use computer-aided data analysis.

Summary

There are a number of different ways in which data are analysed depending on the research question and the approach.

- QDA is complex, iterative and time-consuming.
- Many approaches use coding and categorising which proceeds from a basic to a more abstract level, others apply a more holistic approach and focus on the description of a phenomenon.
- Data analysis is not rigid or prescriptive although there are certain commonalities in most approaches.
- Computers may be a useful tool in the analysis of data, especially in some areas of retrieval, organisation and management, but they should be used with caution.

References

- Bazeley, P. (2007) *Qualitative Data Analysis with NVivo*. Thousand Oaks, CA, Sage.
- Becker, P.H. (1993) Common pitfalls in grounded theory research. *Qualitative Health Research*, 3 (2), 254–60.
- Bluff, R. (2005) Grounded theory: the methodology. In *Qualitative Research in Health Care* (ed. I. Holloway), pp. 147–167. Maidenhead, Open University Press.
- Borkan, J. (1999) Immersion/crystallisation. In *Doing Qualitative Research* (eds B.F. Crabtree & W.L. Miller), 2nd edn, pp. 179–94. Thousand Oaks, CA, Sage.
- Bryman, A. (2008) *Social Research Methods*, 3rd edn. Oxford, Oxford University Press.
- Caqdas Networking Project, University of Surrey. <http://caqdas.soc.surrey.ac.uk/index.htm>
- Dahlberg, K., Dahlberg, H. & Nyström, M. (2008) *Reflective Lifeworld Research*, 2nd edn. Lund, Studentlitteratur.
- Fielding, N. & Lee, R. (1998) *Computer Analysis and Qualitative Research*. London, Sage.
- Glaser, B.G. (1978) *Theoretical Sensitivity*. Mill Valley, CA, Sociology Press.
- Hansen, E.C. (2006) *Successful Qualitative Health Research: A Practical Introduction*. Maidenhead, Open University Press.
- Kelle, U. (ed.) (1995) *Computer-Aided Qualitative Data Analysis: Theory, Methods and Practice*. London, Sage.
- Langridge, D. (2007) *Phenomenological Psychology*. Hatlow, Pearson/Prentice Hall.
- Lewis, A. & Silver, C. (2007) *Using Software in Qualitative Research: A Step-by-Step Guide*. London, Sage.
- Li, S. & Seale, C. (2007) Learning to do qualitative data analysis: an observational study of doctoral work. *Qualitative Health Research*, 17 (10), 1442–52.
- Morse, J.M. & Richards, L. (2002) *Readme First: A User's Guide to Qualitative Methods*. Thousand Oaks, CA, Sage.
- Moustakas, C. (1994) *Phenomenological Research Methods*. Thousand Oaks, CA, Sage.
- Patton, M. (2002) *Qualitative Evaluation and Research Methods*, 3rd edn. Thousand Oaks, CA, Sage.
- Richards, L. (2005) *Handling Qualitative Data: A Practical Guide*. London, Sage.