

Trent Focus for Research and Development in Primary Health Care

Using Interviews in a Research Project

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Table of Contents

	Page
Introduction	1
Section 1: Types of interview	2
Structured or standardised interviews	
Semi-structured interviews	
Unstructured or in-depth interviews	
Face-to-face interviews	
Telephone interviews	
Focus group interviews	
Section 2: Interviewer Tasks and Skills	5
Locating the respondent	
Obtaining agreement for the study	
Asking the questions	
Recording the answers	
Section 3: Sources of Error and Bias in Interviewing	8
Section 4: Preparing and Conducting the Interview	9
The interview schedule	
Conducting the interview	
The pilot study	
Section 5: Handling Interview Data	16
Analysis of quantitative data	
Analysis of qualitative data	
Summary	20
Answers to exercises	21
References	23
Further reading and resources	24
Glossary	25

Introduction

The **interview** is an important data gathering technique involving verbal communication between the researcher and the subject. Interviews are commonly used in survey designs and in exploratory and descriptive studies. There are a range of approaches to interviewing, from completely unstructured in which the subject is allowed to talk freely about whatever they wish, to highly structured in which the subject responses are limited to answering direct questions.

The quality of the data collected in an interview will depend on both the interview design and on the skill of the interviewer. For example, a poorly designed interview may include leading questions or questions that are not understood by the subject. A poor interviewer may consciously or unconsciously influence the responses that the subject makes. In either circumstance, the research findings will be influenced detrimentally.

It is often assumed that if one is clinically trained and used to dealing with patients, that this is sufficient training to carry out interviews with patients and others for research purposes. Although there are some areas of overlap in terms of the basic communication skills required, it should be acknowledged that for research some different skills are required. The context is also important, since in a clinical setting, there is a particular relationship between a patient and clinician. It is possible that in this routine setting the patient would not be prepared to answer all the questions in a completely honest manner. So it may well be worthwhile thinking about the interview from the respondent's point of view and considering carefully who would be the most appropriate person to conduct the interview and in what setting. There may be a conflict of roles, for example, therapeutic versus research; or even an unconscious adoption of roles that could affect the quality of the data collected.

LEARNING OBJECTIVES

Having successfully completed the work in this pack, you will be able to:

- Describe the skills required to undertake a **structured, semi-structured or unstructured interview**.
- Summarise the advantages and disadvantages of **face-to-face** and **telephone** interviews.
- Outline the ways in which different types of interview data can be analysed.

Section 1: Types of interview

The interview design and question phrasing will influence the depth and freedom with which a subject can respond. Some interviews encourage lengthy and detailed replies while others are designed to elicit short and specific responses. The degree of structure imposed on an interview will actually vary along a continuum but it is useful to think of three main types: **structured**, **semi-structured** and **unstructured**.

Structured or standardised interviews

Structured interviews enable the interviewer to ask each respondent the same questions in the same way. A tightly structured schedule of questions is used, very much like a questionnaire. The questions contained in the questionnaire will have been planned in advance, sometimes with the help of a pilot study to refine the questions.

The questions in a structured interview may be phrased in such a way that a limited range of responses is elicited. For example:

"Do you think that health services in this area are excellent, good, average or poor?"

This is an example of a **closed question** where the possible answers are defined in advance so that the respondent is limited to one of the **pre-coded** responses.

It is not unusual for otherwise structured interviews to contain a few **open-ended questions**. 'Catch-all' final questions are common, for example, 'Do you have anything more to add?' These questions are useful in helping to capture as much information as possible but they increase the amount of time required for analysing the interview findings.

Semi-structured interviews

Semi-structured interviews involve a series of open-ended questions based on the topic areas the researcher wants to cover. The open-ended nature of the question defines the topic under investigation but provides opportunities for both interviewer and interviewee to discuss some topics in more detail. If the interviewee has difficulty answering a question or provides only a brief response, the interviewer can use cues or prompts to encourage the interviewee to consider the question further. In a semi-structured interview, the interviewer also has the freedom to probe the interviewee to elaborate on the original response or to follow a line of inquiry introduced by the interviewee. An example would be:

Interviewer: "I'd like to hear your thoughts on whether changes in government policy have changed the work of the doctor in general practice. Has your work changed at all?"

Interviewee: "Absolutely! The workload has increased for a start."

Interviewer: "In what way has it increased?"

Semi-structured interviews are useful when collecting attitudinal information on a large scale, or when the research is exploratory and it is not possible to draw up a list of possible pre-codes

because little is known about the subject area. However, analysing the interview data from open questions is more problematic than when closed questions are used as work must be done before often diverse responses from subjects can be compared.

Well planned and conducted semi-structured interviews are the result of rigorous preparation. The development of the interview schedule, conducting the interview and analysing the interview data all require careful consideration and preparation.

Unstructured or in-depth interviews

Unstructured interviews (sometimes referred to as "depth" or "in depth" interviews) are so called because they have very little structure at all. The interviewer approaches the interview with the aim of discussing a limited number of topics, sometimes as few as one or two, and frames successive questions according to the interviewee's previous response. Although only one or two topics are discussed they are covered in great detail. The interview might begin with the interviewer saying: "I'd like to hear your views on GP commissioning". Subsequent questions would follow from the interviewee's responses. Unstructured interviews are exactly what they sound like - interviews where the interviewer wants to find out about a specific topic but has no structure or preconceived plan or expectation as to how the interview will proceed.

Generally, a researcher will try to understand the informants' worldview in an unstructured interview. The relationship between the interviewer and the informant is important. Some characteristics of depth interviewing are that the researcher has a general purpose and may use a **topic guide** but the informant provides most of the structure of the interview. Generally the researcher follows up on 'cues' or leads provided by the informant.

Face-to-face interviews

Face-to-face or personal interviews are very labour intensive, but can be the best way of collecting high quality data. Face-to-face interviews are preferable when the subject matter is very sensitive, if the questions are very complex or if the interview is likely to be lengthy. Interviewing skills are dealt with in more detail later in this pack.

Compared to other methods of data collection, face-to-face interviewing offers a greater degree of flexibility. A skilled interviewer can explain the purpose of the interview and encourage potential respondents to co-operate; they can also clarify questions, correct misunderstandings, offer prompts, probe responses and follow up on new ideas in a way that is just not possible with other methods.

Telephone interviews

Telephone interviews can be a very effective and economical way of collecting data where the sample to be contacted are all accessible via the telephone. They are not an appropriate method of data collection for a very deprived population where telephone ownership is likely to be low or where respondents may be ex-directory. However telephone interviewing can be ideally suited to busy professional respondents, such as general practitioners, when the telephone numbers can be

easily identified and timed appointments set up. Telephone interviews are also particularly useful when the respondents to be interviewed are widely geographically distributed.

One of the main disadvantages of a telephone interview is that it is difficult to incorporate visual aids and prompts and the respondents cannot read cards or scales. The length of a telephone interview is also limited, although this will vary with subject area and motivation. Nevertheless it is possible to make prior appointments for a telephone interview and send stimulus material for the respondent to look at in advance of the interview. A prior appointment and covering letter may enhance the response rate and length of interview.

It is important to note that any findings derived from a telephone survey of the general population should be interpreted to take account of the non-responders who may not have access to a telephone or may be unlisted.

Focus group interviews

Sometimes it is preferable to collect information from groups of people rather than from a series of individuals. Focus groups can be useful to obtain certain types of information or when circumstances would make it difficult to collect information using other methods of data collection. They have been widely used in the private sector over the past few decades, particularly in market research. They are being increasingly used in the public sector.

Group interviews can be used when:

- Limited resources prevent more than a small number of interviews being undertaken.
- It is possible to identify a number of individuals who share a common factor and it is desirable to collect the views of several people within that population sub group.
- Group interaction among participants has the potential for greater insights to be developed.

Section 2: Interviewer tasks and skills

To conduct a good interview, interviewers need to be trained. This training includes familiarising a researcher with the skills of, for example, reflective questioning, summarising and 'controlling an interview'.

So what are the requirements for a good interview? Well clearly, all interviewers need to appear unbiased, be systematic and thorough and offer no personal views. He or she also needs to be well informed on the purpose of the research interview and to be well prepared and familiar with the questionnaire or topic guide. In addition, he or she needs to be a good listener and all interviews should be private.

In carrying out a structured interview, it is important that the interviewer adheres closely to the interview instructions, namely:

- following the correct order and **filtering** throughout the questionnaire
- keeping personal opinions to oneself
- reading out pre-codes and **prompts** where instructed
- **probing** when necessary
- not reading out pre-codes for questions requiring spontaneous answers
- writing down open-ended responses in full.

Filtering enables the interviewer or the respondent to know which question to go to next. For example:

If yes to Q1 Go to Q3

If no to Q1 go to Q2.

Definition: A prompt is a prepared response to the respondent by the interviewer.

Definition: A probe is a follow-up question that is used after the respondent has given their first answer. It is used to elicit a more detailed response. Sometimes probes are general and non-directed. In contrast some probes are very specific, for example, clarifying time of day.

Using a structured interview is a way of trying to ensure consistency between interviews. However it is still important that interviewers are trained to administer the questionnaires and well briefed on the interview topic, ensuring familiarity with some of the terms and jargon that may be contained in answers.

Essentially an interviewer has four key tasks:

- to locate the respondent,
- to obtain agreement to the interview,
- to ask the questions, and
- to record the answers.

Locating the respondent

The location of the respondents is determined by the sampling procedure, which should be agreed at the start of the study. In a quantitative study using a **random sampling** procedure, the interviewer does not have the discretion to decide whom to interview and must stick to a pre-determined list. The location and timing of the interview should be convenient for the interviewee. The interviewee should be told in advance how long the interview should take.

Obtaining agreement for the study

It is important that the interviewer seeks the informed consent of the respondent to participating in the study. In most cases, this should be obtained in writing. The interviewer has an important role in explaining why the study is necessary and converting waivers without coercion. Whilst it is possible to recruit respondents on the doorstep, it is preferable to invite them to participate in advance either in writing or by telephone. A written invitation on letter headed paper explaining the purpose of the study can enhance the credibility of the study and increase response rates. Nevertheless such an invitation should be careful to explain that participation is entirely voluntary.

The interviewer must reassure the respondent of their **confidentiality** or **anonymity**, and inform them that their identities will not be revealed in the aggregated findings.

It is important that the interviewer introduces themselves, explains why the study is being done, why the respondent has been selected and what will happen to the interview data. Respondents should be encouraged to ask questions. All this will help the interviewer to establish a rapport with the respondent.

Asking the questions

Interviewers carrying out structured or semi-structured interviews for a quantitative study should:

- stick closely to any written instructions about filtering questions, what to read out etc.,
- refrain from giving personal opinions
- be systematic and consistent in the way they interact with each respondent

Recording the answers

In structured or semi-structured interviews, interviewers must record all answers carefully, distinguishing between questions which only allow one answer and multiple-response questions. Any verbatim answers need to be written down as accurately as possible.

In unstructured interviews, an interviewer would normally tape record the discussion rather than attempting to get it all down on paper. This frees the interviewer to really listen to what is being said and respond accordingly.

Finally when ending the interview remember to give the respondent a contact telephone number in writing for the interviewer or study organiser. This gives some credibility to the study, enabling the respondent to check the status of the study if in doubt, and there may be something that the respondent wants to add or ask about.

Section 3: Sources of error and bias in interviewing

Because of the personal nature of interviewing, the scope for introducing error and bias is quite large and can affect all the following stages of the interviewing process:

- asking the questions
- interpreting the answers
- recording the answers
- coding the answers

Sources of interviewing error will affect a study randomly, i.e. in all directions, whereas sources of interviewing bias affect the study results systematically, i.e. in the same direction. Sources of error include:

- *deviation from the written instructions on the questionnaire*, e.g. not following the correct order of questions, not following the correct filters on the question routing, not using show cards with pre-coded answers, reading out pre-coded answers which were not to be read out, and changing the wording of the questions.
- *interrogation error*, which occurs when questions are phrased differently from respondent to the next, for example, asking ‘What is your age?’ could produce a different response than asking ‘How old are you?’ Use of the word ‘old’ can result in some respondents giving a younger age.
- *interpretation error*, which occurs when the interviewer has to make a subjective judgement as to how to code an answer. This is most likely to happen when the potential answers are pre-coded and the interviewer has to attempt to squeeze the respondent’s answer into an existing box.
- *recording error*. It is generally recognised that the more an interviewer has to write down, the more likely he/she is to make a mistake in the recording of that data. There is a tendency to abbreviate answers, not necessarily correctly.

Every effort should be made to reduce any possible error and bias, and so strengthen both the validity and reliability of the study.

EXERCISE 1

Write down how you think it might be possible to minimise interviewer error?

Section 4: Preparing and conducting the interview

The interview schedule

Devising an interview schedule - the content of the interview - involves decisions about the following:

- what questions to ask
- how to phrase the questions
- depth and breadth of topics to be included
- question sequence

The interview schedule will obviously depend on the purpose and focus on the research. However, there are a few guidelines that should be followed.

- The questions must be answerable. There is no point in asking questions that the interviewee will not be able to answer because of lack of experience or knowledge.
- Leading questions should be avoided. Asking a patient, 'Don't you agree that your treatment on the unit has been excellent?' is not acceptable as it encourages a particular response. The question could better be phrased as, 'Tell me what you think about your treatment on the unit'.
- Semi-structured and unstructured interviews may be concerned with eliciting peoples' experiences, opinions and beliefs. Some questions will be designed to find out what interviewees actually know about a topic, other questions will be focus on beliefs or views. Interviewees' responses may be based on first hand experience or on what they have picked up from a third party. It is important that the interviewer checks out with the interviewee what perspective they are using in the response.
- Interviews are time consuming for the interviewee as well as the interviewer and as a courtesy, the interview should be kept to the minimum time necessary to deal with the topic. The interviewer should make sure that the key issues have been addressed and resist the temptation to get sidetracked. Recommended times for an interview varies from 20 minutes to 40 minutes. It can be difficult to establish a rapport in too short a time but conversely taking too long is unfair to the interviewee and interviewees that take an hour or more are not really acceptable.
- Avoid using words or phrases that the interviewee will not understand. Avoid using medical jargon with none health care professionals.
- Some words have different meanings for different people. For example, a question about the availability of exercise facilities in a geographical area might lead some people to think in narrow terms of exercise gyms and fitness centres while others might include outdoor playing fields or even the possibilities for walks in the nearby countryside.
- Similarly, be aware that some words are highly subjective and value laden. For example, a question about how "good" or how "satisfactory" the local health services are should be followed up to ascertain what the interviewee means by "good" or "satisfactory".
- Some interviewees will be able to provide data about the full range of issues covered by the interview schedule while others will have in depth insights into some of the issues and little or

no information on others. Careful use of prompts and probing should enable the interviewer to judge when a topic is worth exploring further and when to move on to the next topic.

- Interviewees bring a range of perspectives with them. For example, a district nurse will answer a question on availability or access to services based on her experience with patients but she may also have experience as a patient herself.
- The first question in an interview should be something that interviewees will be able to answer without difficulty. This will help them to relax and encourage them to open up. Factual questions can be a useful starting point. If personal information about the interviewee is required this can be asked at the beginning provided the questions are not too personal in that they don't deal with very private or potentially sensitive or embarrassing issues.
- The interview then moves into a discussion about the topics of particular interest. Responses to the main questions are extended through the use of supplementary questions designed to prompt or probe the interviewee.
- The interviewer signals that the interview is nearing the end by techniques such as summarising or recapping the main points of the discussion. The interviewee is invited to correct anything that the interviewer appears to have misunderstood or to add make any additional points.

Conducting the interview

Preparing for the interview.

The interviewer requires good communication skills. Although it has been suggested that a semi structured interview has the appearance of a discussion or a conversation, this is due to the skills of the interviewer in facilitating a relaxed, non threatening atmosphere where interviewees feel comfortable to express themselves. Interviewers may require training before undertaking the interviews. Training should include:

- How to ask questions: phrasing and paralinguistics (voice tone and pitch, stress on particular words or phrases) can influence potential responses.
- Listening skills: indicating interest to build up rapport; listening to the answers of previous questions and using this in framing the next question; knowing when to wait and when to prompt.
- Negative reinforcement: the ability to intervene tactfully when the interviewee is going off at a tangent or going on for too long about a particular point.

Avoiding interviewer bias: the interviewer should avoid bringing their personal perspectives into the discussion. This can happen in the phrasing of questions, the use of prompts and selecting which responses to probe further. The interviewer should always concentrate on what the interviewees are saying and clarifying what they mean. The more time spent on active listening and the less time the interviewer spends talking, the less directive the interview will be and the less likelihood there is of bias being introduced.

Arranging the interview

Prospective interviewees may be invited to participate either in writing or by telephone. The invitation should indicate the purpose of the interview and what this will involve. It should be clear that participation is voluntary. Ethical issues such as whether interviewees' identities will remain anonymous to all but the researcher(s) and the confidentiality of data should be addressed. Once prospective interviewees have confirmed their willingness to take part the date, time and place of the interview is arranged.

The meeting place should be convenient for the interviewee. Effort should be made to avoid interruption wherever possible and this can be helped by informing the interviewee in advance of how long the interview should take and making sure the interview takes place at the most convenient time.

Establishing rapport

Before commencing the interview the interviewer should take the time to explain again the reason for the interview including the aim of the research project and what will happen to the interview data. He/she should check whether the interviewee has any questions. Questions should be asked in a relaxed informal manner so that the interview appears more like a discussion or conversation. The interviewer must be aware of the effect of body language in indicating interest, encouraging the interviewee to talk and maintaining a non-threatening atmosphere.

Conducting the interview

The interview should 'flow'. Beginning gently with factual questions, moving towards more personal questions later on can facilitate this. A gentle probe is necessary when the answer to a question is neither clear nor complete.

Some helpful techniques in conducting an interview are shown below:

- don't interrupt; let informants finish train of thought
- follow up leads, i.e. respond to answers given, some answers will lead onto the next question. If the respondent gives an answer that you hadn't anticipated or even considered, follow this up first and ask questions about it before you forget it. Other issues that you are aware of and interested in, you are less likely to forget.
- ask about both sides of the issue
- use reflective comments which give the respondent permission to continue to discuss and consider a particular topic

Avoid double questions or being too helpful. It is generally felt that that personal opinions should be avoided and care should be taken not to be led too far from the point. Having said this, there is a debate about the degree of empathy required to build trust and rapport with the respondent. Many qualitative interviewers feel that a degree of empathy is required to achieve a certain level of rapport and trust with the respondent and this may involve expressing some opinions of their own. For instance, Ann Oakley found whilst interviewing mothers before and after childbirth, that it was impossible to abide by normal interviewing guidelines and in order to gain the trust of her respondents she had to engage in normal conversations with them, often offering advice and

information when asked (Oakley, 1981). To do otherwise she felt would have inhibited the degree of rapport between them. Some qualitative researchers take this to the extreme by immersing themselves in the culture first prior to the interviewing stage. This is known as 'living the culture'.

Whilst the degree of empathy which can be shown in an unstructured interview is a debatable point, it is never appropriate to show disagreement or disapproval.

Body language

It is also important to try and pick-up on non-verbal cues. Look at the respondent's posture; are they relaxed and comfortable or sitting perched on the edge of their seat? Look at the respondent's hands, what is she doing with them; is she biting her nails, holding her hand over her mouth whilst she speaks or sitting on them? Is the interview emotionally distressing? The body language may indicate that there is more information to come.

Your own body language is important in making the respondent feel at ease by responding to their verbal and non-verbal cues. This is something we all do usually unconsciously.

Silences

Silences may be very telling. Do not feel uncomfortable with a silence in a qualitative interview. If you do, you may try to rush in and fill it quickly with another question. You need to give the respondent the opportunity and the time to reflect and to add additional information. The length of the silence may be important and should be indicated in the final transcript.

Recording data.

Interviewers have a choice of whether to take notes of responses during the interview or to tape record the interview. The latter is preferable for a number of reasons. The interviewer can concentrate on listening and responding to the interviewee and is not distracted by trying to write down what has been said. The discussion flows because the interviewer does not have to write down the response to one question before moving on to the next. In note taking there is an increased risk of interviewer bias because the interviewer is likely to make notes of the comments which make immediate sense or are perceived as being directly relevant or particularly interesting. Tape recording ensures that the whole interview is captured and provides complete data for analysis so cues that were missed the first time can be recognised when listening to the recording. Lastly, interviewees may feel inhibited if the interviewer suddenly starts to scribble: they may wonder why what they have just said was of particular interest.

The ideal tape recorder is small, unobtrusive and produces good quality recording. An in built microphone makes the participants less self conscious. An auto reverse facility means that the tape will automatically "turn itself over" if the interview lasts longer than the recording time available on one side of the tape: this prevents an interruption in the flow of conversation. A tape recorder with a counter facility can be useful when analysing the taped data (see below).

Closing the interview

An in-depth interview can last between 40 minutes and three hours depending on the level of interest generated in the topic. One of the most difficult things to do is to close an interview and one needs to develop a repertoire of signals to indicate its end. These can be as direct as switching off the tape recorder (although clearly not in mid-sentence!) but there are more subtle techniques available. (See Mays and Pope in *BMJ*, 311;251 - 253, 1995 for further information). Time should be taken to listen to the last remarks and any queries a subject may have should be dealt with then and there if possible.

Tips for in-depth interviewing:

- Be familiar with aims and objectives of research
- Know your topic guide well; you may not get a chance to refer to it
- Tape record your interview if possible because you won't be able to write it all down
- Reassure the respondent on the issue of confidentiality
- Be a good listener and don't interrupt too much
- Try to start with factual background questions and move gently towards more specific personal questions
- Do not express your own personal opinions or appear biased - think in advance about your own prejudices, especially in the areas of sex, race, and age.
- Use probes when answers need further clarification and respond to non-verbal cues
- Transcribe the tape as soon as possible after the interview
- Never under-estimate the amount of time required for transcribing the tape and carrying out the analysis. A general rule of thumb is that for every hour of interview you have carried out, you will need to allow ten hours for the transcribing and analysis process.

The pilot study

In order to ensure that you have covered all the relevant issues, that your pre-codes are correct and that you have not forgotten or omitted some issue that is really important to the respondent, you will need to conduct a pilot study using your draft questionnaire.

The ideal situation is to test the questionnaire on a small number of respondents who are the same type as those in your sampling frame. Ideally you should test out your interview on between 10 and 50 respondents for a quantitative study. However, if the real subjects are difficult to access or few in number, then you may have to test the questionnaire on slightly different subjects. At the very minimum, you could try out the questionnaire on your colleagues or friends. This will at least allow you to see if the filtering and order is correct.

It is essential that the interview be phrased in plain and clear language. If the subjects of your study are to be members of the public, you should pilot the interview with a lay person in preference to a professional colleague, even if the lay person turns out to be your sister. You may be so familiar with medical terminology and jargon that you forget other people may not understand it.

EXERCISE 2

Read the attached transcript of a research interview between a practice nurse and a patient. Identify (by line number) those parts of the interview where the interviewer asked:

leading questions, ambiguous questions and two questions in one sentence

State how this may have influenced the outcome of the study, and suggest ways in which the questions could have been better phrased.

The following is an extract from a qualitative interview between a practice nurse and a patient. The study aims to explore how parents decide to use their primary care services when their children are ill. (I = Interviewer, R = Respondent)

1 I Interviewer: Thank-you for agreeing to spare me some time for this interview. I'm doing
2 a study of parents with small children - I'm interested in how they use their local general
3 Practitioner services.

4 I I'd like to ask you some questions about the times when your child has been ill. How old
5 is she?

6 R Respondent: Six. She was six in June.

7 I Can you tell me about the last time she was ill?

8 R What do you mean by ill? How ill?

9 I Well, anything really, not necessarily ill enough to go to a doctor. I mean, eh, has she had
10 any colds or high temperatures or anything like that or more serious illness?

11 R Yes.

12 I She had em?

13 R She had a bad cough and cold about two months ago.

14 I And how did you handle that? Did you take her to the doctor?.

15 R Well, I didn't take her to the doctor straight away. I gave lots of Calpol and I waited, and I
16 Tried to keep her cool, but then she seemed to get hotter and hotter and eventually by
17 Night-time I decided that I had to call the doctor out.

18 I What time was this?

19 R About 3 am. She'd been awake all night and she'd been getting hotter and hotter and I got
20 More worried. You know how it is when you're worried.

21 I You were worried about meningitis?

22 R Yes, she was very poorly, so I called the doctor out.

23 I So you asked for a home visit. How quickly did he come?

- 24 R It was a woman. a different doctor. She came very quickly actually. I was surprised she
25 Came so quickly. I thought that we would be waiting all night., you know. But she was
26 there within half an hour.
- 27 I What did she do?
- 28 R Well she took Anna's temperature and, you know, she said she was OK. Not to worry and
29 that if we were still worried we should go to the GP in the morning. I wanted some
30 antibiotics but I didn't get any.
- 31 I So the next day did you take her to the GP or did you treat her yourself?
- 32 R Eh, yes.
- 33 I Sorry, did you treat her yourself?
- 34 R Well, I gave her some Calpol, but then I took her down to the health centre and we saw
35 DR X and he examined her and I felt more reassured.
- 36 I Good. Was that reassurance important?.
- 37 R Yes. I needed somebody to look at her properly and to listen to me.
- 38 I What about the time she was ill before that?
- 39 R (silence - respondent thinking) Well, I think she was ill around Christmas. She had
40 Chickenpox.
- 41 I She must have felt pretty ill with that?
- 42 R No, actually. It hardly seemed to bother her. She was covered in spots, but she carried on
43 playing with her presents and she didn't like it when I told her she couldn't go to school.
- 44 I Did you take her to the doctor's?.
- 45 R Yes, of course. As soon as I saw the spots. I took her straight down. And we saw Dr X.
46 He knew what it was straight away.
- 47 I So at what point did you decide to go to the doctor's?
- 48 R I'm not sure. I just wanted to know what the spots were. I wasn't worried cos there was
49 a lot of it about at the time.
- 50 I How did you decide whether to go to the doctor's or call out a doctor for a home visit?
- 51 R Well, it depends on the time of day and how worried you are?

Section 5: Handling interview data

The way you analyse your interview data will depend on whether the data you have collected is predominantly quantitative (number-based) or qualitative (text-based). Lets look first at quantitative data analysis.

Analysis of quantitative data

Assuming that you had asked a number of questions of a large group of people, for instance over twenty respondents, then you are likely to want to use computer software to carry out your analysis. Most people use either SPSS or EPI-Info to carry out their statistical analysis. SPSS is very user friendly but it can be very expensive to purchase. EPI-Info on the other hand is freely available (for further details of these two software packages you are advised to refer to the Trent Focus Resource Packs *An introduction to Using EPI Info* and *An Introduction to Using SPSS*).

Once you have gained access to either of these statistical packages you will need to define your **variables** and value labels and then input the data. When you have entered the data it is necessary to check for errors. It is very easy to type in the wrong figures. It is useful at this stage to print out some **frequencies**. These are simple counts of each of your main variables. So for example, if one of your variables is the gender of the respondents, coded 1 and 2, then the frequencies command will calculate for you how many men and how many women were in your sample and reveal only entries outside the expected range.

The next stage is usually to carry out some simple cross-tabulations or contingency tables to compare responses to one question with another. So for example, 'frequencies' will enable you to see how many men and women you have in your sample and also how many smoke but until you carry out a cross-tabulation you won't know how smoking varies by gender. For further details on quantitative data analysis you are recommended to read the Trent Focus Resource Pack *An Introduction to Using Statistics in Research*.

Analysis of qualitative data

If you have carried out a semi-structured or an in-depth interview then you will want to analyse the data using qualitative methods. It would be quite wrong to try and quantify the results of an in-depth interview. For instance if you carried out ten depth interviews you should not say that six out of the ten people interviewed took a particular viewpoint. Instead you should be looking at how and why the respondents differ in their views.

The first stage of qualitative analysis is to examine your transcripts of all your interviews. It is important that you get all the tapes of your interviews transcribed. It is much more difficult, if not impossible to try and do your analysis from the tapes alone. Using transcripts means that you pick up on the detail, including all those points that you might have forgotten. But don't forget to allow sufficient time to get the tapes transcribed. This can be a very painstaking process and you should never underestimate the amount of time that it can take.

Once you have all your transcripts together, you will need to carry out **content analysis**. This is really a systematic way of identifying all the main concepts, which arise in the interviews, and then trying to categorise and develop these into common themes. It can be very confusing when you are faced with fourteen long transcripts but there are a number of practical ways of actually carrying out this process of content analysis in a systematic way. To begin with you need to read through each transcript and make a note in the margin of main concepts or points of interest.

In order to identify the common themes and categories in the text you need some systematic way of identifying and grouping them. Possible ways of doing this are as follows:

1. Write the name of the theme in the margin of the text, for example, 'compliance', and then actually cut up the transcripts so that you can group all the common themes and categories. Before you get the scissors out, make you sure that you have photocopy of the whole transcripts otherwise you may in danger of taking things out of context.
2. Instead of cutting the transcripts up, try highlighting common themes with a highlighter pen. The problem with this is that the number of different concepts is limited to the number of different colours of your pens.
3. Try transferring themes and concepts onto index cards, so that all common themes are located on the same card but referenced to each subject.
4. Use a matrix to relate a number of key themes to different respondents. The results look a bit like a cross-tabulation, with cases or individuals down one side of the table and the main concepts running across the top. Individual cells can contain quotations.
5. Map the concepts and themes graphically using a cognitive map. Cognitive maps are similar to flow-charts that show how one theme or category influences another. Cognitive maps can be drawn up for each individual and then summary maps can be developed. Cognitive maps are particularly useful in examining the process of personal decision making.

For further information about using matrices and cognitive maps read Miles and Huberman 'Qualitative Data Analysis', 1994. There are various software packages now available to assist you in this process and these are referenced at the end of this pack.

Whichever method you opt for your overall aim is to identify the key concepts presented in the data. Once you have exhausted all the possible concepts you should start to find the same concepts reoccurring with different respondents. When you find differences between respondents you should be looking for why those differences exist.

Eventually you may find links between some of the concepts, which in turn can be developed into common themes. At this point you may start moving away from just describing the data and instead start developing possible theories, which might help explain what you have found.

Remember when carrying out qualitative data analysis that it is an ongoing dynamic process. You should come to the data with an open mind (although you need to acknowledge any biases that you think you may have) and thus the categories and themes that emerge from the data are not pre-set by you as the researcher. They should emerge from the data as issues and ideas, which are important and relevant to the respondents. One way of trying to validate your data analysis is to

ask your respondents to look at your analysis of your interview with them and ask them if it is a true representation of what they said and believe.

For further details of how to analyse qualitative data, you should read Trent Focus Resource Pack *An Introduction to Qualitative Research*.

Coding open-ended questions

An open-ended question allows a respondent free reign to give any answer they want to. Consequently if we ask what we think is a very straight forward open-ended question of 200 people we could get 200 different answers back. This makes comparing the answers very difficult. In actual fact if we ask an open-ended question of lots of people we are likely to start building up some sort of pattern to the answers. We start to see some answers appearing more frequently than others. It is therefore possible to develop a coding frame to reflect the most frequently occurring and the most important answers to an open-ended question. The best way to do this is to examine a proportion of the answers you have received to a particular question and to use a five bar gate system to record the most frequently cited items. Once these have been established, each category can be assigned a nominal numerical value and all these answers given to this open-ended question can then be coded.

EXERCISE 3

In this example we have listed all the answers given by a group of respondents to the following question:

‘Why did you not take your medicine as the doctor requested you to?’

(Each one of these replies has been given by a different individual)

I forgot.

I didn't like the taste

I forgot.

I was too busy.

I left the bottle at home.

I forgot.

I got better and I didn't think that I needed it anymore.

I forgot to take it that time.

I was asleep.

I forgot to take the antibiotics.

I'd already eaten and I thought that I couldn't take it then.

I was too busy.

I forgot it.

I was thinking of other things.

I didn't feel ill any more.

I felt better.

I didn't need it.

I never got it from the chemists.

I just forgot.

Forgot it.

Forgot to take it.

I don't remember what he told me to do.

I felt better anyway.

I forgot to take it.

I was too busy.

I was driving.

I'd just eaten.

I was at work.

Looking at the replies listed above, go through them all and try to identify those that are the most frequent. Then draw up a coding frame to represent the main categories. You may also want to pick up categories which are not very frequent but which are very important.

Summary

In this pack we have described:

1. Structured interviews,
2. semi-structured interviews
3. unstructured / depth interviews.

You should by now be able to describe the advantages and disadvantages of the following methods:

- face-to-face interviews
- telephone interviews

You should understand the difference between open-ended and closed questions and know what a pre-code is.

You should also be able to distinguish between a structured and a semi-structured interview. As you will recall, a structured interview with a majority of closed questions, with pre-coded answers, is appropriate when you are trying to directly compare the responses of a large number of people. Whilst a semi-structured interview will allow you to ask more open-ended questions which are rich in detail but more difficult to analyse and compare.

You should be aware of skills required of a good interviewer and be able to list the ways in which interviewer error can be reduced.

You should be able to numerically code pre-coded and open-ended data collected in an interview.

Finally you should be able to describe ways in which to analyse quantitative and qualitative data.

Answers to exercises

Exercise 1

Ways to minimise interviewer error

There is no single right answer, however some possible suggestions are:

- train all the interviewers in the appropriate skills
- ensure that all the interviewers are thoroughly briefed on the research topic
- pilot the interview
- accompany interviewers and monitor their questioning and recording
- use structured questions where possible and avoid verbatim answers
- avoid having to select a pre-coded response from a verbatim answer - let the respondent select the code where possible
- avoid giving strong personal opinions, in particular do not show disapproval or disagreement with the respondent, regardless of what you may really think.

Exercise 2

1. Leading questions (by line number):

21, 23, 38, 41

2. Ambiguous questions:

9, 38

3. Two questions in one:

9, 14, 31, 50

- 4.** There is a danger that the interviewer could have confused or biased the interview. The interviewer assumes a number of things, for instance, that the doctor was male, or that the chickenpox had made the child feel 'pretty ill'. Luckily the respondent actually corrects her on these points but it may not always be so easy to pick up. If its a minor matter the respondent may not bother to clarify the question.

Questions should be phrased without assumptions, for example, at line 21, the question 'You were worried about meningitis?' could be rephrased as 'What in particular were you worried about?'

Likewise line 36 could be replaced with 'How important was that reassurance?'

There are a number of questions where the interviewer asks two questions instead of one. The interviewer then has to probe the respondents answer, otherwise she would not have been able to interpret the answer. Obviously it would be preferable to break these multiple questions up and ask them one at a time.

Exercise 3

Coding of open-ended questions is not an exact science and two people coding the same group of answers are likely to produce slightly different coding frames nevertheless one would expect there to be some similarities. We have coded the above responses in the following way:

Reasons for not taking medicine as requested by GP

Forgot/ Did not remember	1
Got better/ No longer ill/ not needed	2
Too busy/ thinking about other things	3
At work/ left bottle at home	4
Eaten food so too late	5
Doing other things/ driving/ sleeping	6
Unpleasant taste	7
Did not take prescription to chemist	8

As you can see we have started off by coding the answers which produced the most frequent responses. We have also decided to combine some answers into a single category. Note that although only one person said that they had not collected their prescription from the chemist we have allocated this answer a separate code of its own since we felt that this was a particularly important answer. Likewise we have allocated a code for 'unpleasant taste' even though only one person said this.

References

- Bell J. *Doing your own Research Project*. Buckingham: OU, 1995.
- Carter Y, Thomas C. *Research Methods in Primary Care*. Oxon: Radcliffe, 1997.
- Crombie I, Davies H. *Research in Health Care*. Chichester: John Wiley & Sons Ltd, 1996.
- King N. *The Qualitative Research Interview*. In C Cassell, G Simon (eds). *Qualitative Methods in Organisational Research*. London: Sage, 1994.
- May N and Pope C. *Qualitative Interviews in Medical Research*. *BMJ*, 311:251 - 253, 1995.
- Miles M, Huberman A. *Qualitative Data Analysis*. Thousand Oaks: Sgae, 1994.
- Moser C and Kalton G. *Survey Methods in Social Investigation*. Hants: Gower, 1990.
- Oakley A. 'Interviewing Women: a contradiction in terms' in Roberts H (ed) *Doing Feminist Research*. London: Routledge, 1981.
- Oppenheim A. *Questionnaire Design, Interviewing and Attitude Measurement*. London: Pinter Publishers Ltd, 1992.
- Sapsford R, Jupp V. *Data Collection and Analysis*. London: Sage, 1996.

Further reading and resources

Software for Qualitative Data Analysis:

1. QSR Nudist is developed by: Qualitative Solutions & Research Pty Ltd,
Box 171 La Trobe University Post Office,
Vic Australia 3083.

Website: <http://www.qsr.com.au>

2. Atlas-ti is developed by:
Scientific Software Development
c/o Thomas Muhr,
Tratenastr. 12,
10717 Berlin,
Germany

Website: <http://www.atlasti.de>

Glossary

Anonymity	is the protection of the identify of research subjects such that even the researcher cannot identify the respondent to a questionnaire. Questionnaires in an anonymous survey do not have an identification number and cannot be linked back to an individual. Anonymity should not be confused with confidentiality where individuals can be identified by the researcher.
Bias	is a derivation of the results from the truth. This can either be due to random error or, more likely, due to systematic error. The latter could be caused by, for example, sampling or poor questionnaire design.
A Case	is a unit of analysis. Usually this takes the form of an individual subject but it could be a different unit of analysis altogether such as a family or a blood culture.
Categorical data	see nominal data
A closed question	is one where the possible answers have been defined in advance and so the respondents' answers will be restricted to pre-coded responses offered. A pilot study should be carried out to decide on the correct pre-codes.
Coding	is the process by which responses to questionnaires or other data is assigned a numerical value or code in order that the data can be transferred to a computer for data analysis. See also 'pre-codes', 'closed questions', 'open-ended questions' and 're-coding'.
A concept	is an abstract idea or mental construct representing some event or object in reality.
Confidentiality	is the protection of the identity of research subjects so that identities cannot be revealed in the research findings and the only person who can link a respondent's completed questionnaire to a name and address is the researcher. A questionnaire with just a coded identification number is confidential. This should not be confused with anonymity, where not even the researcher can identify the subjects.
Construct validity	is the extent to which the measurement corresponds to the theoretical concepts (constructs) concerning the object of the study. There are two kinds of construct validity: convergent and divergent
Content analysis	is the systematic examination of text or conversational transcripts to identify and group common themes, and to develop categories for analysis.
Content validity	is a set of operations or measures that together operationalize all aspects of a concept.

Criterion validity	is the extent to which measurement correlates with an external indicator of the phenomenon. There are two types of criterion validity concurrent and predictive: i) concurrent validity is a comparison against another external measurement at the same point in time ii) predictive validity is the extent to which the measurement can act as a predictor of the criterion. Predictive validity can be useful in relation to health since it can act as a early risk indicator before a condition develops in full.
Cross-sectional design	is analogous to a snap-shot. A cross-sectional design is one which focuses on a single fixed period in time, and can provide a description of respondents that differ on a number of variables.
The Delphi technique	is a method for obtaining expert or consensus opinion on a particular topic, by using multiple 'rounds' or waves of questions whereby the results from the previous rounds are continually fed back to the same respondents to bring about a group consensus.
A dependent variable	is known as the outcome variable. The value of a dependent variable is dependent on other independent variables and its value will change as the independent variable or intervention changes. Statistical techniques can be used to predict the value of the dependent variable. An example of a dependent variable might be peak flow or blood pressure.
A descriptive design	is one which seeks to describe the distribution of variables for a particular topic. Descriptive studies can be quantitative, for instance, a survey, but they do not involve the use of a deliberate intervention. However, it is possible to carry out correlational analysis of the existing variables in a descriptive study.
Error	can be due to two sources: random error and systematic error. Random error is due to chance, whilst systematic error is due to an identifiable source such as sampling bias or response bias.
Ethnography	is a qualitative research approach and is used to study other cultures. The ethnographic approach was first developed by anthropologists. The term 'ethnography' comes from the Greek and means 'writing culture'.
External validity	relates to the extent to which the findings from a study can be generalised (from the sample) to a wider population (and be claimed to be representative).
Face validity	is the extent that the measure or instrument being used appears to measure what it is supposed to. For example, a thermometer might be said to possess face validity.
Focus groups	is a method of collecting qualitative data from a group of people. It takes the form of a group discussion, ideally with 6-8 respondents. A moderator directs the group discussion.

Grounded theory	is a technique for analysing qualitative data and generating concepts and theories, inductively, using a constant comparative method. This approach was developed by Glaser and Strauss in 1967.
The Hawthorne Effect	is the changes that occur in a subject's behaviour or attitude as a result of being included in the study and being placed under observation. The term derives from industrial psychological studies that were carried out at the Hawthorne plant of the Western Electric Corporation in Illinois in the 1920s and were reported by Mayo. He found that whatever experimental environmental conditions were tried out on the workers, productivity always went up. He realised that it was the effect of actually being under study that resulted in a change of behaviour and so increased productivity.
A hypothesis	is a statement about the relationship between the dependent and the independent variables to be studied. Traditionally the null hypothesis is assumed to be correct, until research demonstrates that the null hypothesis is incorrect. See 'null hypothesis'.
The independent variable	is one which 'causes' the dependent variable. The independent variable takes the form of the intervention or treatment in an experiment and is manipulated to demonstrate change in the dependent variable.
An in-depth interview	takes an unstructured, qualitative approach. The questions asked will be mostly open-ended and overall the degree of control over both the order and content of the interview is less than in a structured interview
An indicator	is the operationalized form of a concept. In research concepts need to be tightly defined so that they can be measured. To measure a concept we have to translate it into a specific indicator.
Instrument validity	is the extent to which the instrument or indicator measures what it purports to measure. Note that a study could have instrument validity but still lack validity overall due to lack of external validity.
Internal validity	relates to the validity of the study itself, including both the design and the instruments used.
Interval data	is measured on an interval scale where the distance between each value is equal and the distance between values is the same anywhere on the scale. Interval level data does not possess a true zero, unlike ratio data.
An intervention	is the independent variable in an experimental design. An intervention could take the form of treatment, such as drug treatment. Those subjects selected to receive the intervention in an experiment are placed in the 'intervention' group.

Nominal	data, also known as categorical data, is a set of unordered categories. Each category is represented a different numerical code but the codes or numbers are allocated on an arbitrary basis and have no numerical meaning. See also 'ordinal' and 'interval data'.
Null hypothesis	is the alternative hypothesis. It usually assumes that there is no relationship between the dependent and independent variables. The null hypothesis is assumed to be correct, until research demonstrates that it is incorrect. This process is known as falsification.
An open-ended question	is one which allows the respondent the freedom to give their own answer to a question, rather than forcing them to select one from a limited choice. Open-ended questions are commonly used in in-depth interviews, but they can also be used in quantitative structured interviews as well.
Ordinal data	is composed of a set of categories which can be placed in an order. Each category is represented by a numeric code which in turn represents the same order as the data. However, the numbers do not represent the distance between each category. For instance, a variable describing patient satisfaction may be coded as follows: Dissatisfied 1, Neither 2, Satisfied 3. The code 2 cannot be interpreted as being twice that of code 1.
Population	is a term used in research which refers to <u>all</u> the potential subjects or units of interest who share the same characteristics which would make them eligible for entry into a study. The population of potential subjects is also known as the sampling frame.
A prospective study	is one that is planned from the beginning and takes a forward looking approach. Subjects are followed over time and interventions can be introduced as appropriate.
Qualitative research	deals with the human experience and is based on analysis of words rather than numbers. Qualitative research methods seeks to explore rich information usually collected from a fairly small samples and includes methods such as in-depth interviews, focus groups, action research and ethnographic studies.
Quantitative research	is essentially concerned with numerical measurement and numerical data. All experimental research is based on a quantitative approach. Quantitative research tends to be based on larger sample sizes in order to produce results which can be generalised to a wider population.
A Questionnaire	is a set of questions used to collect data. Questionnaires can be administered face-to-face by an interviewer, over a telephone or self-completion. Questionnaires can include closed an open-ended questions.

A Quota sample	is a form of non-random sampling and one that is commonly used in market research. The sample is designed to meet certain quotas, set usually to obtain certain numbers by age, sex and social class. The sample selected within each quota is selected by convenience, rather than random methods.
Randomisation	is the random assignment of subjects to intervention and control groups. Randomisation is a way of ensuring that chance dictates who receives which treatment. In this way all extraneous variables should be controlled for. Random allocation does not mean haphazard allocation.
Random error	is non-systematic bias which can negate the influence of the independent variable. Reliability is affected by random error.
Ratio level data	is similar to interval data in that there is an equal distance between each value except that ratio data does possess a true zero. An example of ratio data would be age.
Re-coding	is the process of altering the codes assigned to a particular variable, usually by aggregating categories. For instance, continuous interval data such as age may be re-coded into age bands, thus making it ordinal data. Re-coding allows data to be analysed and compared in different ways than in its original state.
Reliability	is concerned with the extent to which a measure gives consistent results. It is also a pre-condition for validity.
Representativeness	is the extent to which a sample of subjects is representative of the wider population. If a sample is not representative, then the findings may not be generalisable.
A Response rate	is the proportion of people who have participated in a study or completed a question. It is calculated by dividing the total number of people who have participated by those who were approached or asked to participate.
A retrospective design	is one which looks backwards over time, often using data already collected by others. It usually takes the form of correlational research identifying relationships between independent and dependent variables.
A Sample	is a group or subset of the chosen population. A sample can be selected by random or non-random methods. Findings from a representative sample can be generalised to the wider population.
A Sampling frame	is the pool of potential subjects which share a similar criteria for entry in to a study. The sampling frame is also known as the 'population'.

Snowballing	is a non-probability method of sampling commonly employed in qualitative research. Recruited subjects nominate other potential subjects for inclusion in the study.
A Survey	is a method of collecting large scale quantitative data but does not use an experimental design. With a survey there is no control over who receives the intervention or when. Instead a survey design can examine the real world and describe existing relationships. A survey can be either simply descriptive or correlation's.
Theoretical sampling	is a sampling method used in qualitative research, whereby the sample is selected on the basis of the theory and the needs of the emerging theory. It does not seek to be representative.
Validity	is the extent to which a study measures what it purports to measure. There are many different types of validity.
A Variable	is an operationalized concept. A variable is a phenomenon that varies and must be measurable. An outcome variable is known as the dependent variable and the effect variable is known as the independent variable. The independent variable has a causal effect on the dependent variable.