Part 1 of this series (“An overview of qualitative research”) introduced qualitative research, explaining how it may be useful for exploring questions to do with “why” people do things rather than “how many” people do things (PJ, 17 March, p312).

In part 2 we discuss two common methods of data collection: focus groups and in-depth interviews. An example of data analysis using the general inductive approach and content analysis is used to illustrate analysis of qualitative data.

Data collection
In part 1 the reader was referred to various qualitative research methods for data collection. It is important that the researcher establishes a valid premise for the chosen method of data collection and considers the strengths and limitations of the chosen method when evaluating the results. Qualitative research is context based, so it is imperative that the researcher has recruited the participants in a transparent manner. Participants should be individuals who can contribute significantly to answering the research question. Data can be gathered from interviews of varying depth and in different contexts (for example, telephone or face-to-face interviews, individual semi-structured or in-depth interviews and focus group discussions). Data can also be gathered from surveys that elicit narrative focus groups discussions. Data can also be semi-structured in-depth interviews. Instead, it is suggested that interviews and discussions should continue until data saturation is reached and no “new” information is being presented.

Focus group discussions
Focus groups are described as group discussions that are used to identify and explore perceptions and thoughts of a specified group of individuals with regard to a specific topic and area of interest.3 4 The environment in which this process occurs is formalised so as to be permissive and non-threatening. The data collected is a result of the communication and interaction between the participants.

Focus groups have been described as a useful research tool to “give a voice” to marginalised groups within specific populations.5 The dynamic effect of the group leads to specific strengths and weaknesses with this type of research. One of the benefits is what results from the dialogue between individuals within the group, which creates a synergy or group effect, allowing insights into consensus and diversity. A core feature of focus groups is the inclusion of a moderator who serves to facilitate group discussion, ensure a loose agenda of questions or topics is covered, and to ensure the engagement of all group members.6

A weakness with focus groups can be the influence of the group’s moderator, which may unduly affect the flow of dialogue between group members. In some focus group discussions the researcher is the moderator. A level of polarisation may also occur within the group which results in some members not disclosing information.

Verbatim transcripts provide a record of the discussion. It is advisable to use two audio recorders during the discussion to avoid any mechanical or electronic breakdowns that may jeopardise data collection. In addition, some researchers take written notes of the discussion, although this form of record-keeping introduces the potential for bias. In such cases participants should verify that the notes are an accurate reflection of the discussion. Participants can also verify transcripts of discussion (referred to as respondent validation) whether these are recorded or not.

There is no mathematical rule for calculating sample size for focus group discussions or in-depth interviews. Instead, it is suggested that interviews and discussions should continue until data saturation is reached and no “new” information is being presented.

In-depth interviews
The use of in-depth interviews is gaining popularity among pharmacist researchers.6 7 Interviews provide opportunities to probe beyond a simple answer and provide an opportunity for clarification of ambiguous replies and to explore, more deeply, people’s perceptions and views on issues.8

Unlike an experimental study, there is no mathematical rule for calculating the sample size for in-depth interviews and it has been suggested that five to 10 interviews should be sufficient. The in-depth interview is a semi-structured extended interview where the interviewer uses predefined open-ended questions. A “grand tour” question is often used to initiate the discussion. Consideration is given to the time allotted for the interview (from one hour up to four hours) and the interviewer is required to maintain the discussion within that time period. The discussion can cover 10 to 30 topics and it reveals the perceptions, attitudes, beliefs and knowledge of the respondent. Unexpected insights or new ideas may emerge requiring trust between the interviewer and the respondent. The in-depth interview is also a useful tool for research among illiterate respondents. However, it is a time-consuming method and requires a well-trained interviewer. The data analysis can be difficult and laborious and a bias towards social acceptability is a potential weakness of in-depth interviews.

The in-depth interview has at least four levels of operation but an additional level is required to be completed before the actual interview. This is the preparatory stage, involving literature and emotional preparation.

The four levels of an in-depth interview have been described by Launso9 as:

First level The interviewee spontaneously tells of his or her activities, knowledge, thoughts, and feelings concerning the relevant subject

Second level The interviewee is asked for an understanding or an explanation of his or her experiences

Third level The interviewee writes a report for the interviewee, which provides a mirror reflection of the interviewee’s activities, feelings, understanding and explanations

Fourth level The interviewer discusses the interviewee’s understandings and explanations

Termination of the interview session should be handled with discretion. Respondents should be guided gently to conclude the interview, and the interviewer may take their leave politely but firmly if necessary.

Skills required of interviewers
Skills refer to the application of principles and knowledge acquired through training and experience and essentially imply knowledge in action. There is a delicate balance between an interviewer’s role as an active partner and as a passive observer. Although interviewers should limit their participation to a minimum, they should be able to direct and control the interview. An interviewer should observe and interpret correctly the verbal and non-verbal communication between themselves and the respondent or participants.

Communication constitutes a vital part of the interview and the interviewer must be aware of the effects of their communication, both verbal and non-verbal, on the respondent. Invasion of privacy through forced eye contact, for example, should be avoided. Signs of aggression should alert the interviewer to subtly avoid direct confrontation, by listening attentively but remaining calm and neutral.

Another requirement of the interviewer is to stimulate interviewees when necessary, by probing to obtain additional information. Probing should always be done in a friendly, reassuring and non-threatening manner. Leading questions and those that are complicated, double-barrelled and insinuating should be avoided. Instead, open-ended questions that allow respondents to voice their feelings, and close-ended questions that pro-
Data analysis
The method of data analysis will vary according to the method of data collection. For example, in the analysis of observational data, certain assumptions may be implicit, such as the interaction of the observer not altering the behaviour of respondents. In focus group discussions and in-depth interviews, verbatim transcripts of the discussion are analysed and explored using various analytical methods. Analysis must reflect the purpose of the study. To ensure credibility the mode of analysis needs to enable a clear exploration of the dialogue between the interviewer and interviewee. There are a number of different methods of data analysis in qualitative research; the method considered most suitable for descriptive studies has been described as content analysis, which includes thematic analysis, semantic analysis and latent content analysis. Distinction between synthesis of primary studies from the secondary analysis of qualitative data is addressed by Dixon-Woods et al., who provide a useful overview of highly specified procedural techniques to analyse complex raw data through the construction of categories and summary of themes, a concept Thomas defines as “data reduction”. The findings are a melding of the objective aims of the researcher and what is shaped from direct analysis of the data. Thomas’s method involves a close reading of the text. The researcher then creates categories from the text and over a period of refinement reduces the overlap between the categories to condense the central categories or themes.

Content analysis
The process of content analysis provides a rigorous structure for analysing data. The method described by Thomas is extended by Graneheim and Lundman to include tighter definitions of the data coding process to distil the categories into themes. The key processes outlined by Graneheim contain four primary steps. The first process is immersion in the data, where the researcher reads and rereads the text to identify significant strands. Graneheim and Lundman describe these strands of data as meaning units. The second step is a distillation of the meaning units into simple words or concepts (this is also described by Thomas as “data reduction”) which Graneheim and Lundman describe as “condensed meaning units”. The next process is an aggregation or abstraction of condensed meaning units into higher logical levels. The initial phase is described as a “code” which is the label given to define the condensed meaning unit. Further stratification of the data codes is the final step in the process. Codes are grouped by commonality to form subcategories and categories and finally themes. A category is a descriptive level of the content and is therefore an expression of manifest content of the data. Data should fit into only one defined category although categories can be built on or divided into subcategories. A category is a thread of meaning that runs across the data code. The development of themes follows the multiple meanings that underlie the categories; there is a thread of meaning that can occur in differing domains. A theme is not an object or thing but rather an aspect of the structure of experience; therefore a theme is an expression of the latent content of the text.

The data are read to identify areas of text dealing with specific issues described as “content areas” which are similar to the “meaning units” of the general inductive approach. Coding can be done using an appropriate software programme such as NVivo. Alternatively, the researcher can use coloured pens to differentiate meaning units on typed transcripts or use the colour highlights in Microsoft Word documents.

The use of content analysis of a focus group discussion about the effects of psy-

Panel 1: An example of coding meaning units and categories

<table>
<thead>
<tr>
<th>Meaning unit</th>
<th>Condensed meaning unit</th>
<th>Code</th>
<th>Subcategory</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Rather than having some doctor sort of diagnose him and put him in a box and then straight away roll out the medicines”</td>
<td>Treatment staff too quick to make decisions without getting to know the person</td>
<td>Diagnosis and medicating puts people in boxes</td>
<td>Interaction with health system Practice related</td>
<td>Belief about health care system</td>
</tr>
<tr>
<td>“Perhaps it takes the spark out of [my son]”</td>
<td>Medicines can sap energy</td>
<td>Adverse effects regarding medicines</td>
<td>Negative belief about medicines</td>
<td>Belief about medicines</td>
</tr>
<tr>
<td>“They put him in a closed ward because he wouldn’t take any medicine, and they’d just starting giving it to him the night before”</td>
<td>People are locked up and forced to take medicine</td>
<td>Forced adherence</td>
<td>Autonomy and treatment</td>
<td>Power issues</td>
</tr>
</tbody>
</table>

Panel 2: An example of content analysis

<table>
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chotropic medicines on patients, as described by their family members, is given in Panel 1.15
The meaning units were then grouped under categories. In this example the categories identified with challenge and power tension could be associated with data relating to the health care system.

Examples of categories, subcategories and codes established under a theme are given in Panel 2. The final phase would involve establishing links between the categories to establish common themes; this requires refining the categories and assessing how they contribute to an overall theme, which in turn can generate a concept.

Maintaining rigour
Rigour in analysis can be achieved through continuous discussion of the coding between the researcher and a study supervisor or fellow researcher, or by evaluation of the process by an independent analyst who has access to the verbatim transcripts and evidence of the analysis process. The submission of evidence to the independent analyst is referred to as an “audit” of the process and can include field notes and a reflective journal. Additional peer review of the analysis process can also be undertaken with the assistance of people who have expertise in the subject area. Reliability of analysis can also be addressed by maintaining meticulous records and documenting the analysis process in detail.15

Conclusion
Research findings should be shared with a wider audience, particularly with individuals or organisations that can initiate change. Presentation of results can include tables as depicted above, and the use of quotations in a written document. Logical and systematic presentation of findings will facilitate the development of “discussion” which allows the researcher to explore and contrast themes, highlighting the findings of the study. Qualitative research can provide copious amounts of rich data; it is necessary to analyse the data systematically and to summarise findings in a succinct manner for the reader.

This paper described some basic tools to undertake two forms of qualitative research: focus groups and in-depth interviews. These methods are useful for answering many questions related to pharmacy practice. There are numerous methods of conducting qualitative research, and researchers are encouraged to explore the literature further in order to find other methods which may be more appropriate to their research question.

References