Focus group interviews. Part 3: analysis

Owen Doody, Eamonn Slevin and Laurence Taggart

Abstract

The use of focus group interviews as a means of qualitative data collection has gained popularity in health service research in recent years. Despite their popularity, analysing qualitative data—particularly focus-group interviews—poses a challenge to most researchers. This article follows the authors' previous articles on; focus group theory, and the preparation and conduct of focus group interviews. Despite the publications on conducting focus groups, little information exists regarding the analysis of data gathered in such groups in health services. The present paper focuses on the concepts and application of data analysis and the use of analysis frameworks. The article aims to assist researchers and provide practical steps for the analysis of focus-group data. Thus, the authors provide a framework for analysing focus group data through identifying data analysis techniques suited for the study of these data.

Key words: Data analysis ■ Focus group ■ Interviews ■ Qualitative data

ocus groups are a method of qualitative data collection, in which data are gathered through group interaction on a chosen topic (Morgan, 1996). Focus groups help researchers tap into the different forms of communication people use in daily interaction, and in this sense focus groups often reveal levels of understanding that remain untapped by other data collection techniques (Doody et al, 2012). The analysis of focus group interviews is often a complex process, however, where the researcher is involved in unravelling many strands and layers of meaning (Ryan et al, 2006). Analysis of focus group data involves bringing order to the data collected and it can be a process that is ambiguous, time consuming and creative. The purpose is to uncover, articulate and illuminate meaning from the data collected, and this involves many steps. To date, there are few frameworks provided within the literature that describe the qualitative analysis techniques required by focus group researchers (Onwuegbuzie et al, 2009). This is surprising,

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given the long history of focus group research, the difficulty of analysing focus group data compared to an individual interview, and the range of qualitative analysis techniques available to qualitative researchers (Leech and Onwuegbuzie, 2008). Qualitative data analysis techniques identified as suitable for analysing focus group data include constant comparison analysis, classical content analysis, keywords-in-context, and discourse analysis.

Data analysis techniques

Constant comparison analysis

Constant comparison analysis (Glaser and Strauss, 1967; Glaser, 1978, 1992; Strauss, 1987) was first used in grounded theory research but can also be used to analyse many types of data, including focus group data (Leech and Onwuegbuzie, 2007, 2008). Three stages exist. In the first stage (open coding), data are grouped into small units and the researcher attaches a descriptor/code, to each unit. In the second stage (axial coding), the codes are grouped into categories. Finally, in the third stage (selective coding), themes are developed that articulate the content of each of the groups (Strauss and Corbin, 1998). Focus group data can be analysed using constant comparison analysis, in particular when there are several focus groups within the same study. As focus group data are analysed one focus group at a time, the researchers can use the multiple groups to assess whether the themes that emerge from one group also emerge from other groups, thereby assisting the researcher in achieving data saturation and/or theoretical saturation.

Classical content analysis

Classical content analysis, while similar to constant comparison analysis, includes the creation of smaller units of data and the placing of a code with each unit. However, instead of creating a theme from the codes (constant comparison analysis), these codes are placed into similar groupings and counted. Morgan's (1997) three-element coding framework identifies three ways in which classical content analysis can be used with focus group data:

■ The researcher can identify whether each participant used a given code
■ The researcher can assess whether each group used a given code
■ The researcher can identify all instances of a given code.

The researcher can then provide the frequency of each code (quantitative information) and a rich description of each code (qualitative information), creating a mixed method content analysis.

Keywords-in-context

Keywords-in-context determines how some words are used in context with others. It involves a contextualization of words that are considered central to the development of themes and theory by analysing words that appear before and after each keyword, leading to an analysis of the culture of the word's use (Fielding and Lee, 1998). The major assumption is that people use the same words differently, thus requiring the examination of how words are used in context. The contexts within words are particularly important in focus groups due to their interactive nature. Thus, each word expressed within a focus group should be interpreted as a function of all the other words expressed in that group and with respect to the words expressed by the various individuals in the group. The analysis of context can be used across focus groups (between-group analysis), within one focus group (within-group analysis), or for an individual in a focus group (intra-member analysis).

Discourse analysis

Discourse analysis specifies that to understand social interaction and cognition, it is essential to study how people communicate on a daily basis (Potter and Wetherell, 1987). It involves selecting representative or unique segments of a focus group transcript and analysing them in detail to examine how versions of elements, such as society, community, institutions, experiences and events, emerge in discourse (Phillips and Jorgensen, 2002). Discourse analysis operates on three fundamental assumptions (Cowan and McLeod, 2004):

- Antirealism (people's descriptions cannot be deemed true or false portrayals of reality)
- Constructionism (how people's constructions are formed and undermined)
- Reflexivity.

Discourse analysis depends on the researcher's sensitivity to language use and the analysis of features, such as rhetorical organization, variability, accountability, positioning and discourses (Cowan and McLeod, 2004). With respect to rhetorical organization, the researcher examines a selected talk or text to determine how it is organized rhetorically to make assertions that are maximally credible while protecting the speaker from challenge and refutation (Billig, 1996).

According to Potter (2004), discourse analysts maintain a specific focus on the way versions and descriptions are assembled to perform actions. When using language, people perform different social actions, such as supporting, questioning or criticising, and language then varies with the action performed. Thus, variability can be used to demonstrate how individuals employ different discursive constructions to perform different social actions. The researcher examines words and phrases to ascertain how individuals use accountability for their versions of experiences, events and locations. Positioning denotes the inclination for speakers to situate each other with respect to social narratives and roles.

Finally, the concept of discourses refers to well-grounded ways of relating to and describing entities. Cowan and McLeod (2004) state that the use of discourse analysis

Table 1. Data analysis steps	
1.	Generating rich data
2.	Familiarising oneself with the data
3.	Writing memos
4.	Indexing
5.	Formation of themes
6.	Mapping and interpretation

procedures can require a critical rereading of processes that occur in social interactions that have been overlooked.

Discourse analysis lends itself to the analysis of focus group data because these data stem from discursive interactions that occur among focus group participants.

Best practice

Qualitative research, particularly focus-group interviews, generates a large volume of data. A 1-hour interview can take 5–6 hours to transcribe and results in many pages of transcripts. Thus, a central aim of data analysis is to reduce data, and the purpose of the research should drive the analysis (Krueger and Casey, 2009). Analysis therefore begins by returning to the intention of the study and requires a clear fix on its purpose. Remaining true to this concept is difficult, but is helpful in managing the data, making sense of what is going on, excluding additional and irrelevant information, and negotiating one's way through the large volume of information. The process of qualitative analysis aims to bring meaning to a situation rather than the search for truth. Strauss and Corbin (1998) concede that subjective selection and interpretation of the data generated may occur due to the interplay between researchers and data. To minimize potential bias introduced in analysing and interpreting focus group data, Krueger and Casey (2009) state that analysis should be systematic, sequential, verifiable and continuous. Following this path provides a trail of evidence, as well as increasing the extent of dependability, consistency and conformability (Lincoln and Guba, 1989).

The first step in establishing a trail of evidence is the development of a clear data analysis procedure, so that the process is documented and understood. This step will allow another researcher to verify the findings; safeguards against selective perception; and increases the rigour of the study. In order to achieve this objective, there must be sufficient data to constitute a trail of evidence. Although the main source of data analysis is the recorded spoken language derived from the interview, reflection about the interview, the settings, and capturing the nonverbal communication expressed by the group members adds a valuable dimension to the construction and analysis of data. This record comprises the raw data, including any recorded materials (audio/video), transcripts, question route, list of interviewees and clear explanations of theoretical, methodological and analytic decisions made by the researcher during the study (Plummer-D'Amato, 2008). Therefore it is recommended that a reflective diary should be kept by the moderator and that observational notes should be written immediately after each focus-group interview.

Approaches to data analysis

There are a number of approaches to the analysis of qualitative data and Green and Thorogood (2004) identify that in practice most researchers use a combination of approaches. Krueger's (1994) framework analysis provides a clear series of steps, which can help researchers manage large amounts of qualitative data much more easily. Data collection and analysis occurs concurrently in focus-group research and Krueger (1998) suggests that a helpful way of thinking about this role is to consider a continuum of analysis, ranging from the mere accumulation of raw data to the interpretation of data. This occurs on an analysis continuum starting with the collection of raw data; descriptive statements about that data; interpretation of the data; and recommendations. It is important to point out that analysis does not take place in a linear form and that one part of the process overlaps another and involves a number of distinct, although highly interconnected, steps. *Table 1* lists the steps involved in data analysis as suggested by the authors.

Step one begins during the data collection, by skillfully facilitating the discussion and generating rich data from the interview, complementing them with the observational notes and typing up of the recorded information. In step two, the researcher familiarizes him- or herself with the data, which can be achieved by listening to tapes, transcribing the focus group, reading the transcripts in their entirety several times, and reading the observational notes taken during interview and summary notes written immediately afterwards. The aim is for the researcher to become immersed in the details and get a sense of the interview as a whole before breaking it into parts. During this process the researcher moves to step three, where the researcher writes memos in the margin of the text in the form of short phrases, ideas or concepts arising from the text to be the bases for developing categories. In step four, the descriptive statements that have been formed are indexed. This involves highlighting and sorting out quotes and making comparisons both within and between cases. This moves on to step five, where the researcher charts the quotes from their original context and rearranges them under newly-developed appropriate thematic content. An important aspect of these tasks is data reduction, which is achieved by comparing and contrasting data and cutting and pasting similar quotes together. The final step (six) involves mapping and interpretation. In this step, the researcher makes sense of the individual quotes and needs to be imaginative and

analytical enough to see the relationship between the quotes, and the links between the data as a whole. Krueger (1994) provides seven established criteria and suggests the following headings as a framework for interpreting coded data:

- Words
- Context
- Internal consistency
- Frequency and extensiveness of comments
- Specificity of comments
- Intensity of comments
- Big ideas.

In order to manage this stage successfully, Krueger and Casey (2009) suggest some practical steps for managing and sorting out data, such as the use of either a long table or a computer-based approach for cutting, pasting, sorting, arranging and rearranging data through comparing and contrasting the relevant information. Although there is specialized software, such as NVIVO, it is possible to analyse the transcripts using Microsoft Word, or indeed 'by hand'. The procedure for the 'long table' approach requires access to either a long table or a room with lots of floor or wall space. Before cutting the transcripts apart, it is important to:

- Number each line of each transcript;
- Make two hard copies of each transcript: one to cut up and one that stays intact
- Print transcripts on different coloured paper, e.g. 'professionals' on green, 'young people' on blue, 'single parents' on yellow, and 'working mums' on pink
- Arrange the working transcript in a reasonable order, i.e. the sequence in which the interview took place, and specify the categories of participants: age, e.g. young people; social group, e.g. low-income families or professionals; gender, male or female
- Have enough pages of flip chart or newsprint.

Beginning the analysis immediately after the focus group session will enhance its quality. Facilitators and note takers should debrief immediately after the session. They should compare notes and discuss key topics that arose in the conversation. The debriefing can be tape recorded or someone can take detailed notes, so that those working on the formal analysis will have the benefit of the entire discussion. Additionally, when conducting multiple focus-group sessions, analysing the data immediately after each session will decrease the potential for confusing different sessions with one another. Verification is important because it safeguards the integrity of the analysis. It is accomplished by collecting sufficient evidence to support one's conclusions, and organizing that evidence in a systematic fashion. This allows for similar conclusions to be drawn by others involved in using the same raw data.

Qualitative research is evaluated for its trustworthiness and this is an essential consideration. To support the trustworthiness of a study, the researcher should document his or her decisions during the analysis and use a peer reviewer to verify the consistency of the findings (Plummer-D'Amato, 2008). The findings should be truthful and represent the ideas of the participants and context of the discussion so that others can draw a conclusion on their transferability to similar contexts, groups or settings. Usually, however, the findings of

Table 2. Strengths and weaknesses of focus group analysis	
Strengths	Weaknesses
■ The researcher develops a high level of analysis across groups ■ The researcher becomes immersed in the data ■ It is a creative process ■ It reveals a high level of understanding ■ Rich data are collected ■ It produces rich data	■ It is a complex process ■ It is time consuming ■ There is a large volume of data ■ There is the potential for researcher bias ■ Analysis may move beyond the focus of the research question ■ May misinterpret consensus in the group when people give similar answers or withhold views (group interaction) ■ May misinterpret modified responses (group dynamics)

focus groups cannot be generalized to the larger population due to purposive sampling having been employed and the small sample sizes (Plummer-D'Amato, 2008). In addition data are firmly contextualized; participants' comments are influenced by and specific to the group or situation in which they were produced.

It is essential that analysis produces findings that are the product of the focus group discussions and not a reflection of the researcher's biases. Disclosure of the researcher's background (their identity, credentials, occupation, gender, experience, and training) should allow the reader to identify any potential areas for researcher bias (Mays and Pope, 2000). However, it is important to recognize that complete detachment on the part of the researcher in relation to data collection, analysis and interpretation is unattainable (Horsburgh, 2003).

Details of the characteristics and settings of the participants and rich descriptions of the data from which the conclusions were drawn should be provided so the reader can examine not only the ideas expressed, but also the processes of discussion. Reports of focus group results should contain sufficient extracts of the discussion to illustrate the effect of group interaction, and allow the reader to judge whether the proposed interpretations are supported (Plummer-D'Amato, 2008). Overall there are many strengths and weakness of focus group analysis and *Table 2* identifies the authors' perceptions.

Conclusions

One of the most important steps in the research process is the analysis of data. The literature on focus groups in nursing research is growing and guidance regarding the analysis of focus groups has been detailed in this paper. Some practical guidance is provided for the analysis of focus-group interviews based on Krueger's (1994) and Krueger and Casey's (2009) frameworks. The analysis of focus groups requires the development of new skills, but also imagination, patience, time and practice. Focus groups have considerable potential as a means of gathering qualitative data within nursing research. This potential will not be realized, however, unless due attention is paid to the problematic nature of data analysis and its difference from the analysis of individual interviews. **BJN**

Conflict of interest: none

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KEY POINTS

■ Data analysis is a crucial step in the research process

■ Analysis of focus group interviews is often difficult and little guidance is provided in the literature

■ Effective analysis requires the researcher to generate rich data, familiarising him- or herself with the data, writing memos on statements, indexing statements, creating themes and interpreting the data

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