

Chapter 4

Research Methods

Introduction

Chapter Four focuses on the research methods used in this study and discusses sampling techniques, participant recruitment, inclusion and exclusion criteria, ethical considerations, informed consent and data management. This is followed by a discussion regarding focus group interviews and Delphi survey questionnaires, which are the data collection methods used. Information about expert panels, consensus, triangulation and data analysis is also provided. It is acknowledged that some of the references used are old, however they are seminal works and/or views, which are either not reiterated or are only referenced in the contemporary literature. To avoid secondary referencing the researcher has gone back to the primary source for a number of views put forward in this chapter.

Sampling techniques

The recruitment of participants was initially done by purposive sampling. This technique was used because it was important to recruit individuals with appropriate knowledge and expertise. Beanland, Schneider, Lobiondo-Wood and Haber (1999) state that this type of sampling technique is often used when an unusual population is being studied and the researcher needs to recruit a sample with specific knowledge of the phenomenon being investigated. Purposive sampling is used to recruit specific participants for a study in order to examine meaning, process, interpretation or theory (Rice & Ezzy 1999). Therefore the researcher selects a sample based on their knowledge rather than their representative characteristics such as gender, age, geographical location or education levels. The aim of purposive sampling is to gain a greater understanding or insight into the phenomenon under investigation. This is unlike empirical generalisation, which is the aim of studies using randomised samples of study populations (Patton 2002). Rice and Ezzy (1999) succinctly explain the aim as being - to describe and understand the phenomenon being studied rather than identifying the distribution of the phenomenon in question.

*Purposive
sampling*

Critics allege that disadvantages of this type of non-probability sampling are that they are rarely representative of the population. This leads to sampling bias as not every element of a population has an equal chance of sample inclusion. However, if the group is homogeneous in regard to most of their attributes this bias will be small or non-existent (Polit & Hungler 1997).

The group under investigation may be considered an homogeneous sample - a particular sub-group of people (Grbich 1999) or having similar characteristics (Richardson & Rabiee 2001) thus limiting the potential for sampling bias. This was not the prime concern of the researcher, however. The most important aspect of sampling techniques when using qualitative data is whether or not the sampling method is appropriate and adequate for the study being undertaken. Was the sampling technique appropriate for the research question and did it provide adequate data in terms of quality and quantity?

Morse (1991) states that the measure of appropriateness of a sampling technique lies in the facilitation of understanding. Over the course of collecting and analysing data in this study, the requirements of data collection changed. Initially, broad ideas and concepts were sought regarding the issues and challenges that impact on the transplant coordinators and their practice. As the research progressed the more focused data collection method of theoretical sampling was employed. As previously discussed this technique is used in grounded theory. As the coding evolved, it became more theoretical and focused and informants were sought who had the particular knowledge and expertise to answer the questions posed by the data collected. This illuminated the emergence of theories from the data (Glaser 1978).

*Theoretical
sampling*

The adequacy of the sampling technique is determined by the relevance, completeness and amount of data collected (Morse 1991). Morse (1991) suggests that in order to fulfil this there should be 'saturation'. Saturation is achieved when no new data, ideas or theories can be added to the research. It is the point at which collected data becomes redundant (Ezzy 2002; Polit & Hungler 1997). Morse (1991) also indicates that the theory presented should make sense and be complete.

Saturation

Snowball sampling was also used to recruit participants in the study. It is a common sampling technique used in research, which uses qualitative data. Snowball sampling relies on key informants identifying other potential participants who may be able to assist with the study. As the name suggests snowball

*Snowball
sampling*

sampling gets larger as the number of potential participants who fit the research criteria are identified and included in the study (Patton 2002).

Recruitment

Participants in this study were transplant coordinators who practiced between 1st December 1999 and 31st December 2001. They were included if they considered themselves to be transplant coordinators who met the following inclusion criteria. This self selection was considered to be the most appropriate method as there were factors which made defining the specific roles of the transplant coordinators difficult.

Inclusion criteria:

- They had to be transplant coordinators who practiced in Australia or New Zealand.
- They had to be employed to work as transplant coordinators within the specified timeframe.
- Full-time, part-time and relieving coordinators were considered eligible if they participated in the role during the designated timeframe.
- They also had to be involved in either cadaveric solid organ donation and/or cadaveric solid organ transplantation.
- They had to sign a consent form.

Exclusion criteria:

- Tissue coordinators were excluded as their practice did not involve cadaveric solid organ donation, retrieval or transplantation.
- Recipient coordinators not directly involved with any aspect of the transplantation process were also excluded as their practice was outside the parameters of the research.

Transplant coordinators known to the researcher were contacted personally or by telephone and asked if they would like to participate in the study. Some recommended other coordinators, thus generating the element of snowball sampling.

The secretaries of the Australasian Transplant Coordinators' Association (ATCA) and the Transplant Nurses' Association (TNA) were contacted and member lists were requested of each to identify further coordinators. These potential participants were telephoned or written to in a request for participation (Appendix 3).

*Professional
organisations*

Those willing to participate were sent a letter thanking them (Appendix 4) and an information sheet providing details about the research (Appendix 5). They were also sent a consent form for signing and returning in the provided prepaid envelope (Appendix 6).

One hundred and twelve transplant coordinators were sent information sheets and consent forms. All agreed to participate in the study.

*Study cohort
112*

Ethical considerations

Ethics approval was obtained from The University of Adelaide Human Research Ethics Committee (Appendix 7). A letter of support was also sought from the Director of the South Australian Organ Donation Agency (SAODA). This was considered a matter of etiquette as at the time the researcher was employed as a transplant coordinator by the Agency (Appendix 8). The other ethical considerations for the research included: informed consent, non-disclosure of information and storage of data as discussed below.

Informed consent

Prior to the study commencement potential participants were given an information sheet explaining the aims and purpose of the study and the methods of data collection they may be required to participate in. All were personally spoken to and given an opportunity to ask questions prior to signing a consent form. They were also informed that they were free to withdraw from the study at any time and in the event of this, any provided information would be destroyed at their request.

Non-disclosure of information

For reasons of privacy and anonymity, it is important that individual participants are unidentifiable in this thesis, subsequent journal articles and any presentations. Distinguishing information was therefore altered or deleted from the text. Additionally, the socio-demographic data collected in the first Delphi survey questionnaire was aggregated, for example grouping the participants'

ages into four ranges. The names of states, territories and/or countries were also deleted as appropriate, to preserve participants' anonymity.

Storage of data

All data, including tape recordings, surveys, memos and written material pertaining to the research have been securely stored in the Department of Clinical Nursing at the University of Adelaide and will be kept for a period of seven years. During the study, information was locked at the researcher's residence. Only the researcher, her supervisor and the typist had access to the information. Back-up copies were stored at a locked secondary site for safekeeping.

The typist was advised of the confidential nature of the study material prior to the commencement of the research and agreed to sign a confidentiality agreement. All study material and back-up copies of the thesis were securely stored at her residence during various stages of the study and have since been transferred to the Department of Clinical Nursing at the University of Adelaide.

Focus group interviews

Focus group interviews are a technique used to gather data from a number of key informants on a specific topic (Patton 2002; Sloan 1998; Burrows & Kendall 1997). Beyea and Nicoll (2000) define focus groups as a group of individuals who possess certain characteristics and are able to provide qualitative data in a focused discussion. The origin of the focus group interview lies in the field of sociology (Patton 2002). The early experts of this research method were Merton, Fisk and Kendall (1956). In their seminal work on focus group interviews titled *The Focused Interview: A Report of the Bureau of Applied Social Research*, they examined the reactions of people to wartime propaganda.

Origin of focus groups

Focus groups are semi-structured interviews conducted with five to ten people who come together to discuss a common area of interest. Interaction is not only between the facilitator and the participants but also between the participants themselves. As ideas and thoughts are shared within the group it is desired that this interaction generates further discussion and debate. Patton (2002) states that focus group interviews should not be set up as decision-making bodies where members must come to some form of conclusion or agreement but rather should be an opportunity to share thoughts, ideas and even debate areas of controversy.

The main aim of a focus group interview is for the researcher to gain a better understanding of the participants' world and their reality, as they themselves perceive it. Such group discussion leads to new ideas and even answers in some cases that were previously unthought of. Focus group interviews stimulate and explore ideas in a shared environment and unlike one to one interviews participants have an opportunity to build on each other's ideas (Patton 2002; Robinson 1999).

Advantages of focus group interviews

The use of focus group interviews yields a number of advantages. A large amount of data can be obtained from a group of individuals in the same amount of time it would take to conduct a one-to-one interview (Rabiee 2004; Beyea & Nicoll 2000; Kidd & Parshall 2000). Therefore focus group interviews are cost effective and less time-consuming than individual interviews (Beyea & Nicoll 2000; Grbich 1999). Focus groups also enable exploration of unanticipated areas relating to the research topic (Øvretveit 2005; Hudson 2003).

*Large amount
of data can be
collected*

A wide range of feelings, experiences, attitudes and views can be expressed (Webb & Kevern 2001) and participants may appreciate the opportunity to discuss issues of interest in a relaxed atmosphere (Patton 2002; Robinson 1999). Dynamic dialogue between participants may also generate more in-depth discussion compared with personal interviews. This enables participants to build on the ideas and thoughts of others (Green, Draper & Dowler 2003; Grbich 1999). Participants are empowered to express their thoughts, opinions, concerns or ideas in their own words and are unconstrained by the need to write information down (Robinson 1999). This also eliminates any problems arising from illiteracy.

Another advantage of focus group interviews is that participants are able to validate information offered by other group members (Minichiello, Sullivan, Greenwood & Axford 2004; Krueger & Cosey 2000). Group dynamics assist too in focusing the discussion on significant issues. This makes it easier for the researcher to detect consistency and shared views (Robinson 1999). Finally, focus group interviews enable a more accurate questionnaire to be developed by improving the researcher's chances of asking more appropriate questions (McLafferty 2004; Sloan 1998; McKinley, Manku-Scott, Hastings, French & Baker 1997).

Validation

Limitations of focus group interviews

There are several limitations of focus group interviews. The more vocal participants can dominate the discussion with the less assertive members not getting an opportunity for equal participation (Hudson 2003; Patton 2002; McDougall 1999). Furthermore, an individual with a dissenting view may be silenced (Kitzinger 1996). There is the potential for interview bias, with the researcher inadvertently cueing participants on the responses being sought (Reid, Holmes, Klein, Greene & Dittus 1998).

Although focus group interviews enable large amounts of data to be gathered reasonably quickly, they can be time-consuming and difficult to transcribe and analyse (McDougall 1999). They also have the potential to inhibit discussion and the sharing of ideas due to pressure for group conformity (Patton 2002). A further limitation of these interviews is that the data obtained from the sample of non-randomly selected participants cannot be generalised to the rest of the population (Burrows & Kendall 1997). The researcher must also take care to ensure that extreme views are tempered and that the domination of one or two participants does not lead to bias and skewed data (Robinson 1999). Furthermore, participants may be reluctant to discuss sensitive topics within the group setting due to embarrassment and issues of trust (Patton 2002; Kaplowitz 2000).

*Pressure for
group
conformity*

Preparing for a focus group interview can be time-consuming. Confidentiality may also be an issue if participants are uncommitted to maintaining the integrity of group norms (Patton 2002; Robinson 1999). The number of issues that can be examined is also limited as group discussion may be limited by time considerations. Personality clashes within the group may again lead to significant difficulties, particularly with respect to the interview process and the quality of data obtained (Minichiello et al. 2004; Robinson 1999).

Lastly, group facilitation requires considerable skill. Ideally two facilitators should be used - one to conduct the group and the other to take notes of what is said, document body language exhibited by the participants and to tape record the group discussion (Patton 2002; Robinson 1999).

Focus group interviews in this study

In this study of Australian and New Zealand transplant coordinators, focus group interviews were chosen as a data collection method for four reasons:

- To enable the researcher to gain a preliminary overview of the issues and challenges that impact on transplant coordinators and their practice.
- To identify ideas, concerns or elements of practice previously unconsidered by the researcher.
- To use data obtained from the focus group interviews to assist in the development of the first Delphi survey questionnaire.
- This method of data collection is compatible with the tenets of grounded theory.

Figure 4.1 shows a flow chart of the design and steps used in the pilot, recipient coordinator and donor coordinator focus group interviews.

Although the researcher is an experienced transplant coordinator, it was important to encapsulate the views and educated opinions of a number of experts in the field. This included the perspectives of both organ donor and recipient coordinators. The recipient coordinator and organ donor coordinator focus group interviews were used to generate a greater understanding of the issues and challenges transplant coordinators deal with and the consequences for their practice. These interviews were also used to ensure a variety of perspectives were sought and deliberated through group discussion, prior to the consequent development of the first Delphi survey questionnaire.

As mentioned, focus group interviews conform with the methodological processes of grounded theory. These interviews enabled the systematic gathering and the constant comparison of data, which is the cornerstone of the methodology. This is achieved when there is concurrent data generation and analysis. Failure to do this violates grounded theory methodology and is considered a serious breach in process. The research can no longer be called a grounded theory study if such a dereliction of process is perpetrated.

Focus group interviews also enabled the researcher to write memos during the interview process and utilised them to assist in the analysis of data and theory development. Memo writing is also a significant and compulsory component of grounded theory methodology. *Memos*

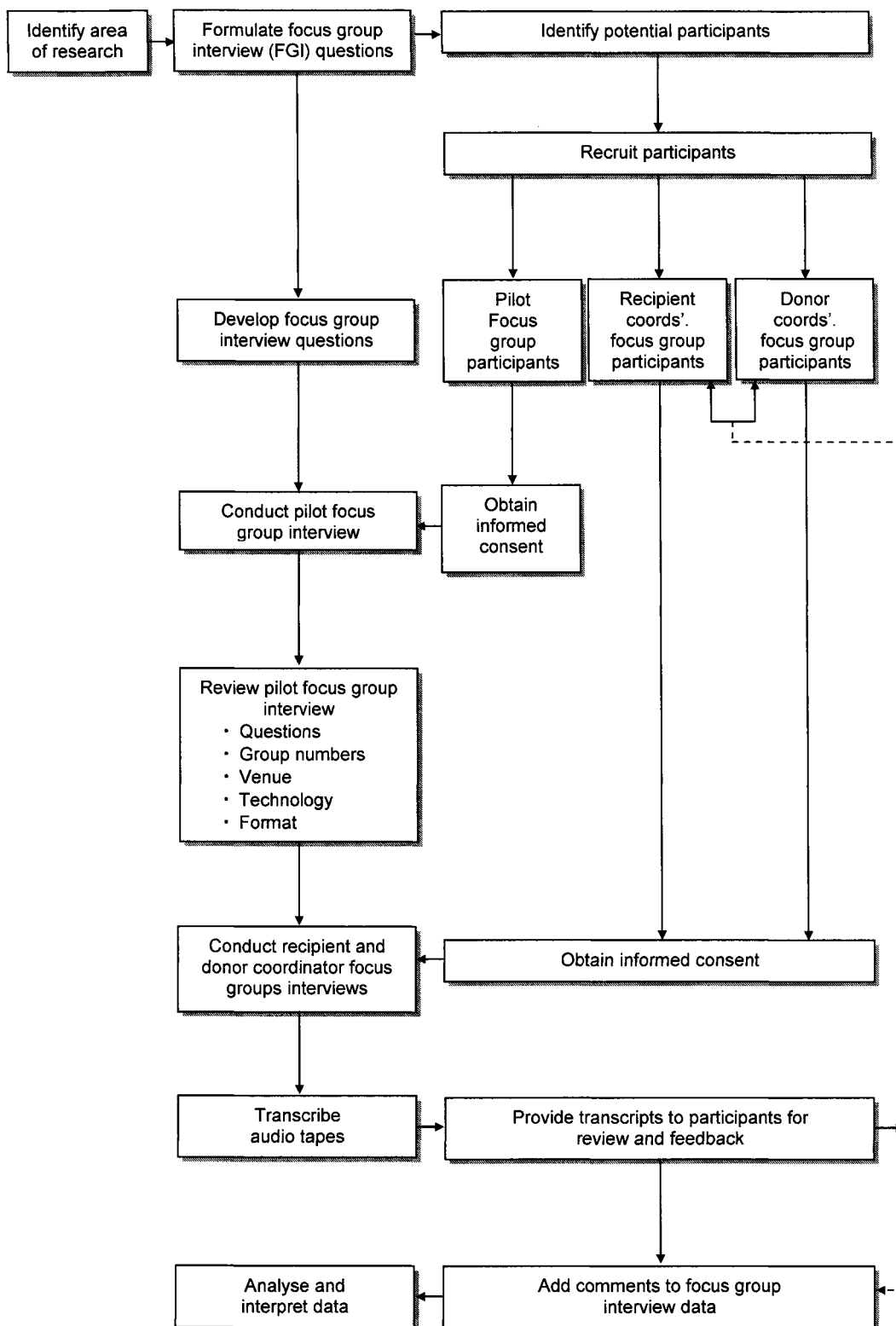


Figure 4.1: Flow chart showing the design and steps used in the focus group interviews

Preparing for a focus group interview

When preparing for a focus group interview it is important to consider how participants will be selected for the group. They must have some expertise, knowledge or skills in the area of interest and be able to make a contribution to the group discussion. Addressed below are the main requirements to consider when preparing for a focus group interview and the strategies adopted to meet those requirements.

Participant selection: Participants for the two focus group interviews were selected from the transplant coordinators who agreed to participate in the research. The original 112 participants were divided into two groups on the basis of their activities. They were either donor coordinators involved in solid organ retrieval or recipient coordinators involved in solid organ transplantation. From these two groups five participants were randomly assigned to each of the two focus group interviews. Therefore five donor coordinators from the donor coordinator cohort were assigned to the donor coordinator's focus group interview. Similarly, five recipient coordinators from the recipient coordinator cohort were assigned to the recipient coordinator's focus group interview. The remaining 102 participants were allocated to the Delphi survey phase of the study. A letter was sent to participants informing them of which aspect of the study they had been randomly assigned to (Appendices 9 and 10).

Location: Focus group interviews should be conducted at a location that is convenient to the participants. Work places of the researcher and the participant need to be avoided as they present too many distractions (Robinson 1999). If travel, accommodation or telephone costs are incurred they should be reimbursed. Light refreshments should be available at the location.

In this study both focus group interviews were conducted via a telephone link-up - a teleconference. This meant that participants were in their own homes using the telephone to participate in their respective focus group interviews. The researcher who was the group facilitator and the researcher's supervisor who was the observer, were together in the supervisor's office for each of the focus group interviews. It was decided to use the office as there was access to a speaker telephone. Also the researcher and supervisor felt that it would be beneficial to be present at the same location for the purpose of implementing last minute adjustments to their presentation, to share written ideas during the

interviews and to discuss outcomes, thoughts and ideas at the conclusion of each of the focus groups.

Physical environment: The room chosen for the interviews should be large enough to enable the participants to sit comfortably but also be conducive to small group interaction. Appropriate temperature, lighting and ventilation should also be available. The room should be in an area where there will be no interruptions as this will also assist in maintaining group momentum and produce higher quality audio tape recordings. Most focus groups are conducted using tables in a circle so all participants can see each other (Robinson 1999). However, this may limit the researcher's view of the participants' non-verbal body language so tables may not be the preferred option for some groups.

As these interviews were done via a telephone link-up the physical environment preparations differed from those used in conventional focus group set-ups. The preparations involved equipment checks made at the supervisor's office prior to the interviews such as ensuring the phone cord was long enough to enable the telephone to reach the table where the researcher and supervisor were positioned. Three audio tape recordings were made for each focus group interview. Two recordings were made from the supervisor's office and Telstra made the third copy via the teleconferencing link-up. This ensured adequate back-up if one or two of the systems failed. It also allowed the researcher to listen to all three tapes and improve the accuracy of the transcripts for each focus group. As such interviews can be difficult to transcribe when participants speak concurrently or there is background noise that may make audiotape review particularly difficult, the three-tape system was deemed appropriate.

Time: Following consultation with the research participants and supervisor, the focus group interviews were conducted in the evenings as there were potentially fewer interruptions than experienced in the work environments. Although the time zones of participants across Australia and New Zealand varied they agreed to the evening as the best time to conduct the focus group interviews. All participants who were scheduled to be on call for their transplant coordination roles were asked to make alternative arrangements for a period of two hours. This served the dual purpose of preventing unplanned interruptions to the group process and ensured that participants were relaxed and ready to devote their full attention. The time frame for each focus group interview was approximately one and a half hours.

Initial negotiations regarding the time and date for each focus group were conducted via telephone. This was confirmed in writing (Appendix 11). A further call was made to the participants on the day prior to the teleconference reminding them of the interview, to reconfirm the telephone number they would be using for the link-up and to answer any last minute questions they had.

Telephone link-up: The researcher chose to use the teleconference link-up for reasons of time, cost and distance as participants came from Australia and New Zealand. The teleconference link-up gave all participants an equal chance of being randomly assigned to the focus groups. A further advantage of conducting the teleconference is that transplant coordinators are familiar and competent with telephone communication. In their roles they spend a substantial amount of time using the telephone in organising the organ donation and transplantation process. Many transplant coordinators have not met in person but are familiar with each other due to work-related telephone communications.

Interview guide: Developing the interview guide for a focus group interview is a challenging but crucial element of their success. The goals of the interview must also be clearly defined and appropriate questions identified. Morgan (1995) states:

A common error in focus group question guidelines is too much emphasis on what is of interest to the researcher and not enough emphasis on what is of interest to the participants. One way that this manifests itself is in developing too many questions (Morgan 1995, p. 520).

Great consideration is required as the number of questions that can be addressed in the limited time frame of the interview is minimal (Goss 1998). Morgan (1995) suggests that a way of avoiding problems with focus group interview schedules is to do some pre-testing. If a pilot interview cannot be arranged due to time or financial constraints it is worth pre-testing the number and type of questions for the focus group interview in a couple of individual interviews. If there are still concerns regarding the questions and format, it is important to schedule more interviews and possibly a pilot focus group in order to adequately develop the interview schedule prior to conducting the research groups.

The interview guide in this study, which included introductions, research discussion points, confidentiality issues, questions and a summary, was developed and pre-tested using a pilot focus group (Appendix 12). Care was taken to address each phase of the interview process, and particular attention

was paid to the issues of confidentiality, time frame and the development of questions.

Pilot focus group: The pilot focus group interview also served to trial the technology to be used for the interviews. Participants in the pilot focus group interview were homogenous with regard to employment status, i.e. they were all registered nurses and involved in the same type of work. In that respect they were similar to the participants in the study focus groups. The five pilot focus group interview participants were nurses who worked in an ICU at a large metropolitan hospital. Each was approached personally and verbally consented to participation. The researcher rang each group member the day prior to the interview to remind them of the focus group, to check the telephone number they were using for the link-up and to answer any last minute questions.

The questions for the pilot group were the same as those to be used for the transplant coordinator focus group interviews, except they referred to intensive care rather than transplant coordination practice. All other conditions such as technology used, supervisor's presence, time frame for the focus group interview and the audio taping facilities were the same as those used in the subsequent transplant coordinator focus group interviews. Following the pilot focus group interview a letter of thanks was sent to the participants (Appendix 13).

Group composition: The group mix is important to the functioning of any focus group interview, although this element is largely determined by the research question and the researcher's target group (Grbich 1999). However, the researcher should be aware of potential inhibitors to communication and honesty. For example having a manager and staff participate in a discussion about work conditions may be calamitous. Those subordinate to the manager may be inhibited and unable to honestly express themselves or indeed unwilling to contribute to the discussion at all.

The transplant coordinator groups were homogenous with respect to their employment as transplant coordinators and their activities involving solid organ donation, retrieval and transplantation. The participants, however, had areas of greater commonality within their own separate focus groups. The donor coordinators were all involved in some aspect of the solid organ donation and/or retrieval process. The recipient coordinators were all involved in some aspect of the solid organ transplantation process.

The donor coordinator group members were involved in the donation and/or retrieval of all solid organs including heart, lungs, kidneys, liver and pancreas and in some cases tissue donation. In contrast the recipient coordinators were involved with one or two solid organ transplantation areas. For example, two recipient coordinators were involved with heart and lung transplantation, another two were involved in liver transplantation and one was involved in renal transplantation.

Employment sites also differed between the groups. Recipient coordinators were employed through the public hospital system. Donor coordinators were employed in one of three institutions which included organ donation agencies, Australian Red Cross Blood Services and public hospitals.

The group facilitator: The group facilitator or researcher plays a significant role in the successful outcome of the focus group interview. They conduct the group interview process, which is both multifaceted and at times challenging. Beyea and Nicoll (2000) and Patton (2002) state that it is the facilitator's ability to foster meaningful interactive discussion between group participants, exploring their feelings and being aware of the personal context of those involved, that determines the quality of the data received.

An ideal group facilitator is someone who is comfortable working with groups. They need good communication skills and the ability to guide participants to fulfil the purpose and objectives of the focus group interview, whilst not being too prescriptive (Patton 2002). If the facilitator rigidly adheres to the interview schedule, opportunities may be missed to explore new areas of interest. Furthermore, participants may lose their enthusiasm, interest and focus if the facilitator is inflexible (Nyamathi & Shuler 1990).

The researcher has had previous experience with group activities. As a transplant coordinator at the South Australian Organ Donation Agency she and a colleague established the first donor family support group in South Australia and successfully assisted in facilitation of the group for two years. The researcher and this colleague also organised and facilitated the first teleconferencing group counselling for donor families in South Australia. This group used the concepts and initiatives of a program developed by Regan and Barnwell (2000) who had run similar groups for families of organ donors in New South Wales.

The observer: In some focus group interviews an observer is used. The role of the observer can vary considerably, from active participation in the group discussion to a less intrusive role of data collection. Prior to commencing the discussion the observer is introduced and their role explained to participants. Employment of an observer should be explained at the time of requesting participants' consent. In some interviews the observer is used to document the non-verbal body language of the participants. Such information is used in the analysis of the group's discussion (Beyea & Nicoll 2000). Other observers are enlisted to assist with activities such as the management of audiotapes and refreshments. It is crucial that the role of the observer, including the amount and type of input, is decided and agreed upon prior to the commencement of the focus group interview (Mansell, Bennett, Northway, Mead & Moseley 2004; Patton 2002; Beyea & Nicoll 2000).

The observer for the study focus group interviews was the researcher's supervisor. The observer assisted with audiotapes, technical difficulties and ensuring that participants had equal discussion opportunities. The observer also transcribed ideas for the researcher during the interview process and subsequently gave valuable feedback.

Emotional space: A positive emotional space refers to the type of environment that nurtures the participants and creates an atmosphere that is open, emotionally safe, non-judgemental and non-threatening (Sloan 1998). The environment should encourage participants to be honest about their experiences, feelings and opinions. This can be achieved if the facilitator creates a trusting environment where all participants are given adequate discussion time and their contributions are valued and respected. Appropriate guidelines need to be established at the beginning of the focus group interview. Issues such as confidentiality, respect for others, the right for each participant to decide what they do or do not feel comfortable discussing within the group, freedom to express their thoughts without the fear of judgement and the fact that there are no right and wrong answers, should be addressed from the outset (Goss 1998).

To assist in the creation of a positive emotional space for participants the purpose of the study was explained to the coordinators at the beginning of each interview and they were thanked for their willingness to contribute. They were also informed that there are no right or wrong answers to any questions posed in the interview and were encouraged to express their personal views, thoughts and ideas about the topic. Participants were asked to use only their Christian names

during the focus group interviews and all were encouraged to participate. Care was taken to ensure equal time was given to members to express their opinions.

They were also asked to keep their participation and the content of the interviews confidential. Confidentiality is highly important in research endeavours. However, due to the small population of transplant coordinators and the extensive professional 'networking' they engage in, diligence with respect to confidentiality was requested. Participants signed the research consent form prior to the focus group interviews.

Questions used in the focus group interviews: The questions used in each of the focus group interviews were the same as those used in the pilot group interview with the exception that they referred to transplant coordinators and their practice rather than nursing practice in an ICU (Appendix 14). These questions were compiled following a cursory review of the literature, discussions with the researcher's supervisor and through the researcher's knowledge and experience in the field. The questions were purposely broad to allow the participants to discuss issues and challenges they perceived to be problematic or advantageous to transplant coordinators and their practice. Avoiding a prescriptive or limited focus was an important objective as unrestricted responses from participants was necessary. There was also a concern that participants may lose interest in the process if the questions were prescriptive, as they would not be able to discuss issues relevant to their own practice.

Transcribing the interviews: The audiotapes were transcribed upon completion of each focus group interview. This minimised difficulties with transcription and allowed for any clarification with participants. The researcher listened to the first tape in full and then again whilst transcribing the contents. The second and third tapes were used as checking mechanisms to ensure that nothing had been missed during transcription of the first audiotape. This was achieved by listening to tape two and then tape three whilst reading the transcript. During the transcription of the focus group interviews a code was used to replace the participants' Christian names. Figure 4.2 represents the recipient and donor coordinator focus group interview coding steps.

Transcripts together with a thank you letter containing the individual's code number were sent to the participants (Appendix 15). Each group member was asked for feedback and they were also given an opportunity to add information such as any thoughts they felt unable to share in the group situation. To ensure

confidentiality the tapes were kept in a locked location and their contents were only discussed with the researcher's supervisor.

Analysis of the focus group interview data resulted in the emergence of the preliminary categories. Following this, the next phase of the study began with the development of the first Delphi survey questionnaire.

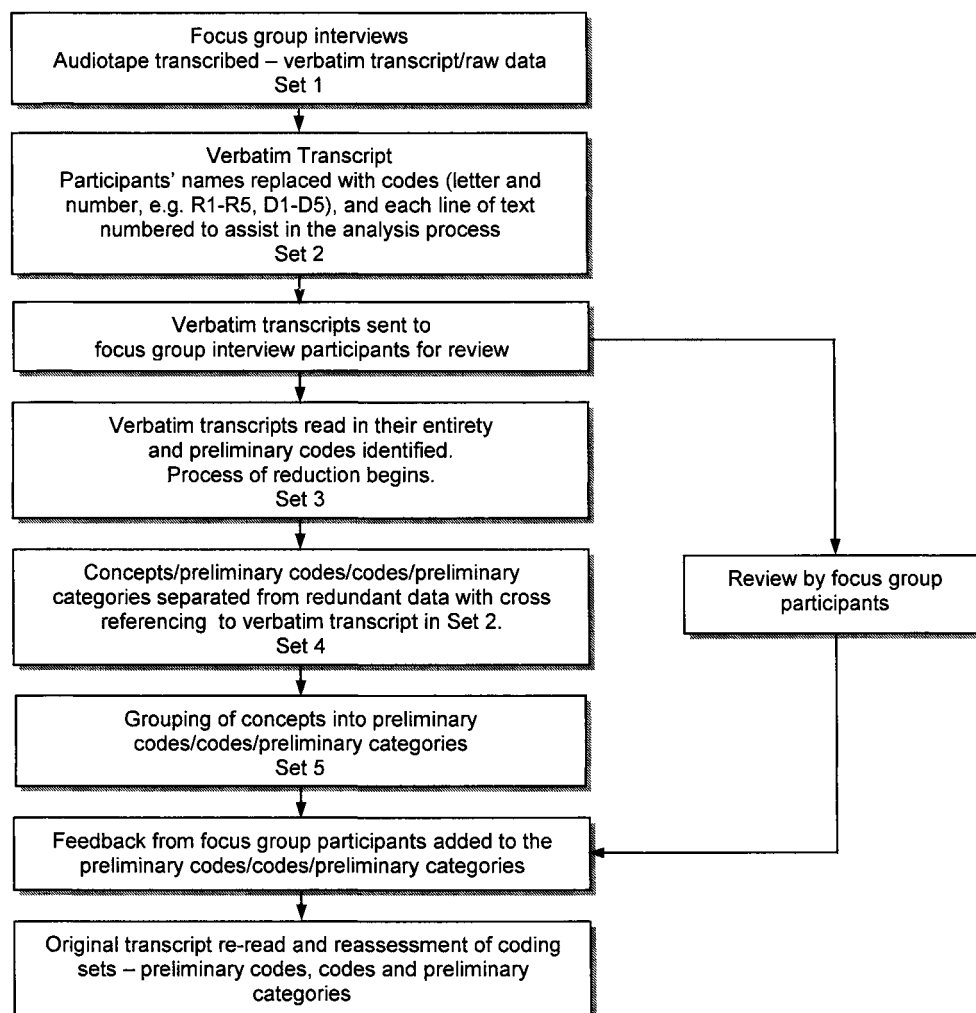


Figure 4.2: Recipient coordinator and organ donor coordinator focus group interview coding steps

Delphi survey method

Delphi survey is a research method involving the use of questionnaires or interview schedules. These are given to the research participants who are usually experts in their field, to seek their opinions or views on the area of interest (Ehrlich, Koch, Amin, Liewehr, Steinberg, Turner & Blauvelt 2006; Katcher, Meister, Sorkness, Staresinic, Pierce, Goodman, Peterson, Hatfield & Schirmer

2006). It is an interactive multi-stage process, with each stage building on the data of the previous results in order to gain consensus from the participants (Ehrlich et al. 2006; Katcher et al. 2006; Windle 2004; Beech 2001). Roberts and Taylor (1998) describe the Delphi survey technique as a:

... [s]pecial questionnaire survey method of obtaining and analysing a range of expert opinions on a topic or issue without having a face-to-face meeting of the group, usually involving several rounds of the questionnaire (Roberts & Taylor 1998, p. 399).

Each participant in the Delphi survey receives a series of sequential questionnaires, which are interspersed by controlled feedback containing the aggregated results from all participants in the study cohort (Greatorex & Dexter 2000). This enables the researcher to gain the most reliable consensus of opinion from the panel of experts in the field (Beech 2001). Feedback is given to the participants before they are required to complete the next questionnaire, allowing them to determine where their responses fit in relation to the others. This pattern is followed until saturation has occurred and no further rounds of the Delphi survey are necessary (Greatorex & Dexter 2000; Hasson, Keeney & McKenna 2000).

Participants in a Delphi survey may be referred to as a panel of experts (Powell 2003). An expert panel can be relatively small with only a few members participating or conversely have several hundred members. No consensus was found in the literature as to what constitutes an expert or indeed how many of the experts are required to be on a panel. *Expert panel*

Delphi survey questionnaires may contain qualitative or quantitative information or both. Qualitative data analysis may take the form of content analysis utilising software packages such as Nud*ist or NVivo. Alternatively, constant comparative analysis as used in grounded theory may also be a method of textual analysis employed by the researcher, as was the case in this study (Hasson, Keeney & McKenna 2000). Quantitative data analysis may be performed by incorporating a form of scale such as the Likert scale, as in the current research. A Likert scale enables classification and quantification of the statistical data supplied by the research participants.

Beretta (1996, p. 79) lists the following common characteristics that are shared by Delphi techniques:

- 'A panel of experts are used as the respondents'
- 'Exercises are conducted in writing, using sequential questionnaires'
- 'There is an attempt made to produce a consensus of opinion'
- 'Anonymity of the panel and statements are guaranteed'
- 'There is use of iteration and controlled feedback'.

Similar characteristics are highlighted in Gibson's (1998) study where she used the Delphi technique to identify nurses' professional development needs. She states that the Delphi survey questionnaires enabled her to identify a wide range of issues that impact on nurses' professional development and was able to reach consensus in regard to the priorities of these issues. This she believes would have been difficult if a simple survey technique had been used.

Advantages of Delphi surveys

Using Delphi survey questionnaires offers a number of advantages. Firstly, the surveys are anonymous and therefore there is no peer pressure when participants are completing them (Grbich 1999). They provide their own control as each round deals with false interpretations that have been given by respondents in the previous round (McKnight, Edwards, Pickard, Underwood, Voorberg & Woodcox 1991). There is also consensus without bias from the experts in the area of research through the administration of sequential survey questionnaires (Rudy 1996). Delphi surveys make it possible for all participants to have an equal opportunity to express their views and opinions (Beretta 1996), whilst enabling them to work at their own pace (Beech 1991). Participants can also change their opinions as each round of the survey is administered (Beech 1991).

Anonymity

Consensus without bias

Delphi surveys are a relatively economical way of gathering data and also allow the researcher to generate large quantities of it. High face validity, content validity and concurrent validity (Beretta 1996) also make the survey an attractive research tool. The ability to provide controlled feedback after each survey round ensures that only relevant information is given to the participants (Bowles 1999). Finally, the Delphi method of data collection enables participants to complete the survey at their own convenience. It also facilitates statistical analysis of numerical data when combined with some form of scale such as the Likert scale.

Economical way of gathering data

Limitations of Delphi surveys

Limitations of Delphi surveys include the potential for a poor response rate (Hasson, Keeney & McKenna 2000; Bowles 1999) and its time-consuming process (Bowles 1999). Furthermore there is no clear definition of the issue of consensus or what constitutes an expert in the literature (Keeney, Hasson & McKenna 2006; Bowles 1999). *Issues of consensus*

A further difficulty of this method of data collection relates to the lack of guidelines regarding the size and composition of an expert panel. There is also an absence of recommendations about the sampling technique that should be used for panel selection (Williams & Webb 1994). *Lack of guidelines*

There exists a potential for lack of participant accountability in relation to the views that they express due to the anonymity (Goodman 1987). Researcher bias is an inherent risk (Hasson, Keeney & McKenna 2000; Bowles 1999) as is that of the participants if the panel is not balanced (Hasson, Keeney & McKenna 2000; Duffield 1993). *Participant accountability*

Delphi survey method and this study

The rationale for using Delphi survey questionnaires was that this method of data collection enabled all transplant coordinators in Australia and New Zealand to have an opportunity to be involved in the study. Due to issues of distance, time and financial constraints the Delphi survey questionnaire was a convenient method of gathering data from as many transplant coordinators as possible. *Opportunity for many to participate*

Delphi survey questionnaires are also compatible with and complementary to the constant comparative method of data analysis, which is fundamental to grounded theory methodology. Data can be constantly compared, identifying codes, subcategories, categories, the core category, the properties of categories and the links between the categories and the core category or BSP. Each round of the survey is compared with the transplant coordinator focus group interviews and the previous Delphi survey round. *Compatibility with grounded theory*

This iterative building process also enabled ongoing investigation into the issues and challenges that impact on transplant coordinators and their practice, until participants came to a consensus or when it was obvious that consensus was not going to eventuate. It is the ability to revisit areas under investigation in a Delphi survey that is similar to the constant comparative method of data analysis in grounded theory. Both enable the emergence of a theory or theories from the

data as the process is gradually and systematically built upon. With each step of the Delphi surveys and constant comparative analysis the main issues of concern for the participants were slowly brought into view and ultimately sharp focus.

Two rounds of Delphi survey questionnaires were used in the study. The limitations of this data collection method are addressed below, together with the development and piloting of each questionnaire. Figure 4.3 demonstrates the design and steps used in the Delphi survey process.

Addressing the limitations

The limitations were examined carefully prior to using the Delphi survey method. Two issues in particular were considered: firstly, what constitutes an expert; and secondly, what measurements would be used to denote that consensus had been reached during each round of the Delphi survey?

Expert panel

Duffield (1993) suggests the choice of participants is crucial in a Delphi survey:

For findings to be accepted, panel members should be representative of their profession or professional organization, unlikely to be challenged as experts in their field and have the power to implement the findings should they choose (Duffield 1993, p. 228).

Most participants in the study were within the category of experts as identified by Duffield (1993) above and it would be unlikely that they would be challenged in regard to such status. *The Macquarie Dictionary* states that an expert is 'someone who has special skill or knowledge in some particular field' (2004, p. 410). Due to a lack of information in the literature regarding this, it was decided that the participants in the Delphi survey would be referred to as transplant coordinators rather than experts, who had a level of knowledge and experience that would enable them to contribute meaningful dialogue and data.

It was also necessary to consider whether the participants would be empowered to implement findings. This would determine if the research could improve the conditions for transplant coordinators and their practice.

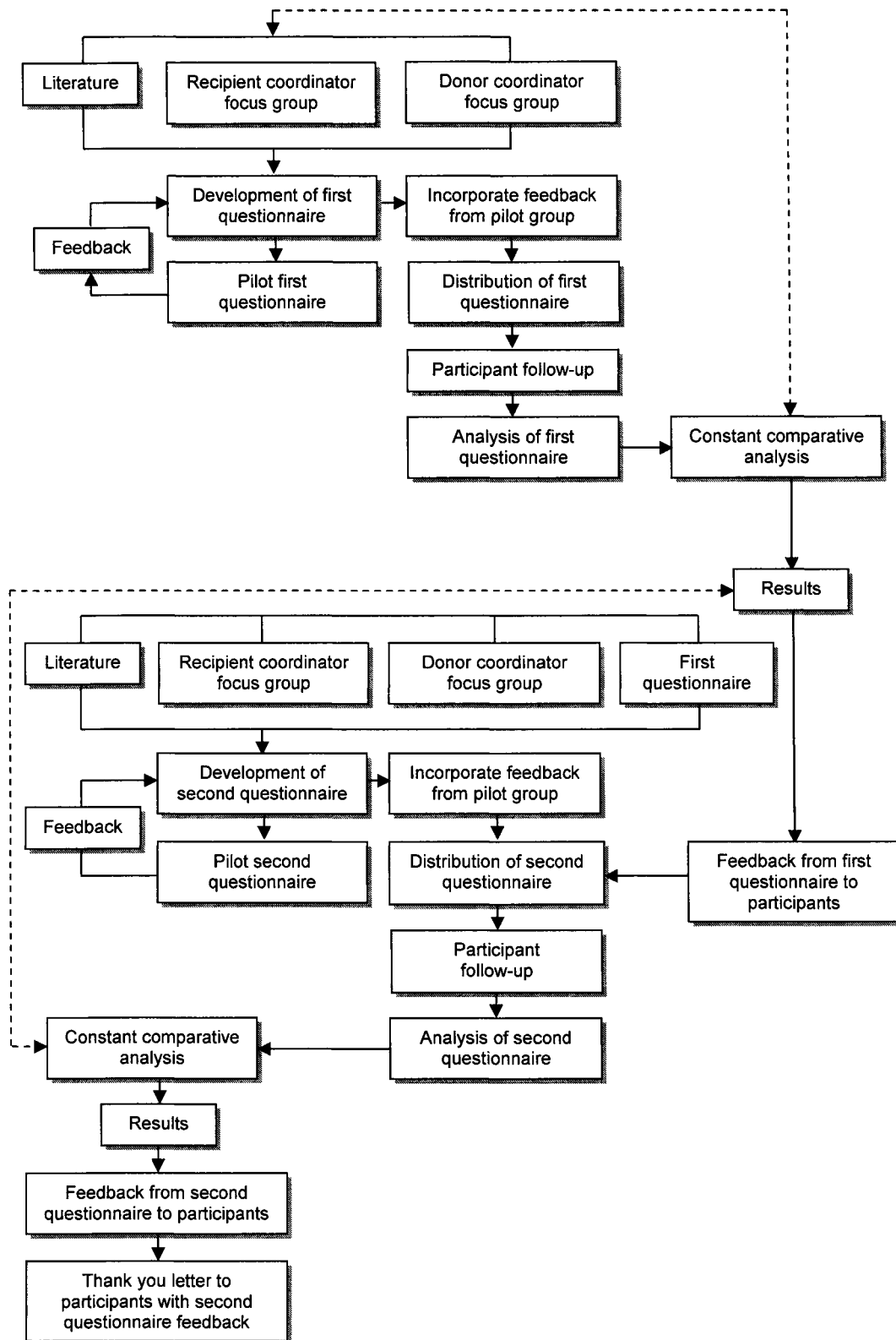


Figure 4.3: Flow chart showing the design and steps used in the Delphi survey process

Consensus

Agreement on the criteria that determine consensus is poorly documented in the literature. In fact Hasson, Keeney and McKenna (2000) state that there is no universal agreement about what constitutes consensus, suggesting that it depends on several factors such as sample size, aims of the research and available resources. Crisp, Pelletier, Duffield, Adams and Nagy (1997) argue that the stability of the participants' responses through the sequential rounds of the survey is a more reliable indicator of panel consensus. A number of researchers have used percentages to identify consensus, yet this still does not identify at which percentage level consensus is achieved (Green, Jones, Hughes & Williams 1999; Sumsion 1998). After careful consideration, the researcher here decided to use the statistical mode as the predetermined means of deciding when consensus had occurred. The statistical mode represents the most frequently occurring score in a distribution (Dawson & Trapp 2004; Polgar & Thomas 1999). There can be more than one statistical mode in any given set of data. Therefore consensus in this study referred to the most frequently occurring score obtained from the five point Likert scale, used in conjunction with the Delphi survey questionnaires and discussed later in the chapter.

Response rates

Proficient response rates were anticipated as the researcher was known to most of the participants. The following measures were also used; following an initial telephone call an information sheet and consent form were sent to transplant coordinators who had indicated their willingness to participate. They were also sent a letter explaining the Delphi survey process together with the questionnaire itself.

Return of the questionnaires within four weeks was requested. When this did not occur, a reminder telephone call was made. If required, another copy of the questionnaire was posted to the participant. Once the questionnaires had been returned the data was analysed. Feedback, together with the next survey were posted to the participants, except in the final round where feedback and a thank you letter were sent.

Panel size

There is limited literature and/or consensus in relation to the size of the panel for a Delphi survey. Although it enables more people to participate in the research

when compared to other methods, which according to Bowles (1999) may increase reliability and generalisability, there are no clear guidelines regarding an appropriate size for an expert panel. Linstone and Turoff (1975) report that panels may be as small as 10-50 members, whilst Reid (1988) has reviewed research with a group as large as 1685 members. The panel for this study was selected on the basis of participant availability with no intention of controlling the number of participants.

Sampling techniques

Williams and Webb (1994) state that there are no guidelines available in relation to sampling techniques for Delphi surveys. This they believe is of particular concern as it may have implications for the validity of the results. Here the participants were selected by purposive and snowball sampling techniques and their assignment into the focus group cohort or the Delphi survey cohort was by random selection. To achieve this, the study participants were divided into two groups determined by the type of coordination roles they performed - organ donor coordinators and recipient coordinators. Five participants were then randomly drawn from each of these groups to participate in their respective focus group interviews. The remaining participants were assigned to the Delphi survey phase of the study. This ensured that all participants had an equal chance of being assigned to either phase of the research.

Accountability

According to Williams and Webb (1994) complete anonymity between participants can prevent domination by any one-group member or group faction. It can also lead to a subsequent lack of accountability for participant responses (Sackman 1975). This is supported by Roberts and Taylor (1998) who suggest that anonymity can reduce accountability of participant responses and is further complicated with participant attrition rates. In addressing this limitation, a number of researchers have used 'quasi-anonymity' where participants are known to one another but their responses to the surveys remain confidential. Rauch (1979) states that knowing who the participants are often motivates other respondents to complete the survey hence reducing the risk of dominance from a particular sub group. This partly addresses the issue of accountability. This practice, however, is disputed by O'Brien (1978) who states that a number of studies indicate that there is no significant difference between the responses of participants who have

been identified and those that are unknown to each other. Participants in the current study were unknown to each other.

Potential bias

As inadvertent researcher bias was a potential issue, attempts were made to reduce this phenomenon through the use of memoing to document ideas, concerns, potential biases and difficulties prior to and during data collection, analysis and the thesis write-up. The following measures were also undertaken. No funding was received from the participants, the organisations they were employed by or professional associations they belonged to. Furthermore, the participating transplant coordinators and the management teams they worked for did not edit the findings of this research. Also where possible an audit trail in the form of diagrams, tables and examples was used to explain relevant decision-making processes. *Memoing*

Development and piloting of the Delphi surveys

The first Delphi survey questionnaire

The first questionnaire was developed using the information obtained from the focus group interviews and the literature. It also included a Likert scale to make statistical analysis possible. As explained previously, the aim was to gain group consensus regarding the issues and challenges that impact on transplant coordinators and their practice.

The first Delphi survey questionnaire was presented in two parts – part 1 sought socio-demographic data from the participants, for example: gender, age, experience as a transplant coordinator and the type of coordinator (Appendix 16). There were four sections in part 2, with each containing a number of statements and a Likert scale. Participants were required to circle the answer best describing their response to each of the statements. They were also instructed to circle one number only. Finally, there was provision for a voluntary writing of comments under each statement and for general comments on a concluding blank page.

The survey included a letter, which again thanked the respondents for participating (Appendix 17). It also advised them of the due date for the return of the questionnaire and reiterated that their survey was coded to enable the researcher to send them the next round of the survey upon completion of the

current round. Participants were asked to contact the researcher if they changed their address or had any questions. A reply paid envelope was included together with an information sheet explaining the questionnaire and how to complete it (Appendix 18).

Following development and prior to distribution, the questionnaire was piloted using the participants from the focus group interviews and volunteers to ascertain if it was appropriate, clear and concise. The volunteer group included past donor and recipient coordinators, tissue coordinators, nurses and academics. They were asked to address the following points:

- Was the design and layout of the questionnaire satisfactory?
- Were the statements clear and concise?
- Was the survey easy to complete?
- Was the survey too long or not long enough?
- Did the survey address what it stated it would address?
- Was the information sheet clear, helpful and accurate?
- What improvements could be made to the survey?

Examples of the feedback from the pilot group included:

You could consider making statements more positive (Pilot 1).

Information sheet is good, particularly encouraging participants not to just circle the middle number but rather think about the statement and give an answer one way or the other (Pilot 1).

After the results of the pilot study had been analysed and the recommended changes made, the Delphi survey questionnaire was mailed to the transplant coordinators. The 102 transplant coordinators who had been randomly assigned to the Delphi survey phase of the research received the first round of the questionnaire.

Upon return of the surveys, the researcher began the task of constantly comparing their data with the focus group interview data and the literature in order to add to the codes, preliminary categories and categories that were emerging. The results of the survey were also correlated and controlled statistical feedback was prepared for the participants (Appendix 19). This

feedback was posted with round two of the Delphi survey and enabled participants to see where their responses sat with respect to the others.

The second Delphi survey questionnaire

A second Delphi survey questionnaire was then developed, taking into account the information and responses from the first. If consensus on a given item had been reached in the first survey it was not included in the next. Where there was no consensus the item remained in the second survey but was presented in a changed format. Consensus was determined by the statistical mode – that representing the score most frequently chosen by the participants to each of the statements. Therefore this was the score chosen by the majority.

The second Delphi survey questionnaire design was similar to the first, except that it was presented in one section, which contained 32 statements and a Likert scale (Appendix 20). The completion instructions were the same, as was provision for the writing of comments.

Similarly, a letter thanking the respondents for their ongoing participation, informing them of the return date for the questionnaire and a reminder that the survey was coded, accompanied the survey (Appendix 21). Included in the mail out was an information sheet with instructions regarding survey completion and a reply paid envelope for its return (Appendix 22).

Following development and prior to distribution of the second Delphi survey, those who piloted the first were asked to trial and comment on the second questionnaire, using the same criteria as above. Examples of the feedback from this group included:

Well set out, clear survey, easily understood (Pilot 2).

Good statements, clear statements, good balance between recipient and donor coordinator issues, thought provoking statements. Information sheet is good, particularly encouraging participants not to just circle the middle number but rather think about the statement and give an answer one way or the other (Pilot 2).

Information sheet add to first sentence ... in which you have previously participated. This is a fabulous survey (Pilot 2).

Once the recommended changes had been addressed, the questionnaire was mailed to those who had returned their first survey, together with the controlled feedback from the previous round.

Upon return of the second survey, the results were correlated and controlled statistical feedback was prepared for the participants (Appendix 23). The data was also constantly compared with the previous survey, the focus group interviews and the available literature to add to the evolving codes, subcategories, categories and core category/BSP.

When the data from the second survey was added to the emerging grounded theory it became apparent that the research had reached a point of saturation due to evidence of redundant data. It was then decided that no further rounds of the survey were required. Participants were sent the controlled statistical feedback from the second round, together with a letter informing them that the survey was complete and thanking them for their contribution and commitment (Appendix 24).

Likert scale

There have been many sophisticated scaling techniques used in research to measure variables such as participants' attitudes about a particular phenomenon. The most common of these is the Likert scale (Polit & Hungler 1997). A Likert scale is used to quantitatively measure the scores obtained from participants and is usually combined with a survey technique such as the Delphi survey questionnaires used in this study. When these two techniques are employed the Likert scale consists of a number of declarative statements or items inviting the respondents to express a viewpoint on the topic under investigation (Polit & Hungler 1997). Therefore participants are encouraged to indicate the level of disagreement or agreement they have with each of the presented statements. The number of scaling points may vary. Some studies have a five point scale as was used in this study, whilst others have fewer or more scaling points depending on the type of study and the researcher's preference. In this case a five point scale was chosen as it was felt it would encourage participants to make a more considered decision about each of the declarative statements.

A Likert scale was included in the Delphi survey questionnaires in this study to enable statistical analysis of the data. It was piloted in conjunction with each round of the Delphi survey questionnaires. The research used a positive endorsement scale - the higher the number the more positive the responses (Bucher 1991):

- Strongly disagree represented by the number 1
- Disagree represented by the number 2
- Unsure represented by the number 3
- Agree represented by the number 4
- Strongly agree represented by the number 5

Triangulation

Triangulation is the use of a number of research strategies to study a single phenomenon (Adami & Kiger 2005; Thurmond 2001). This concept is known to have originated from ancient Greek mathematics (Holloway & Wheeler 1996). In modern times it was first described in the field of surveying where measurements are taken from a number of points to identify a particular area (Grbich 1999). It describes a technique where two known points are used to identify the location of a third, hence the obvious description of triangulation (Thurmond 2001). Beanland et al. (1999) describe triangulation as:

... the expansion of research methods in a single study or multiple studies to enhance diversity, enrich understanding and accomplish specific goals (Beanland et al. 1999 p. 355).

According to Rice and Ezzy (1999) there are four distinct types of triangulation that may be used in research, all of which are briefly discussed.

Data triangulation

Data triangulation concerns the use of multiple data sources about the same topic to obtain a diverse view of the phenomenon being studied in order to validate the findings (Begley 1996). Three sub-types of data triangulation have been identified in the literature: time, space and person triangulation.

- **Time triangulation:** refers to data collected at different time intervals. The purpose of this is to validate the congruence of the phenomenon under investigation (Thurmond 2001; Begley 1996). In contrast the objective of longitudinal studies is to document changes over time and not demonstrate congruence (Thurmond 2001).

- **Space triangulation:** refers to data collected at multiple sites. The purpose of this is to assess the consistency between sites and therefore look for cross-site validation (Begley 1996).
- **Person triangulation:** refers to data collected from two or more individuals or groups. The purpose of this is to validate the data of one source by cross-checking it with another (Begley 1996).

Investigator triangulation

Investigator triangulation refers to using two or more investigators with different knowledge, theories and expertise in a research team. The purpose of this is to minimise the potential of single researcher bias. In investigator triangulation all members of the team are involved in analysis and therefore validate the findings of their colleagues (Thurmond 2001; Shih 1998). Kimchi, Polivka and Stevenson (1991, p. 365) state that for investigator triangulation to have occurred the following three conditions must be met:

- 'each investigator has a prominent role in the study'
- 'the expertise of each investigator is different'
- 'the expertise (disciplinary bias) of each investigator is evident in the study'.

However, they state that this is difficult to assess in published works unless the background and expertise of each researcher are made explicit and their contributions to the research are described.

Theory triangulation

Theory triangulation is the use of multiple theories, perspectives or hypotheses to analyse or interpret one set of data or a phenomenon of interest (Thurmond 2001). An example of this is to use both feminist and post-modern theories to identify the challenges and barriers women have to overcome to succeed in the corporate business world.

Method triangulation

Method triangulation involves multiple research methods in the one study (Rice & Ezzy 1999). Literature referring to this type of triangulation can be confusing as authors sometimes refer to it in regard to different methodologies used in the

research design or conversely, data collection methods as is the case here (Thurmond 2001). Method triangulation can be classified into the categories of 'with-in method triangulation' and 'between' or 'across method triangulation' (Shih 1998):

- **With-in method triangulation:** involves using two or more similar methods of data collection in a study with the view to measuring the same variable (Mateo & Kirchhoff 1999).
- **Between or across method triangulation:** involves the use of two or more research methods in the one study (Boyd 2000). This usually means that the researcher has utilised a combination of qualitative and quantitative data collection methods (Thurmond 2001).

Triangulation in this study

This study used both with-in method triangulation and across-method triangulation. The with-in method triangulation involved the use of qualitative data from focus group interviews and Delphi survey questionnaires to identify and explore the issues and challenges that impact on transplant coordinators and their practice.

The between method triangulation involved the combination of both qualitative and quantitative methods of data collection. Qualitative data from the focus group interviews and surveys were combined with the quantitative data collected using a Likert scale in the Delphi survey questionnaires. Qualitative analysis in the form of constant comparative analysis was performed on the descriptive data and quantitative statistical analysis was carried out on the numerical data.

Triangulation was not primarily utilised to confirm or validate existing data but rather was used to enhance the comprehensiveness of the research, with each method of data collection, building on and complementing previous information.

Mateo and Kirchhoff (1999) state that there are two main reasons for using method triangulation:

... to increase the reliability and validity of a study, which occurs when data generated by one method confirm the findings of another method, and to increase the comprehensiveness of a study (Mateo & Kirchhoff 1999, p. 284).

Begley (1996, p. 122) partially concurs with this view, believing that the two main goals of triangulation are '... confirmation and completeness of data'. Knafel and Breitmayer (1991) also support this in stating that the goal of triangulation is not to expect that all new data will confirm existing data but should be seen as a means of gaining a more accurate picture of the population being studied, which is precisely why it was used here. Corner (1991) offers a compelling reason for considering triangulation in nursing research:

It may ... help avoid the danger of the development of methodological encampments which can only hinder the development of a body of knowledge to guide our practice in caring for patients (Corner 1991, p. 726).

This is a very important point because the research question dictates the most appropriate methods of data collection. If triangulation allows for the development of knowledge, which in turn enhances the care and treatment of others or improves their circumstances, then this is a substantial justification for its use.

Data analysis

As the Delphi survey questionnaires contained both qualitative and quantitative data two forms of analysis were required. The methods used for the data analysis are discussed below.

Analysis of qualitative data

The questionnaires provided for qualitative comments under each of the statements and on a blank page at the end. The comments from the first survey were added to the NVivo program and using the constantly compared method of analysis, were compared with previous data collected from the focus group interviews and the literature. Where appropriate, data was added to the codes, subcategories, categories and the BSP of the emerging grounded theory.

Qualitative data obtained from the second Delphi survey was also added to the NVivo program and compared with all other data collected in the research. It became apparent that the main categories and BSP were saturated, with redundant data evident. Data continued to be constantly compared throughout the entire study to refine and further develop the properties of each of the categories and the links between the categories and the BSP. This together with information obtained from the literature and the quantitative analysis of the

numerical data, (discussed below and in Chapter Six), led to the emergence of a grounded theory regarding transplant coordinators and their practice.

Analysis of quantitative data

Data obtained from part one of the first Delphi survey, which collected information about the socio-demographic characteristics of the study participants, was analysed using descriptive statistics. Quantitative data, obtained via the use of a Likert scale included in both questionnaires, was analysed using descriptive and non-parametric statistics. The descriptive statistics measure central tendency using the mean and mode (Dawson & Trapp 2004). The non-parametric statistics were Spearman's Rank Order Correlation Coefficient (ρ) and the Kruskal-Wallis test.

Summary

This chapter provided a detailed description of the research methods employed in this study. It outlined the development and application of the focus group interviews and the Delphi survey method of data collection. Recruitment, ethical considerations, triangulation and the analysis of both qualitative and quantitative data were also discussed. The following chapter provides a detailed analysis of the qualitative data obtained from the recipient and donor coordinator focus group interviews. This analysis was undertaken using the constant comparative method of data analysis, a technique used in grounded theory methodology.