



## The Use of Triangulation in Qualitative Research

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**T**riangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena (Patton, 1999). Triangulation also has been viewed as a qualitative research strategy to test validity through the convergence of information from different sources. Denzin (1978) and Patton (1999) identified four types of triangulation: (a) method triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) data source triangulation. The current article will present the four types of triangulation followed by a discussion of the use of focus groups (FGs) and in-depth individual (IDI) interviews as an example of data source triangulation in qualitative inquiry.

### Types of Triangulation

The first type of triangulation is method triangulation. Method triangulation involves the use of multiple methods of data collection about the same phenomenon (Polit & Beck, 2012). This type of triangulation, frequently used in qualitative studies, may include interviews, observation, and field notes.

Investigator triangulation involves the participation of two or more researchers in the same study to provide multiple observations and conclusions. This type of triangulation can bring both confirmation of findings and different perspectives, adding breadth to the phenomenon of interest (Denzin, 1978).

Theory triangulation uses different theories to analyze and interpret data. With this type of triangulation, different theories or hypotheses can assist the researcher in supporting or refuting findings.

Data source triangulation involves the collection of data from different types of people, including individuals, groups, families, and communities, to gain multiple perspectives and validation of data.

### Data Source Triangulation

Most qualitative researchers studying human phenomena collect data through interviews with individuals or groups; their selection of the type of interview depends on the purpose of the study and the resources available. Fontana and Frey (2000) described the IDI interview as one of the most powerful tools for gaining an understanding of human beings and exploring topics in depth. IDI interviews, ranging from the structured and controlled to the unstructured and fluid, can elicit rich information about personal experiences and perspectives (Russell, Gregory, Ploeg, DiCenso, & Guyatt, 2005). IDI interviews allow for spontaneity, flexibility, and responsiveness to individuals; however, conducting the interviews, transcribing the discourse, and analyzing the text often require considerable time and effort.

In contrast, FGs elicit data from a group of participants who can hear each other's responses and provide additional comments that they might not have made individually. Researchers who conduct FGs recognize that the participant interaction, which stimulates the identification and sharing of various perspectives on the same topic, is central to their success (Morgan, 1996). Several authors have pointed out that researchers rarely evaluate or discuss this approach (Clayton, Butow, Arnold, & Tattersall, 2005; Duggleby, 2005; Kitzinger, 1994; Lehoux, Poland, & Daudelin, 2006; Sandelowski, 2000; Sandelowski & Bar-

roso, 2003; Webb & Kevern, 2001; Zorn, Roper, Broadfoot, & Weaver, 2006). In terms of time, compared to IDI interviews, FGs may initially be less demanding to researchers; however, the time and effort required to analyze the complex data elicited from FGs might ultimately negate any time savings (Mansell, Bennett, Northway, Mead, & Moseley, 2004).

The nature of data yielded by these two methods of collection differs. Brown (1999) explained that FGs differ from IDI interviews in that the "dynamic and interactive exchange among participants" in FGs lead them to produce "multiple stories and diverse experiences" (p. 115). Fern (1982) found that those who participated in IDI interviews generated more ideas than did those participating in either moderated or unmoderated FGs. In a communications study, DeJong and Schellens (1998) compared the use of IDIs and FGs to evaluate the text in a brochure about alcohol consumption and found that IDI participants focused on the finer details of the text, whereas the interaction among FG participants identified potential problems with the brochure. Kaplowitz (2000, 2001) found that IDI interview participants were more likely to discuss sensitive topics and stimulate discussion about different topics when compared to FG participants. Kaplowitz and Hoehn (2001) found that using FGs and IDI interviews provided different perspectives on resources, values, and issues and concluded that one method was not better than the other, but rather that the two approaches were complementary. In

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an ethnographic study exploring adolescent boys' thoughts about sex, sequential observations, FGs, and IDI interviews were conducted with the same participants (Wight, 1994). The adolescent boys expressed greater sensitivity and were more open when participating in IDI interviews but displayed stronger expressions of masculinity and were more guarded when participating in FGs (Wight, 1994).

Typically, researchers determine data collection methods based on the best fit with the research question. Both FGs and IDI interviews may be intentionally selected by researchers for the purpose of data triangulation or may be selected later in the research process as a result of unanticipated challenges in data collection. Lambert and Loiselle (2008) explored patterns of cancer information-seeking behavior and initially used both IDI interviews and FGs as a result of some participants' inability or unwillingness to participate in FGs. Purposeful use of these two methods, however, was later performed once preliminary study findings revealed greater understanding of the phenomenon. Three methodologic observations were made about the data derived: (a) comparing the data led to an iterative process, whereby phenomena were explored more deeply, (b) the combined data led to an enhanced understanding of the context of the phenomena, and (c) convergence of the data enhanced trustworthiness of findings. The authors suggested that further research was needed to understand how various types of data contribute to understanding of phenomena (Lambert & Loiselle, 2008).

## Merits and Challenges of Combined Use

Merits and challenges exist to using both IDI interviews and FGs in a single study. Morse (2009) suggested that mixing qualitative methods allows for different perspectives that may otherwise be overlooked. Two important reasons should be considered in using both FGs and IDI interviews. The first is to increase participation of a broader spectrum of eligible patients who might not otherwise be able to participate if restricted to one method of data collection (e.g., too ill to attend a FG). In that scenario, the researcher must describe both methods of data collection, the number of participants who contributed

data via each approach, and comparison of study data provided through the use of each method.

The second reason is to increase the validity of study findings through triangulation and the collection of data from all study participants using both methods, beginning with IDI interviews and followed by FGs, or vice versa. The researcher must describe both methods of data collection, compare the study results from each method, and describe how the data were integrated to arrive at study results. The strength of this consecutive method of data collection is the opportunity to triangulate the data and to perform member checking. A limitation of this approach is the restriction of study participants to only those who can participate in both methods, therefore narrowing the spectrum of eligible patients.

Several challenges exist when performing data triangulation with the use of both FGs and IDI interviews. Researchers must have a variety of strategies to ensure data dependability and credibility, such as debriefing, member checking, triangulation, or use of a reflexive journal. The assumption that more data are always better overshadows concerns about what to do with both types of data (Barbour, 1998). Questions about the analysis of the data may arise. For example, if using the two methods, how are FG and IDI interview data analyzed together? Do concerns exist about the weighting of data? For example, does one FG with six participants carry the same weight as one IDI interview? Morse (2009) suggested that ad hoc combination of methods threatens trustworthiness. Therefore, the researcher performing data triangulation must consider these issues and analyze the data separately, synthesize and identify similarities and differences, and conclude how the different methods affect the results.

## Conclusion

Data triangulation using FGs and IDI interviews in qualitative inquiry may result in a broader understanding of the phenomenon of interest. Limiting data collection to one of the two methods may result in the exclusion of eligible patients and may lessen the breadth of results by only gaining partial insight into the phenomenon of interest. Further examination of the potential

methodologic issues associated with combining FG and IDI interview data is needed to better understand the implications of this approach and to further explore the differences between FG and IDI interview data.

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