

Qualitative research methods: when to use them and how to judge them

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Introduction

In March 2015, an impressive set of guidelines for best practice on how to incorporate psychosocial care in routine infertility care was published by the ESHRE Psychology and Counselling Guideline Development Group (ESHRE Psychology and Counselling Guideline Development Group, 2015). The authors report that the guidelines are based on a comprehensive review of the literature and we congratulate them on their meticulous compilation of evidence into a clinically useful document. However, when we read the methodology section, we were baffled and disappointed to find that evidence from research using qualitative methods was not included in the formulation of the guidelines. Despite stating that 'qualitative research has significant value to assess the lived experience of infertility and fertility treatment', the group excluded this body of evidence because qualitative research is 'not generally hypothesis-driven and not objective/neutral, as the researcher puts him/herself in the position of the participant to understand how the world is from the person's perspective'.

Qualitative and quantitative research methods are often juxtaposed as representing two different world views. In quantitative circles, qualitative research is commonly viewed with suspicion and considered lightweight because it involves small samples which may not be representative of the broader population, it is seen as not objective, and the results are assessed as biased by the researchers' own experiences or opinions. In qualitative circles, quantitative research can be dismissed as oversimplifying individual experience in the cause of generalisation, failing to acknowledge researcher biases and expectations in research design, and requiring guesswork to understand the human meaning of aggregate data.

As social scientists who investigate psychosocial aspects of human reproduction, we use qualitative and quantitative methods, separately or together, depending on the research question. The crucial part is to know when to use what method.

The peer-review process is a pillar of scientific publishing. One of the important roles of reviewers is to assess the scientific rigour of the studies from which authors draw their conclusions. If rigour is lacking, the paper should not be published. As with research using quantitative methods,

research using qualitative methods is home to the good, the bad and the ugly. It is essential that reviewers know the difference. Rejection letters are hard to take but more often than not they are based on legitimate critique. However, from time to time it is obvious that the reviewer has little grasp of what constitutes rigour or quality in qualitative research. The first author (K.H.) recently submitted a paper that reported findings from a qualitative study about fertility-related knowledge and information-seeking behaviour among people of reproductive age. In the rejection letter one of the reviewers (not from *Human Reproduction*) lamented, 'Even for a qualitative study, I would expect that some form of confidence interval and paired t-tables analysis, etc. be used to analyse the significance of results'. This comment reveals the reviewer's inappropriate application to qualitative research of criteria relevant only to quantitative research.

In this commentary, we give illustrative examples of questions most appropriately answered using qualitative methods and provide general advice about how to appraise the scientific rigour of qualitative studies. We hope this will help the journal's reviewers and readers appreciate the legitimate place of qualitative research and ensure we do not throw the baby out with the bath water by excluding or rejecting papers simply because they report the results of qualitative studies.

When to use qualitative research

In psychosocial research, 'quantitative' research methods are appropriate when 'factual' data are required to answer the research question; when general or probability information is sought on opinions, attitudes, views, beliefs or preferences; when variables can be isolated and defined; when variables can be linked to form hypotheses before data collection; and when the question or problem is known, clear and unambiguous. Quantitative methods can reveal, for example, what percentage of the population supports assisted conception, their distribution by age, marital status, residential area and so on, as well as changes from one survey to the next (Kovacs *et al.*, 2012); the number of donors and donor siblings located by parents of donor-conceived children (Freeman *et al.*, 2009); and the relationship between the attitude of donor-conceived people to learning of their donor insemination

conception and their family 'type' (one or two parents, lesbian or heterosexual parents; [Beeson et al., 2011](#)).

In contrast, 'qualitative' methods are used to answer questions about experience, meaning and perspective, most often from the standpoint of the participant. These data are usually not amenable to counting or measuring. Qualitative research techniques include 'small-group discussions' for investigating beliefs, attitudes and concepts of normative behaviour; 'semi-structured interviews', to seek views on a focused topic or, with key informants, for background information or an institutional perspective; 'in-depth interviews' to understand a condition, experience, or event from a personal perspective; and 'analysis of texts and documents', such as government reports, media articles, websites or diaries, to learn about distributed or private knowledge.

Qualitative methods have been used to reveal, for example, potential problems in implementing a proposed trial of elective single embryo transfer, where small-group discussions enabled staff to explain their own resistance, leading to an amended approach ([Porter and Bhattacharya, 2005](#)). Small-group discussions among assisted reproductive technology (ART) counsellors were used to investigate how the welfare principle is interpreted and practised by health professionals who must apply it in ART ([de Lacey et al., 2015](#)). When legislative change meant that gamete donors could seek identifying details of people conceived from their gametes, parents needed advice on how best to tell their children. Small-group discussions were convened to ask adolescents (not known to be donor-conceived) to reflect on how they would prefer to be told ([Kirkman et al., 2007](#)).

When a population cannot be identified, such as anonymous sperm donors from the 1980s, a qualitative approach with wide publicity can reach people who do not usually volunteer for research and reveal (for example) their attitudes to proposed legislation to remove anonymity with retrospective effect ([Hammarberg et al., 2014](#)). When researchers invite people to talk about their reflections on experience, they can sometimes learn more than they set out to discover. In describing their responses to proposed legislative change, participants also talked about people conceived as a result of their donations, demonstrating various constructions and expectations of relationships ([Kirkman et al., 2014](#)).

Interviews with parents in lesbian-parented families generated insight into the diverse meanings of the sperm donor in the creation and life of the family ([Wyverkens et al., 2014](#)). Oral and written interviews also revealed the embarrassment and ambivalence surrounding sperm donors evident in participants in donor-assisted conception ([Kirkman, 2004](#)). The way in which parents conceptualise unused embryos and why they discard rather than donate was explored and understood via in-depth interviews, showing how and why the meaning of those embryos changed with parenthood ([de Lacey, 2005](#)). In-depth interviews were also used to establish the intricate understanding by embryo donors and recipients of the meaning of embryo donation and the families built as a result ([Goedeke et al., 2015](#)).

It is possible to combine quantitative and qualitative methods, although great care should be taken to ensure that the theory behind each method is compatible and that the methods are being used for appropriate reasons. The two methods can be used sequentially (first a quantitative then a qualitative study or vice versa), where the first approach is used to facilitate the design of the second; they can be used in parallel as different approaches to the same question; or a dominant method may be enriched with a small component of an alternative method (such as qualitative interviews 'nested' in a large survey). It is

important to note that free text in surveys represents qualitative data but does not constitute qualitative research. Qualitative and quantitative methods may be used together for corroboration (hoping for similar outcomes from both methods), elaboration (using qualitative data to explain or interpret quantitative data, or to demonstrate how the quantitative findings apply in particular cases), complementarity (where the qualitative and quantitative results differ but generate complementary insights) or contradiction (where qualitative and quantitative data lead to different conclusions). Each has its advantages and challenges ([Brannen, 2005](#)).

How to judge qualitative research

Qualitative research is gaining increased momentum in the clinical setting and carries different criteria for evaluating its rigour or quality. Quantitative studies generally involve the systematic collection of data about a phenomenon, using standardized measures and statistical analysis. In contrast, qualitative studies involve the systematic collection, organization, description and interpretation of textual, verbal or visual data. The particular approach taken determines to a certain extent the criteria used for judging the quality of the report. However, research using qualitative methods can be evaluated ([Dixon-Woods et al., 2006](#); [Young et al., 2014](#)) and there are some generic guidelines for assessing qualitative research ([Kitto et al., 2008](#)).

Although the terms 'reliability' and 'validity' are contentious among qualitative researchers ([Lincoln and Guba, 1985](#)) with some preferring 'verification', research integrity and robustness are as important in qualitative studies as they are in other forms of research. It is widely accepted that qualitative research should be ethical, important, intelligibly described, and use appropriate and rigorous methods ([Cohen and Crabtree, 2008](#)). In research investigating data that can be counted or measured, replicability is essential. When other kinds of data are gathered in order to answer questions of personal or social meaning, we need to be able to capture real-life experiences, which cannot be identical from one person to the next. Furthermore, meaning is culturally determined and subject to evolutionary change. The way of explaining a phenomenon—such as what it means to use donated gametes—will vary, for example, according to the cultural significance of 'blood' or genes, interpretations of marital infidelity and religious constructs of sexual relationships and families. Culture may apply to a country, a community, or other actual or virtual group, and a person may be engaged at various levels of culture. In identifying meaning for members of a particular group, consistency may indeed be found from one research project to another. However, individuals within a cultural group may present different experiences and perceptions or transgress cultural expectations. That does not make them 'wrong' or invalidate the research. Rather, it offers insight into diversity and adds a piece to the puzzle to which other researchers also contribute.

In qualitative research the objective stance is obsolete, the researcher is the instrument, and 'subjects' become 'participants' who may contribute to data interpretation and analysis ([Denzin and Lincoln, 1998](#)). Qualitative researchers defend the integrity of their work by different means: trustworthiness, credibility, applicability and consistency are the evaluative criteria ([Leininger, 1994](#)).

Trustworthiness

A report of a qualitative study should contain the same robust procedural description as any other study. The purpose of the research, how it was

conducted, procedural decisions, and details of data generation and management should be transparent and explicit. A reviewer should be able to follow the progression of events and decisions and understand their logic because there is adequate description, explanation and justification of the methodology and methods (Kitto *et al.*, 2008)

Credibility

Credibility is the criterion for evaluating the truth value or internal validity of qualitative research. A qualitative study is credible when its results, presented with adequate descriptions of context, are recognizable to people who share the experience and those who care for or treat them. As the instrument in qualitative research, the researcher defends its credibility through practices such as reflexivity (reflection on the influence of the researcher on the research), triangulation (where appropriate, answering the research question in several ways, such as through interviews, observation and documentary analysis) and substantial description of the interpretation process; verbatim quotations from the data are supplied to illustrate and support their interpretations (Sandelowski, 1986). Where excerpts of data and interpretations are incongruent, the credibility of the study is in doubt.

Applicability

Applicability, or transferability of the research findings, is the criterion for evaluating external validity. A study is considered to meet the criterion of applicability when its findings can fit into contexts outside the study situation and when clinicians and researchers view the findings as meaningful and applicable in their own experiences.

Larger sample sizes do not produce greater applicability. Depth may be sacrificed to breadth or there may be too much data for adequate analysis. Sample sizes in qualitative research are typically small. The term 'saturation' is often used in reference to decisions about sample size in research using qualitative methods. Emerging from grounded theory, where filling theoretical categories is considered essential to the robustness of the developing theory, data saturation has been expanded to describe a situation where data tend towards repetition or where data cease to offer new directions and raise new questions (Charmaz, 2005). However, the legitimacy of saturation as a generic marker of sampling adequacy has been questioned (O'Reilly and Parker, 2013). Caution must be exercised to ensure that a commitment to saturation does not assume an 'essence' of an experience in which limited diversity is anticipated; each account is likely to be subtly different and each 'sample' will contribute to knowledge without telling the whole story. Increasingly, it is expected that researchers will report the kind of saturation they have applied and their criteria for recognising its achievement; an assessor will need to judge whether the choice is appropriate and consistent with the theoretical context within which the research has been conducted.

Sampling strategies are usually purposive, convenient, theoretical or snowballed. Maximum variation sampling may be used to seek representation of diverse perspectives on the topic. Homogeneous sampling may be used to recruit a group of participants with specified criteria. The threat of bias is irrelevant; participants are recruited and selected specifically because they can illuminate the phenomenon being studied. Rather than being predetermined by statistical power analysis, qualitative study samples are dependent on the nature of the data, the availability of participants and where those data take the investigator. Multiple data

collections may also take place to obtain maximum insight into sensitive topics. For instance, the question of how decisions are made for embryo disposition may involve sampling within the patient group as well as from scientists, clinicians, counsellors and clinic administrators.

Consistency

Consistency, or dependability of the results, is the criterion for assessing reliability. This does not mean that the same result would necessarily be found in other contexts but that, given the same data, other researchers would find similar patterns. Researchers often seek maximum variation in the experience of a phenomenon, not only to illuminate it but also to discourage fulfilment of limited researcher expectations (for example, negative cases or instances that do not fit the emerging interpretation or theory should be actively sought and explored). Qualitative researchers sometimes describe the processes by which verification of the theoretical findings by another team member takes place (Morse and Richards, 2002).

Conclusions

Research that uses qualitative methods is not, as it seems sometimes to be represented, the easy option, nor is it a collation of anecdotes. It usually involves a complex theoretical or philosophical framework. Rigorous analysis is conducted without the aid of straightforward mathematical rules. Researchers must demonstrate the validity of their analysis and conclusions, resulting in longer papers and occasional frustration with the word limits of appropriate journals. Nevertheless, we need the different kinds of evidence that is generated by qualitative methods. The experience of health, illness and medical intervention cannot always be counted and measured; researchers need to understand what they mean to individuals and groups. Knowledge gained from qualitative research methods can inform clinical practice, indicate how to support people living with chronic conditions and contribute to community education and awareness about people who are (for example) experiencing infertility or using assisted conception.

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Conflict of interest

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