

Qualitative studies

Their role in medical research

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ABSTRACT

OBJECTIVE To define qualitative research in terms of its philosophical roots, the questions it addresses, its methods and analyses, and the type of results it can offer.

DATA SOURCES MEDLINE and CINAHL (Cumulative Index to Nursing and Allied Health Literature) databases were searched for the years January 1985 to April 1998. The search strategy consisted of "textword" terms that searched in the "title" field of both databases. Qualitative research and evaluation textbooks in health and the social sciences were also used.

QUALITY OF EVIDENCE The information on qualitative research is based on the most recent and valid evidence from the health and social science fields.

MAIN MESSAGE Qualitative research seeks to understand and interpret personal experience to explain social phenomena, including those related to health. It can address questions that quantitative research cannot, such as why people do not adhere to a treatment regimen or why a certain health care intervention is successful. It uses many methods of data collection, including participant observation, case studies, and interviews, and numerous approaches to data analysis that range from the quasi-statistical to the intuitive and inductive.

CONCLUSIONS Qualitative research, a form of research completely different from quantitative research, can provide important insights into health-related phenomena and can enrich further research inquiries.

RÉSUMÉ

OBJECTIF Définir la recherche qualitative en ce qui a trait à ses origines philosophiques, aux questions qu'elle aborde, à ses méthodes et à ses analyses, et au genre de résultats qu'elle peut offrir.

SOURCES DES DONNÉES Une recherche a été effectuée dans les bases de données MEDLINE et CINAHL (un répertoire cumulatif des ouvrages associés aux soins infirmiers et connexes à la santé) portant sur la période de janvier 1985 à avril 1998. La stratégie de l'étude comportait le recours à des mots-de-textes pour faire une recherche dans la zone du titre, dans les deux bases de données. On a également utilisé des manuels sur la recherche qualitative et l'évaluation dans les domaines de la santé et des sciences sociales.

QUALITÉ DES DONNÉES L'information sur la recherche qualitative se fonde sur les données probantes les plus récentes et les plus pertinentes dans les domaines de la santé et des sciences sociales.

MESSAGE PRINCIPAL La recherche qualitative essaie de comprendre et d'interpréter l'expérience personnelle en vue d'expliquer les phénomènes sociaux, notamment ceux qui sont associés à la santé. Elle peut aborder des enjeux qui ne sont pas à la portée de la recherche quantitative, comme les raisons qui motivent les gens à ne pas suivre un plan thérapeutique ou qui expliquent la réussite d'une intervention médicale donnée. Elle a recours à de nombreuses méthodes de collecte des données, y compris l'observation des participants, les études de cas et les entrevues. Elle compte aussi plusieurs méthodologies d'analyse qui vont des approches quasi statistiques à celles fondées sur l'intuition et l'induction.

CONCLUSIONS La recherche qualitative, qui se distingue complètement de la recherche quantitative, peut permettre de faire comprendre de manière significative les phénomènes liés à la santé et peut valoriser davantage les enquêtes à des fins de recherche.

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Qualitative research has begun to appear with increasing frequency in medical journals over the past 5 years and marks a distinct departure from a long tradition of quantitative research in medicine. Why has this happened? This paper addresses this question and identifies how qualitative research differs from quantitative research in its philosophical roots, the questions it addresses, its methods and analyses, and its presentation of results. This paper aims to inform readers who are unfamiliar with this type of research as to what qualitative research is and how it contributes to our understanding of health, illness, and effective health care. Some terms common to qualitative research are identified in **Table 1**.¹⁻⁹

Why now?

Qualitative research is being conducted by medical researchers today because it can answer questions that quantitative methods (such as randomized controlled trials) cannot. It focuses on understanding experiences, attitudes, and behaviours. These “soft” areas of clinical care are drawing increased attention because of the recognition that they have a profound effect on perception of health, health-seeking behaviour, and adherence to treatment. Take, for example, postmenopausal women’s use of hormone replacement therapy (HRT). Quantitative studies have established that this treatment greatly reduces the risk of heart disease, marginally increases the risk of breast cancer, decreases osteoporosis, maintains skin turgor, and might help preserve memory capacity. Yet, despite this scientific outcome-based “evidence” in favour of HRT, most women choose not to take it; why? This very important question cannot be easily addressed by quantitative research. Let us consider the various aspects of qualitative research and see how it might apply to the phenomenon of poor adherence to HRT.

Quality of evidence

We searched the MEDLINE and CINAHL (Cumulative Index to Nursing and Allied Health Literature) databases for the years January 1985 to April 1998. The search strategy consisted of

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“textword” terms that searched in the “title” field of both databases. The terms included the word “qualitative” adjacent to “interview\$” or “inquir\$” or “evaluation\$” or “research” or “method\$” or “study” or “analysis” or “analyses” or “measurement\$” or “application\$” or “approach\$.” Qualitative research and evaluation textbooks in health and the social sciences were also used. The information presented is based on the most recent and valid evidence from the health and social science fields.

Qualitative research defined

The goal of qualitative research has been defined as “the development of concepts which help us to understand social phenomena in natural (rather than experimental) settings, giving due emphasis to the meanings, experiences, and views of all the participants.”¹⁰

The goal of qualitative research in addressing the question of poor adherence to HRT, for example, would be to understand postmenopausal women’s attitudes and beliefs regarding HRT. The “natural setting” in qualitative research is very important. It means researchers attempt to interview subjects in settings where they are comfortable and where they are not being asked to do anything other than share their thoughts and experiences.

If this strikes you as collecting incredibly subjective information, you are absolutely correct. To collect subjective information is foreign to many trained in quantitative observation and experimentation. It is foreign because the qualitative approach is firmly based in its own philosophical tradition. It represents a totally different way of seeing the world.

Philosophical roots

Qualitative methods were developed in the social sciences, particularly sociology and anthropology, and rest largely on in-depth observation, interviews, and small-group processes. Whereas the scientific method is based on the philosophical school of positivism (that assumes every rationally justifiable assertion can be verified by logic or mathematical proof), qualitative research is based on the philosophical school of phenomenology, or the study of the meaning of phenomena.⁶ McWhinney has noted that one goal of science is identifying generalities, whereas qualitative research is the “study of the particular.”⁷

Some differences between quantitative and qualitative research are summarized in **Table 2**. In a quantitative approach, researchers usually begin with a hypothesis and design an experiment that collects

and measures data to prove or disprove it. In a qualitative approach, hypotheses "emerge" from the study; they are one of its results. The scientific approach is based on deduction, where one goes from the general to the particular, and relies heavily on numbers. Qualitative research is based on induction, where one goes from the particular to the general, and relies heavily on narrative, or the actual words of research subjects.

Qualitative research is an interpretive science that seeks to explain social and psychological phenomena. Our example, a qualitative approach to explain why women do not take HRT, attempts to understand this reluctance from a woman's point of view. This perspective is subjective, yet can provide important insights into a phenomenon that affects women's health.

Research questions

As in any study, a well-defined research question is critical to set the stage for an appropriate investigation. Qualitative research seeks answers to questions that address how social experience is created and understood in everyday life.¹¹ Relevant research questions are What is going on? What are the dimensions of the concept? What variations exist? and Why is this happening? In contrast, quantitative research questions focus on measuring and analyzing relationships among variables. Questions consider How many? How much? How often? What size? and How is the phenomenon distributed over time?

Qualitative methods

Qualitative research has come under some criticism for its lack of generalizability and its tendency to be anecdotal. Some wonder how qualitative research differs from journalism. After all, both rely on descriptions and interpretations that are based on direct contact with people in natural settings. The main distinguishing features that set qualitative research apart from journalism are its methods and analyses. Qualitative research has very specific methods that include sampling strategies, scrupulous documentation of data collection, and specific analytic techniques.

Many techniques can collect information for qualitative research; the two main ones are observational methods¹² and interviews.¹³ A common observational method is participant observation, characterized by the researcher's involvement in the social phenomenon being studied.⁵ This method offers the advantage of identifying what people actually do, rather than

Table 1. Terms in qualitative research

Content analysis: a process whereby the content of written, spoken, and visual information is described and systematically analyzed¹

Focus groups: a form of group interview that involves discussion among research participants in response to open-ended questions from a facilitator. Questions are designed to examine people's experiences, attitudes, and beliefs²

Grounded theory: generation of a theoretical model through the experience of observing a study population and developing a comparative analysis of their speech and behaviour³

Hermeneutics: based on the Greek word *hermeneutikos* meaning "interpretation," it is a qualitative approach that focuses on understanding human behaviour from the research subjects' perspective⁴

Iterative process: a type of qualitative analysis whereby researchers gather data from the field, develop an analytic framework, then go back to the field to test the framework. Researchers often make several repetitive "loops" between data gathering and analysis formation before the final analysis is established¹

Participant observation: a research strategy characterized by the researcher's involvement in the social phenomenon being studied⁵

Phenomenology: the study of the meaning of phenomena⁶ or the study of the particular⁷

Thick description: a rich, dense, and detailed description of the experience being studied⁸

Triangulation: using different methods, data sources, investigators, or theories to validate the data and their interpretation⁹

what they report they do. Observational methods can also be applied to case studies,¹⁴ such as examining the effects of a new hospital policy.

The second common method of qualitative research is interviews.¹³ These can be structured or semistructured, with a number of individuals or with a group. A common type of semistructured interviewing with several people is called a focus group.² This usually involves discussion among research participants in response to open-ended questions from a facilitator. Questions are designed to examine people's experiences, attitudes, and beliefs. To answer our question on HRT, for example, a focus group of postmenopausal women could be conducted to give women the opportunity to discuss their concerns and fears about this treatment.

Table 2. Differences between quantitative and qualitative research

CHARACTERISTIC	QUANTITATIVE	QUALITATIVE
Philosophical base	Positivism	Phenomenology
Goal	Verification	Concept development
Questions posed	How often? How many?	Why? What purpose?
Setting	Experimental	Natural
Study population	Numerous	Few
Sampling	Random	Purposeful
Approach	Deductive	Inductive
Analysis	Statistical	Interpretive
Result	Hypothesis testing	Hypothesis generating
Researcher	Distant	Involved
Presentation	Focus on data	Focus on narrative
Typical model	Lines	Circle, webs

Sampling techniques

How do qualitative researchers get their research subjects? The goal of sampling in qualitative research is to select people who will be the most help in answering the research question. Unlike quantitative research, there is no intention of generalizing findings to the population. Qualitative sampling strategies, typically not probabilistic,¹⁵ are often referred to as purposeful sampling¹⁶: groups or individuals to be included in the study are identified by the researcher because they are likely to provide the most relevant information. Examples of purposeful sampling include the use of extreme or deviant cases, typical cases, critical cases, politically important cases, or sensitive cases. Qualitative research can also use maximum variation sampling (selecting cases that provide a range of characteristics, for example by sex or age), convenience sampling (recruiting the most readily available sample), and snowball sampling (where each person identified for a study identifies several others).¹

To identify women to be interviewed about HRT, a qualitative researcher may decide to approach both women who do and do not take HRT. A researcher might purposefully ask a feminist, as well as someone who is a dedicated (and non-political) grandmother.

People who comply with other medication regimens might be interviewed, as well as those who are otherwise fit and healthy. The goal would be to obtain a range of views among postmenopausal women.

No matter what sampling technique is used or whether observational or interviewing methods have been undertaken, once the data are in, the qualitative researcher needs to "make sense" out of it all. How is this done?

Qualitative analysis

Analytic techniques and theory development in qualitative research have their own unique features. Unlike quantitative research that tends to be linear, a qualitative approach is circular. Although there are several analytic techniques in qualitative research, they usually entail examining the data to identify themes, which are then sorted into categories to form the basis of theories. These categories or theories are then checked against the narrative or against new data to test the soundness of the analysis. This has been termed an iterative process, whereby researchers make several repetitive "loops" between data gathering and analysis formation before their theories are fully developed (Figure 1).¹

Many schools of thought within qualitative research each have a slightly different approach to data analysis. They can be described as a spectrum that ranges from quasi-statistical to immersion and crystallization.¹⁷ At the quasi-statistical end of the spectrum, a software program is often used to identify the most frequently occurring words in a text, and frequency distributions can be calculated to help inform the development of categories.

A more open-ended approach to analysis is the analytic technique of grounded theory. Grounded theory is the development of a theoretical model through the experience of observing a study population and developing a comparative analysis of social or psychological phenomena.³ This technique is based on the concept of hermeneutics, which is from the Greek word *hermeneutikos* meaning "interpretation"; it focuses on understanding human behaviour from the research subjects' perspective. It supposes that, to understand behaviour, what people believe to be true is often more important than objective reality.⁴

If one applied grounded theory to the narrative recorded from focus groups of postmenopausal women, qualitative research might find that women tend to underestimate their risk of developing heart disease and osteoporosis or overestimate their risk of

breast cancer, that they resent their menopause being “medicalized,” or that some women have tried HRT and stopped it because they did not like the breakthrough bleeding. These findings are all very subjective, but shed important light on why women do not take this beneficial treatment.

Once the researcher has made several iterative loops by going back to the primary data to verify the concepts and theories developed, he or she needs to take another step to validate the analysis.

Validation

Concurrent with or following the iterative process, external validation, or transferability of the analysis, is sought. This usually involves a qualitative research method called triangulation. This is when researchers compare their findings with two or more additional sources of information.⁹ Triangulation can occur by comparing different methods, theories, data sources, or investigators. In the case of HRT use, after conducting focus groups with postmenopausal women and in-depth, one-on-one interviews with a

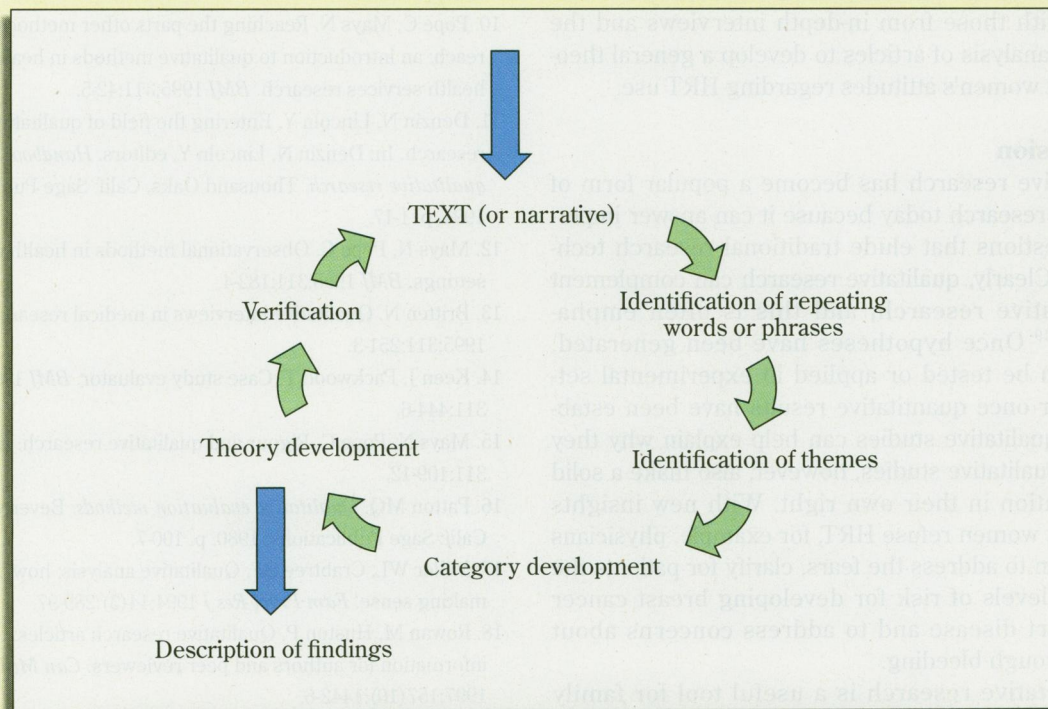
variety of postmenopausal women, a researcher might follow up with a content analysis of articles on HRT found in women’s magazines. This type of triangulation is part of the research method. Once this has been completed, researchers are ready to report on the findings.

Findings

Presentation of the findings (or results) of qualitative research differs from the usual scientific paper in a couple of important ways.¹⁸ First, since this is a study of phenomena, details of the study setting and the people and actual quotes from participants are used. This has been called thick description.⁸ The goal here is to tell a story that is engaging and convincing and provides sufficient detail for readers to assess whether the researcher’s analysis is logical and insightful.

Results of triangulation may be included in this section, where the researcher conveys recurrent patterns or themes in the information along with exceptions that do not fit with these patterns. This may

Figure 1. Conceptual representation of the iterative process of qualitative analysis



Key points

- Qualitative methods are a powerful alternative form of research that seeks to understand and interpret health-related questions.
- Qualitative research can provide important insights into health issues that complement knowledge derived from quantitative research.
- Qualitative research has its own set of criteria for validity and reliability that ensures it meets high research standards.

seem as if the results and the discussion section are being combined; however, since triangulation is part of the method, it is presented with the findings.

For example, in presenting the findings of focus groups on postmenopausal women and HRT, a researcher would describe the context and dynamic of the group, such as how well participants interacted and whether participants changed their minds or deferred to opinions of others. Similar themes would be pulled together based on discussions about the fears and concerns women have about using HRT. Opinions that do not fit with the general themes would be described, and quotations provided that illustrate themes. These results would then be combined with those from in-depth interviews and the content analysis of articles to develop a general theory about women's attitudes regarding HRT use.

Conclusion

Qualitative research has become a popular form of medical research today because it can answer important questions that elude traditional research techniques. Clearly, qualitative research can complement quantitative research, and this is often emphasized.^{10,19} Once hypotheses have been generated, they can be tested or applied in experimental settings. Or once quantitative results have been established, qualitative studies can help explain why they occur. Qualitative studies, however, also make a solid contribution in their own right. With new insights into why women refuse HRT, for example, physicians can begin to address the fears, clarify for patients the various levels of risk for developing breast cancer and heart disease and to address concerns about breakthrough bleeding.

Qualitative research is a useful tool for family physicians. No doubt once a physician concludes one qualitative study, a question begging for another qualitative study will arise. ♦

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