

Qualitative Research and its Role in Public Health Dentistry

Kothuri N Ravalika¹, Gururaghavendran Rajesh², Ashwini Rao³, Ramya Shenoy⁴, BH Mithun Pai⁵

ABSTRACT

Aim: The purpose of this review was to comprehensively explore various aspects of qualitative research, its methods, applications, challenges, and recommendations pertaining to dentistry.

Background: Qualitative research is a form of social inquiry concerned primarily with how people see and understand their social world. It has hypothesized the field of social sciences and proved to be helpful in health sciences as well. It has a descent from anthropology and philosophy to sociology. Evidence shows that this method was first used by anthropologists and sociologists back in the early decades of 20th century, as a method of inquiry. The qualitative research cycle consists of three interlinked methods: the design cycle, ethnographic cycle, and analytical cycle. In-depth interviews, focus group discussions, observation, and documentary analysis are methods to collect data. Most commonly practiced methods are the first two approaches. An approach of investigation involving both quantitative and qualitative data analysis is called as mixed methods research.

Review results: Literature search was done with the help of Endnote software, followed by systematically arranging the retrieved articles in a synchronized manner. Few studies were found in the field of public health dentistry, which employed a qualitative approach to probe into a few sensitive issues.

Conclusion: Although the future scope of qualitative research in this field is immense, it continues to be underutilized. Qualitative research complements quantitative research work as it explores complex phenomena and areas in which quantitative research alone may not be amenable to.

Keywords: Evidence-based dentistry, Mixed methods, Qualitative research, Research designs.

World Journal of Dentistry (2019); 10.5005/jp-journals-10015-1630

INTRODUCTION

Qualitative research is a type of social inquiry that targets on the manner individuals interpret their surroundings and make sense of previously acquired experiences from the world in which they live.¹ It is defined as “an umbrella term covering an array of interpretative techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world”.²

Concerned primarily with how people see and understand their social worlds,³ qualitative research attempts to interpret the data given by the participants, which helps in understanding the social phenomena in native settings such as their own community, own vernacular tongue, and in their words. This gives significance to the meaning, experience, and insights of the study subjects and also preserves the uniqueness of human behavior. This method is named as a naturalistic approach.⁴ This approach answers why questions to explain and understand issues and how questions to describe a process or a behaviour.⁵

Qualitative research focuses on conditions of human life, which cannot be covered by quantitative research alone completely. Few aspects like cultural beliefs, expression and imagination are taken care in this type of research.⁶ This approach reveals in-depth information regarding the varying manners of individual's beliefs, attitude, and behaviour.^{7,8}

Qualitative research hypothesized the field of social sciences and proved to be helpful in health sciences as well.⁹ However, this method of research with great value to social and health sciences is often ignored.¹⁰ Being previously uncommon in the research of health sciences, qualitative methods are now receiving attention and are being increasingly practiced in health care research along

¹⁻⁴Department of Public Health Dentistry, Manipal College of Dental Sciences, Mangaluru, Manipal Academy of Higher Education, Manipal, Karnataka, India

Corresponding Author: Gururaghavendran Rajesh, Department of Public Health Dentistry, Manipal College of Dental Sciences, Mangaluru, Manipal Academy of Higher Education, Manipal, Karnataka, India, Phone: +91 824-2428716, e-mail: drrajeshgrao@gmail.com

How to cite this article: Ravalika KN, Rajesh G, et al. Qualitative Research and its Role in Public Health Dentistry. *World J Dent* 2019;10(3):246–250.

Source of support: Nil

Conflict of interest: None

with cultural and social extensions.^{11,12} Furthermore, this approach can help to bridge the gap between scientific evidence and clinical practice.¹³

HISTORICAL EVOLUTION

The history of qualitative research traces back to its use in anthropology, philosophy, and sociology where it deserved to be an essential component.¹⁴⁻¹⁸ Also, these methods were previously used in psychology and social sciences.¹⁹ Long before then, the researchers explored communities and cultures of their own and foreign settings and expressed versions of their experience using this approach.¹¹

The term, qualitative research, began to be used universally from the early 1970s and marked the dawn of interdisciplinary approach.^{20,21} Anthropologists and sociologists were the first to use it.²² During those times, qualitative research was still an

unsystematic and journalistic method, which now may seem to be unscientific.^{23,24}

The history of qualitative research begins with the philosopher, Rene Descartes, who edited *Discourse on Methodology* in 1637, focusing on the significance of objectivity and evidence in the search for truth.²⁵ In 1920s and 1930s, social anthropologists such as Malinowski and Mead and those of Chicago school such as Park and Burgess adopted more focused approaches.²⁶ A Swiss psychiatrist named Enrique Pichon Riviere developed a mode of group intervention keeping psychoanalysis and social psychology as epistemological pillars.²⁷

From 1960s, this method has witnessed a continuous growth due to the evolution of grounded theory by Glaser and Strauss and studies done by Harold Garfinkel in *Ethnomethodology*.^{11,26} The journals *Qualitative Sociology* and *International Journal for Qualitative Studies in Education* were published in 1978 and in 1988, respectively. The most widely known books are Filstead's *Qualitative Methodology* (1970), Lofland's *Analysing Social Settings* (1971), Schatzman and Strauss's *Field Research* (1973), Bogdan and Taylor's *Introduction to Qualitative Research Methods* (1975), Spradley's *The Ethnographic Interview* (1979) and *Participant Observation* (1980), and Hammersley and Atkinson's *Ethnography* (1983).²³ Denzin and Lincoln published *Handbook of Qualitative Research* in 1994.²⁶ Significantly, the concepts and methods used in qualitative research was issued by WHO.²⁸ However, Banister et al. in 1994 edited the first, major, general textbook.²⁹

RESEARCH CYCLE

Qualitative research cycle consists of three interlinked cycles as follows:

Design Cycle

It consists of four tasks:

1. Research question formulation
2. Reviewing research literature and incorporating theory
3. Developing a conceptual framework
4. Selecting an appropriate fieldwork approach

Ethnographic Cycle

It describes the core tasks in data collection that are as follows:

- Research instrument designing
- Study subjects recruiting
- Data collection
- Making inductive inferences

Analytical Cycle

It comprises of tasks as given below:

- Codes developing
- Describing them and making comparison s
- Categorizing and conceptualizing the collected data
- Developing theories³⁰

METHODS AND TECHNIQUES

The types of data collection in qualitative research are in-depth interviews, focus group discussions, observation, and documentary analysis. Last two methods are less into practice.³¹ Selecting

a method of data collection should consider some issues like sensitivity of the subject matter, research issue, intensity of individual's perspective needed, and also practical issues like ease of access.²⁵

Qualitative In-depth Interviews

An in-depth interview is a one-to-one approach of collecting data. This involves an interviewer and an interviewee who discuss a particular topic in depth. A semi-structured interview guide is used, which helps the interviewer gain insights into the issue. When conducted well, it feels like a conversation for the interviewee. It is however not a two way dialogue as only interviewee shares their story and the interviewer's role is to elicit the story. These are also described as meaning-making partnership and knowledge-producing conversations. The deep aspect of this approach is imperative as it reinforces the purpose of attaining a detailed insight into the issues being addressed from the perspective of the study of participants themselves.

In short, in-depth interviewing includes the following:

- Use of a semi-structured interview guide
- Building and maintaining a rapport with the interviewee
- Prompting open ended questions
- Motivating the interviewee to open up by probing³⁰

Focus Group Discussion

The name of this method highlights the key characteristics: a focus on specific issues with a predetermined group of people and conducting an interactive discussion.³⁰ The definition goes as "a group discussion on a given topic organized for research purposes, which is guided, monitored and recorded by the researcher".^{31,32} Interaction is a key to a successful focus group.³³

This method involves an interactive discussion among six to eight participants, who are pre-selected and led by an experienced moderator, who focuses on a certain set of topics. This method yields a wide range of opinions on the research issue within 60–90 minutes by creating an environment comfortable to the participants where they feel free to express their honest views.³⁰ The discussions are unstructured and start from a wider and general issue and move to definite and specific issues of the research plan. Here, the part of the researcher as a moderator is very essential.³¹

Observation

Observation involves systematic watching of study subjects to find out about their behavior and interactions with each other in their own natural settings. Here the researcher acts as a research instrument and engages in observing and talking to participants in everyday settings.³¹ It is defined "as the systematic description of events, behaviors, and artifacts in the social setting chosen for study".³⁴ Researchers attain precise information of social settings and events that influence people's behavior within their own socio-cultural background. Alternatively, the researcher may participate in the study group and experience the phenomena himself or only observe them par by remaining independent.³¹

Documentary Analysis

This approach uses documents that are either solicited for the research purposes (e.g., participants maintaining a diary for noting specifically for the research) or documents that already exist (e.g., books and magazines). This method has evolved to the use of websites in the present day.³⁵

Framing Research Questions and Sampling

A qualitative research project begins with the formulation of research questions. Research questions are not static. They change and are adapted and refined throughout the design cycle, while reviewing relevant literature, incorporating theory, and formulating a conceptual framework. While formulating research questions, the objectives of the study are simultaneously identified. The objectives identified also give an indication as to whether the researcher intends to conduct an exploratory study, descriptive study, or an explanatory study.

Qualitative designs are distinguished by their recursiveness and flexibility, often weaving back and forth between research questions, data collection, and data analysis. In this fashion, the researcher may reformulate his research questions based on new findings, may seek new samples from respondents, or may pose new questions to existing study participants. Similarly, data analyses can precipitate the collection of additional data. Well-constructed and focused questions are generally the result of an interactive design process.

A non-random purposive sampling technique is employed and participants are recruited till the saturation of data is achieved. Then, in-depth or focus group discussion methods continue with the hierarchy of a moderator, a dominant, and a note taker, accordingly. The approach goes from what and why to smoothly transiting how and ends with closing questions.

References are made according to the data collected. Verbatim transcripts are prepared, and data are translated with retaining original colloquial languages of participants. The data are kept close to what participants say and these are called markers. A concept indicator model is created and the group of ideas are the units in each category in this model. The theory is developed, written, and published.³⁶

LIMITATIONS

- The quality of the data gathered in qualitative research is highly subjective.
- Data rigidity is more difficult to assess and demonstrate.
- Mining data gathered by qualitative research can be time consuming.
- Qualitative research creates findings that are valuable, but often difficult to present.
- Data created through qualitative research is not always accepted because its subjective nature and a second independent qualitative research with similar findings is often necessary.
- Researcher influence can have a negative effect on the collected data.
- Replicating results can be very difficult with qualitative research.
- Difficult decisions may require repetitive qualitative research periods.
- Unseen data can disappear during the qualitative research process.
- Qualitative research is not statistically representative.³⁷

DIFFERENCES IN QUALITATIVE AND QUANTITATIVE RESEARCH

Qualitative research relies on verbal narrative like spoken or written data, while the quantitative research uses logical or statistical observations to draw conclusions. Table 1 shows differences between qualitative and quantitative research on different basis of comparison.³⁸

Table 1: Differences between qualitative and quantitative research

<i>Difference</i>	<i>Qualitative</i>	<i>Quantitative</i>
Meaning	A method of inquiry that develops understanding on human and social sciences, to find the way people think and feel	A method that is used to generate numerical data and hard facts, by employing statistical, logical, and mathematical techniques
Nature	Holistic	Particularistic
Approach	Subjective	Objective
Research type	Exploratory	Conclusive
Reasoning	Inductive	Deductive
Sampling	Purposive	Random
Data	Verbal	Measurable
Inquiry	Process-oriented	Result-oriented
Hypothesis	Generated	Tested
Elements of analysis	Words, pictures, and objects	Numerical data
Objective	To explore and discover ideas used in the ongoing processes	To examine cause and effect relationship between variables
Methods	Non-structured techniques like in-depth interviews, group discussions, etc.	Structured techniques such as surveys, questionnaires, and examinations
Result	Develops initial understanding	Recommends final course of action

MIXED METHODS

Mixed methods research involves analyzing data of both quantitative as well as qualitative data. It integrates data from these two forms in distinct designs built on philosophical assumptions and theoretical frameworks. A complete and thorough understanding of an issue is furnished by combining both the approaches than either one alone.³⁹ Journal of Mixed Methods in 2006 defined mixed methods as “research in which the investigator collects, analyses, mixes, and draws inferences from both quantitative and qualitative data in a single study or a program of inquiry”.⁴⁰

Types of Mixed Methods³⁹

Creswell and Plano Clark identified several classification systems. The three basic mixed methods designs are as follows:

1. Convergent parallel mixed methods design

In this approach, both quantitative and qualitative data are collected and analyzed separately. The results are then compared to see if the separate findings from two approaches complement each other or not.

2. Explanatory sequential mixed methods design

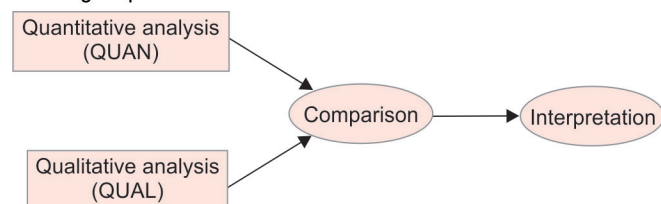
This is a two-phase project where the quantitative data are collected in the first phase and analyzed. The results are used to plan the second phase, i.e., the qualitative phase.

3. Exploratory sequential mixed methods design:

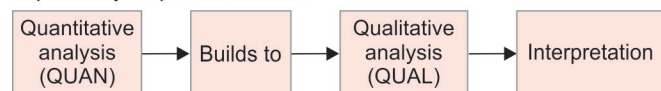
This is the reverse of explanatory sequential approach, which starts with a qualitative phase first followed by a quantitative phase. In this qualitative data are first explored and analyzed. These results are then used to build a second quantitative phase (Flowchart 1).

Flowchart 1: Different types of mixed methods designs (adapted from the book: research design: qualitative, quantitative, and mixed methods approaches by Creswell)³⁹

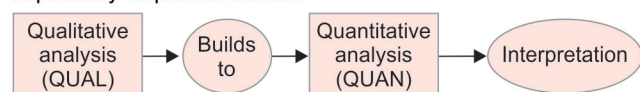
Convergent parallel method:



Explanatory sequential method:



Exploratory sequential method:



IMPLICATIONS FOR PUBLIC HEALTH DENTISTRY^{40–46}

The relevance of use of qualitative methods in public health lies in the reason that they are desired methods for researching on new issues in health research.⁴³ The field of dental research is a systematic approach of diagnosing, analyzing, and reporting the unusual clinical findings that are faced in everyday clinical practice. Current issues in dentistry include a focus on a patient's wishes for outcomes and a dentist's role in that process raise questions that can be addressed by qualitative methods of study.⁴⁴ This aspect demands a scientific approach that can consistently reflect the appropriateness of the questions demanded and the means to address them in health practice and policies.⁴³ Previously issues like patient's phobia towards dental appointments and perceptions and choices of dental students towards their professional career were addressed using this method of inquiry.^{45,46}

Qualitative research methods promise to be an efficient way and are already in use by researchers to address those subjects vital for current etiological research. They have proved to analyze an in-depth meaning of events and pressures and present adequate ways to seek and reconstruct such events. Qualitative research is useful to propose the patient's perception in healthcare research by leading a lay man as an expert in his own life.⁴³

Qualitative research can challenge the patterns of assumptions in dental public health practice.⁴⁴ Due to the uniqueness of the data compiling methods, this approach has special preference for its usage in completely new or scarcely studied research topics. Qualitative research can generate newer insights that are not yet available instead of testing hypotheses and associations that are formerly familiar. By laying emphasis on the internal perspective, investigators portray the sufferer of a disability as a potentially capable individual who would heal the illness not depending on any professional help, at least partially. Subsequent to this way of understanding, attention should be given to the services of health care systems in evaluating symptoms and building diagnosis in caring for the ill person and organizing self-help groups by giving practical and emotional supports.⁴¹

Qualitative research may be helpful to widen the evidence background for dental public health practice because it lets researchers to address essential research issues which would otherwise be tough to answer completely using quantitative methods alone. One of the most valued contributions of this type of research to dental public health is that it enables an issue or condition to be analyzed and understood in a new way.⁴⁴

Qualitative methods should not be understood as an alternative approach in public health inquiry. Instead, they can be crucial additions to the quantitative 'mainstream' by helping answer questions that are necessary for the development of the field. Further advancement in health research seems to be possible only by combining interdisciplinary efforts of methods approaching and integrating a diversity of issues.

Research approaches should positively solve subtle and complex issues. At present, it might seem to be a step ahead if qualitative methodology was said to be a standard approach in public health, but there was a long tradition of this research in social sciences, which is again showing a revival in health research including other disciplines. There are many more problems to be addressed to make this methodology standard by turning it as an easily applicable research tool.

Latest research questions need appropriate tools to solve them and questions that cannot be addressed with routine methods are eventually ignored or considered irrelevant. When legitimate scientific techniques are applied, such questions are solved, giving way to a scientific progress. Thus, rethinking on this technique of inquiry can be a way for innovation in public health, both in theory and practice.⁴¹

CONCLUSION

Qualitative research methods are being commonly used in multiple fields of healthcare research as they interpret and explore a deeper understanding of some particular aspects related human beliefs, perspectives, and behaviors obtained as a result of various previous personal experiences. The future scope of qualitative research in this field is immense; however, it continues to be under-utilized. Although few studies in the field of public health dentistry have used this sort of research approach to probe into a few sensitive issues such as workforce issues and attitudes of patients. Qualitative research to some extent complements quantitative research work as it explores complex phenomena and areas in which quantitative research alone may not be amenable to.

CLINICAL SIGNIFICANCE

Current issues in dentistry, which include a focus on patient's wishes for outcomes and a dentist's role in that process raises questions that can be addressed by the qualitative methods of study. Qualitative research methods promise to be an efficient way and are already in use by researchers to address those issues that are crucial for today's etiological research. Qualitative research to some extent complements quantitative research work as it explores complex phenomena and areas in which quantitative research alone may not be amenable to.

REFERENCES

1. Bogdan R, Biklen SK. Qualitative research for education. Boston: Allyn & Bacon; 1997.
2. Van Maanen J. Reclaiming qualitative methods for organizational research: a preface. *Adm Sci Q* 1979 Dec 1;24(4):520–526. DOI: 10.2307/2392358.

3. Atkins S, Lewin S, et al. Conducting a meta-ethnography of qualitative literature: lessons learnt. *BMC Med Res Methodol* 2008 Apr;8(1):21–31. DOI: 10.1186/1471-2288-8-21.
4. Ritchie J, Lewis J. *Qualitative Research Practice*. London: Sage Publications Ltd; 2003.
5. Mays N, Pope C. *Qualitative Research in Health Care*. London: Blackwell BMJ Books; 2006.
6. McMillan WJ. Finding a method to analyze qualitative data: using a study of conceptual learning. *J Dent Educ* 2009 Jan;73(1):53–64.
7. Neutens J, Rubinson L. Qualitative research. *Res Tech Health Sci* 2002;3:163–192.
8. Hoepfl M. Choosing qualitative research: a primer for technology education researchers. *J Technol Educ* 1997;9:1–16. DOI: 10.21061/jte.v9i1.a.4.
9. Medeiros M. Thinking about qualitative research. *Rev Eletr Enf* 2012 Jun;14(2):224–225.
10. Dunbar G. *Evaluating research methods in psychology: a case study approach*. USA: Blackwell Publishing; 2008.
11. Al-Busaidi ZQ. Qualitative research and its uses in health care. *Sultan Qaboos Univ Med J* 2008 Mar;8(1):11–19.
12. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol* 2008 Jul;8(1):45–55. DOI: 10.1186/1471-2288-8-45.
13. Green J, Britten N. Qualitative research and evidence based medicine. *BMJ* 1998 Apr;316(7139):1230–1240. DOI: 10.1136/bmj.316.7139.1230.
14. Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ* 1995 Jul;311(6996):42. DOI: 10.1136/bmj.311.6996.42.
15. Bourgeault I, Dingwall R, et al. *Handbook of qualitative methods in health research*. London: Sage; 2010.
16. Lichtman M. *Qualitative research for the social sciences*. London: Sage Publications; 2013.
17. Prasad P. *Crafting qualitative research: working in the post positivist traditions*. New York: ME Sharpe; 2005.
18. Hall A. Qualitative research and its role in nursing knowledge. *Nurs Times* 2006;102(20):32–35.
19. Flick U. *An introduction to qualitative research*. London: Sage; 2009.
20. Taylor SJ, Bogdan R, et al. *Introduction to qualitative research methods: a guidebook and resource*. John Wiley & Sons; 2015.
21. Ehigie BO, Ehigie RI. Applying qualitative methods in organizations: a note for industrial/organizational psychologists. *Qual Rep* 2005;10(3):621–638.
22. Guest G. *Public health research methods*. London: Sage Publications; 2014.
23. Belk RW. *Handbook of qualitative research methods in marketing*. USA: Edward Elgar Publishing; 2007.
24. Edwards R, Holland J. *What is qualitative interviewing?*. London: Bloomsbury Publishing; 2013.
25. Ritchie J, Lewis J, et al. *Qualitative research practice: a guide for social science students and researchers*. London: Sage; 2013.
26. Tesch R. *Qualitative research: analysis types and software*. Routledge; 2013.
27. Kinalski DD, Paula CC, et al. Focus group on qualitative research: experience report. *Rev Bras Enferm* 2017 Apr;70(2):424–429. DOI: 10.1590/0034-7167-2016-0091.
28. Denzin NK, Lincoln YS. *Handbook of qualitative research*. London: Sage; 2011.
29. Banister P, Burman E, et al. *Qualitative Methods in Psychology: A Research Guide*. Buckingham: Open University Press; 1994.
30. Hennink M, Hutter I, et al. *Qualitative research methods*. London: Sage; 2011.
31. George RP, Kruger E, et al. Qualitative research and dental public health. *Indian J Dent Res* 2012 Jan;23(1):92–96. DOI: 10.4103/0970-9290.99047.
32. Krueger RA. *Focus Group Kit*. London: Sage Publications; 1998.
33. Gill P, Stewart K, et al. Methods of data collection in qualitative research: interviews and focus groups. *Br Dent J* 2008 Mar;204(6):291–295. DOI: 10.1038/bdj.2008.192.
34. Kawulich BB. Participant observation as a data collection method. *Forum Qual Soc Res* 2005 May;6(2):43.
35. Babbie ER. *The basics of social research*, 6th ed. USA: Cengage Learning; 2014.
36. Hennink M, Hutter I, et al. *Qualitative research methods*. London: Sage; 2011.
37. Ayres C. (n.d.). Advantages and disadvantages of qualitative research. [Blog] Vittana.org. Available at: <https://vittana.org/23-advantages-and-disadvantages-of-qualitative-research>, accessed 28 Jan. 2019.
38. Surbhi S. Difference between qualitative and quantitative research. 2016, [Blog] keydifferences.com. Available at: <https://keydifferences.com/difference-between-qualitative-and-quantitative-research.html>, Accessed 28 Jan. 2019.
39. Creswell JW. *Research Design: Qualitative, quantitative, and mixed methods approaches*, 4th ed. London: Sage publications; 2014.
40. Cameron R. Mixed Methods Research: The Five Ps Framework. *Electronic Journal of Business Research Methods* 2011 Sep;9(2):96–108.
41. Faltermaier T. Why public health research needs qualitative approaches: subjects and methods in change. *Eur J Public Health* 1997 Dec;7(4):357–363. DOI: 10.1093/eurpub/7.4.357.
42. Santha B, Sudheer H, et al. Qualitative research in dental public health care: An overview. *Pharma Innov J* 2015;4(2):83–86. DOI: 10.7897/2277-4572.04220.
43. Pearlin LJ. Structure and meaning in medical sociology. *J Health Soc Behav* 1992;33:1–9. DOI: 10.2307/2136853.
44. Bower E, Scambler S. The contributions of qualitative research towards dental public health practice. *Community Dent Oral Epidemiol* 2007 Jun;35(3):161–169. DOI: 10.1111/j.1600-0528.2006.00368.x.
45. Abrahamsson KH, Berggren U, et al. Dental phobic patients' view of dental anxiety and experiences in dental care: a qualitative study. *Scand J Caring Sci* 2002 Jun;16(2):188–196. DOI: 10.1046/j.1471-6712.2002.00083.x.
46. Gallagher J, Clarke W, et al. Understanding the motivation: a qualitative study of dental students' choice of professional career. *Eur J Dent Educ* 2008 May;12(2):89–98. DOI: 10.1111/j.1600-0579.2008.00506.x.