

An overview of qualitative research methodology for public health researchers

Abstract

Qualitative research methodology enables researchers to explore social and behavioural issues related to public health that are not achievable with quantitative methods. Several complex public health issues can be better understood by exploration using qualitative methodologies. However, these methodologies are underutilized in public health research particularly in developing countries. This paper aims to introduce qualitative research to students and researchers in public health in developing countries and to encourage its use in research by presenting an overview of how to undertake a qualitative research study. Key aspects of this methodology include choosing and working within a theoretical framework, recruitment of participants, following the right process of data analysis, and presentation of findings for publication.

Key words: Qualitative research methodology, public health, developing countries

INTRODUCTION

Qualitative research is useful when the research focuses on complex issues such as human behavior and felt needs. The goal of qualitative research is therefore to help us understand social phenomena with the help of views and experiences of all the participants.^[1] While studies that ask the question “how many” or “how much” require a quantitative approach, qualitative studies usually ask the questions, “what”, “how” or “why” of a phenomenon.^[2] Creswell defines qualitative research rather succinctly. He states,

Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting.^[3]

Qualitative research is increasingly being accepted as a necessity in public health^[4] and is usually utilized in three circumstances: 1. To study the social, cultural, economic, and political factors that influence health and disease. 2. To examine interactions between various stakeholders in an issue of public health importance and 3. To explore how people and their communities interpret health and disease.^[5] For instance, a qualitative study on the beliefs of dengue prevention in a Mexican city showed that while health officials were concerned about reducing mosquito breeding sites, people living in areas of high mosquito density believed that they only needed to look after themselves when they got sick so that mild fevers could be prevented from getting worse.^[6] The authors of this study concluded that dengue prevention messages needed to be made clearer to the public in order to render preventive strategies more effective. Hence qualitative research methodologies enable researchers to unpack the socio-cultural determinants of health. Within the epidemiological triad of agent, host and environment, this methodology is useful to explain disease causation by exploring how the human host interacts with the agent and the environment. It also helps identify the reasons for the different ways of interaction. Disease prevention strategies generated out of good qualitative research tend to be more effective since they focus on the very core of unhealthy host behavior.

Although qualitative research has been contributing significantly to public health internationally, it is yet to receive its due in the field of public health in developing countries.^[7] This paper aims to introduce qualitative research to students and researchers in public health in developing countries

and to encourage its use in research. Of course, it is impossible to condense all of qualitative research methods into one journal article. Hence this paper only aims to provide a basic framework which novice researchers could use to undertake research that requires a qualitative methodology.

Key elements of qualitative health research

As with any research endeavour, the process commences with writing the research proposal which is a plan or formula that researchers will follow in undertaking the study. Qualitative research proposals are different from quantitative proposals in several ways. They include the writing of the literature review, the need for a theoretical framework, and how data will be collected and analyzed.

The background and literature review

Qualitative research articles traditionally have a detailed literature review. The review establishes the importance of the topic and provides background information needed to understand the study. It also shows readers that the researchers are familiar with significant and up-to-date research relevant to the topic.^[8] The review includes not only previous work done in the area but also types of methodologies that have been used to undertake these studies. The review finally needs to state the motivation for the study and the context from which the researcher is approaching it. This is referred to as reflexivity and is an important component of rigor.^[9]

The theoretical framework

The next step in planning a qualitative methodology is to decide on a theoretical or conceptual framework. This can be very confusing for novice researchers because there are several theoretical approaches that can be used such as Phenomenology, Discourse Analysis, Grounded Theory and Ethnography.^[10,11] What adds to the confusion is that the various books and articles that describe theory in qualitative research are all different from each other.^[12] Since qualitative research has its origins in the Social Sciences, students of these disciplines will be more familiar with the different theories that have been developed. So what is theory? In simple terms, theory is the lens that a researcher uses to look at an issue.

For example, consider the mental health problems faced by rural women. Some researchers will be more interested in identifying the different types of clinical disorders encountered in rural women. Others might want to study the possible risk factors as well as identify those who are the most at risk. Still others might be interested in women's views of, or behavior related to mental health problems. In attempting to study women's views and behaviors some researchers (using the theory of ethnography) might choose to stay in the village, observe their culture and traditions and how that interacts with their illness. Whereas, phenomenologists will want to hear from the women what it means to have a mental disorder or how the illness has impacted upon their lives.

Both ethnographers and phenomenologists use different theories, ask fundamentally different questions, and use different methods to study the same issue. Their results though not similar are both

right. Therefore the theory one chooses determines the issues that one will give priority to study, the direction that one will consider to be most profitable to find answers and the kind of data that one decides to collect.^[13] It is not possible to study everything while undertaking qualitative research. Hence, theory shapes the sort of things that the researcher is interested in and informs the methods and techniques needed to carry out the research.^[14]

Despite the importance of following a theoretical framework in qualitative research, it is not uncommon for qualitative reports in public health to not specify the theoretical framework that the study is built on. Rather they only list the number of focus groups or in-depth interviews that were conducted.^[15] It is suggested that health researchers who do not specifically state the theoretical framework that their work is underpinned by, could unwittingly be using Qualitative Description (QD) as their framework.^[16,17] QD is a relatively recent method of naturalistic inquiry which aims to "present a rich, straight description of an experience or an event."^[18] In QD studies, participants are asked to describe events in their own words and to suggest ways of improving outcomes or changing behaviours.^[19]

Unlike in other qualitative designs such as phenomenology, ethnography and grounded theory, where the researcher interprets the said word within a context, in QD, the researcher stays close to the data. The QD design is typically valuable in answering questions such as "What reasons do people have for using or not using a service or procedure? Who uses a service and when do they use it?"^[16] The design therefore presents rich information that may be grounded in cultural and environmental contexts. This makes research using this approach understandable not only to those experiencing health disparities but also to clinicians and administrators who are responsible for reducing those disparities. Although QD lacks a strong theoretical basis and is underpinned by the work of others in the field, its findings can pave the way for future theory-based research.^[18]

The Sampling strategy

Once the theoretical framework is decided, the next step is to decide the sampling strategy. The type of sampling typically used in qualitative research is systematic, non-probability sampling. This type of sampling is not meant to select a random or representative sample from a population. Rather, it identifies specific groups of people who either possess characteristics or live in circumstances that relate to the social phenomenon being studied.^[20] Qualitative sampling is therefore purposeful. Its purpose is to select information rich cases to study in-depth.^[14]

Depending on the purpose of the study, the researcher can choose from many strategies. In extreme or deviant sampling for instance, the researcher might choose to interview patients and staff of a popular health service as well as those from a service with poor attendance in order to highlight factors that affect service utilisation. Maximum variation sampling is used when the purpose is to obtain as many different views and opinions on the phenomenon being

studied. For example, when studying felt needs of a rural community, it might be necessary to interview individuals who are likely to have different needs rather than choosing only housewives because they are the most convenient to recruit.^[21]

Homogenous (group) sampling is the process of choosing individuals who share similar characteristics of the phenomenon being studied and is utilized when the aim is to study a phenomenon in more depth.^[21] This type of sampling is appropriate for example when studying the views of final year medical students on pursuing public health as a career. Snowball or chain sampling is utilized when researching hard to reach populations such as drug users or homeless people. In this type of sampling, an initial respondent is asked to suggest other people who might be interested in participating in the research. Thus as the research progresses, the number of participants keeps increasing like a snowball grows bigger as it rolls in the snow.^[21] Finally there is convenient sampling where the researcher simply chooses participants according to convenience. This is the easiest method of sampling and is the most undesirable^[22] because it can easily lead to biases and fails to theorize the sample.^[14] There are other types of sampling such as theoretical sampling, opportunistic sampling, criterion sampling, typical case sampling and critical case sampling.^[14] However, these are not commonly used in public health research.

The sample size

An appropriate sample size for a qualitative study is one that answers the research question. There is no set formula or criteria to calculate the sample size in qualitative research.^[23] Some authors believe that as a rule of thumb, 12-26 people might seem right.^[24] However, most researchers start with a minimum sample based on the purpose of the study, expected coverage and interests of the researcher.^[23] In public health, it is conventional to commence the research with a sample size based on the above considerations. During the course of data collection, when little new information comes out of interviews or focus groups, the researcher can consider to have achieved saturation of data. Occasionally, it might be necessary to expand on the original sample. However, this decision can be taken only during the course of data collection.

Participant recruitment

Prior to undertaking research within communities, it is customary to discuss the study with both formal and non-formal community leaders. This process generates trust for the researcher and support for the work. It also gives the researcher an opportunity to ensure that no harm or embarrassment comes to the community as a result of the research.

The method of participant recruitment is primarily an ethical issue. Pre-existing relationships between participants and researchers might compromise the voluntary nature of participants' responses. Furthermore unequal relations that exist for example between lecturers and students, doctors and patients, other service providers and the people who utilize the service could influence the authenticity of the data collected. In situations where there is

a possibility that participants might feel obliged to participate in a research study due to pre-existing relationships or a power imbalance, it might be necessary to invite an advocate of participants to help them decide whether or not to participate in the research without feeling any coercion.^[25] Explanatory statements can be read out or distributed by these advocates who can then pass on contact details of those who choose to participate in the research. Alternatively, once individuals chose to participate in the research, these advocates could introduce them to the researchers.

Data collection

Interviews and focus group discussions are the most common method of data collection in qualitative research. Interviews can be semi-structured or in-depth. In the former, the interviewer uses a list of broad open-ended questions to cover the core topics of inquiry often allowing the interviewee to digress to a certain degree in order to provide a context and perhaps a possible direction that might be important to the phenomenon being studied. For instance, a semi-structured schedule used to study help seeking for mental health problems might start with the question, "What do people here do when they have mental health problems?" In-depth interviews on the other hand usually focus on a much smaller topic, use fewer questions and seek very detailed descriptions. A question such as, "What do you feel about your illness?" might be the opening question in an in-depth interview to study the lived experience of a person with diabetes.

All qualitative researchers need to consider how they are perceived by interviewees. Differences in class, race and gender can significantly alter the way interviewees respond in an interview and that needs to be properly addressed by the researcher.^[26] The more comfortable a person is the more honest he or she is likely to be. Therefore, to get the best out of an interview, it is advisable to use a relaxed and conversational style of interviewing and to conduct it in an environment where both the interviewee and interviewer feel safe. Experienced interviewers will provide an atmosphere that encourages the interviewee to speak freely yet steering them seamlessly in the desired direction to obtain maximum value for the time spent.

The focus group discussion is not just the process of interviewing several people at once to save time. In a focus group, the researcher is able to examine issues more thoroughly by encouraging discussions between participants. When participants share anecdotes and points of view and comment on each other's experiences, it can help them to explore and clarify their views in ways that would be less easily accessible otherwise.^[27] Furthermore, everyday communication that includes jokes, teasing and arguing that can occur during a focus group discussion can give the researcher an insight into people's knowledge and attitudes that reasoned responses to questions may fail to do.^[27] Again, focus groups work best when all participants are comfortable with each other. Factors that affect interviews as discussed above are likely to affect focus groups as well particularly when differences in caste, class and gender occur between members of the group. Conducting focus group discussions on sensitive

topics has challenges of its own and could produce poor outcomes unless the discussion is facilitated by a peer who has the trust and confidence of the group. See Table 1 for a comparison of the advantages and limitations of focus groups and semi-structured interviews.

Data analysis

Interviews and focus groups are recorded using either an analogue or digital voice recorder. These recordings are then transcribed. Transcripts of interviews form the foundation on which the process of data analysis is built. Analysis is what researchers do to make sense of the data (in the form of transcripts) that they have collected. There are different approaches that researchers use in analysing qualitative data and this depends on the nature of the research question. The first step in qualitative data analysis is immersion in the data where the researcher reads and re-reads the interview transcripts and listens to the recordings in order to obtain a sense of what has been said.^[28] While reading through the data, researchers should consciously ask themselves what stands out or strikes them as being part of the answer to the study question. In order to remain focussed on the research question, the researchers will need to go back and forth between the data, the study aim and theoretical framework.

The next step in analysis is coding. In this step, while reading through the data, the researcher assigns codes to chunks of data. Codes are labels applied to segments of the transcript that describe them. At the start of the coding process, researchers might feel like they have too many codes. However, with more reading, two or more codes may be collapsed into one. This process can be quite laborious at first but becomes easier and more exciting over time. It is advisable for data

analysis to be undertaken by two or more researchers so that each individual's codes and their meanings can be discussed and clarified. In addition, it will add to the rigor of the study and thereby to the trustworthiness of the research. Additionally, including contrasting views and ideas helps to provide the reader with alternate opinions. Once all data has been coded, the researchers then group codes into tentative themes^[29] or categories.^[28] In order to do this, they look for connections between codes or if there is evidence that may suggest that data may be associated with more than one code. When analysing large volumes of data, researchers frequently utilize the assistance of computer software such as Coding Analysis Toolkit (open access), Atlas.ti and NVivo (Proprietary).

The final step in analysis is the process of linking the different categories to develop a logical explanation (or a theory) for the phenomenon being studied and linking it with the existing literature. In doing so, these categories or tentative themes might be renamed and defined to reflect key components of the phenomenon being studied. These renamed categories are referred to as themes and this analytic process is called thematic analysis.^[30] Furthermore, in demonstrating trustworthiness or rigor of the research, researchers employ a process called Triangulation wherein findings are substantiated by comparing data from different sources.^[31]

Providing feedback to the community

Once a study has been completed, researchers commonly shift their focus to presenting the findings at conferences or publishing them in scientific journals. As a result, there is little or no feedback of the research findings to the community. Research can be made most beneficial to the common person through proper feedback to the participants and the communities that they represent. I believe that

Table 1: Advantages and limitations of focus groups and one-to-one interviews

Method of data collection	Advantages	limitations
Focus groups	<p>Useful when the researcher is looking for a range of opinions and understanding in a community in order to improve a health service^[14]</p> <p>Provides insights into complex thoughts and behaviours of people as they compare and contrast their experiences and views^[41]</p> <p>Group interaction could encourage participants who might otherwise say little^[14,27]</p> <p>Unintentional mistakes can be corrected by others in the group^[14]</p> <p>Can provide an in-depth understanding of how and why people have different views, the strength of their attitudes and the factors that influence them^[42]</p> <p>Sensitive to cultural issues^[27] and useful when collecting information from marginalized groups such as ethnic minorities, commercial sex workers and children.^[14]</p>	<p>Difficult to conduct unless there are already established informal groups such as those in college or women's and men's groups</p> <p>Hard to conduct when group members are not familiar with each other.</p> <p>Group opinions may silence an individual's need to express dissent.^[27]</p> <p>Confidentiality may be compromised with the presence of others in the group^[27]</p> <p>Emergence of group opinions rather than individual opinions which may be more complex and different. More assertive personalities in the group can push their opinions to the fore.</p> <p>Analysis is complex and involves three layers: Individual, group and group interaction^[43]</p>
One-to-one interviews	<p>Provide more detail about an individual's understandings and experiences than can be gained through focus groups^[1]</p> <p>Good way of discovering subjective meanings and interpretations of people's experiences^[44]</p> <p>Participants may be more prepared to share sensitive and personal information in private^[1]</p>	<p>Consumes a lot of time and energy</p> <p>Need for several interviews to obtain useful data in public health research.</p> <p>Difficult to do well. Depends largely on the sensitivity and persistence of the interviewer as well as on the interpersonal interaction^[14]</p>

the community which has participated in a research endeavour has a right to know what the findings were. In many cases communities do not feel empowered enough to exercise their right to access this newly acquired knowledge that they themselves had provided. It is therefore the responsibility of the researchers to ensure that the findings are easily accessible to the community. This can be done either by presenting the findings at a community gathering or by conducting health education programmes or by distributing pamphlets on the lessons learnt.^[32] Ideally a public health research endeavour should not end until the findings of the study have been used to improve the health and circumstance of the common person. After all, “the ultimate goal of qualitative research is to transform data into information that can be used.”^[33]

Presenting qualitative research

As with all research articles, it is the responsibility of the researcher to guide the reader through the paper, to give reasons for decisions taken at every stage of the study and lead the reader to the conclusions that were made.^[34] A major difference between the presentation of qualitative and quantitative research lies in the results section. While the focus of the results section of quantitative studies is numbers, in qualitative research papers, the results section is built on words. The phenomenon being studied is explained by themes which are substantiated by participants’ quotations. These quotations are classically embedded within the text^[35] or can be presented in a table.^[36,37] Whichever way it is presented, the qualitative researcher’s goal is to identify public issues and solutions from private problems.^[38] Therefore it is imperative to state the extent to which the findings are transferable.^[39]

A major reason for rejection of qualitative research papers by journals is the apparent lack of rigour and clarity in the way it is presented. A detailed checklist called the Consolidated Criteria for Reporting Qualitative Research (COREQ) is considered the standard for qualitative research reporting and is freely available online.^[40] Researchers are urged to familiarize themselves with these requirements before submitting their research for publication.

CONCLUSION

This paper briefly describes how to undertake qualitative research. It is by no means a comprehensive guide on the topic but rather an overview that aims to cultivate an interest among student and novice researchers of public health in the subject. It is hoped that in the course of time, students of public health will be armed with the necessary tools to answer all if not most of the questions that arise during the practice of the different aspects of public health.

REFERENCES

1. Pope C, Mays N. Reaching the parts other methods cannot reach: An introduction to qualitative methods in health and health services research. *Br Med J* 1995;311:42-5.
2. Green J, Thorogood N. *Qualitative Methods for Health Research*. London: Sage Publications; 2004.
3. Creswell JW. *Qualitative inquiry and research design; Choosing among five traditions*. California: Sage publications; 1998.
4. Faltermaier T. Why Public Health research needs qualitative approaches. *Subjects and methods in change. Eur J Public Health* 1997;7:357-63.
5. Baum F. Researching Public Health: Behind the qualitative-quantitative methodological debate. *Soc Sci Med* 1995;40:459-68.
6. Winch P, Lloyd L, Godas MD, Kendall C. Beliefs about the prevention of dengue and other febrile illnesses in Merida, Mexico. *J Trop Med Hyg* 1991;94:377-87.
7. Isaacs AN. Strengthening Research in Community Medicine. *Indian J Community Med* 2007;32:239-40.
8. CALT Learning support. Writing literature reviews Clayton Monash University; 2007. Available from: <http://www.monash.edu.au/lis/llonline/writing/general/lit-reviews/index.xml>. [Last cited in 2012 Aug 31].
9. Kitto SC, Chesters J, Grbich C. Quality in qualitative research. Criteria for authors and assessors in the submission and assessment of qualitative research articles for the Medical Journal of Australia. *Med J Aust* 2008;188:243-6.
10. Starks H, Trinidad SB. Choose your method: A comparison of Phenomenology, Discourse Analysis, and Grounded Theory. *Qual Health Res* 2007;17:1372-80.
11. Broussard L. Understanding qualitative research: A school nurse perspective. *J Sch Nurs* 2006;22:212-8.
12. Hansen E. *Successful Qualitative Health Research. A practical introduction*. Crows Nest, New South Wales: Allen & Unwin; 2006.
13. McElroy A, Townsend PK. *Medical anthropology in ecological perspective*. 3rd ed. South Yarra, Melbourne, Australia: Macmillan; 1999.
14. Liamputtong P, Ezzy D. *Qualitative Research Methods*. Melbourne: Oxford University Press; 2005.
15. Wood L, France K, Hunt K, Eades S, Slack-Smith L. Indigenous women and smoking during pregnancy: Knowledge, cultural contexts and barriers to cessation. *Soc Sci Med* 2008;66:2378-89.
16. Sandelowski M. Whatever happened to Qualitative Description? *Res Nurs Health* 2000;23:334-40.
17. Sandelowski M. What’s in a name? Qualitative Description Revisited. *Res Nurs Health* 2010;33:77-84.
18. Neergaard MA, Olesen F, Andersen RS, Sondergaard J. Qualitative description: The poor cousin of health research? *BMC Med Res Methodol* 2010;9:52.
19. Sullivan-Bolyai S, Bova C, Harper D. Developing and refining interventions in persons with health disparities: The use of Qualitative Description. *Nurs Outlook* 2005;53:127-33.
20. Mays N, Pope C. Qualitative Research: Rigour and qualitative research. *BMJ* 1995;311:109-12.
21. Ulin PR, Robinson ET, Tolley EE. *Qualitative Methods in Public Health: A Field Guide for Applied Research*. San Francisco: John Wiley & Sons; 2004.
22. Patton MQ. *Qualitative Research and Evaluation Methods*. London: Sage Publications; 2002.
23. Patton M. *Qualitative evaluation and Research methods*. London: Sage publications; 1990.
24. Luborsky MR, Rubinstein RL. Sampling in Qualitative Research: Rationale, Issues, and Methods. *Res Aging* 1995;17:89-113.
25. National Health and Medical Research Council, Australian Research Council, Australian Vice-Chancellors’ Committee. *National Statement on Ethical Conduct in Human Research*. Canberra, ACT: 2007.
26. Britten N. Qualitative Research: Qualitative interviews in medical research. *BMJ* 1995;311:251-3.
27. Kitzinger J. Introducing Focus Groups. *BMJ* 1995;311:299-302.
28. Green J, Willis K, Hughes E, Small R, Welch N, Gibbs L, *et al*. Generating best evidence from qualitative research: The role of data analysis. *Aust N Z J Public Health* 2007;31:545-50.
29. Braun V, Clarke V. Using thematic analysis in Psychology. *Qual Res Psychol* 2006;3:77-101.
30. Liamputtong P. Qualitative data analysis: Conceptual and practical considerations. *Health Promot J Austr* 2009;20:133-9.
31. Creswell JW, Miller DL. Determining validity in qualitative inquiry. *Theory Pract* 2000;39:124-30.

32. Smith LT. *Decolonizing Methodologies, Research and Indigenous Peoples*. 1 ed. London, New York, Dunedin: Zed Books, University of Otago Press; 1999.
33. Rossman GB, Rallis FR. *Learning in the field: An introduction to qualitative research*. Thousand Oaks, CA: Sage publications; 1998.
34. Blignault I, Ritchie J. Revealing the wood and the trees: Reporting qualitative research. *Health Promot J Austr* 2009;20:140-5.
35. Bjerrum S, Rose MV, Bygbjerg IC, Mfinanga SG, Tersboel BP, Ravn P. Primary health care staff's perceptions of childhood tuberculosis: A qualitative study from Tanzania. *BMC Health Serv Res* 2012;12:6.
36. Shahid S, Finn LD, Thompson SC. Barriers to participation of Aboriginal people in cancer care: Communication in the hospital setting. *Med J Aust* 2009;190:574-9.
37. Isaacs AN, Maybery D, Gruis H. Mental health services for Aboriginal men: Mismatches and solutions. *Int J Ment Health Nurs* 2012;21400-8.
38. Richardson L. *Writing Strategies: Reaching diverse audiences*. Newbury park, CA: Sage; 1990.
39. Malterud K. Qualitative research: Standards, challenges, and guidelines. *Lancet* 2001;358:483-8.
40. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349-57.
41. Morgan DL, Krueger RA. When to Use Focus Groups and Why? In: Morgan DL, editor. *Successful focus groups: Advancing the state of the art*. Newbury Park CA: Sage Publications; 1993.
42. Willis K, Green J, Daly J, Williamson L, Bandyopadhyay M. Perils and possibilities: Achieving best evidence from focus groups in public health research. *Aust N Z J Public Health* 2009;33:131-6.
43. Duggleby W. What about focus group interaction data? *Qual Health Res* 2005;15:832-40.
44. Denzin NK. *Interpretive Biography*. Newbury Park, CA: Sage Publications; 1989.