4.12 Qualitative Research

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4.12.1 Learning objectives

To understand key factors to consider when developing a qualitative study for health emergency and disaster risk management (Health EDRM) research, including:

1. The epistemological foundations of qualitative research commonly used in disaster research.
2. Common qualitative research methodologies used extensively in disaster research.
3. Different methods used in qualitative data collection.
4. The power of participatory, performatory and arts-based research methods in disaster risk reduction (DRR).
5. Common issues and challenges for qualitative research in a disaster context.

4.12.2 Introduction

This chapter presents an overview of qualitative research methodologies that are commonly used in the study of disasters and relevant to Health EDRM. It highlights different types of qualitative methods and the challenges associated with each type, and explains how qualitative designs can be used to round out the evidence base and fill knowledge gaps. The chapter focuses on the epistemological foundations of the qualitative research methodologies commonly used in disaster research; information on other factors influencing qualitative research is available elsewhere (for example, see Chapter 3.4 and Philips *(1)* on ethical issues in disaster research, Emmel *(2)* on sampling, Saldaña *(3)* on data coding and Curtis and Curtis *(4)* on analysis).

Although disaster research has typically focused on quantitative methods – particularly modelling and survey designs *(5)* – qualitative methods have a

long history of use within disaster research *(1)* and are able to provide different types of evidence. Despite this, qualitative approaches are increasingly marginalized in discussions of evidence-informed practice or DRR policy development, in comparison to the greater attention given to indicators, tools, measurements, computer simulations and technological solutions in discussions of evidence-informed practice or disaster risk reduction (DRR) policy development *(6–7)*. However, the unpredictability of disaster contexts, combined with the need to capture time-sensitive information, means that qualitative research is often more practicable than quantitative study designs *(1, 8)*.

4.12.3 What is qualitative research?

The approaches to qualitative research introduced in this chapter are primarily concerned with 'the exploration of lived experience and participant-defined meanings' *(9)*. This version of qualitative research looks at the world from a naturalistic and interpretive perspective, situating the researcher in the world they are exploring *(1, 10)*. Qualitative research includes primary and secondary data collection and analysis. Primary data is collected face-to-face by the researcher through asking people about their interpretations, understandings, and lived experiences of a particular topic or event. Secondary qualitative data collection involves an exploration of pre-existing sources of information such as websites, publications or media reports *(11)*. Depending on the type of research question, the data generated through qualitative research designs may include participant narratives and field notes from observations, as well as photos, videos or documents. As described by Denzin and Lincoln, qualitative research practices "turn the world into a series of representations, conversations, photographs, recordings, and memos to the self" *(10*, p.3). Qualitative research can help inform and guide evidence-based practice in public health *(12)* and DRR *(13)*.

Rather than focusing on numbers *(14)*, qualitative researchers focus on the qualities of the topic being explored. When a research question seeks to answer 'what?' or 'how?' *(1, 9)*, qualitative research is typically the best strategy *(15)*. Qualitative research contributes by exploring people's meanings, perspectives and experiences, studying how things and systems work, understanding context and unanticipated consequences, as well as discovering important patterns and themes across cases *(16)*. According to Creswell *(15)*, the strengths of qualitative research include:

- Reporting results in the voices of participants
- Placing research in its natural setting to include important contextual factors
- Smaller sample sizes allow greater depth of findings
- Emerging, exploratory and open-ended design allows flexibility in design for different populations
- Good design for marginalized populations
- A starting point when little is known about a topic
- Allowing multiple perspectives on a phenomenon

- Allowing study of sensitive topics
- Allowing for a complex understanding of a phenomenon using inductive and deductive reasoning.

4.12.4 Differences between qualitative and quantitative research

The dominant discourse around research has traditionally been focused on objective measurement, large representative samples and validity; these concepts are embedded in quantitative research designs *(17–18)*. Quantitative research describes social phenomena by using the breadth of data to facilitate broad and valid generalizations about populations *(15)*. In contrast, qualitative research aims to develop understanding of social phenomena through exploring, describing, troubling or explaining them. Qualitative research is based on an interpretivist (as opposed to a positivist) paradigm *(19–20)*. Qualitative approaches focus on in-depth analysis of data, the findings of which highlight the underpinning factors that explain the social world. Although qualitative designs can in some cases complement quantitative methods, as is it the case in mixed methods studies (Chapter 4.13), in general, qualitative methods generate different types of data, which enable researchers to answer different types of questions that quantitative designs are not suitable for *(20–21).*

Qualitative and quantitative forms of research correspond respectively to inductive and deductive approaches to inquiry. Inductive research, which is favoured in qualitative research, is a 'bottom-up' approach that involves reaching a conclusion based on observation and analysis of data gathered in the field. Inductive research builds theories based upon data collected in the process of doing research *(22)*. Deductive research, which is favoured in quantitative research, is a 'top-down' approach to theory and research that means finding a solution to a problem based upon evidence *(22)*. Deductive research tests theories which are developed through what is known in the existing literature and validated or troubled through the process of doing research *(4)*. It is common for researchers to use both inductive field-based theories and deductive literature-based theories in the analysis of qualitative research.

Table 4.12.1 summarizes common differences between qualitative and quantitative research methods. This list is adapted from and combines lists presented by Creswell *(15, p.15)* and Denzin and Lincoln *(10),* who have summarized the differences to help researchers decide which approach to use.

Table 4.12.1 Common differences between qualitative and quantitative research (adapted from *(10)* and *(15)*)

	Qualitative Research	Quantitative Research
Purpose	Understand and explore behaviour, opinions, experiences from participants' perspectives	Describe social phenomena; Discover facts
Design	Emerging and flexible	Standard and fixed
Paradigm	Multiple interpretations of reality exist (subjective)	Reality is fixed (objective)
Setting	Naturalistic (contextual)	Controlled (empirical)
Sample size	Small	Large
Data Collection	Open-ended Observation, interviews, focus groups, narratives, document analysis, artifacts	Closed-ended Objective measurements Questionnaires and surveys
Data analysis	Inductive Themes, text, images	Deductive Numerical comparisons and statistical inferences
Biases	Acknowledged and assumed to influence findings	Reduced or eliminated
Standards for Quality	Dependability, Credibility and Authenticity, Auditability, Transferability, Confirmability	Internal Validity, External Validity, Reliability, Objectivity

4.12.5 Assumptions in qualitative research

A key point to remember is that qualitative research and quantitative research are based on different assumptions. Much of the debate about the differences between the two approaches concerns paradigms, which are sets of beliefs or worldviews *(23)*. In quantitative research, it is assumed that bias must be reduced and eliminated (Chapter 4.1). In qualitative research, bias is acknowledged and assumed to influence the interpretation of the findings. When reports of qualitative studies are peer reviewed, it is not uncommon for critiques from inexperienced reviewers to include the need to eliminate bias. However, bias is inherent in any research project and is part of the underlying assumption in qualitative designs *(17)*. It is important when reading reports of qualitative studies to understand this underlying assumption and focus on how rigour is managed in the study.

Methods for enhancing rigour in qualitative research are built into the study design in order to ensure interpretations are accurate representations of the data generated. Although researchers have identified as many as 60 ways to think about research *(22)*, this section focuses on five worldviews that frequently inform qualitative disaster research: social constructionism (*24*), post-positivism, advocacy or participatory approaches, and pragmatism *(23)* as well as the importance of reflexivity in research *(25)*.

Post-positivism is based on the assumption that findings cannot be proven beyond doubt, but that confidence is improved through robust measures of reliability and validity. Researchers should remain neutral and reduce bias through attempting to both verify and falsify their hypotheses (*26)*. Post-positive approaches are suited to research that attempts to predict how people will act in a given situation.

Social constructionism recognizes that knowledge is not disinterested or apolitical, and that understandings and meanings are constructed and sustained through social interaction. Multiple realities co-exist, foreclosing the notion that there is one universal truth *(26)*. Social constructionism is particularly useful in the study of identity as well as of experience. In contrast, social constructivism has many similarities with social constructionism, but tends to focus on how individuals learn through social interaction within their peer group. As an example, research knowledge in this view is co-created by researcher and participant *(10)*. An example of the social constructivism approach may be found in the '7 Up' documentary series *(27)*.

The advocacy or participatory approach recognizes that lay people have their own knowledge systems and are able to act and solve local problems. Participatory research is community based, empowering and transformative *(28).* Participatory research is particularly useful when working with communities or marginalized groups.

Pragmatism is the belief that the meaning of actions and beliefs are found in their consequences. Actions are situational, depend on shared sets of beliefs, and linked to consequences that are subject to change based on new experiences. Pragmatism, for example, is implicated in the choice of research method as assumptions are made about the research outcomes that may result from each method. Pragmatic inquiry is particularly suited to research in the area of decision making as well as in relation to novel events *(21).*

In qualitative research, reflexivity involves 'understanding the role of self in the creation of knowledge' *(25*, p. 220) through attention to how the situated knowledge of the researcher impacts on their research (for example, their choice of research design, disciplinary background, beliefs, personal experiences and demographic characteristics) *(25, 29)*. It is therefore important to be transparent with the reader about the researcher's worldview because it will have practical implications for the study, including theoretical frameworks, methodologies, and methods *(23)*.

4.12.6 Subjects versus participants

In qualitative studies, people who contribute to the research by being interviewed or completing arts-based activities as part of data generation are referred to as participants or co-researchers, rather than subjects. This discourse is reflective of a paradigm where research is not done 'on' subjects, but 'with' people. In many participatory methods, there are strong relationships between the researchers and participants or community organizations. These relationships and projects can span many years, and there is joint ownership and direction of the projects. In a disaster context, this point is extremely important given the nature of projects where citizens and communities may be in vulnerable settings following a disaster. The term 'participants' conveys voluntary engagement in the research and reflects the relationships in partner-based projects.

4.12.7 Five common approaches to qualitative research

Reports of qualitative research should provide a detailed description of the approach, reference seminal authors and justify why the approach was chosen and how the approach informs the procedures of the study (for example, interview type, focus group, observation and so on *(30)*). Outlined below are five common research methodologies used in qualitative research, as described by Creswell *(30)* – narrative research, phenomenology, grounded theory, ethnography and the case study. Also included are a brief description of ethnomethodology and a case study that highlights its application in New Zealand, in order to illustrate the potential of this approach for disaster research.

Narrative research

Narrative research explores people's experiences, as told in the form of stories from one or more individuals of interest *(30)*. Ideally, this leads to an exploration of an individual's life, their identity and how they situate themselves in the world. Storytelling, giving an account of events or actions, predominantly uses interviews and documents to collect the data, but can also rely on observation, use of pictures and group conversations as data collection methods. Several strategies for data analysis can be chosen, depending on the purpose of the research, including thematic analysis, structural analysis and dialogic/performance analysis. It is common for researchers to 're-story' or reconstruct a story told by a participant, so that the report presents the story chronologically, highlighting 'turning points', and important contextual information. With this restructuring, the researcher is often seen as a collaborator in the storytelling process and thus requires much reflexivity on the part of the researcher to reflect on their own assumptions and experiences and how that might affect the way they re-story the data. An additional challenge to this type of research is the amount of data collection that must occur to capture a full and clear picture of the context surrounding the story.

Phenomenology

The purpose of phenomenology is to understand the universal 'essence' of the experience of a phenomenon *(30)*. This approach differs markedly from narrative research as phenomenology goes beyond the individual experience to describe the common meaning for several individuals. In this case, the unit of analysis is 3 to 25 individuals who have all experienced the same phenomenon (such as grief). Just as for narrative research, individual interviews are the most common method of data collection. However, documents, observation and art have also been used. The researcher's stance in phenomenology is to bracket themselves out of the study by reflecting on personal experiences with the phenomenon and setting those aside to focus on the experiences of their participants. Textual and structural analysis of the data summarizes what and how the phenomenon is experienced, ending with a descriptive report of the universal essence. Challenges to this approach include discussing philosophical assumptions of abstract concepts (such as grief), careful selection of participants so that they have all experienced the same phenomenon, and the difficulty that researchers often find in trying to bracket their personal experiences with the concept under study.

Grounded Theory

The purpose of grounded theory is to generate a theory that is grounded in the data to explain a process (for example, the process of dying) *(30)*. Grounded theory uses theoretical sampling to collect data from 20 to 60 participants who have all experienced a process. As is the case with narrative research and phenomenology, one-on-one interviews are the most common method of data collection. The grounded theory researcher constantly compares data across interviews with their memos on the researcher's emerging ideas for a theory. The data analysis strategy used depends on the grounded theory approach a researcher chooses. Glaserian grounded theory uses active codes (see Charmaz *(31)* for more on this approach), while Straussian grounded theory uses open coding, axial coding and selective coding (see Corbin & Strauss *(32)*). It is important not to confuse literature on the two distinct approaches. Straussian grounded theory presents a more structured approach than the Glaserian methodology. In their final report, the researchers will produce a diagram, hypothesis or both to accompany the discussion of their results. A negative attribute of this approach is that it tends to be reductive.

Ethnography

Ethnography describes the social behaviours of a culture-sharing group *(30)*. Here the researcher is tasked with both describing and interpreting topics such as group values, behaviours, beliefs and languages learned. In this case, the unit of analysis is an entire – or subset of a – large culture-sharing group. This approach requires extensive fieldwork using a variety of data collection methods, such as observation, interviews, symbols and artifacts. Most often, researchers are participant observers in which they become immersed in the day-to-day lives of the group they are researching, both observing and participating in the world around them. Data analysis in ethnography typically begins with an insider emic perspective of the data through verbatim quotes, which then gets moved into an etic scientific perspective to develop the overall interpretation of social behaviours of the group. There are several approaches to ethnography including, but not limited to autoethnography, critical ethnography, participatory action research and realist ethnography.

Case study

The purpose of a case study is to develop an in-depth understanding of a single case, or multiple cases *(30)*. Cases can be one person, several people, a group, a programme, an activity, a setting and so on. It is important that the case be clearly defined within a bounded system. A distinct characteristic of the case study is the use of multiple sources of data or multiple forms of data collection methods in a single study to develop an in-depth understanding of the case. Data collection methods can include interviews, observations, documents and artifacts. Data analysis can be explanatory, exploratory, or descriptive using themes and cross-case themes. Approaches to a case study differ depending on whether the researcher wishes to look at the case itself (intrinsic), the wider purpose of the case (instrumental), or look at comparing cases (collective case). It can be difficult to successfully identify and bound a case, and to keep a case study focused, because the more cases are studied, the more the overall analysis will be diluted. For this reason, it is recommended to include no more than four or five cases in a multiple case

study design. It is also important that, whatever decision is made, a rationale is provided for these choices.

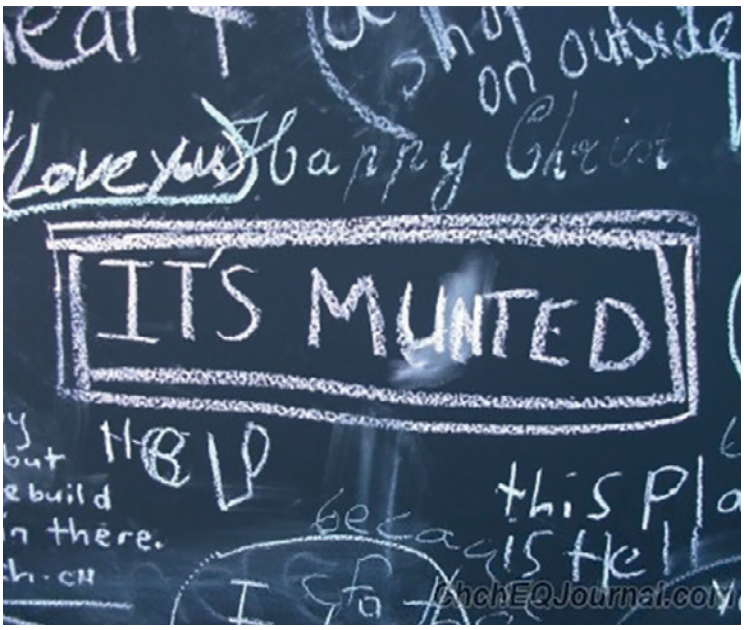
Ethnomethodology

Ethnomethodology has its origins in sociology and a focus upon disruption, which makes it a particularly useful research method in Health EDRM and disasters. This research methodology explores singular events, including how people interact and make sense of occurrences. Although similar to ethnography, ethnomethodology differs through its focus on the knowledge and methods employed by people in their everyday lives (for a discussion of differences between ethnomethodology and ethnography, see Pollner and Emerson *(33)*). Ethnomethodology considers the context of language and meaning through attention to the work of the streets. In an ethnomethodological approach, disruption enables consideration of the process through which the stable features of social organized environments are created and sustained *(34–35)*. Ethnomethodology may be used to look at the everyday micro processes of social interaction, as well as how people cope with and make sense of large scale events *(36)*.

As an example of paying attention to the work of the streets, people in Canterbury New Zealand used the term 'munted' to create a shared language around the 2010-2011 earthquakes, as the images in Figure 4.12.1 illustrate.

Figure 4.12.1 The creation of a shared language in relation to the Canterbury Earthquakes

Source: Outside the Square Creative, https://www.outsidethesquare.net.nz/portfolio/munted/



Source: ChchEQJournal.com. Written on a community blackboard in which people shared their feelings, Christchurch, February 2011.

Use of the term 'munted' was also evident in the following sample narrative texts from qualitative studies conducted in Christchurch by Phibbs and Kenney, following the Canterbury earthquake sequence:

I was getting text after text... don't go down Fitzgerald Ave, no bridge. Dallington is munted, no access. St Albans is closed
(NL, Female, 2012, Māori community research).

P1: The house next door to us... that's triple brick so it's got no internal... timber framing,... it's basically just cracked right through... P2: It's munted
(P1 Male, P2 Elderly Female 2012, disability and disaster research).

We didn't open the marae (Māori community centre) because we had no toilet facilities... so we weren't able to operate, we had all our ablution block, piping, our plumbing that was all totally munted so it couldn't happen for us
(ML, Female, 2012, Māori community research).

The term 'munted', which before the earthquakes had referred to an intoxicated person or something that was broken, came to symbolize the way in which individuals were interpreting and expressing their experiences of the post-disaster city.

A fundamental premise of ethnomethodology is that social reality and social order are accomplished through the ongoing actions of individuals who 'make meaning' out of the practices of everyday life *(26, 33)*. Disasters, as disruptors of everyday life, lend themselves to ethnomethodological analysis because they bring into view the taken-for-granted 'sense-making' processes through which social life is experienced, ordered and sustained.

4.12.8 Community-based participatory research (CBPR)

This chapter highlights one type of participatory approach to research, which is not limited to but frequently employs qualitative methods – community-based participatory research (CBPR). Because many disaster studies focus on the community level, it is often desirable and necessary to adopt participatory designs. This type of research has different names: participatory action research, advocacy research, CBPR, or community-led research (CLR), which is more commonly conducted by Indigenous researchers in partnership with Indigenous communities (see also Chapter 5.4). However, the premise is the same, with a focus on creating social change with a community through collaborative partnerships and shared decision-making. Regardless of whether a study is being done before a disaster (for example, prevention, mitigation or preparedness) or during and after (response and recovery), there are important guidelines for working with communities. When the research focuses on post-disaster impacts, special consideration must be given to avoiding unintentional harm in the community. Guidance from community partners is essential in order to understand the context and conduct the research in a way that is appropriate for the community circumstances. The following table summarizes the principles of CBPR outlined by Israel and colleagues *(37)*.

Table 4.12.2 Principles of Community-based participatory research (CBPR) (37)

Principle	Explanation
Acknowledge the community as a unit of identity	Community is not necessarily geographic. One of the defining characteristics of a community is identifying with it. People who identify with a community feel a sense of belonging based on certain attributes.
Research initiatives build on the strengths and resources within the community	This is what is referred to as a strengths-based or asset-based approach. In collaboration with community partners, researchers identify what assets (see Chapter 3.1) or resources are in the community and build on those strengths.
Facilitate collaborative, equitable, empowering partnerships where power is shared and inequalities are addressed through the research	The emphasis on collaborative, equitable partnerships is central to participatory projects. Within these partnerships, power is shared through collaborative decision-making. The research focuses on inequalities and social change to disrupt power differentials.
Co-learning and capacity-building for all partners	CBPR projects emphasize capacity-building within the community and within partnerships. The focus is for people to learn from one another and build capacity within themselves, their organizations and their communities.
Knowledge generation is balanced with intervention activities so everyone benefits	The knowledge that is generated from research processes must be balanced with intervention activities so that it is mutually beneficial for everyone involved and the community.

Principle	Explanation
Locally relevant projects which address public health problems and consider ecological perspectives related to determinants of health	Partnerships shape the research agenda by identifying locally relevant issues. CBPR projects can be directed toward understanding and acting on determinants of health which contribute to locally relevant health issues.
Foster systems development using a cyclic, iterative process	By understanding the context of a community and working in partnership with local citizens and organizations, CBPR projects can contribute to systems development or change through an iterative process. As new knowledge is generated, it can be integrated to improve systems within the community.
Sharing the findings and involving community partners in wider dissemination of knowledge	Knowledge which is generated from the project is shared and partners are involved in knowledge mobilization activities for wider dissemination of the findings. This ensures lessons learned from the project are shared with people who can benefit.
Long-term commitment with consideration of sustainability	CBPR projects involve long-term processes starting with partnership development, identification of the issues, designing the project components, securing funding, implementing the research activities, analyzing data, and dissemination of the knowledge generated. Partnerships often continue beyond individual projects in the interest of ensuring sustainability and long term system change.

According to Phibbs and colleagues *(38)*, there is a distinction between top-down participatory approaches and bottom-up community development. The different approaches to working with communities influence working partnerships and relationships between DRR organizations and communities. They write:

"In community-based health promotion, problems, targets and actions are defined by the sponsoring body. The notion of community is relatively unproblematic, with community settings being viewed as venues for interventions that largely target the individual. In these top-down community-based interventions, activities are mainly health, or in this case disaster preparedness, oriented. Community-based initiatives tend to be single issue focused and time-limited, discontinuing once the sponsoring body has withdrawn."

In contrast, an approach focused on community development ensures the identification of priorities, problems and appropriate actions that are determined by the community. Potential power differentials are recognized, empowerment is a priority, and actions focus on capacity building in the community. In a community development initiative,

> ...the target of the intervention may be the community itself or structures, services or policies that impact negatively upon the community by creating vulnerabilities. Activities may be broad-based, targeting wider factors which are associated with negative social outcomes, such as discrimination, poverty or crime, thereby providing

indirect disaster resilience outcomes such as facilitating community empowerment and enhancing social capital *(38)*.

The following case studies provide examples of qualitative research of particular relevance to Health EDRM.

Case Study 4.12.1
The EnRiCH Youth Research Team Photovoice Project, Canada

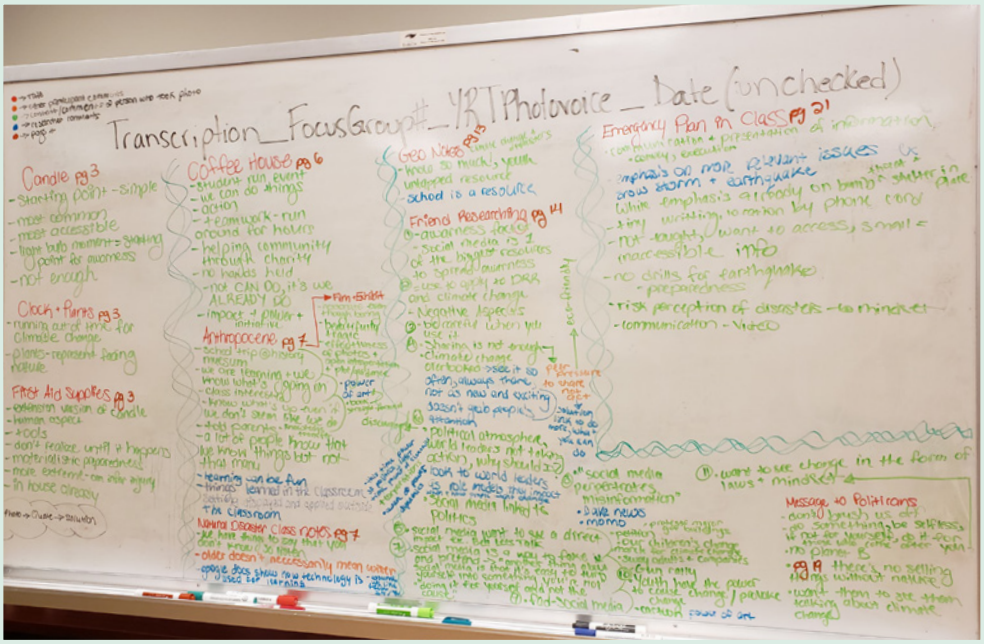
The EnRiCH Youth Research Team is a grass-roots initiative to engage youth in DRR research and action for social change to promote resilient communities. The team has met monthly since 2016, with an annual one-week mini-enrichment course, through a specialty programme offered for high school students by the University of Ottawa. The youth who are members of the team range from 13 to 17 years of age, and they are mentored by undergraduate and graduate university students who are part of the EnRiCH research team. As part of the regular meetings, the youth team members learn about the research team's projects and design and work on projects, including a series of education modules to teach youth about disaster preparedness. When the youth team members heard about the research team's Photovoice project, they asked if they could do their own Photovoice project to express their views about youth engagement in DRR and climate change action.

Photovoice is a qualitative participatory action-based research method used to engage and empower community members to reflect and co-create knowledge with researchers *(39)*. Participants are invited to take pictures of their personal experiences, and express their ideas through picture narrations *(40)*. Participants are actively involved in each of the five steps:

1. Identifying objectives and intended outcomes;
2. Deciding on Photovoice assignments;
3. Taking photographs about the topic;
4. Identifying themes; and
5. Planning a photo exhibition to connect with influential stakeholders in the community *(39)*.

The first Photovoice session for the EnRiCH Youth Research Team was held in March 2019. Over a one-year period, they participated in eight sessions, each lasting two hours, where they shared photos related to youth engagement in DRR, discussed issues and solutions for change, and identified concepts they would like to take photos about for subsequent meetings. The youth team will invite influential stakeholders related to DRR and climate change action to attend their exhibition in 2020, along with leaders and decision-makers in the education system and youth in the area. Figure 4.12.1 shows how the qualitative data were analysed from each Photovoice meeting to bring back preliminary themes for the youth participants to confirm or revise. This is referred to as member-checking in qualitative research and ensures rigour in confirming the themes are representative of the data.

Figure 4.12.2. Preliminary theme analysis in preparation to report back at the next Photovoice session (EnRiCH Research Lab – University of Ottawa)



This project underscores many principles of participatory research including:

- Pproject design shaped by the needs and preferences of the community members;
- Focus on existing strengths and resources in the community (see also Chapter 3.1);
- Advocacy and emphasis on social change for a locally relevant issue;
- Co-learning and capacity-building for all partners;
- Collaborative and equitable partnerships where decision-making is shared;
- Sharing of knowledge and involvement of everyone in planning the exhibition and dissemination of the findings.

This initiative has been long-term (supported by two research grants, 2012-2017; 2016-2019) and has required sustained effort to maintain resources and continuity for the youth involved in this team.

Case Study 4.12.2
Experiences of the 2010-2011 earthquakes in New Zealand

As community-based participatory research encourages trust on the part of community research partners and has been shown to promote the wellbeing of indigenous communities *(41)*, Kenney and Phibbs *(42)* conducted qualitative research using a participatory approach that encompassed similar principles, in New Zealand. The researchers' partnership with an indigenous Māori tribe, Ngāi Tahu, facilitated collaborative design and implementation of research that explored the earthquake experiences of local Māori following the 2010-2011 Canterbury earthquakes. Project aims included identification and documentation of cultural factors that facilitate Māori health and well-being, and development of recommendations for improving responders' approaches to addressing the psychosocial and health needs of communities, during disasters.

A point of difference with traditional CBPR was that an indigenous Kaupapa Māori research methodology *(43)* shaped the design and conduct of the research. The research was designed by and for Māori, as well as conducted by Māori researchers under the oversight of the local tribe and in accordance with Māori ethical principles *(44)*. Themes arising from the research were confirmed by the community, with the local tribe Te Rūngana o Ngāi Tahu retaining intellectual property rights over the findings and acting as co-authors of publications arising from the research. This process ensured the research became community-led rather than community-based or centred, and strengthened community engagement.

Historically, Māori like most indigenous peoples have used stories to create and ensure the intergenerational transmission of knowledge *(45)*. Contextually relevant narrative research methods which accommodated this process *(46–47)*, were therefore applied to gathering and analysing participant's stories.

Researchers specifically drew on dialogical interviewing techniques to capture participants' viewpoints. Dialogical interviewing *(48)* is an approach that is effective for disrupting power differentials between researchers and participants *(49)*. It is therefore particularly useful for gathering data when researching with marginalized individuals and communities, including, as in this instance, indigenous collectives.

The researchers used thematic analysis to identify discrete stories nested in participants' interviews and analysed the stories using whole narrative unit analysis. Participants' stories were examined to identify contextually complete blocks of texts which were analysed in paragraph format rather than line by line in order to retain the narrative quality of each participant's story. This approach also ensured that analytical findings did not become decontextualized. Narrative analysis highlighted how a nationalized Māori Recovery Network mobilized resources and support to the culturally diverse communities of Christchurch following the earthquakes. Findings showcased ways in which cultural attributes, Māori knowledges, values and practices, interwove to create moral and relational technologies, that when operationalized, addressed the immediate needs and facilitated the health and wellbeing of Māori.

Participants' talk also documented how cultural attributes could be used to enhance the recovery and resilience of the wider Christchurch community.

The prompt and effective disaster risk management approach implemented by Māori, aligns with key recommendations in the Sendai Framework for Disaster Risk Reduction (2015) *(50)*. Māori implementation of best practice in DRR, has generated increased willingness on the part of regional civil authorities, and government to engage and collaborate with local Māori tribes in strategizing for national resilience. To that end, research findings have shaped the development of New Zealand's recently released National Disaster Resilience Strategy *(51)*, as well as informing United Nations disaster science initiatives *(52)*.

4.12.9 Conclusions

This chapter presented an overview of different qualitative methods, as well as some of the issues to consider when designing and implementing studies using these designs. We also highlighted the importance of participatory design and collaborative partnerships, distinguishing between community-based and community-development approaches. In Health EDRM, qualitative methods can be used alone, or in conjunction with quantitative methods in a mixed method methodology (Chapter 4.13). Regardless of the overarching design, it is important to be aware of the differences in paradigms for each method and to consider how to minimize power differentials and maximize empowerment when conducting research with communities.

4.12.10 Key messages

- **Qualitative research design and methods has an important role in Health EDRM.**
- **Rigour is needed to ensure qualitative research contributions are of high quality and credible.**
- **Community-based research is based on partnerships and shared ownership of projects, where the voice of citizens in a community are valued and represented in the research findings.**
- **Qualitative research design has the potential to fill many research gaps in DRR, building on the fact that everybody experiences disasters differently and that disasters affect everybody in different ways.**
- **The emergent design of qualitative research offers the flexibility to address these complex and differing experiences.**

4.12

4.12.11 Further reading

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