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Chapter Four

(Re)discovering Grounded Theory for Cross-Disciplinary Qualitative Health Research

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ABSTRACT

Grounded Theory analysis is a highly respected methodological approach to qualitative data. Though it has roots originating in Sociology, its use has been widespread, particularly in healthcare research and health-services evaluation. More recent times have seen healthcare researchers and health-service evaluators pay greater attention to qualitative research. In parallel to the increased popularity of qualitative research in these settings, has been the upsurge in cross-disciplinary collaborative initiatives. Guidance for cross-disciplinary working is, however, limited, if not entirely lacking from the literature. This lacuna is especially prevalent when attempting to identify instructions for the undertaking of sophisticated or complex analyses between researchers from varying disciplines. This chapter offers insight into how to apply Grounded Theory to qualitative health research studies and establishes a step-by-step approach to using this methodology appropriately in cross-disciplinary research settings, to achieve maximum rigour and satisfy the often-competing needs which arise when colleagues from different disciplines work together.

KEYWORDS

Cross-discipline collaboration; grounded theory; health research; inter-disciplinary working; methodology; qualitative analysis.

INTRODUCTION

Increasingly, cross-disciplinary collaboration is becoming the norm in research practices. This is especially true of health and healthcare research, evaluation, education, and training (Gale, Heath, Cameron, Rashid, & Redwood, 2013; Morse, 2010). In the United Kingdom, calls for cross-disciplinary working for health research have come from a governmental level (UK Government, 2018) and The Research Councils (UKRI, 2017; see also Rose, Carr, & Beresford, 2018; and UCL, 2018). Many areas of health research have embraced collaborations of mixed-professionals and argue the benefits in tackling serious global health issues (Marsili, 2016); narrowing knowledge-practice gaps (Urquhart, Grunfeld, Jackson, Sargeant, & Porter, 2013); and improving health-promotion (Tzenalis & Sotiriadou, 2010). However, cross-, inter-, multi-, or trans-disciplinary research have all become somewhat fashionable buzzwords in funding bids, grant applications, and subsequent research disseminations which has led to greater and more widespread scrutiny over how research remains credible and trustworthy, and also how methodological and analytical processes will continue to be rigorous when considering the competing demands of each discipline's theoretical standpoints and practical requirements (Goldberg, 2013; Mutz, Bornmann, & Daniel, 2015; United Nations, 2015). For qualitative researchers working in health and healthcare realms, this has meant researchers have had to address quality and rigour in more formalised ways than ever before (see Mays & Pope, 2000; Meyer, 2000; Pope, Ziebland, & Mays, 2000), which had historically usually been relegated to a sentence or two so long as the researchers demonstrated their sample was representative and their findings were in some way useful to clinical staff whilst being generalisable to other patient populations. This in itself is problematic in qualitative research, as the aim of qualitative work is never to be widely representative, nor generalisable, but rather to elucidate a novel finding amongst a specific population or phenomenon within a particular context. These findings may well then be applied to different settings, and 'tested' amongst new populations for similarities and differences.

Grounded Theory (Glaser & Strauss, 1967) is widely respected as a rigorous and commonly used method of analysis for qualitative data (Charmaz, 1995; Holton, 2008). Both qualitative data collection and, specifically, Grounded Theory analysis, are witnessing a renaissance adoption by researchers with increasingly wide usages within healthcare research and health-service evaluations (Chapman, Hadfield, & Chapman, 2015; Watling & Lingard, 2012). By bringing together a team comprised of an academic Psychologist, two Consultant Anaesthetists (who both work clinically), and a leading expert in Clinical Education (who is not clinically trained), we were able to adapt and develop a Grounded Theory approach which satisfies the often competing demands of both clinical and academic researchers. In this chapter, we present how the bringing together of this cross-disciplinary team enabled us to establish good working practices for rigorous, practical, cross-disciplinary qualitative research using a modified Grounded Theory approach. We blended the practicability requirements set-out by the clinical team, with the rigorous qualitative approaches and the theorisations made by the academic researchers, whilst staying true to the very epistemological and ontological stances required to undertake an inductive Grounded Theory. This resulted in an easily replicable, and rigorous modified approach to Grounded Theory appropriate for both cross-sectional and longitudinal cross-disciplinary qualitative health research, bringing an exciting new methodological approach into use for future multi-disciplinary health research teams undertaking qualitative analyses. What we set out below, (in a similar style to Braun & Clarke, 2006 for Thematic Analysis; or Gale, Heath, Cameron, Rashid, & Redwood, 2013 for Thematic Framework Analysis) is a step-by-step guide on how cross-disciplinary teams of researchers can achieve this methodological approach whilst maintaining rigour and quality of data throughout, from study design to analysis and beyond.

QUALITATIVE DATA HANDLING: “TAMING THE MESSINESS”

Data – qualitative, in particular – can be especially messy and require a substantial amount of processing before it can be worked-up through analysis. The way in which the data will need to be prepared as well as the extent to which the data must be cleaned will largely rely on the origin of the data, and what type of qualitative data has been gathered or collected. Though there is the potential for this process to be time consuming, it is usually worth allowing a substantial proportion of the time allocated for the research project to be dedicated to these data handling processes, because the more accurate your data are of the raw recording or source, the more accurate your analysis will be, as well as your reported findings, and researcher confidence in your representation of participants’ responses.

Designing a Qualitative Grounded Theory Study

Qualitative data can take many forms. On one side, there are now huge repositories of free-text, which is largely ungoverned or uncensored, but freely accessible such as internet-based, public data taken from social media platforms, blogs, or participatory forums. On the other side, we see more formalised historical written records or archival data which may be devoid of context, especially if written some time before one comes to analyse it. Perhaps more familiar to social science and health researchers are qualitative datasets derived from open-ended survey questions, focus groups, or interviews (Silverman, 1993). Most healthcare research and health-services evaluation will rely on primary sources of data, meaning data will usually be collected from those involved in the care pathway or service as an ongoing (*‘research’*) or final (*‘evaluation’*) part of the study or project. Departing from traditional Glaserian Grounded Theory dictum (Glaser, 2007, p.1), we do not suggest “all is data” (see also Holton & Walsh, 2017), and move to (re)discover Grounded Theory as a rigorous, useful, and valuable *qualitative* methodological tool for researchers collecting data through transcribed interviews or focus groups, textual matter, field notes, or data taking another written format. Within this chapter we will focus on interview data, but the processes explained (see *Table 1*) can be easily extrapolated to other datasets gathered from a variety of sources and using an assortment of data collection methods. We do agree with Glaser (1992) however, that data should be collected with no *a priori* assumptions about the topic of interest or the population and without consultation of the published literature in order for researcher bias to not interfere with the empirical and inductive nature of the Grounded Theory process. Researchers may find working with a cross-disciplinary team makes this easier as there are a multitude of competing interests amongst the team meaning it is difficult to prejudice the data analysis especially if data collection is being done by members of more than one profession (Cheek, 2008; Fernald & Duclos, 2005; MacCleave, 2006; Sin, 2008). Moreover, it is important to remember when designing a Grounded Theory study that the questions should be broad and experientially focused, asking about people’s experiences of something rather than closed or leading questions about specifics. These can also be followed-up by a list of possible prompts which the interviewer can use to tease out information from the participant if they have not quite addressed the topic area fully enough, and likewise offers the researcher the flexibility to follow-up on interesting points made by the participant without being tied to a prescriptive list of questions. Mock interviews within and outside of the research team (i.e. with Patient/Participant and Public Involvement [PPI] group) is good practice and rehearsal should take place as many times as is required for all members who will be interviewing to become comfortable with the schedule, as well as revising it according to any feedback received. Having multiple interviewers is, sometimes in itself problematic, as consistency amongst interviewers may vary widely. This is especially true if working

in a cross-disciplinary group where some interviewers may favour certain parts of the interview schedule which are more aligned to their professional background (Sin, 2008). Likewise some interviewers may be more or less comfortable to probe participants further on shorter answers given. Some variability is perfectly acceptable, but repeated training amongst the team before doing participant interviews is key in mitigating this issue.

Preparing Data

As with every study involving qualitative data, the first step is to prepare it, ready for analysis. For interview studies and others which require data collection through audio recordings, transcription is the usual necessary first step, whereby audio is turned into written accounts of the interview. There are three ways in which you can transcribe qualitative data and it is for research teams to decide which would best suit their needs for each new study they undertake. Firstly, there is *Verbatim ('Strict') Transcription*, where everything which is captured on the audio record is transcribed including contextual matter such as false sentence starts; filler-words, or those which are emphasised or repeated; grammatically incorrect phrases, and those spoken in a different way (including foreign words and the demarcation of whispers, mumbles, raised- or acted-voices e.g. falsetto), whilst also noting coughing, laughing, crying etc., as well as any interruptions to the interview. This method of transcription gives a rich, almost visual context to whoever reads the transcript allowing the reader to understand the setting, and the emotionality and/or certainty with which the participant spoke. The next version is *Intelligent ('Standard') Transcription*, which is similar to verbatim transcription, but lacking any of the contextual matter (whilst also translating any foreign words without leaving the original in place and replacing incorrect uses of language with true wording). This allows for an easier-to-read transcript and is generally accepted as the most common method of transcription for informational or evaluative studies which are not necessarily concerned with any psycho-emotional responses to the interview questions or topics being discussed. Finally, there is *Selective ('Edited') Transcription*, which can take a few different forms, but always translates foreign words, corrects neologisms or incorrectly used and portmanteau words, whilst omitting all contextual matter. In doing this the transcriber, corrects grammatically incorrect speech often in short summaries of what was said, rather than actual speech used. In this method of transcription, researchers may also choose to only transcribe some of the interview data and not the full interview, meaning the end transcript is a condensed summary of the actual interview.

Table 1. The Grounded Theory Process

Study Phase	Data Handling Stage	Definition of the Process
Study Design and Development	Designing Interview Schedule ‡	Note areas of interest, with a few broad questions and several potential prompts to aid conversation.
	Piloting Interview Schedule ‡	It is good practice to do a mock interview inside the research team, with other researchers not attached to the project, and with a member of your PPI team.
Preparing Data	Data Collection †	Use interview schedule to interview consenting participants/patients and audio record it. Occasionally you may need to revise the interview schedule if they provide feedback.
	Transcription †/‡	Sending your audio recordings to professional transcribers or transcribing the audio amongst the research team, being mindful of which type of transcription is required.
Cleaning Data	Checking Transcripts †	Listen to original audio whilst reading transcript. This is essential for ensuring the transcription has been correctly undertaken. Amend any mis-transcribed, omitted, or falsely entered words. If needed, add contextual matter.
	(Re-)Familiarisation †	All research team members should read all transcripts to either re-familiarize or familiarize themselves with the interviews.
	Printing or Uploading Transcripts †/‡	If you are hand-coding, print transcripts with a wide margin on each side to facilitate the coding processes. Most health and social science researchers use NVivo if using QDA software.
Coding	Open ('Line-by-Line') Coding †	The first coding (also known as open; line-by-line; or lower order coding) requires the analyst(s) to go through each transcript and summarise each line of participant text with a word or phrase derived from the words the participant has used.
	Focused ('Axial') Coding †	The second coding (also known as focused; axial; or higher order coding) requires the analyst(s) to go through each transcript again, but this time grouping some of the open codes to reduce the total number of codes, which then represent parts of the text rather than just individual lines.
Theme Development	Development of Super-Categories ('Sub-Themes') †	Each super-category will be made up of the merging together or splitting apart and rearranging of focused codes. It may be useful to draw an initial thematic diagram of these super-categories and how they may relate to each other.
	Creating Themes ‡	When lower-order sub-themes have been established and ratified, it is then possible to generate themes, by collapsing super-categories together.
Theory Generation	Theoretical Sampling ‡	Recruiting more participants of a particular demographic/characteristic to explore the potential of weakly supported themes being further supported or removed entirely from the final theory.
	Consulting with Field ('Memo') Notes †	The beginning of theory generation is a sensible time to consult these to answer any questions or queries researchers have had during the whole project.
	Generating Theory ‡	Theory is generated by looking at relationships between themes. At this stage, sketch out a thematic diagram using arrows to help explain the relational nature of one theme to another.
Defence of Theory	Within Team Defence ‡	Researchers must defend their analysis amongst the rest of their team members with a view to eventually agree on the final theory going forward.
	Interpreting Theory ‡	Researchers must interpret the theory meaning by explaining the relationships between themes and establishing a coherent narrative to accompany your theory's thematic diagram.
	Framing Theory ‡	Theories require each theme's relationship with one another to be established. The theory must be framed amongst existing literature to ensure it is coherent.
Writing-Up	Analysis Section Using Quotations ‡	Analysis should be written with the emphasis on the participant data with limited, but clear supporting interpretive narrative.
	Discussion and Conclusion ‡	This is the final opportunity to 'sell' the theory to the reader by placing it at the heart of the discussion and demonstrating its rigour, empiricism, reliability, and validity.
Testing the Theory	Test Theory in a Different Population †/‡	The theory can now be tested in different populations to see whether it 'holds true' in new settings. New evidence may cause the theory to be revised and/or adapted.

N/B. † Indicates analysts should work independently before cross-checking with other group members.
‡ Indicates analysts should work on this whole stage as a collaborative group.

Cleaning Data

Qualitative data may require some level of 'cleaning' before it is ready to be analysed. This is often dependent on how data has been transcribed, and especially so if the audio recordings have been sent to an external agency for professional transcription. This process will require a member of the research team to read through the transcript whilst listening to the original audio and checking that the written record is an accurate reflection of the audio recording. Whilst doing this, it also provides the

opportunity for researchers to *re*-familiarize themselves with the interview, or in cases where other members of the research team are checking transcripts of interviews that they themselves did not conduct, it offers the chance for these researchers to become familiar with the content of the interview. It is at this point that researchers can add some of the contextual matter into the transcripts if transcribers have only offered an intelligent transcription service. Furthermore, this (re)familiarisation process provides an opportunity for the research team to discuss the content of transcripts and raise initial thoughts pertaining to the study or forthcoming analysis. When this is complete the analysts will be required to either upload the transcripts to a qualitative data analysis [QDA] computer software such as NVivo (current version: 12.1; QSR International, 2018), or print each transcript off with wide margins in order to allow for a manual analytical work-up of the data. Printing one-sided provides the back of each page to make *Field ('Memo') Notes* on as you are coding. This is purely down to research group preference and the practicalities of analysis amongst the team (for example, some members of the team may not have access to the software; see also Sin, 2008). However, for those researchers who are unfamiliar with qualitative data analysis or Grounded Theory, it is the recommendation of the authors of this chapter that a manual coding and analysis is conducted. This encourages further familiarity with the data by the analysts and allows for a more inductive and generative process as this method starts with coding every line of data, rather than beginning with a higher-order coding process, which is with what QDA software forces analysts to commence (Glaser & Holton, 2004; Lee & Esterhuizen, 2000; St. John & Johnson, 2000).

GROUNDING THEORY ANALYSIS IN HEALTH RESEARCH: “THE METHOD”

In more recent healthcare research and health-service evaluations, there has been an increased reliance on qualitative data collection and analysis, for novel enquiries into existing or newly occurring issues in health and healthcare settings which are often disseminated as reports to inform policy and practice (see Chapman, Hadfield, & Chapman, 2015; Gale, Heath, Cameron, Rashid, & Redwood, 2013; Huckel Schneider & Blyth, 2017; Srivastava & Thomson, 2009). Other studies have captured and recorded the experiences and perceptions of: Service provision (e.g. Bélanger & Rodríguez, 2008; Tzenalis & Sotiriadou, 2010; Urquhart, Grunfeld, Jackson, Sargeant, & Porter, 2013; Ward, House, & Hamer, 2009); continued professional development, education initiatives, and on-the-job training for health and healthcare professionals (e.g. Alonge, Frattaroli, Davey-Rothwell, & Baral, 2016; Watling & Lingard, 2012; Watson et al., 2012); as well as documenting illness narratives of patients and the views of the staff who treat them (e.g. Schwappach & Gehring, 2014; Wilkinson & Dare, 2014). Grounded Theory as a qualitative methodology has been efficaciously used in much modern-day healthcare research (e.g. Rees, Chilcot, Donnellan, & Soulsby, 2018) and health-service evaluations (see Baldwin, Mills, Birks, & Budden, 2017; Ellegaard, Bliksted, Mehlsen, & Lomborg,

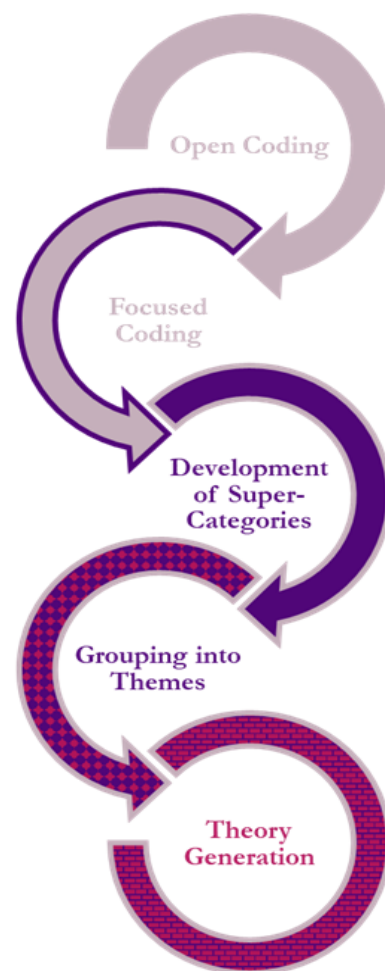


Figure 1. Phases of Coding, Theme Development, and Theory Generation in Grounded Theory.

2018; Harding, Brown, Hayward, & Pettinari, 2010; Schreiber & MacDonald, 2010; Wroblewska-O'Sullivan, Coughlan, & Ryan, 2014). Grounded Theory analysis has a reasonably prescriptive methodological approach to which researchers should adhere (see *Figure 1*). In the following section, we describe the methodology which we implore cross-disciplinary healthcare researchers and health-service evaluators to follow should they wish to undertake a Grounded Theory investigation of their phenomenon, situation, or practices.

Coding

Grounded Theory is a highly methodical methodology which relies on a researcher's ability to work with the data over a substantial amount of time to generate a theory of the population and phenomenon of interest. The coding phase has two stages (see *Figure 2* for example transcript). Firstly, there is: *Open ('Line-by-Line') Coding*, which is a lower-order coding of the data. This requires the analyst to read each transcript in full and summarise each line of the participant data with a word from the line which best summarises the line of text, on – we would advise – the left-hand margin of the transcripts and using a single colour (if hand-coding). The idea behind this is that you are reducing the data down from whole lines (or phrases/partial sentences) to single words which are easier to manage and allows the analyst or their colleagues to immediately spot any patterns or recurring terms which appear in particular transcripts when comparing them across the dataset. This stage is often omitted when using QDA software as this would create too many codes on the software and would render the codebook unworkable (Gilbert, 2002; Glaser & Holton, 2004; Humble, 2012; Richards, 1998). For novice qualitative researchers, we would recommend lower-order coding as an essential part of the analytical process. This process is followed by a higher-order coding of the data called: *Focused ('Axial') Coding*. This involves going back over the transcripts to group some of the open codes together in more encompassing codes, for example, there may be several words used to describe the same phenomenon (i.e. nervous, worried, panic which could all be synonymous with 'anxiety'; or birth, labour, delivery, parturition which could all be labelled under 'birth'). These umbrella codes can now be used as labels for larger parts of the transcript data, such as full sentences or whole paragraphs, resulting in less frequent and fewer overall codes being noted (this time on the right-hand margin, and in a different colour, if hand-coding). This will often be the first code if a researcher is using QDA software.

Research project (brief title): (Re)discovering Grounded Theory
Participant: GT1967
Interview Date: 30th January 2019
Interviewer: Q.L. Researcher

<p><i>Open ('Line-by-Line') Coding</i></p> <p><i>Long [time]</i> <i>Methodology</i> <i>Supervisors</i> <i>Trained up</i> <i>Other qualitative methodologies</i> <i>[different] studies</i> <i>Analysis</i> <i>Comfortable</i> <i>Generate theory</i> <i>Generating theory</i> <i>Test [theory]</i> <i>Came to use [it]</i> <i>it stuck</i></p>	<p>I: Could you tell me about how you first discovered Grounded Theory?</p> <p>P: Erm... It's been so long, but... Grounded Theory was the methodology which my supervisors used when I was doing my degree, and so they trained me up. I tried a couple of other qualitative methodologies in different studies I have used, but I just couldn't get used to them or achieve the analysis what I wanted. I guess Grounded Theory is just comfortable for me... but if you are trying to generate theory... I mean generating theory - that's what it's all about isn't it... so you can head off and test it elsewhere. So yeah, that's how I came to use it, I was taught it and it kinda stuck I suppose!</p>	<p><i>Focused ('Axial') Coding</i></p> <p><i>Training</i></p> <p><i>Comfortable</i></p> <p><i>Generating Theory</i></p>
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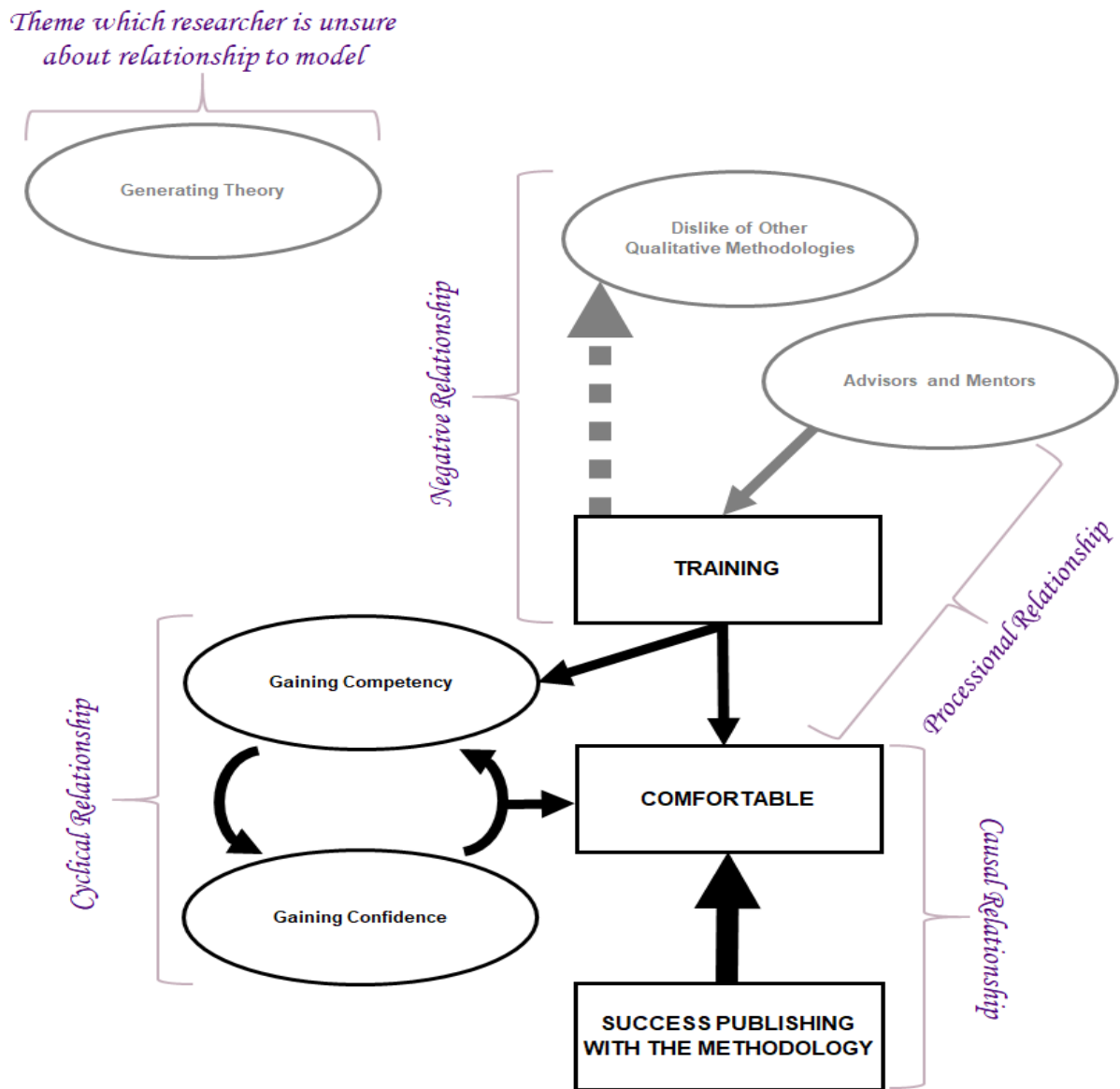
Memo Writing from Interview:

- Participant emphasises theory generation as major use.
- Idea of legacy planning/training next generation of researchers, as if Grounded Theory is passed on from supervisor to student to their students and so on.
- Does participant use any other qualitative methodologies?

Figure 2. Example Coded Transcript.

Theme Development

Once coding has been completed and agreed amongst the team, the next phase of Grounded Theory is to begin developing themes. The higher-order codes should be recorded (usually in a code book, spreadsheet, electronic document, or even just on a large piece of paper), so that they can be grouped to create *Super-Categories* ('*Sub-Themes*'). Through a process of merging together or splitting apart and rearranging of higher-order codes, researchers should aim to dramatically reduce the number of different concepts generated from the data. To do this, researchers should group all the similar focused codes together under appropriate super-category/sub-theme headings. It may be helpful at this stage to draw out these super-categories as a *Thematic Diagram* to visually represent the preliminary sub-themes which have been derived from the dataset (see *Figure 3*). Lower-order themes (super-categories/sub-themes) can then be sorted and grouped into higher-order *Themes* which are achieved by using researcher judgement to collapse super-categories together and refine theme names. These themes act as the building blocks of the theory. At this stage they have to be established (i.e. named and coherent with sufficient data saturation/quotations to support each theme), but are not required to be cohesive or relative to one another, though researchers and analysts may wish to annotate their initial thoughts on possible relationships to aid discussion when it comes to generating the theory with the rest of the team (see *Figure 3*).



Key for Degrees of Support:

- ■ ■ ▲ *Uncertain ('Tentative') Relationship*
- ▬ ▲ *Limited ('Partial') Relationship*
- ▬▬ ▲ *Definite ('Definitive') Relationship*

N.B. Thinness of lines seen above in both processional and cyclical relationships indicates that on their own, these themes do not have a direct effect on the theme they are feeding in to, and are therefore additive in nature.

Figure 3. Example Annotated Thematic Diagram of Super-Categories.
(N.B. Explanatory annotations for purpose of chapter instruction only)

Theory Generation

If there is a theme which has been generated with little support, or if it has been derived from only a select few from your study population, it is possible to sample more participants who match the demographic characteristics of those individuals whose data contributes to this theme in a process called *Theoretical Sampling*. In these cases, themes may either be supported if more data contributes to the theme or discarded if the theoretical sampling proves fruitless. In Grounded Theory projects it is important to make *Field ('Memo') Notes* throughout the study, to keep a record of any thoughts or questions which arise from the researcher at all stages of the study development, data collection phase, and analysis (see Montgomery & Bailey, 2007). Consulting these at the theme generation phase ensures the research team has not missed any important information, whilst offering the opportunity for any unanswered questions to be discussed amongst the team, and in doing so will help to contextualise themes. Once all members of the team are content there is no more exploratory analysis to be done, you can now develop the overall theory of your analysis. To do this, researchers must provide details of how each theme relates to the others. Relationships between themes may be *processional* (i.e. one theme leads on to another), *causal* (i.e. one theme is created because of the presence of another), *reverse* (i.e. one theme mitigates the effects of another), or *cyclical* (i.e. one theme facilitates another, which in turn facilitates the first). Relationships may also have varying degrees of support from a *definite ('definitive') relationship* (i.e. where the relationship is firmly established), to a *limited ('partial') relationship* (i.e. one which is weakly established), and finally to an *uncertain ('tentative') relationship* (i.e. one which has yet to be fully established or is true only some of the time or in certain circumstances). The way in which the themes inter-relate, and either cause, are affected by, or co-occur is the crux of the Theory, which can be supported with quotations. At this stage, the research team should produce the second thematic diagram of the theory which includes the final higher-order themes, and all the relationship lines/arrows included (see *Figure 4*).

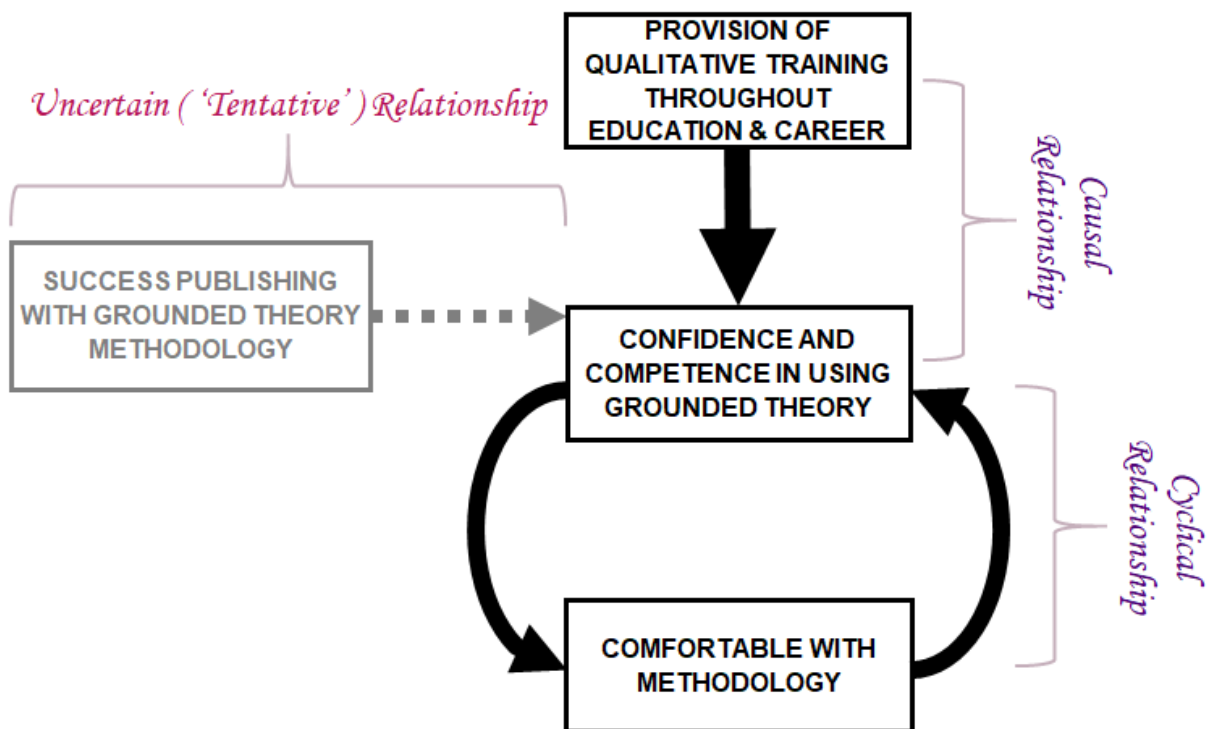


Figure 4. Example Thematic Diagram of Themes: The Final Theory.

(N.B. Explanatory annotations for purpose of chapter instruction only)

Defending Your Theory

The first defence of your theory should be amongst your research team. It is perfectly legitimate to disagree with your colleagues and collaborators, and in some cases might even be welcomed as arriving at your final theory and analysis should not be straightforward or easy – if it is, the likelihood is that you have either not interrogated the data well enough, or the analyses put forward by your fellow analysts, or both. The bringing together of analyses from all the analysts in the team should act as the final and most thorough barometer in considering whether you have adequately assessed the data. Disagreement may ensue for long periods of time, but with good argumentation and justification, the team should eventually arrive at a strong analysis and final theory. This will happen after having accepted where concessions must be made, highlighting particular aspects of the theory, and perhaps even augmenting the themes or their relationships to one another to ensure you are left with the theory which is best reflection of the data you collected. After the defence amongst the research team, the remainder of this phase of Grounded Theory is split into two stages: *Interpreting Theory* and *Framing Theory*. The first of these stages requires the researcher(s) to apply meaningful interpretation to the theory they have developed, and subsequently producing a coherent, logical, and representative narrative to accompany the thematic diagram of the theory. This narrative will form the basis of your *analysis section* when writing up. The second stage entails researcher(s) turning to published literature to see where their Grounded Theory fits with previously existing theories and findings. This stage will help to compare the research team's theory to established ones and will enable the team to highlight any similarities and more importantly, any differences, which will form the basis of the *discussion section* of any subsequent reports, papers, or conference outings where the data are presented.

Writing-Up

Grounded Theory is an iterative analytical process which continues into the write-up phase. Analysis sections should be derived from the interpretation of theory stage when researcher(s) are defending their theory. All Grounded Theory is 'data heavy', meaning analysis sections should allow the data to depict the narrative of the theory more than the researcher's explanations. This is a more Glaserian style of write-up, and the style which we would encourage all researchers using Grounded Theory to use. The supporting narrative should allow readers to be guided seamlessly from quotation to quotation and theme to theme, but should not dominate and therefore researchers' interpretations of quotations should be limited in this data-driven write-up style. In a sense, author(s) should act as conductors to the orchestra of participant quotations. As in most collaborative projects, there will be one member of the team who takes responsibility for leading the write-up. It is the role of this lead author to ensure the narrative flows not only throughout the analysis, but that the narrative has a clear beginning when the study is introduced, and is then continued throughout the text to the end of the manuscript until a neat conclusion is reached. Co-authors will be key to contributing most of the start and end matter of the paper and will be crucial to the proof-reading and revising processes, however it is the lead author who should have overall control of the paper's message, and who should be responsible for leading the analysis and discussion sections. The final part of the study write-up is the discussion (derived from the theory framing stage) and the conclusion. Here the opportunity arises to draw on existing literature and – in an albeit more Straussian approach to Grounded Theory – subsequently frame the theory which has been generated as part of the study firmly at the centre. Researchers must make the case for how rigorous their approach has been, how empirically data has been gathered, and how relevant, valid and reliable their theory is. The trick is to be convincing and that will only happen if the theory has been truly grounded in the participant data.

Testing the Theory

The reason for using Grounded Theory is to enable an iterative and inductive working-up of data over an extended period, which enables a data-driven theory to be actively generated by the researchers using data extracted from interviewed participants. The theory becomes a workable entity which can be tested in different populations to see whether it is relevant, reliable, and valid in new populations. In light of new data and evidence, an existing theory may be subject to revisions, adapted, or updated to reflect cultural shift, modern perspectives, or newly acquired data which departs from the original theory.

APPLYING THE METHOD: “RULES AND MYTHS OF GROUNDED THEORY”

Because of its revered status as a qualitative methodology to which researchers aspire, many myths and misconceptions have circulated about the Grounded Theory processes. Through this step-by-step guide for cross-disciplinary qualitative health researchers, we have hoped to simplify the processes, as so to allow the methodology to be both accessible and approachable, whilst demonstrating its use and utility in cross-disciplinary projects. In the following section, we outline some more theoretical aspects of Grounded Theory as well as some best practice for researchers to follow.

Ontology and Epistemology

The methodology presented above has been developed as a hybridised, but heavily *Classical* Grounded Theory approach adapted for cross-disciplinary qualitative health research. It remains faithful to the core principles set out in Glaser and Strauss’ (1967) Grounded Theory and Glaser’s subsequent advancements (Glaser, 1992) by relying on a constant comparative method of data collection and analysis, theoretical sampling, and an iterative, inductive, and data-driven approach. However, this approach also draws on Strauss (1987) to allow the theory to be framed amongst existing literature towards the end of the process. Nevertheless, we fervently dismiss the notion that primary data is a co-constructed and fabricated interpretation of reality between interviewer and interviewee as – the Straussian – Charmaz (1995) would suggest (see also Howard-Payne, 2016). We propose that data collected through interviews with participants, whilst might not necessarily be *true*, are in fact the lived reality or ‘*truths*’ for the participant who recounts them. In this respect we would suggest researchers undertaking Grounded Theory are best to adopt the following ontological position and epistemological approach (see also Silverio, 2018 for more detailed discussion). A *Critical Realist Ontology* encourages researchers to deal with the reality of participants’ experiences and what can be understood about said reality, using solely the information from the data collected to answer those questions by developing a Grounded Theory. A *Realist Epistemology* allows for researchers to adopt a stance based on objectivist principles (or postpositivist emergence; see Levers, 2013), where attempts can be made to approach the participants and their data with no preconceived notions of what the characteristics of the participants or data are.

Study Development and Constant Comparison

Most Grounded Theory studies are carried out with discreet and prescribed populations to discover their perspective or experience of a particular phenomenon, and therefore are generally *Cross-Sectional* in nature. The methodology documented above is certainly applicable to cross-sectional studies, but may also be applied to *Longitudinal* studies. *Constant Comparison* is a fundamental aspect of Grounded Theory and along with no *a priori* assumptions, makes up the fabric of the classical Grounded Theory identity. Whereas with cross-sectional studies, the data is compared from

participant to participant, i.e. the transcript of the second participant is compared to that of the first, and the transcript of the third participant is compared to those of the second and the first participants, and so on; there are in fact two ways in which longitudinal data can be analysed. The first option is a *Timepoint-by-Timepoint Analysis*, whereby researchers analyse all the Time 1 data for each participant, then the Time 2 data, followed by all the Time 3 data and so on until the last set of data analysed is that of the last data collection timepoint. The second option is a *Participant-by-Participant Analysis*, where researchers analyse each participant's complete set of data (i.e. timepoint 1 to timepoint *n*) and then move onto the next participant's full dataset, and so on, thereby constantly comparing between timepoints (i.e. *within* participant datasets) and between participants (*between* participant datasets). There are benefits and drawbacks to both options. Participant-by-participant analysis may appear to be the complete antithesis of Grounded Theory due to researchers not being able to start analysis until all data is collected across all timepoints for the first participant, but it enables a within and between participant comparison, and has the major benefit of having collected the complete narrative to analyse for each participant, rather than the more piecemeal timepoint-by-timepoint analysis. Timepoint-by-timepoint analysis, whilst remaining faithful to the immediacy and constancy of analysis in Grounded Theory, dictates that researchers simply will not have the 'full analytical picture' of the data when analysis commences. It is not the object of this chapter to state which is correct or incorrect, as different research teams may have different requirements, and some projects will lend themselves better to one analysis than the other. For example, if you had a longitudinal study of three timepoints spaced five years apart, a participant-by-participant analysis would force researcher(s) to wait a minimum of fifteen years before commencing analysis, rendering the study potentially unfeasible. Likewise, some studies may require a full narrative in order for the data to be coherent (for example, if you are analysing data on training competencies). In this scenario, a timepoint-by-timepoint analysis would mean researchers did not have the full picture when analysis began, and one would have to question the usefulness of this type of analysis. Researchers should, therefore, exercise caution when doing longitudinal analyses using Grounded Theory and ensure they have selected the correct approach for their study during the study design and development phase.

Theme Saturation and Inter-Rater Reliability

As with all qualitative data, there is no expectation in Grounded Theory studies that you must recruit numerous participants to have "enough" data (Guest, Bunce, & Johnson, 2006; Morse, 2000). Due to its rigorous and iterative nature, it is not uncommon for (cross-disciplinary health research) Grounded Theory studies to be conducted and completed with relatively few participants (e.g. Rees, Chilcot, Donnellan, & Soulsby, 2018; see also Silverio, 2018). However, recent movements in qualitative research circles have called for a greater emphasis to be placed on researcher judgement of *Theme Saturation* (*'Thematic Concordance'*) being reached, over number of participants recruited (see Vasileiou, Barnett, Thorpe, & Young, 2018 for a systematic review on the topic). Theme saturation is achieved when new data from subsequent participants no longer produces any new concepts (e.g. codes, super-categories, or themes) when being analysed, meaning all possible perceptions and explanations of the phenomenon being investigated in the population of choice have been exhausted. A good way of checking theme saturation has been achieved is to be consultative amongst the research team after each of the nine study phases set out above. This may be more familiarly known as *Inter-Rater Reliability* to non-qualitative researchers (see Armstrong, Gosling, Weinman, & Marteau, 1997; Campbell, Quincy, Osserman, & Pedersen, 2013), but differs in as much as you are not looking for direct and complete matches of themes, but rather the analysis is an ongoing process of consultation and negotiation. Consultative analysis should be done via face-to-face meetings,

where possible, but conversation should be kept open via telephone calls and e-mail dialogue for immediate consultation in between each of the twenty study stages (see *Table 1*). A good rule of thumb, is that where there is more than one analyst, the first analyst should analyse all the transcripts and the second should analyse half – if cross-checking finds inter-rater reliability and thematic concordance to be high or excellent there is no need for the second analyst to analyse any more, though if this is not the case, they should analyse more transcripts. If there is a third analyst, then the first analyses all and the second and third analyse half each. Where there is a fourth analyst, we recommend the first analyst analyses all transcripts, whilst the second and third analysts take half each, and the fourth analyses half of those analysed by the second analyst and half of those analysed by the third analyst. Again, more analysts may help reduce researcher bias, and will assist in satisfying the sometimes competing needs of those researchers from different professional backgrounds. However, we would strongly recommend against more than four analysts for a small-to-medium-scale Grounded Theory study in order to avoid *Interpretive Pluralism*: The propagation of distinct codes, super-categories, themes, or theories due to volume of analysts rather than variation within the dataset. Often, discussions about analysis will aid all researchers in realising they are calling aspects of the data by different labels, but actually mean the same underlying concept as another researcher, and therefore inter-rater reliability and thematic saturation is being reached, but the realisation that it has lags behind the process.

(Good) Cross-Disciplinary Working

Working *on* or *across* the boundaries of different disciplines is not an easy feat. It is often difficult to begin with as different disciplines have different jargons and ways of implementing research (Boucher, Smyth, & Johnstone, 2004; Huang et al., 2018; Milford et al., 2017; Olesen, Droes, Hatton, Chico, & Schatzman, 1994). It requires all members of the team to widen their perspectives by acknowledging the expertise of others whilst simultaneously defending their own (Bowers, 2010; Kuzel, 2010; Mayan, 2010), but we argue – as others have done before us (e.g. Cheek, 2008; Fernald & Duclos, 2005) – the benefits have the potential to outweigh the initial struggles each and every time. It is the belief of the authors, after having collaborated on Grounded Theory projects, that to be truly cross-disciplinary, there must be an emphasis on collaboration rather than ownership between partners; an appreciation of the needs of each discipline, be they professional, educational, or research-orientated; all aided by an open and honest line of communication between all parties involved. We also recommend researchers should develop an ability to be clear about explanations and be prepared to interpret them in non-discipline-specific jargon. Likewise, all researchers in the team must have an openness to speak-up when they disagree with interpretations of findings and challenge where necessary; whilst demonstrating a real willingness to negotiate interpretations of findings, standing firm on some points, and conceding or deferring on others (MacCleave, 2006; Richards, 1999). Discussions around data will expectedly be lensed by professional backgrounds, and initial generation of super-categories and themes is expected to be slow, taking much conversation, compromise, debate, and negotiation. It will not be uncommon for the differing demands of each of the professions from which the researchers will analyse to often compete with or be missed by the other professions.

CONCLUSION

The recent uptake in qualitative methodologies to understand patient- and population-level experiences is a promising shift in the research practices amongst healthcare researchers and health-

service evaluators. Though occasionally still met with concern, qualitative research has at least gained appreciation for its quality, and at best garnered respect for its insight (see Burman, 1998; Pope, van Royen, & Baker, 2002). This chapter has been written as a step-by-step guide for all researchers of health and healthcare services wishing to work in a cross-disciplinary team and achieve quality findings derived from well-collected data and rigorous Grounded Theory analysis. That is not to say however, that the ‘nine phases, twenty stages’ approach set out above cannot be used outside of health research, and therefore within any discipline wishing to employ a Grounded Theory methodology (for example psychological, sociological, and anthropological studies; business and management evaluations; studies in human geography; projects which are ethnographic in nature, or even Grounded Theory studies of film, television, and stage scripts, or of operettas and music lyrics). What we have hoped to also demonstrate is how exactly qualitative research generally, but Grounded Theory especially, can be valuable. We have further demonstrated the scope of its utility in producing both results and testable theories within healthcare settings, which can help propagate future research and further our understanding of particular phenomena across different populations. So often, training or guidance in qualitative methods and methodologies is seen as unimportant, which has frequently led to researchers having to ‘learn qualitative methods minus mentorship’ (to borrow from McCallin, Nathaniel, & Andrews, 2011). This has, unfortunately, habitually led to poorly executed qualitative research being presented, which consequently contributes to the lack of prestige qualitative research has held leading to the abandonment, ignorance, or neglect of qualitative results. In documenting the processes required to achieve (good) cross-disciplinary Grounded Theory we hope to provide a guide which is accessible and useable for future research. As others have (see Massey et al., 2006), we argue the case of working *at* and *across* the boundaries of different disciplines to provide a more holistic approach to study design, data collection, and analysis; and to inevitably achieve a wider reach when disseminating research findings. Above all, we have aimed for this chapter to enable researchers – novice *and* experienced – to (re)discover Grounded Theory as a methodology to consider for future cross-disciplinary health research projects.

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