QUAGOL: A guide for qualitative data analysis

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Background: Data analysis is a complex and contested part of the qualitative research process, which has received limited theoretical attention. Researchers are often in need of useful instructions or guidelines on how to analyze the mass of qualitative data, but face the lack of clear guidance for using particular analytic methods.

Objectives: The aim of this paper is to propose and discuss the Qualitative Analysis Guide of Leuven (QUAGOL), a guide that was developed in order to be able to truly capture the rich insights of qualitative interview data.

Method: The article describes six major problems researchers are often struggling with during the process of qualitative data analysis. Consequently, the QUAGOL is proposed as a guide to facilitate the process of analysis. Challenges emerged and lessons learned from own extensive experiences with qualitative data analysis within the Grounded Theory Approach, as well as from those of other researchers (as described in the literature), were discussed and recommendations were presented. Strengths and pitfalls of the proposed method were discussed in detail.

Results: The Qualitative Analysis Guide of Leuven (QUAGOL) offers a comprehensive method to guide the process of qualitative data analysis. The process consists of two parts, each consisting of five stages. The method is systematic but not rigid. It is characterized by iterative processes of digging deeper, constantly moving between the various stages of the process. As such, it aims to stimulate the researcher’s intuition and creativity as optimal as possible.

Conclusion: The QUAGOL guide is a theory and practice-based guide that supports and facilitates the process of analysis of qualitative interview data. Although the method can facilitate the process of analysis, it cannot guarantee automatic quality. The skills of the researcher and the quality of the research team remain the most crucial components of a successful process of analysis. Additionally, the importance of constantly moving between the various stages throughout the research process cannot be overstated.

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What is already known about the topic?

- Qualitative data analysis is a complex and challenging part of the research process which has received only limited attention in the research literature.
- During the analysis process of qualitative data, quite a lot of researchers are struggling with problems that compromise the trustworthiness of the research findings.
- There is a lack of guidelines on how to analyze the mass of qualitative interview data.

What this paper adds

- A theory- and practice-based guide that supports and facilitates the process of analysis of qualitative interview data.

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• An experience-based and detailed description of the strengths and pitfalls of the Qualitative Analysis Guide of Leuven (QUAGOL).

1. Introduction

Imagine, a study about nurses’ involvement in euthanasia.1 The data are collected through in-depth interviews with nurses having experience in the care for patients requesting euthanasia. The first respondent is a man, working in a neutral hospital, with a positive attitude toward euthanasia. He has 10 years of experience in oncology care and has been involved in 8 euthanasia cases. The man speaks fluently and with conviction about the subject. ‘Respecting the patient’s euthanasia request’ seems to be the main focus of his care. The most important role of the nurse, in his opinion, is to gain absolutely certainty that the euthanasia request is really what the patient wants. Subsequently, the nurse must be sure that all the necessary steps of the procedure are taken. He tells you that the hospital protocol serves as checklist, which is for him the most important instrument in the euthanasia care process.

The second respondent is a woman, working in a neutral hospital. She also has a positive attitude toward euthanasia. She has 5 years of experience on a geriatric care ward and has been involved in 3 euthanasia cases. Here, you are confronted with a quite different story. The nurse tells you how important it is for her to be able to understand the patient’s request. Her most important concern is: what is the right attitude for me in guiding and supporting the patient and the patient’s family through this process? How should I be? Her primary focus in the care for these patients is to show respect for the patient as person in the broad sense (a person with a specific character, particular life history, own wishes, fears, coping strengths and relationships). She describes in detail how she enters into a close and personal relationship with patients and their family in order to create a communicational atmosphere, within which she helps them spend their final days together in a good way.

A next respondent, again a man, working in a catholic hospital, with a negative attitude toward euthanasia. He has 5 years of experience in a palliative support team and has been involved in 12 euthanasia cases. This time, you hear an emotional story, underlining the emotional intensity of being involved in euthanasia. Caring for a patient requesting euthanasia is intense, difficult and grave, according to this nurse. ‘Truly helping the patient to die serenely’ is the central message in his story. ‘As a nurse I must do everything in my power to contribute to this’, he tells you in the interview. His story makes clear that a euthanasia care process is only successful when everyone involved is able to make one’s peace with the situation.

The next participant is a woman, working in a neutral hospital. She has a pro-attitude and has 3 years of experience on an oncology unit; she has been involved in 2 euthanasia cases. You are confronted with a young nurse telling, again, a totally different story about nurses’ involvement in euthanasia. Her story is one about the organization of care. ‘Caring for a patient requesting euthanasia requires, first of all, an efficient, practical organisation of care’, she tells you. According to this nurse, the responsibility of the nurse is to find out what to ‘do’ to make this care process successfully.

And you can go on. You are confronted with pages and pages of interview data. Every respondent has his or her own unique story that can help you understand the nurses’ involvement in euthanasia care processes. How to analyze and interpret all these different data? How to understand their meaning and draw legitimate conclusions? How to grasp the essence of these data while protecting the integrity of each story when responding to the research question? These questions point to the real challenge of qualitative data analysis.

Data analysis is a complex and contested part of the qualitative research process, which has received limited theoretical attention (Savage, 2000). Researchers are often in need of useful instructions or guidelines on how to analyze the mass of qualitative data, but face the lack of clear guidance for using particular analytic methods (Hunter et al., 2002; McCance et al., 2001). Most available guidelines or checklists related to qualitative studies are critical appraisal tools or focus on reporting qualitative research such as the CASP (Public Health Resource Unit, 2006), COREQ (Tong et al., 2007), Malterud’s guidelines (2001), and McMaster Critical Review Form (Lettis et al., 2007). They do not provide researchers with clear instructions on how to analyze, interpret and summarize qualitative data.

In trying to meet this need and fill this lack, we should not, however, forget to be careful. For on the one hand, there is growing consensus that understanding or using a prescribed method of analysis is not enough to generate new insights. Qualitative data analysis is very complex, and any description of the practical aspects of the analysis process runs the risk of oversimplification. There is no one right way to work with qualitative data. Essentially, qualitative data analysis is a process best ‘learnt by doing’ (Froggatt, 2001).

On the other hand, we need to bear in mind that the ‘Aha-erlebenis’, the moment where one makes meaning beyond the facts, does not just happen out of the blue (Hunter et al., 2002). No themes, categories, concepts or theories will ‘emerge’ without the researcher who must ‘make it so’ (Sandelowski, 1995, p. 371). This requires expertise in reading, thinking, imagining, conceiving, conceptualizing, connecting, condensing, categorizing and thereby creating a new storyline (Jennings, 2007). This implies the development of ‘intellectual craftmanship’ (Mills, 1995/1978, p. 195) without which no valuable qualitative work can be produced (Sandelowski, 1995). Extensive preparation is required to open the researcher’s mind to multiple meanings and perspectives and to lay the groundwork for one to be creative (Hunter et al., 2002). In qualitative research it is essential that we ask which techniques or methods can be used to guide and support researchers in this challenging intellectual process (Jennings, 2007; Hunter et al., 2002).

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1 The following examples are inspired by our studies about nurses’ involvement in euthanasia in Flanders, Belgium (Denier et al., 2009, 2010a,b; Dierckx de Casterlé et al., 2010).
2. Problem statement

The process of qualitative data analysis is an extensive and challenging activity, confronting the researcher with many problems. Based on the literature and on our own experiences with qualitative data analysis, we can discern six major problems researchers are often struggling with.

2.1. Over-reliance on qualitative software packages

Figuring out what to do with the data once they are collected is one of ‘the most paralyzing moments’ in qualitative analyses (Jennings, 2007; Sandelowski, 1995). The data generated with qualitative methods are often voluminous, and researchers are faced with the challenge of grasping a sense of the whole, extracting significant facts, distinguishing relevant themes, discovering the meaning beyond the facts and ultimately reconstructing the story of the respondents on a general, overarching and conceptual level.

The problem of figuring out how to start the process of analysis frequently results in researchers relying too heavily on qualitative software packages (Jennings, 2007). Overwhelmed by all the narrative material that they must work on, researchers often focus too quickly and exclusively on coding the data and entering the codes into qualitative software packages (Jennings, 2007). Researchers often do not take the necessary time to read and reread the material, sit back and reflect on what one has read, trying to grasp the general themes and storylines and coming to the necessary ‘aha-erlebnis’ (Hunter et al., 2002). Software cannot decide how to segment data or what codes to attach to these segments, nor what data means (Sandelowski, 1995). An extensive preparation of the coding work is required to open the researcher’s mind to multiple meanings and perspectives (Hunter et al., 2002).

2.2. Word overload due to line-by-line approaches

Another problem that often occurs in qualitative analysis, is word overload, which is produced by line-by-line approaches to coding. In such cases, the researcher attaches labels to lines of data without a sense of the whole or of analytic direction. Consequently, these lines either have no meaning by themselves or have more meanings than can be grasped by one label (Sandelowski, 1995). This kind of coding is meaningless. It is analytically and contextually empty and produces nothing but fatigue and frustration. The generalizations developed in qualitative analyses are embedded in the contextual richness of individual experience. Qualitative data management strategies that depend solely on coding and sorting of texts into units of like meaning will give up much of the story’s contextual richness (Ayres et al., 2003).

2.3. Coding using a preconceived framework

Further, many researchers struggle with the dilemma of whether or not to perform pure inductive coding or to code the data with the help of preconceived notions (Bailey and Jackson, 2003). Using a preconceived framework runs the risk of prematurely excluding alternative ways of organizing the data that may be more illuminating. As such, one runs the risk of premature analytic closure, resulting from a persistent (but often unconscious and unrecognized) commitment to some a priori view of the subject under investigation (Sandelowski, 1995).

2.4. Difficulty of retaining the integrity of each respondent’s story

The feeling of losing the uniqueness of each of the individual interviews is another problem in the analysis of qualitative data (Bailey and Jackson, 2003). This is characteristic for the analytical process, which does not always respect the interviewee’s particular portrayal of their stories. The analytical method segments the data, thus limiting the researchers’ understanding of the interviewee’s perspective. As such, it prevents them from understanding and describing a participant’s experience in its richness (Bailey and Jackson, 2003; Riessman, 1990). The content of each interview is unique, differing from the other interviews qua experiences, tone, emotional involvement, physical involvement, etc. How to retain the integrity of each respondent’s responses constitutes one of the most important challenges that qualitative researchers are faced with (Bailey and Jackson, 2003).

2.5. Full potential of data is not exploited

Next, the analysis does not always go beyond a mere descriptive account. It does not always offer a thorough interpretation or theoretical development, although the use of a Grounded Theory Approach is reported. It happens that explanation is oversimplified and the complexities of the research phenomena are ignored, so that the ambiguities and diversities of the participants’ experiences are not reflected in the final description (Froggatt, 2001). In such cases, we meet research reports that present only lists of themes and subthemes, but stop short of interpretation. Here, the full potential of the data is not exploited. The analysis does not offer a thorough interpretation of the interviewee’s world, which clearly undermines the credibility of the results.

This type of merely descriptive presentation happens, for instance, when the analysis is separated out as a discrete activity without analogously undertaking an iterative dialogue with the interview data. It also occurs when deductive rather than inductive analysis is undertaken or when too much emphasis is being placed upon allowing the data to speak for themselves. In such cases, we see papers that successively present large fragments from interviews with little explanation or interpretation, with no attempt to identify commonalities within the data, and without clarification of the purpose of the quotes (Froggatt, 2001).

2.6. Data analysis as individual process

Finally, conceiving the qualitative data analysis as an individual process rather than a team process is also a common problem among qualitative researchers, leading
to personal frustration and little depth in the analysis. Hunter et al. (2002) underscores the importance of viewing data from several perspectives facilitating multidimensional thinking and offering different ways of making meaning of the interview data. A team approach will enhance the possibility to gain creative and thoughtful insight in the research phenomenon. Jennings (2007) also points to the importance of mentors, rather than manuals, to guide the researcher in grasping the essence of the research findings.

As qualitative researchers we experienced similar difficulties in analyzing qualitative interview data within a Grounded Theory Approach (Glaser and Strauss, 1999; Corbin and Strauss, 2008). The process of analysis, as well as the guidance of young researchers in this process constitutes a real challenge. As such, we were triggered to find a method that could support researchers in the analytical process without imposing a rigid, detailed step-by-step plan. We searched for a supporting guide that makes researchers able to understand the meaning of the data in a consistent and scientific way, sufficiently based on the use of intuition, imagination and creativity.

3. Aim

The purpose of this article is to propose and discuss the Qualitative Analysis Guide of Leuven (QUAGOL), a guide that we developed in order to be able to truly capture the rich insights of qualitative interview data. The QUAGOL is based on our own experiences with qualitative research as well as on that of other researchers (as described in the literature) and is inspired by the constant comparative method of the Grounded Theory Approach (Corbin and Strauss, 2008). QUAGOL is proposed as a guide to facilitate the process of qualitative data analysis.

4. The Qualitative Analysis Guide of Leuven (QUAGOL)

The proposed method is comprehensive and systematic but not rigid; it offers space that stimulates the researcher’s intuition and creativity as maximal and optimal as possible. The method gets the researcher out of his isolated position as the analysis process is predominantly considered as a team activity rather than a purely individual process.

The process of analysis consists of two parts: (1) a thorough preparation of the coding process and (2) the actual coding process using a qualitative software program. Both parts consist of 5 stages which, for the purpose of this article, are summarized artificially as discrete and linear stages. However, in reality, our method is characterized by iterative processes of digging deeper, constantly moving between the different stages (Froggatt, 2001). The process of analysis immediately starts after the first interview has been conducted and continues till the point of data saturation has been reached.

The first part consists of a thorough preparation of the coding process, implying only paper and pencil work. In this part, the researcher and his team explicitly and deliberately postpone the process of actual coding. As Sandelowski (1995, p. 371) reports, ‘first look at your data in order to see what you should look for in your data’. This preparatory work is crucially important to develop a useful and empirically based framework for the actual coding process.

While the first part happens by paper and pencil work, the stages of the second part require the use of qualitative software, as we start with the actual coding process. Based on the conceptual insights resulting from the previous stages, a list of contextually and analytically meaningful concepts is drawn up. It serves as a coding list for the actual coding process allowing a systematic analysis of the concepts based on empirical data. This part ends with an empirically based description of the results. Fig. 1 offers a schematic overview of the 10 stages in the process of data analysis.

As the collection and analysis of data occurs simultaneously, both parts cannot be strictly separated. Newly collected data, even at the end of the study, require that the researchers go through the previous stages again, inevitably resulting in partial overlap and interaction between both parts of the process of analysis.

4.1. Preparation of the coding process

4.1.1. Stage 1: thorough (re)reading of the interviews

Every interview is meticulously transcribed verbatim immediately by the interviewing researcher, including the non-verbal signals. Additionally, a short report about the interviewee’s and contextual characteristics of the interview is made, helping the researcher to comprehend the interview within its particular context. The transcript is thoroughly read different times in order to familiarize with the data and getting a sense of the interview as a whole. What is this interview about? What does this participant tell me that is relevant for the research question? As the analysis is considered as a team process, the transcript is also read by the other members of the research team. Each interview is read as many times as necessary to apprehend its essential features, without feeling pressured to move forward analytically. During this reading process, the researcher will underline key phrases, simply because they make some, though yet embryonic, impression on him/her. The meaning of some words or passages, as interpreted tentatively by the researcher, thoughts or reflections evoked by some passages are noted in the margins next to the text. It is clear that a rudimentary kind of analysis begins in this stage. Fig. 2 offers an example of the results of the (re)reading process.

4.1.2. Stage 2: narrative interview report

Stage 1 results in a holistic understanding of the respondent’s experience. In the second stage, the researcher tries to phrase (articulate) this understanding.

The interview is read again and put aside. Then, the researcher tries to articulate the essence of the interviewee’s story in answer to the research question. The writing of the narrative report is guided by the question: ‘What are the essential characteristics of the interviewee’s story that may contribute to a better insight in the research topic?’ The answer is described in a narrative way, using the specific story of the interviewee. The narrative report
1. Thorough (re)reading of the interviews  ➞  A holistic understanding of the respondent's experience
2. Narrative interview report  ➞  A brief abstract of the key storylines of the interview
3. From narrative interview report to conceptual interview scheme  ➞  Concrete experiences replaced by concepts
4. Fitting-test of the conceptual interview scheme  ➞  Testing the appropriateness of schematic card in dialogue
5. Constant comparison process  ➞  Forward-backwards movement between within-case and across-case analysis

**ACTUAL CODING PROCESS (using qualitative software)**

6. Draw up a list of concepts  ➞  A common list of concepts as preliminary codes
7. Coding process – back to the ‘ground’  ➞  Linking all relevant fragments to the appropriate codes
8. Analysis of concepts  ➞  Description of concepts, their meaning, dimensions & characteristics
9. Extraction of the essential structure  ➞  Conceptual framework or story-line
10. Description of the results  ➞  Description of the essential findings

Fig. 1. Stages of the Qualitative Analysis Guide of Leuven (QUAGOL).
can include brief paraphrasing that stays close to the data, more abstract renderings of the data, or comments on the narrative structure or interactional features of the interview event (Sandelowski, 1995). This stage results in a brief abstract of the key storylines including a summary impression of the characteristics of the interview.

It is suggested to start the second stage after some interviews have been conducted and to select (in consultation with the other team members) the interview that appears to provide the most ‘rich’ information, i.e. the most valuable information to contribute to the research aim.

Focusing on the real essence of the story, it is suggested to limit the narrative report to one page. Analogously, all members of the team read the interviews and make narrative interview reports, which are discussed during the meetings of the research team.

4.1.3. Stage 3: from narrative report to conceptual interview scheme

While the narrative interview report provides a general, narrative view of the essence of the interview, the conceptual interview scheme provides concepts that appear relevant to get insight into the research topic. As such, the researcher makes a first move from the concrete level of experience to the conceptual level of the story. Concrete experiences are being replaced by concepts arising from these experiences. What has been told during the interview and (narratively) described in the narrative interview report is being brought to a more abstract and conceptual level. The researcher distances from the particularity of the interview and the narrative report, by filtering the most important data and clustering them in concepts. Which concepts grasp the essence of the interview in response to the research question? All-embracing concepts must be avoided in this stage as one looks for manageable concepts that will guide the coding process. The key concepts – those considered as most characteristic for the interview – are highlighted; they can help find the essential structure of the research answer (see stage 9). The concepts are represented in a scheme and, where necessary, clarified with respect to their content (see Fig. 3).

The translation of the narrative report into a conceptual interview scheme is a crucial preparatory stage for the actual analysis of the data with the qualitative software as this scheme will facilitate the transition from raw data to manageable concepts. The concepts will be further developed and refined as the researcher gets more insight into the research phenomenon. We experienced these schemes as an important analytic instrument to retain the integrity of each respondent’s story. It also helps in keeping track of the data as a whole, since every interview will have its own conceptual interview scheme. After having analyzed 20 interviews, one can easily go back and grasp the essence of the first interview by looking into the conceptual interview scheme of this interview. Furthermore, these schemes are also an important instrument of communication within the research team, for they provide the researchers with a strategy to support the trustworthiness of the process of analysis.

We have observed that more experienced researchers sometimes skip the second stage and immediately start with the formulation of the conceptual interview scheme after having read the interview.
4.1.4. **Stage 4: Fitting-test of the conceptual interview schemes**

In stage 4, the appropriateness of the conceptual interview schemes is being verified by iterative dialogue with the interview data. The researcher reread the interview with the conceptual interview scheme in mind. Two questions need to be answered: (1) Does the content of the conceptual interview scheme actually reflect the most important concepts in answer to the research question? Are there any other important concepts the researcher overlooks? (2) Can the concepts of the conceptual interview scheme be linked to the interview data? Through scrapping, completion or reformulation, the conceptual interview schemes are adapted, completed or refined.

Characteristic for this stage is that it represents the first forward–backward movement. In stage 1 till 3 we went forwards, starting from the interview data, and then formulating the narrative interview reports, followed by translation into conceptual interview schemes. Stage 4 stimulates the researcher to go back to the interview data.
A comparison and discussion of the conceptual interview schemes within the research team will help to further optimize the schemes.

4.1.5. Stage 5: Constant comparison process

Stage 5 is characterized by a forward–backward movement between within-case and across-case analysis which will facilitate the identification of common themes, concepts or hypotheses (Swanson-Kaufman and Schoenwald, 1988). The concepts of the conceptual interview schemes are further tested and developed through comparison with the schemes and data of the other interviews. New themes, concepts or hypotheses discovered in new interviews are checked for their presence in the previous interviews. The conceptual interview schemes are adapted to and refined based on these new insights. This gradually allows the researcher to find the essential and common themes and concepts throughout the interviews which are consequently described in a common and overarching conceptual interview scheme. These constant forward–backward movements with reflection on and adjustments of the common themes, concepts or hypotheses is carefully reported (using memos) and will guide the researcher during the process of further data collection and analysis. This information can be useful in allowing the researcher to chart the development of ideas throughout the analytical process and help provide evidence of why particular decisions were made during the process (Froogatt, 2001) and to demonstrate how a concept has been developed.

This stage will end in an increasing conceptual understanding of the research data as a whole, retaining the integrity of each individual case but taking into account the characteristics of other cases.

4.2. The actual coding process

4.2.1. Stage 6: draw up a list of concepts

By now, we have a well thought-out conceptual view of each particular interview, as well as of all the available interviews together. Based on the conceptual interview schemes, a common list of concepts is drawn up without imposing an hierarchical order (see Table 1). All concepts we have used so far in the conceptual interview schemes are listed and may represent different levels of abstraction. The list of concepts is evaluated and discussed within the research team; overlap or vagueness are remedied by mutual consensus. The resulting list of concepts is introduced as preliminary codes in the software program. The researcher is not yet allowed to categorize the codes because a premature hierarchical organization of the codes risks imposing a structure on the data that is not supported by them, thus preventing the development of other structures and insights. In this stage, the concepts are not yet filled in with concrete interview data. They are not yet empirically supported, described and explained. Linking concepts is not yet recommended in this stage.

4.2.2. Stage 7: coding process — back to the ‘ground’

The actual coding process starts in the seventh stage. Each interview is read again with the list of concepts at hand.

<table>
<thead>
<tr>
<th>Table 1: Example of nonhierarchical list of concepts.</th>
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<tbody>
<tr>
<td>Farewell</td>
</tr>
<tr>
<td>Physician-Patient</td>
</tr>
<tr>
<td>Autonomy patient</td>
</tr>
<tr>
<td>Understanding</td>
</tr>
<tr>
<td>Experiencing</td>
</tr>
<tr>
<td>Respect</td>
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<tr>
<td>Contradictories in the care assignment</td>
</tr>
<tr>
<td>Discussibility</td>
</tr>
<tr>
<td>Assisting in care</td>
</tr>
<tr>
<td>Broad and extensive guidance</td>
</tr>
<tr>
<td>Coordination</td>
</tr>
<tr>
<td>Gratefulness</td>
</tr>
<tr>
<td>Sorrow</td>
</tr>
<tr>
<td>Delegate</td>
</tr>
<tr>
<td>Delicate</td>
</tr>
<tr>
<td>Irrevocable</td>
</tr>
<tr>
<td>Showing emotions</td>
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<tr>
<td>Emotional preparation</td>
</tr>
<tr>
<td>Ethics</td>
</tr>
<tr>
<td>Existential</td>
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<tr>
<td>No Protocol</td>
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<tr>
<td>One chance</td>
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<tr>
<td>Evolution</td>
</tr>
<tr>
<td>Dynamics</td>
</tr>
<tr>
<td>Impact</td>
</tr>
<tr>
<td>Powerlessness</td>
</tr>
<tr>
<td>Human involvement</td>
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</tbody>
</table>

A critical use of the list is of crucial importance. Does this list help me to reconstruct the story-line? To which extent do the concepts help me to identify and classify the significant passages in the interviews? Each significant passage of the interview is linked to one of the concepts of the list. If no concept is found to be linked to in a particular interview, the list may need to be adapted. Every new concept is verified in the light of the other interviews. Does the missing concept also appear as an essential concept in other interviews? Can we explain why the concept is present in some and not in other interviews? Can we link other interview fragments to this missing concept?

Analogously, the researcher examines the ‘quality’ of the concepts of the list. Are the concepts sufficiently defined and well-delineated to capture all significant ideas, messages or hypotheses in a differentiated way? Codes that are too abstract (embracing large parts of interviews) as well as codes that are too concrete (broadly overlapping with concrete interview data) will prevent an efficient coding process. Questions or comments regarding concepts, their meaning or name, are reported (in memos) and discussed within the research team. This critical use and adaptation of the concepts will help to optimize the coding list.

4.2.3. Stage 8: analysis and description of concepts

After having linked all the relevant fragments of the available interviews to the appropriate codes (stage 7), the researcher proceeds on the across-case analysis of the concepts. Every code is analyzed through a careful exploration and study of all citations associated with the code. This analysis is guided by the following questions: Does every citation fit with the concept? Is there one common message describing the essence of the concept or
can we discern more than one message? Can we maintain the concept as such, or do we have to split it into several subconcepts? Or, reversely, do the empirical data suggest congregating various concepts into one?

Next, the researcher tries to understand and articulate the specific meaning of the concepts in his/her own words. A deeper analysis of the concepts allows to find out when, where, why, and in which circumstances the concepts appear. In this way, the tentative concepts (as formulated in the coding list) are cleaned up, delimited and defined. As such, a thorough analysis of the empirical data allows the researcher to give a clear description of concepts, their meaning, dimensions and characteristics, grounded in the empirical data. Such in-depth analytical work can only result from an intensive and collaborative effort of the whole research team.

4.2.4. Stage 9: extraction of the essential structure

Stage 8 results in a list of rather isolated concepts and their meaning, dimensions and characteristics. The aim of stage 9 is to integrate all these concepts in a meaningful conceptual framework or story-line in response to the research question. Inspired through the conceptual interview schemes of all available interviews (referring to the essential structure of each interview separately), the researcher tries to formulate a conceptual framework helping to organize and structure all concepts in a meaningful way. This framework, again, is verified against all interviews and interview schemes. Does this framework allow us to describe and explicate all individual interview stories?

4.2.5. Stage 10: description of the results

At this stage, the researcher is able to reconstruct the story of the respondents, this time on a conceptual, theoretical level, grounded in the interview data. Based on the conceptual framework (stage 9) on the one hand and the in-depth analysis of concepts (stage 8) on the other hand, the researcher is able to systematically and carefully describe the essential findings in answer to the research question. The description starts with the core findings (the core category and related concepts) after which the researcher systematically and carefully describes and explicates the concepts and their interconnection. Significant quotes are added where necessary and relevant to fully grasp the essence of the concepts and their relation.

Even in this final stage, the constant comparison method is used to continually check, discuss and further develop the theoretical insights. After having described the essential research findings, the researcher will again reread all the interviews for a final evaluation of the accuracy and comprehensiveness of the storyline. Does the theory fit with all interviews? Are there missing concepts and if there are, are they essential? Are there negative cases (cases that appear to disconfirm earlier findings) and if there are, can the researcher explain these differences or discrepancies? Next, the results are checked by a formal peer debriefing, during which an interdisciplinary panel of external experts discuss the results in answer to the research question.

Ideally, this stage gives rise to a theory or theoretical model in answer to the research question. However, due to methodological and practical limitations, the results are often limited to the development of theoretical concepts and their mutual relationships, allowing to describe and explain the phenomenon under investigation.

5. Discussion

5.1. Strengths of the method

The method described in this article is presented as a guiding tool in the analysis of qualitative interview data. According to our experiences, this guide can serve as a valuable aid in the qualitative analysis process. The strengths of the guide lie in the underlying principles on which the guide is built, most of which have been supported by other authors: a case-oriented approach characterized by a continual balancing between within-case and cross-case analysis (e.g. Ayres et al., 2003; Sandelowski, 1995, 1996); a forward–backward dynamics using the constant comparative method (e.g. Froggatt, 2001; Glaser and Strauss, 1999; Sandelowski, 1995, 1996); the combination of analytical approaches (e.g. Coffey and Atkinson, 1996; Hunter et al., 2002; Savage, 2000; Simons and Lathlean, 2008; Sandelowski, 1996); use of data-generated sensitizing concepts (Sandelowski, 1995); its focus on peopleware rather than software (e.g. Jennings, 2007; Hunter et al., 2002; Sandelowski, 1995) and interdisciplinary team approach.

5.1.1. A case-oriented approach

A case-oriented approach focuses on the understanding of ‘a particular in the all-together’ (Sandelowski, 1995, 1996). The appropriate initial approach to qualitative data analysis is to understand and treat each sampling unit as one case. The researcher must, first and foremost, make sense of the data collected for each individual sampling unit. Looking at and through each case is, according to Sandelowski (1996), the basis from which researchers may make idiographic generalizations, syntheses or interpretations of data. Next, the researcher proceeds to a cross-case analysis looking for commonalities and differences across cases (Ayres et al., 2003; Sandelowski, 1996).

The combination of within-case and across-case analysis techniques produces contextually grounded findings, retaining the integrity of each interview and taking into account the context of other interviews. Generalizations are, as reported by Ayres et al. (2003), embedded in the contextual richness of individual experiences.

However, the sequence is important. According to Ayres et al. (2003), information must first have explanatory force in one case. Ideas or insights from one case sensitize the researcher to look for similar information in other cases. Only when an idea occurs repeatedly in multiple contexts, it can be instantiated as a theme. When a theme has explanatory force in individual cases, as well as across several cases, it will most likely also apply beyond one sample (Ayres et al., 2003).
5.1.2. A forward–backward dynamics using the constant comparative method

From the start till the end of the process, the analytical work is characterized by iterative processes of analysis in dialogue with the data digging deeper and deeper in the research phenomenon (Froggatt, 2001). Data analysis is distinguished but not isolated from description and interpretation (Sandelowski, 1995; Wolcott, 1994). (1) During the description stage, the data are to speak for themselves. Here, we have to answer the question: “What is going on here?” (2) Within the process of analysis, we have to leave the purely descriptive account by inquiring into key elements and the relationships between them. Here, we focus on the question “How do things work? How are they related?” (3) During the interpretation stage, we attempt to reach an understanding about meaning, particularly in relation to context by focusing on the question “What is to be made of it all?” (Wolcott, 1994, p. 12).

The interplay between description, analysis and interpretation and the continuous verification of developing ideas, themes, hypotheses and concepts against available and newly collected data, allows the researcher to go beyond a descriptive account and to reach a deep understanding about meaning in relationship to context. This forward–backward move permits the researcher to exploit the full potential of the qualitative data (Froggatt, 2001; Sandelowski, 1995).

5.1.3. Combination of analytical approaches

The guide combines a traditional and creative analytical approach permitting to view the data from different methodological perspectives and preventing a line-by-line approach to coding. The combination of two approaches helps the researcher to find out alternative interpretations of the data and to elucidate different layers of understanding represented in the data (Coffey and Atkinson, 1996; Savage, 2000). The use of two methods of analysis thus offers greater complexity and depth in understanding the research phenomenon (Savage, 2000).

The process starts with a creative and holistic approach, focusing on the intuition, imagination and creativity of the researcher. Starting with a case-oriented, narrative approach, the researcher treats the case as a whole, trying to comprehend its essence; the features of the cases are treated as a whole rather than as disaggregated variables (Sandelowski, 1996). The combination of within-case and cross-case analyses contributes to the understanding of “the particular in the all-together” (Sandelowski, 1996) and facilitates the process of intuiting. Intuiting is the critical reflection on and identification of themes as they are discovered in the stories of the respondents (Swanson-Kauffman and Schonwald, 1988). This approach makes it possible to develop themes in a way that it takes advantage of the richness of the data and does justice to the complexity of the respondent’s experiences (Ayres et al., 2003). However, in this approach we do not systematically look for empirical support.

After getting a first sense of the whole, a more disciplined approach is used; an approach that is systematically and consistently applied to all data (Sandelowski, 1995). In this approach we explicitly look for empirical support for our findings. More concretely, the holistic, narrative approach is followed by a more traditional process of thematic analysis, derived from and taking forward the findings of the first approach. The preliminary narrative approach prevents the researchers of getting lost in the details of the actual coding process in the thematic approach.

5.1.4. The use of data-generated sensitizing concepts as coding framework

The guide proposes a compromise between a strictly inductive and a theory-driven coding system. The guide prescribes a thorough and extensive preparation of the coding process instead of a ‘line-by-line coding’, inviting the researcher to ‘first look at own data in order to see what he/she should look for in the data’ (Sandelowski, 1995). This preparatory work produces analytically and contextually meaningful concepts or codes that may help the researcher to grasp the essence of the research phenomenon. These concepts are data grounded in the reality and should be considered as points of departure from which to study the data (Charmaz, 2000). These sensitizing, data-generated concepts offer ways of seeing, organizing and understanding experiences of respondents in a way that they make sense.

5.1.5. Focus on peopleware and not software

By focusing on a thorough preparation of the coding work, this method prevents the researcher from relying too quickly and too heavily on qualitative software packages, thereby getting lost in a meaningless mass of codes. The focus on an extensive and thorough preparation of the coding work and the combination of different analytical approaches allow the researcher to view the data from several perspectives and open his/her perception to multiple meanings and perspectives (Hunter et al., 2002). The researcher’s skills in thinking, imagining, conceiving, conceptualizing, connecting and creating are continuously helping him/her in finding meaning beyond the facts.

5.1.6. Interdisciplinary team approach

Last but not least, the interdisciplinary team approach constitutes one of the most important strengths of QUAGOL. Based on years of experience in qualitative research and in guiding young qualitative researchers, we discovered the essential value of teamwork in the process of qualitative data analysis. From the beginning, the process of analysis is predominantly considered as a team activity rather than an individual process. A team approach enhances the possibility to grasp the essence of the interview data, to correct misinterpretations and to obtain rich, well-considered and creative insight in the research phenomenon. The interdisciplinary composition of the team will contribute to the quality of the discussion and so to the trustworthiness of the findings.

5.2. Pitfalls

Our experiences with the QUAGOL guide of analysis are positive. It appears as a useful and helpful guiding tool both
for the process of qualitative data analysis and for teaching and supervision of less experienced qualitative researchers. However, there are potential pitfalls originating from the requirements associated with the method. Good insight in these potential pitfalls and strategies to prevent them, may enhance the usefulness of the guide.

5.2.1. Distinguishing relevant from less relevant information

Distinguishing relevant information from less relevant information constitutes a real challenge for the researcher. For fear of leaving out relevant information, especially in the beginning of the process of analysis, many researchers are tempted to select too much information. This choice can lead to an overload of information hindering the researcher to find meaning in the data. It is therefore strongly suggested to focus, first, on the essence of the stories rather than on the completeness of the stories’ messages in the preliminary stages of analysis. The conceptual interview schemes may be helpful in this exercise. We recommend the researcher to deliberately start with a restricted selection of data. In case of not grasping important information in these stages, it will occur in a later stage when iterative, sequential methods of analysis are being used.

5.2.2. Narrative report: key storylines

Writing down the narrative interview report also constitutes a challenge. The difficulty lies in trying to discover the key storylines that are an answer to the research question. Hence, the research question must guide the analysis processes explicitly, and from the beginning onwards. We are not interested in the storylines as such, but in those messages in the story that contribute to better insight in the research phenomenon. The narrative interview report, therefore, is more than a mere summary of the content of the story. It is suggested to find tricks (e.g. to stick the research question on the wall) to continuously call the research question to mind.

5.2.3. From narrative interview report to conceptual interview schemes

The translation of the narrative interview report in conceptual interview schemes does not always proceed smoothly. Often, the researcher is inclined to add too much concrete information to the scheme in order to make them more clear and complete. In this case, there is a risk of focusing too much on details, thus losing sight on the essence of the story. It is important to constantly question whether the information of the conceptual interview schemes is essential to respond to the research question. Here, it is useful to carry out the development of the conceptual interview scheme in 2–4 stages, starting with a ‘large’ version (maximally two pages), and gradually coming to the ‘small’ version (on one page) by selecting carefully the most essential information.

5.2.4. Initial within-case analysis

Another important pitfall associated with the use of this guide, lies in the initial within-case analysis. Every case should be considered and analyzed as a separated data unit. We observed among researchers the tendency to analyze one case, while being biased by the insights developed during the analysis of other cases. This results in conceptual interview schemes, which mainly focus on common insights rather than reflecting the essence and uniqueness of each particular case. Avoiding this pitfall requires strong analytical skills from the researcher as well the use of bracketing strategies. Breaking down the analytical work in three stages (narrative interview report, translation in conceptual interview schemes and validity testing) explicitly aims to prevent this problem. It is therefore suggested not to skip stages, especially not for less experienced qualitative researchers.

5.2.5. Choice and formulation of concepts

The choice and formulation of concepts is one of the most challenging activities of the qualitative researcher. The focus on intuition and creativity is a strength as well as a pitfall of the QUAGOL guide. It is the researcher who gives meaning to the data and does the abstract thinking, resulting in a framework of concepts. The suggested stages can only facilitate and optimize the quality of this abstract thinking (Jennings, 2007). Concepts need to be clear and unambiguous; they must fit with the data and contribute to the knowledge development in the research phenomenon. It is our experience that many concepts are too vague, all-embracing or abstract, making the actual coding work almost impossible. The transition from concrete to abstract data should be considered as a stepwise process activity. The more the process of analysis progresses, the more the researcher will be able to conceptualize. It is therefore suggested to start the analysis with the search for the most obvious messages, themes and ideas. It is our experience that interdisciplinary teamwork optimizes the process of conceptualization. Looking at the data from different perspectives actually contributes to a deeper and more nuanced understanding of the data.

6. Conclusion

The QUAGOL guide is a theory- and practice-based guide that supports and facilitates the process of analysis of qualitative interview data. Although the method as described above, can facilitate the process of analysis of qualitative data, it cannot guarantee automatic quality of analysis. The method is proposed as a guiding tool rather than as a strict procedure or technique that has to be implemented correctly step by step. The skills of the researcher and the common quality of the research team remain the most crucial components of a successful process of analysis. It is absolutely essential to consider the process of data analysis as a team activity. Finally, the importance of constantly moving between the stages throughout the research process cannot be overstated.

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References


