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Abstract

Aim: To describe the challenges associated with the analysis phase of a narrative study and offer solutions for those embarking on the process of complex qualitative analysis.

Background: Qualitative research requires rigorous analysis. However, novice researchers often struggle to identify appropriately robust analytical procedures that will move them from their transcripts to their final findings. Further adding to this problem is the lack of clear and detailed accounts within the literature that detail the process of narrative analysis and how to address some of the common challenges researchers face.

Data sources: A longitudinal narrative case study exploring the personal and family changes reported by non-injured family members during the first year of a family member's traumatic brain injury.

Review methods: This is a methodological paper

Discussion: Challenges of analysis included: conceptualising the whole analytical process and demonstrating the relationship between the different analytical layers and the final research findings; interpreting the data in a way that reflected the priorities of a narrative approach and managing large quantities of data. Solutions explored were the use of a mapping technique to map out analytic intentions; aligning analysis and interpretation with the conceptual framework and the use of matrices to store and manage quotes, codes and reflections.

Conclusion: It is hoped that the solutions offered in this paper will help novice researchers to manage and work with their data, assisting them to develop the confidence to be more intuitive and creative in their research.

Key Words: Qualitative Research, Narrative Inquiry, Data analysis, Methodology

Title: Challenges and solutions within the analysis phase of a longitudinal narrative case study

Introduction

Researchers sometimes refer to the collection of qualitative data as the collection of 'narrative' (Riessman 1993). What they refer to is textually based material that is broken up into pieces and treated separately from the surrounding discourse (Riessman 1993). However, approaches to narrative inquiry are specific research strategies that consider how the re-telling of events and experiences can reveal more than simply identifying a factual account (Mishler 1995; Bingley et al. 2008; Carter 2008). Narrative's rise in popularity has made it a frequent addition within the research literature alongside case study, ethnography, grounded theory and phenomenology (Creswell 2007; Holloway & Freshwater 2007). Although each methodology is different from the other the phase of data analysis has been identified as the most crucial aspect of any study (Lacey 2010). However there are few 'off-the-shelf' procedures leaving novice researchers with the difficult question of what to do with their data (Creswell 2007, p.150).

Therefore the aim of this paper is to describe the challenges faced during the analysis phase of a narrative study and discuss solutions used to address these. This paper will also consider how the analysis informs the presentation of data in the writing-up of final research findings. Although narrative approaches are distinct from other forms of research, solutions offered in this paper may be useful to those engaged in other qualitative investigations.

The Study

A narrative case study was designed to explore the personal and family changes reported by noninjured family members at three time points during the first year of a family member's traumatic brain injury (Whiffin 2012). Three families were considered individual cases and each case comprised a number of family members, each of whom completed in-depth interviews at one, three and twelve months post-injury. Therefore, there were several potential layers of analysis; the individual account at each data collection point, the longitudinal account, the family as a whole and finally in-between families. It is important to note that analysis could have been approached in a number of different ways, each having an impact on the shape of the final research product.

Challenge One: conceptualising the analytical process

Despite some analytical approaches discussed within the literature narrative analysis is considered particularly difficult and "clear accounts of how to analyse the data [...] are rare" (Squire et al. 2008, p.1). Riessman (1993) argued that data analysis methods should emerge from the research process and Creswell (2007) advocates an experiential approach that suggests learning by doing. Creswell (2007) stated that as strategies become less prescriptive the researcher has more freedom to custom make a procedure appropriate for the aims of the study. Although this freedom may be liberating to an experienced researcher, to a novice, the lack of prescriptive procedures can seem daunting.

Lacey (2010) stated that the analysis process must be transparent and described in detail but it was easy to foresee getting lost in the complexity of the task ahead (Hennink et al. 2011). In an attempt to clarify analytic intentions a mapping exercise was conducted (Figure 1). The benefit of this activity was that it enabled conceptualisation of the process and the relationship between the different levels of analysis and the final research product. In addition the mapping process ensured not losing sight of the original research aims. The analytical map was not a rigid framework and was updated regularly as decisions were made about the data.

[Insert Figure 1 about here]

Challenge Two: interpreting the data to reflect the priorities of a narrative approach

Although there may be some freedom within the interpretation and application of data analysis techniques there are general principles and theoretical underpinnings that should be applied, and are essential to valid and rigorous data analysis (Miles & Huberman 1994; Holloway & Wheeler 2002). Therefore qualitative researchers must work with their data in a systematic way and understand what is influencing their interpretation of the original account. Despite Creswell (2007) stating narrative inquiry is one of the least structured analytical approaches, there are phases of analysis that are common across many qualitative methods: transcription, coding and interpretation.

Stage One: transcription

The first step in working with interview data is to turn the raw data into an 'intelligible write-up' (Miles & Huberman 1994, p51). Transcription is a re-presentation of the raw data into a new form (Gibson & Brown 2009) and decisions regarding what and how to transcribe the interview shape how the interview is represented (Riessman 1993). The same interview can be transcribed in a number of different ways depending on the theoretical and methodological orientations of the research and also the motivations and interests of the researcher (Riessman 2008). Making these decisions transparent is important for understanding what is influencing the analysis.

Stage Two: coding

Once a transcript has been created the next stage is to work through the transcript to identify aspects of the account that appear relevant. This stage of analysis is often called coding and represents the labelling of data so that it is easier to work with (Miles & Huberman 1994, p56). However the term 'coding' is contentious in narrative approaches because it is associated with breaking apart the participant's story. Authors therefore prefer to discuss approaches that prioritise temporality, sequencing and linguistics (Floersch et al. 2010). As a novice researcher this method was difficult to apply in practice. Therefore it was felt that a coding technique could be used so long as the account was not fragmented and relevant contextual material not lost. The act of coding is challenging; to code everything can create too much information and to code too little risks a superficial analysis. Both approaches can lose sight of the account as a single whole (Holloway & Wheeler 2002). Therefore, Miles and Huberman (1994) recommend returning to the research question and asking questions of the data that relate directly to it foregrounding certain issues without engaging in premature interpretation of the text (Box 1). At this stage analysis can be quite descriptive, aligning analysis more closely with narrative theory marked the beginning of the interpretive process.

[Insert Box 1 about here]

Narrative Theory

Within narrative traditions the person is considered an innate storyteller. Through stories people construct a sense of self and portray the meaning of their experiences (McAdams 1993; Lieblich et al. 1998). It has been argued that there is a human desire to re-order the chaotic or inexplicable into something which is tangible, useable and meaningful, often as a way to come to terms with a changed life (Frank 1995; Charmaz 1999; Bingley et al. 2008). A key element of narrative is the temporality of experience and the sense of self that connects past experience with the present and the future (Chase 2005):

'Narratives, in significant measure, constitute human realities and our mode of being. They help guide action and are a socioculturally shared resource that gives substance, artfulness and texture to people's lives. They form the warp and weft of who we are and what we might or might not do.' (Sparkes & Smith 2008, p295-296)

The most important difference between narrative and other text-based data is 'sequence' and 'consequence' (Riessman & Quinney 2005). Sequence is the temporal ordering of events that have been selected for sharing and organised to fit together. Consequence examines how people interpret the 'what comes after'. These key technical differences set narrative analyses apart from other forms such as thematic and grounded theory approaches (Floersch et al. 2010). Such details portray storied events in particular ways illustrating the effects of the event on the storyteller. Narratives are therefore instruments for social negotiation and the way these narratives are crafted reveals something about the meaning attributed to them (Polkinghorne 1988; Bruner 1990; Mishler 2005).

Narrative Analysis

There are a range of narrative approaches that Riessman and Quinney (2005) helpfully portray as a continuum. At one end is the consideration of entire life stories and at the other situated or discrete stories within an account become the unit of analysis. The method employed in the research discussed in this paper was in the middle of this continuum:

'Here, personal narrative encompasses long sections of talk – extended accounts of lives in context that develop over the course of single or multiple interviews. The discrete story that is the unit of analysis in Labov's definition gives way to an evolving series of stories that are framed in and through interaction.' (Riessman & Quinney 2005, p394)

Therefore the process of analysis had to be developed so that sequence, context and consequence could be clearly identified (Riessman 2008). To address these key elements, codes were organised into a table (Table 1). The column entitled 'sequence' was used to organise codes designating chronology, temporality, time and place. The 'contextual issues' column was used to bring together social and personal aspects and finally the 'consequence' column was either the description of what actually happened next or what the participant had predicted would happen in the future.

This process was to 're-story' the narrative and was used by Mishler (1995) to assemble work

trajectories into a real chronological order for further analysis. Following this example the principle

aim of the analysis was to pull the data together into a whole that could be understood from a

macro perspective. Once the whole was represented in summary tables the minutiae could be

analysed and important elements of the narrative identified for the relevance they had to the whole

account.

[Insert Table 1 about here]

Stage Three: Interpretation

Lieblich et al. (1998) stated that no reading is free of interpretation; therefore whenever the researcher is working with data at some level they are interpreting its meaning. Reflective diaries

are used to record ideas about the meaning of the data enhancing the trustworthiness of the final findings by providing an audit trail of the origins of any interpretations made (Holloway & Wheeler 2002; Creswell 2007). Trustworthiness can also be enhanced through a longitudinal research design where early interpretations can be tested out with participants in follow-up interviews. Accurate transcription, verbatim extracts and thick description also increase the trustworthiness of the final research product (Roberts & Priest 2006; Creswell 2007). Commitment to detailed writing and thick description are hallmarks of quality in narrative studies (Freshwater & Holloway 2010). In addition supervisors were fully engaged in reviewing and challenging any interpretations made alongside the underpinning evidence for these.

Yet, despite this overlay of interpretation there is still a stage required that moves beyond the codes and re-storying process into a deeper phase of interpretation that reflects a meaningful portrayal of the experience (Cortazzi 2001; Riessman 2003). Once again this interpretive leap is not always an obvious one for a novice researcher and they may wish to look to their conceptual framework and underpinning theory to guide them.

As a means of illustrating this latter point the research used as the example in this paper was heavily influenced by the Life Thread Model described by Ellis-Hill et al. (2008). The Life Tread Model treats the participant's account as comprising a number of narrative threads and advocates a holistic analytic approach. The term 'narrative thread' was used throughout the research to denote relevant storied accounts within the data. These narrative threads represented the connection between past, present and future and how, under certain circumstances, aspects of people's past can become detached from their present and future (Ellis-Hill et al. 2008).

Challenge Three: managing large quantities of data

In qualitative inquiry researchers are encouraged to become immersed in their data (Morse & Field 1996; Horsburgh 2003). However this immersion has led to researchers feeling as though they are 'drowning in data' (Morse & Field 1996) with the path to interpretation fraught with complexity.

Rigorous analysis should create an audit trail from the raw data to final interpretations. Therefore strategies should be employed to maintain structure and order in the process of analysis (Holloway & Wheeler 2002). However, unlike analysis strategies where data can be organised by breaking them apart into small units, narrative approaches maintain a commitment to keep data together (Riessman 1990; Riessman & Quinney 2005). Many qualitative researchers now use software such as NVivo and ATLAS.ti as a means of storing and managing their data (Creswell 2007; Lacey 2010). Unfortunately, a detailed exploration of the usefulness of qualitative analysis software in narrative research is beyond the scope of this paper.

Following the advice of Miles and Huberman (1994) a matrix was created to support analysis (Tables 2 and 4). Each matrix was designed to store narrative threads, raw data, interpretive codes and reflections. Once this information was contained within a matrix reflections could be made about any data not added to a matrix thus reducing the likelihood of missing or ignoring relevant aspects of the account. There were three specific layers of analysis in the research; the individual account, the longitudinal account and finally the family.

The individual account

The first level of interpretation considered each of the participants' accounts on an individual basis. Working backwards and forwards between the transcript and the re-storied account (Table 1) a number of narrative threads were identified reflecting the individual's experience, the effect that the family member's head injury had had on them, and their family. Ideas for narrative threads were challenged, developed and advanced through reflective practices. Matrices were then completed (Table 2).

[Insert Table 2 about here]

The longitudinal account

The second analytical level considered the longitudinal experience. This analysis aimed to compare the data from the individual time points, one, three and twelve months, and identify longitudinal narrative threads representing the experience over time. Individual narrative threads were laid alongside each other so that connections between the data could be seen (Table 3). These new longitudinal threads were placed in a matrix then challenged and reshaped alongside raw data, interpretive codes and reflections (Table 4).

[Insert Table 3 about here]

[Insert Table 4 about here]

Family analysis

The final level of analysis involved identifying narrative threads for the whole family. Longitudinal narrative threads for each member of the same family were examined for commonalities. However despite the matrices being essential in reaching this stage, when moving beyond the minutia of the data to a more macro level understanding they started to feel restrictive and unwieldy. It was at this point that an in-depth understanding of the data had been reached through being fully submerged in analysis. As the analysis process unfolded it was clear through critical reflections and discussions with supervisors that there were five overarching narratives common to all three family cases. Specifically these were: trauma, recovery, autobiographical, suffering and family (Figure 2). In the later stages of analysis these five narrative threads enabled more freedom and creativity in the interpretive process.

[Insert Figure 2 about here]

Presentation of findings

The presentation of findings is an interpretive decision and should not be "a 'dumping ground' for undigested data" (Hennink et al. 2011, p.278). Findings should be vivid, interesting, and evocative as well as credible (Holloway & Wheeler 2002; Holloway & Freshwater 2007). This is not an easy task and takes commitment to the time and effort involved in writing and re-writing. Researchers need time and distance from the minutia of data to explore the larger picture and evolving interpretations. Reflexivity is key to this process aided through reflective diaries and open discussions with peers and supervisors who will question and challenge emerging ideas.

The use of verbatim quotes is an expected part of qualitative findings both to support the researcher's interpretations and illustrate issues more vividly (Hennink et al. 2011). In narrative approaches these are often more extensive than other forms but Holloway and Freshwater (2007) warn that over reliance on a series of quotes is not acceptable either. Unfortunately there is no formula that determines the proportion of interpretive text to verbatim quotes. In reality this took several attempts and peer review to strike the right balance using quotes to underpin key interpretations rather than describe all the events that took place.

As well as verbatim quotes other visual formats can be used to communicate ideas about the data (Hennink et al. 2011). Illustrations can convey core meanings and serve as summaries of key points (Figure 3). During analysis drawings had already been made in a reflective diary, these were reviewed and their utility for representing key interpretations explored with supervisors. It was important to establish if these illustrations would clarify or confuse the final findings. However, as with all narrative approaches it should be acknowledged that there is no single interpretation of the data and that other readers may themselves take something different than the researcher had intended (Lieblich et al. 1998).

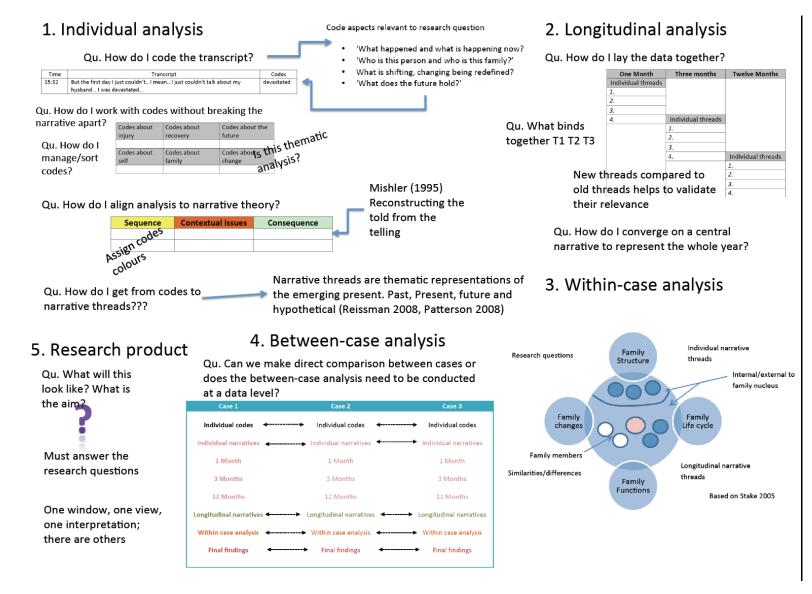
[Insert Figure 3 about here]

Conclusion

Working with qualitative data is a daunting prospect for a novice researcher. Ensuring a transparent auditable process from data to findings presents further problems whereby the systematic and rigorous approach can leave the interpretive aspect of analysis constrained. Therefore the aim of this paper was to present solutions alongside common challenges within the analytic stage of research and demonstrate how such decisions inform the presentation of final research findings. It is hoped these may help novice researchers manage and work with their data prior to developing the confidence to be intuitive and creative in their research. Intuition and creativity are essential in qualitative research and can enhance the communicative power of qualitative findings.

Figures and Tables

Figure 1: Mapping Activity



Box 1: Questions developed for initial analysis and coding of transcript

Research questions: What are the changes reported by non-injured family members during the first year of a family member's traumatic brain injury and within one family what are the effects of traumatic brain injury up to one year following injury?

- 'What happened and what is happening now?
- 'Who is this person and who is this family?'
- What is shifting, changing being redefined?
- 'What does the future hold?'

Table 1: Organisation of interpretive codes

Sequence	Contextual issues	Consequence
Orientation to the day of the accident		
Injury	Knew it was bad He could have died I was really worried about the	
First sight	I thought I was strong enough I shouldn't have taken the children	Children scared to return need to protect them from further harm
Critical care unit	Unfamiliar medical worldIn the end you knew more than theSearch for informationdid	
Deterioration	Sedation, intubation Pneumothorax chest drain Allergic reaction was careless	He could die Realisation It's a miracle

Table 2: Individual narrative thread matrix

Narrative Thread	Injury + one month		
	Codes	Quotes	
Is my husband the same or different?	Not my husband Almost looks the same Confusion The way he put his hand	" and I remember being told 'he will never be the same again and I thought"	
	Reflections		
	Why are people told 'he will be different' so early, does that help or hinder? What does it do to hope?		

Table 3: Example of threads over time

Time since injury							
One Month	Three months	Twelve Months					
Individual narrative threads							
'Is my husband the same or different?'	'He's done so well'	'To the outside world he's the same'					
<i>Codes:</i> Knew it was bad; search for information; told he won't be the same	<i>Codes:</i> Compromise and routine, so happy, maybe it wasn't that bad	<i>Codes:</i> So much improved, skills are there, looks the same, no worries, amazing, hasn't realised what's possible					
Personal growth and achievement	We're back to normal but some things have changed	A shell you're used to					
<i>Codes:</i> Unfamiliar medical world; I thought I was strong enough; not prepared	<i>Codes:</i> How the children are being affected, she feels guilty, nothing you can do with ifs	<i>Codes:</i> Shouts at the children, he's not realised, fear, never used to be like that, critical, emotional					

Table 4: Longitudinal narrative matrix

Narrative Thread	One Month	Three Month	Twelve Months
	Exemplars	Exemplars	Exemplars
Recovery, change and loss	" and I remember being told 'he will never be the same again and I thought"	"I don't think his personality has changed that much he's probably more self-centred"	"and that's when we find he doesn't cope as well as he used to, before he was a calm person"
	Reflections	Reflections	Reflections
	Making sense of predicted change, bargaining, establishing continuity	Rationalising new/altered behaviour, what is personality?	Making sense of change as difference, new compared to old
	Codes	Codes	Codes
	Not my husband Almost looks the same Confusion The way he put his hand	Physical recovery Skills intact Will it change Back to normal	People think he's the same Change hidden Only we know

Figure 2: Interpretive process to identify narrative threads

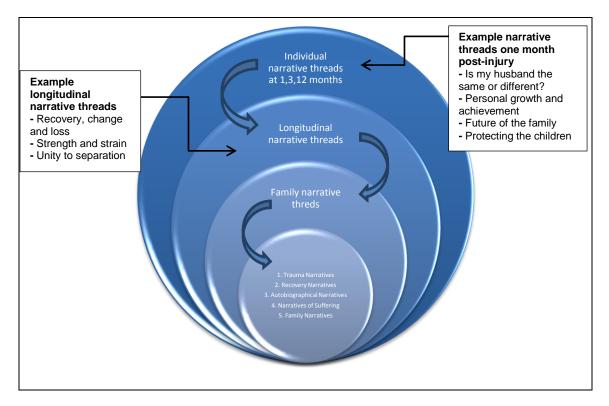
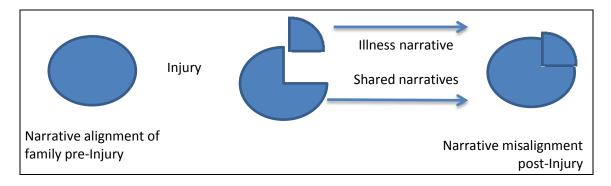


Figure 3: Narrative alignment in autobiographical narratives



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