



Framework analysis: A worked example from a midwifery research[☆]



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Abstract

Objective: Framework analysis is a pragmatic approach for real-world investigations and has been commonly used in health care research. Although the theoretical part of framework analysis has been well documented, there is limited literature describing its practical use. The objective of this paper is to demonstrate systematic and explicit guidance in using framework analysis by giving an example of a study exploring women's experience of postnatal depression. **Method:** Data presented in this paper comes from semi-structured interviews of 33 women (from three different cultural backgrounds) attending for a child or postnatal care in six purposively selected maternal and child health (MCH) clinics in Kuala Lumpur.

Results: Data were analyzed using framework analysis, which consists of three interrelated stages. In the first stage (data management), a careful selection of the data (transcripts) to be reviewed was made. The initial categories were developed based on the selected transcripts, and the initial themes were decided (known as a thematic framework). In the second stage (descriptive accounts), the thematic framework was investigated to identify any linkage and similarity between one category to another. The third stage of the analysis (explanatory accounts) involved checking exactly how the level of matching between the phenomena was distributed across the whole set of data. Using framework analysis, four themes were identified to explain the women's experience of postnatal depression namely *the changes, causal explanations, dealing with postnatal depression, and perceived impacts*.

Conclusions: The details of each stage of the analysis were explained to guide researchers through essential steps in undertaking framework analysis. Health care researchers may find a worked example addressed in this paper as useful when analyzing qualitative data.

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Introduction

Qualitative data analysis is a conceptual process of bringing meaning to the collected qualitative data into a set of understanding and explanation of a studied phenomenon. This process involves a description, classification, and interconnection of phenomena using numerous reflexives, analytical, and inductive strategy.¹ While the approach to analyze data varies depending on the theoretical perspectives adopted in the study, qualitative data analysis shared four steps in common. The steps include data collection, data reduction, data displays, and conclusion drawing/verification.² The amount of qualitative data involves throughout these steps can be overwhelming, therefore, requires proper data management.

Novice qualitative researchers commonly require systematic and explicit guidance in the process of qualitative data analysis.³ Moreover, the procedures for qualitative data analysis have been criticized as less rigorous, lack of detail, and practiced in casual and unsystematic ways.⁴ There is a need to enhance transparency within qualitative data analysis so that the process of generating qualitative findings are well explained, thereby improving the trustworthiness of the findings.

The most common methods used in qualitative data analysis include thematic analysis and framework analysis. Thematic analysis is referred to as 'a method for identifying, analyzing and reporting patterns (themes) within data.'⁵ Thematic analysis is an independent and reliable type of qualitative data analysis that can be used to analyze a large amount of qualitative dataset.⁶ It permits researchers to explore transcripts analytically and categorize the participants' description into relatively small units of contents.⁷ The most important characteristic of thematic analysis is that it allows researchers to analyze the participants' transcripts without overlooking their context.⁸ However, thematic analysis has been criticized as fragmenting the original data and may lead to misinterpretations of the data and has no clear and concise guidelines; thereby critics suggest the findings are subjective and lack of transparency.³

Framework analysis addresses the criticisms of thematic analysis. While framework analysis shares similarities with thematic analysis, particularly when recurring and emerging themes are identified, it offers transparency and verified associations between the stages of the analysis.^{5,9} Unlike the grounded theory approach, framework analysis is less focus on theory as a product of research and is a useful method to address specific questions.¹⁰ As such, framework analysis can be flexible in terms of allowing data collection and analysis to run in tandem and consecutively with a structured approach to answer the research questions.¹¹

Framework analysis was developed by social policy researchers in the United Kingdom. It is a pragmatic approach for real-world investigations and has been commonly used in health care research such as in nursing,¹⁰ midwifery,¹² and health psychology.^{13,14} Although the theoretical part of framework analysis has been well documented,^{11,15} there is limited literature describing its practical use. The objective of this reflective article is to demonstrate systematic and explicit guidance in the process

of qualitative data analysis using framework analysis. In doing so, this article provides descriptions and discussion of using framework analysis to analyze data from a study exploring women's experience of postnatal depression. It is beyond the scope of this article to discuss the main findings in-depth.

Taking Malaysia as a sample of a multicultural country, Malaysian women (which consists of three main cultural backgrounds namely Malay, Chinese, and Indian) were recruited to understand their experience of postnatal depression, explore their views on the causes of postnatal depression, understand their experiences of care and what they perceive may help them to manage their symptoms, and explore their views on potential interventions for postnatal depression.

Methods

Semi-structured interviews were carried out on 33 women (from three different cultural backgrounds) attending for a child or postnatal care in six purposively selected maternal and child health (MCH) clinics in Kuala Lumpur, Malaysia. The interviews were conducted between 45 and 60 min by the first author either at their home, in a private and quiet room at the respective clinic or at another location of the women's wish. The field notes were written and maintained immediately after each interview session to reflect the participants' emotions and non-verbal communications.¹⁶ Data were analyzed using framework analysis. Framework analysis was chosen to underpin data analysis in this study because it (i) is appropriate to analyze cross-sectional descriptive data. Therefore, it allows different aspect of concepts understudied phenomenon to be captured, (ii) offers transparency in the interpretation process,⁹ and (iii) includes interconnected stages in the analysis process hence, enabling the researcher to move forward and backward across the data until the final themes were developed.

Results

The approach of framework analysis used in this study was adopted from Ritchie and Lewis⁹ who described the three interrelated stages involved namely the (i) data management, (ii) descriptive accounts, and (iii) explanatory accounts.

Data management

The purpose of the data management stage was to construct a thematic framework. Applying the data management phase to this study, the steps as suggested by Ritchie and Lewis⁹ are as followed: familiarization with raw data, deciding initial themes or categories and summarizing or synthesizing the data.

Familiarization with raw data

This is the first step in the framework analysis. Familiarization with raw data builds a foundation of the framework structure. At this stage, a careful selection of the data

Table 1 Coding matrix used to identify code and categories.

Interview transcript	Description	Preliminary thoughts	Initial category
After giving birth, I spoke less. I didn't even laugh, I didn't enjoy my life, [and] I didn't feel like talking to others. There was a sudden change. No feeling, nothing, like laughing, not at all.	Spoke less, no feelings	Not enjoying life as before	Recognizing something is wrong (the changes) ^a
My mother-in-law follows traditional practices strictly. I was stressed. That's why I was stressed. When my baby had jaundice, she showered him with various types of leaves. I'm not that kind of person. I live in the city for quite sometimes, so I can't follow her way.	Mother in law and traditional postnatal practices	Having conflict to follow traditional practices	Tradition-modernity conflict
I did dhikr [reciting Arabic verse to remember God] and it helped me to relax. That's all I did.	Remember god	Religious practices	Ways of reducing distress

Raihana, a 28-year-old Malay lady, first-time mother with a two-month-old baby, housewife, stays with her mother in law during the postnatal period.

^a Initial categories became themes.

(transcripts) to be reviewed was made to ensure diversity of the participants' characteristics and circumstances. To identify any potential gaps or overemphasis in the dataset, the sampling strategy and the profile of all participants were re-examined.⁹ Only by considering the above factors, a representative framework for the whole dataset can be developed.

The selection of transcripts to build a thematic framework was made based on the representativeness of the multicultural backgrounds. Although other factors may be relevant and associated with the experience of postnatal depression, the cultural background was considered as the most important based on the research questions of: 'Do women's perceptions, and causal explanations of postnatal depression differ across different cultural backgrounds within Malaysia? If so, how does it differ?' After reviewing the whole dataset, a total of nine transcripts were chosen (three women from each cultural background) to represent three main cultural backgrounds in Malaysia. This was to ensure that a range of different cases was reviewed, the data were rich, deep and diverse.

To become more familiar with the data, the important issues and recurrent points written in the selected transcripts were jotted down. This process was facilitated using a coding matrix. The process of labeling each relevant line was conducted manually for the first three transcripts. The second and third author reviewed the same transcripts. Table 1 shows the sample of the coding matrix used to identify codes and categories in the data management stage. The initial categories were the final product of this stage.

Deciding initial themes

After the initial categories were developed based on the selected transcripts, the initial themes were decided, and

links between themes were identified, grouped and sorted to produce a level of main themes and subthemes. This was not a straightforward process. Instead, it involved logical and intuitive thinking, making judgments about meaning and examining connections between arising concepts and issues to ensure the research questions were fully addressed.¹⁷

The construction of the initial themes was based on the priority issues as informed by the research objectives, emergent issues raised by the participants, and recurrent points on particular experiences patterned by the participants' transcripts. This was to avoid any concepts derived from previous studies and existing theory that may 'contaminate' the meaning of the data as expressed by the participants. At this stage, most of the themes were substantive (such as emotions, behaviors, descriptive explanations). Some of the initial categories became initial themes (as indicated in the coding matrix above).

The labeled transcripts were revisited to allow for consistency in labeling. All revisions were recorded as a referral for the later stage of analysis. The process of familiarization continued until all selected transcripts were reviewed and understood. To avoid any overlapping between the themes, a thematic framework was developed consisting of initial themes and initial categories as illustrated in the thematic framework (Table 2).

Summarizing or synthesizing the data

At this stage, the thematic framework was applied to all transcripts. This final process of data management aims to 'reducing the data' and tracking evidence to aid in reporting findings. Each transcript was examined thoroughly for two main reasons. The first reason was to match the thematic framework with the transcripts and vice versa. The second reason is to identify emerging concepts without excluding

Table 2 Thematic framework with initial themes and initial categories.

Initial themes	Initial categories
Recognizing something is wrong (<i>the changes</i>)	Easily becomes irritated/angry Crying Rough toward baby Loss of excitement Sensitive Physical discomfort: Migraine/headache Loss of appetite Suicidal ideation Neglecting the baby
Causal explanations	Physical factors: Constipation, wound break down, perineal wound, limited movement Baby's health problems Tiredness Infections during pregnancy Traditional practices Family health problems Lack of support Baby's attitude Job-related stress Limited time with children Financial constraints Marital problems Sociocultural problems
Ways of reducing distress	Express feelings to others Religious practices Sleeping Self-persuasion Diversional activities/positive thinking
Perceptions toward healthcare practitioners (HCPs)	Giving health advice like mothers know everything Verbal advice, no practical support Lack of spiritual support Lack of understanding
Potential interventions	Seminar for expecting mothers Health education on emotional changes during the postnatal period Postnatal life/motherhood/baby's care

words or sentences immediately just because they did not fit the framework. These processes were conducted by maintaining the participant's language and giving a minimum interpretation for each word/sentence.

Descriptive accounts

In the descriptive accounts stage, elements and dimension were defined, and themes were refined involving three key steps, which are detection, categorization, and classification.⁹ In the detection step, not only the substantive concepts were identified, but the thematic framework was also investigated to identify any linkage and similarity between one category to another. Thus, it manages to differentiate two related themes. For instance, feelings that aroused during the occurrence of postnatal depression (symptoms of postnatal depression) and the changes that occurred as a result of postnatal depression (perceived impacts of postnatal depression) were separated.

While categorization involved refining categories by assigning descriptive data, classification introduced a higher

level of abstraction.⁹ This process was conducted with three main thoughts namely (i) remain close to data, (ii) level of detail captured, and (iii) categorization is comprehensive. Some initial themes were retained, whereas others were grouped into a more abstract level as analysis progressed. New language/terms were used to represent the original meaning of the participants' descriptions while maintaining their overall meaning.

Explanatory accounts

Explanatory accounts involved the process of detecting patterns, associative analyses, and identification clustering. These provide a deeper understanding of the reviewed subjects. To do this, the whole dataset was inspected to confirm any repeated patterns. The reasons for the differences between groups were also explored.

The first step in explanatory accounts was checking exactly how the level of matching between the phenomena was distributed across the whole set of data. For instance, examining how many participants stated that

Table 3 Development of the final themes within women’s dataset.

Initial themes	Initial categories	Refined categories	Core concepts	Final themes
Recognizing something is wrong	Loss of excitement	Different character Bad thoughts	Emotional changes	The changes
	Getting easily irritated			
	Being not normal	Uncontrollable crying Temperamental actions	Behavioral changes	
Causal explanations	Sensitive	Sleep deprivation Loss of appetite and physical discomfort Anxiety during pregnancy Unplanned pregnancy	Physiological changes	Causal explanations
	Suicidal ideation			
	Crying			
	Rough toward baby	Physical stressors Family management Roles and identity	Transition to motherhood	
	Neglecting the baby			
	Difficulty falling asleep at night			
	Physical discomfort: Migraine/headache, loss of appetite			
	Afraid the baby would die in her womb			
	Worries about the effects of antibiotics on the baby in her womb			
	Anxiety due to vaginal infections			
	The doctor said maybe the baby is abnormal.			
	Not ready to have a baby			
	Physical factors: Constipation, wound breakdown, perineal wound			
	Tiredness			
	Baby’s attitude			
Limited time with children				
Lack of knowledge – on childcare/breastfeeding				
Unable to work after last childbirth				
Pregnancy is not as what as expected				
Less time for herself and her husband/partner				
Less active				
Depending on others	Social circumstances Tradition-modernity conflict	Sociocultural factors		
Lack of support				
Financial constraints				
Marital problems				
Baby’s health problems				
Family health problems				
Traditional postnatal practices				
Breastfeeding problems and conflicts				
Conflicts in caring for the newborn				

Table 3 (Continued)

Initial themes	Initial categories	Refined categories	Core concepts	Final themes
Ways of reducing distress	Diversional activities – cooking, playing with children, go for a walk, listening to music, reading Try to follow traditional practices as possible. Set routine Religious practices Sleep and rest Received support from others	Diversional methods Positive actions Relaxing measures	Coping strategies	Dealing with postnatal depression
Perceptions toward HCPs	Roles of HCPs in the clinic – not in psychological health Verbal advice, no practical support Lack of spiritual support Sufficient care Viewed as a personal problem Unsatisfying advice Loss of confidence on the HCPs Less priority is given to maternal emotional health	Perceived roles of the HCPs Past Experiences	Barriers in seeking help	
Potential interventions	Counseling Follow-ups via phone calls Support group Education and thorough assessment	Professional support Education	Desired care	
Perceived impacts	The harsh response toward the child's behavior Shouting at the newborn baby 'Two different people'	Parenting styles	–	Perceived impacts

cultural factors were related to the development of postnatal depression and within which cultural background was highlighted.

The second step was interrogating the patterns of association, which involved searching not only the data that matched with the patterns but also included deviant cases. This process continued until the whole dataset was examined.

Explanations of any differences and associations across the data set were developed through 'reading the synthesized transcripts, examining patterns, sometimes re-reading full transcripts and most of the time thinking around data.'⁹

As a result of the above process, four themes were identified for the women with postnatal depression and three themes were identified for the HCPs. For the women's group, the themes were *the changes*, *causal explanations*, *dealing with postnatal depression*, and *perceived impacts*. For HCPs' group, the themes were a *conceptualisation of postnatal depression*, *causal explanations*, and *care and treatment*. Table 3 displays the sample of development of the core concept, labeling and final themes for women with postnatal depression.

Discussion

Using framework analysis to analyze transcripts from women with experience of postnatal depression, it was found that the symptoms of postnatal depression can be identified through three main changes which are: emotional, behavioral and physiological changes. The majority of women explained that they noticed something was wrong when they had emotional changes (e.g., 'loss of excitement', 'getting easily irritated', and 'being not normal') following childbirth. The main cause for the postnatal depression as perceived by the women was sociocultural factors, particularly a lack of support from families and cultural practices. It appeared that the perceived causes mentioned by the women would also apply to other pregnant and postnatal women. Perhaps what made the women link this with their experience of postnatal depression is when there was more than one factor that came to interact within a specific context, which had increased their distress. Despite their ability to recognize the symptoms of their emotional distress, and to link this with the difficulties they had during pregnancy and after childbirth, the majority of women did not perceive the alleviation of emotional distress as falling within the 'duty' of the healthcare practitioners (HCPs). Some of them regarded this emotional distress as their issues, which were not included in the HCPs' job descriptions. There were some women who still believed that HCPs should care for their emotional health and wanted to seek help, but they felt that they were not given appropriate attention by the HCPs. Without professional support, women relied on self-help methods, such as sharing their distress with female relatives and friends. Women expressed the need for professional support by mentioning counseling, telephone-based interventions, support groups, extended health education and detailed assessments of maternal health by HCPs. It should be noted that the impacts of postnatal depression were not widely spoken about by the women in this study. Nevertheless, a few women mentioned

that they were aware of their negative parenting styles and associated this with their emotional distress.

This reflective article provides a guide on how to analyze qualitative data using three interrelated stages of framework analysis as proposed by Ritchie and Lewis.⁹ Previous studies used different approaches. Gale et al.¹⁵ suggested seven stages in conducting framework analysis which is transcription, familiarization with the interview, coding, developing a working analytical framework, applying the analytical framework, charting data into the framework matrix, and interpreting the data), whereas Ward et al.,¹⁰ and Parkinson et al.,¹³ applied five stages of the analysis (familiarization, developing/identifying a theoretical framework, indexing, summarizing data in an analytical framework, and mapping and interpretation). While the numbers of the stages can be slightly different from one another, it should be noted that the process of framework analysis remains the same. This article combines both approaches through three stages, which are data management (familiarization with raw data, deciding initial themes and summarizing or synthesizing the data), descriptive accounts (detection, categorization and classification), and explanatory accounts (detecting patterns, associative analyses and identification clustering). It is noted that this approach of framework analysis gives a strong emphasis on data management with the focus on identifying any differences and associations across the data set. By doing so, it does not only provide a systematic data management guidance, particularly for novice qualitative researchers but also provides an "audit trail", addressing the issue of lack of transparency in qualitative data analysis.

Conclusion

This reflective article has demonstrated a worked example of how to apply framework analysis within qualitative data analysis based on a study of exploring women's experience of postnatal depression. It is argued that framework analysis is relevant in analyzing textual data as it enables the researcher to compare and contrast the themes across many cases but remain connected to the participant's account.¹⁵ In addition, using framework analysis enhance systematic data management and analysis as it allows an in-depth exploration of data while providing an effective and transparent audit trail. This means, when selected and implemented appropriately, framework analysis will produce credible findings. Healthcare researchers, both novice and experts, may find example addressed in this article as useful when conducting and analyzing qualitative studies.

While illustrating the advantages of using framework analysis, it must be noted that there are some limitations of using this type of analysis. First, adapting framework analysis is time-consuming, therefore, requiring commitments from the researchers and the team. Second, an open, critical and reflexive approach from all team members is essential for rigorous qualitative analysis. Third, although it has been argued that framework analysis suitable novice qualitative researchers, the presence of experienced qualitative researchers in the team to lead and facilitate all aspects of the analysis would be beneficial. Fourth, pertaining to the main findings within this study, it could not necessarily

be generalized to other populations. The perceived causes for postnatal depression as explained by the participants in this study do not allow any causal–effect relationships. However, this study enriched the understanding of women’s experiences of postnatal depression within a multicultural community and added to the simultaneous use of multiple risk factors for postnatal depression. At least, the findings would be applicable to other populations with similar cultural backgrounds.

Conflict of interests

The authors declare no conflict of interest.

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