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Applying Framework Analysis in Qualitative Health Research: A Practical Guide Using Perinatal Depression and Anxiety Data

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ABSTRACT

Background: Framework analysis is widely used in qualitative health research, particularly in nursing and midwifery studies. However, practical guidance on its application remains limited. This paper aims to illustrate the application of framework analysis using a qualitative study exploring perinatal women's and their spouses' experiences of depression and anxiety.
Methods: Data were obtained from in-depth interviews with 20 perinatal women and 15 men (spouses) attending antenatal or postnatal check-up at two purposively selected teaching hospitals in Malaysia. Three interrelated stages of framework analysis were applied to analyze the data: data management; descriptive accounts; and explanatory accounts.
Results: Using framework analysis as a structured and iterative approach, data were systematically coded, categorised, and refined to generate three themes: adjusting to a new period of life, dealing with perinatal distress, and mobilising needs and support. Women reported emotional and psychological distress linked to social and contextual stressors, whereas spouses emphasised caregiving roles and practical responsibilities. Coping strategies included support systems, help-seeking, and spiritual practices. Both groups supported digital and spouse-inclusive interventions, particularly those that are accessible, trustworthy, and responsive to users' needs.
Conclusion: This paper provides a practical illustration for applying framework analysis in qualitative health research. While the empirical findings offer contextual insights, the primary contribution of this paper lies in providing a clear and accessible methodological guide to support researchers in applying framework analysis in a structured, transparent, and reflexive manner.

Keywords: Framework analysis; Perinatal women; Depression; Anxiety; Spouses, Qualitative

INTRODUCTION

Qualitative data analysis shares five steps in common, which include organizing the data, sorting the data into relevant topics, open or initial coding, identifying themes and findings, and explaining findings (1). Numerous techniques are used in qualitative research to gather data such as interviews, focus groups, participant observation, and others (2). However, qualitative data analysis can be challenging, especially for novice researchers due to the richness and depth of the data, as well as the need to ensure that findings are both trustworthy and relevant to practice.

The most common methods used in qualitative data analysis include thematic analysis and framework analysis. Thematic analysis is a research technique that was used to identify, analyze, describe, and report themes or patterns in a set of data that leads to new insights and understanding (3). In thematic analysis, the stages of gathering data, analyzing data, and producing reports are not usually separate in qualitative research; instead, they frequently relate to one another and take place simultaneously (4).

Framework analysis is a qualitative method that uses a structured process to analyse data. It is particularly useful for enhancing transparency and understanding social and policy issues (5). It is defined as a naturally comparative type of thematic analysis which utilizes an organized structure of inductively and deductively derived themes (e.g., a framework) to cross-sectional analysis using both data description and abstraction (6,7). The application of this approach in qualitative data analysis does not only allow identification of patterns and relationships within the data, but also keeps the researchers grounded in the participants' viewpoint.

As framework analysis offers flexibility and simple data retrieval to demonstrate to others how decisions were made, it becomes an increasingly popular method in qualitative research (8). In the context of healthcare evidence synthesis, framework synthesis has been described and employed in a variety of ways, including the synthesis of qualitative research on the experiences of stakeholders within the context of widely recognized concepts (e.g., quality of life) (9). According to Richie and Lewis (10), there are three interrelated stages for framework analysis which include data management, descriptive accounts, and explanatory accounts. The data management stage involved familiarization of the data and careful selection of the data (transcripts) to be reviewed. In the descriptive accounts, the framework was investigated to identify any linkage and similarity between one category and another. Explanatory accounts involved checking exactly how the level of matching between the phenomena was distributed across the whole set of data.

Parkinson et al. (11) argued that framework analysis is a better choice compared to thematic analysis since it focuses on how the analytic framework's development should be guided by both emergent themes driven by data and priori concerns. In addition, Rosen et al. (12) reported that framework analysis was useful for mHealth research since it combines a lot of data into a format that digital application software developers can quickly analyze and use as a source in developing new products.

Framework analysis has been applied in various fields of research, which include in dentistry, emergency field, medical school students, mental healthcare, cardiovascular disease, and loneliness among adolescents (13-18). Despite its utility, there remains a lack of detailed, practice-oriented guidance demonstrating how the method is applied in real-world qualitative studies, limiting step-by-step illustrations using empirical data, particularly within the context of midwifery and perinatal mental health. In addition, novice researchers may find it challenging to translate theoretical descriptions of framework analysis into practical application, particularly when dealing with complex qualitative datasets. This highlights a methodological gap in the literature regarding accessible and context-specific guidance on how framework analysis can be systematically implemented.

Therefore, this paper aims to provide a practical illustration of how framework analysis can be applied in qualitative health research, using empirical data on perinatal depression and anxiety as a worked example. The primary focus of this paper is methodological rather than substantive; therefore, the empirical findings are presented to demonstrate the analytical process rather than to provide an in-depth exploration of perinatal mental health.

The Study Context

Data used in this paper were drawn from a qualitative study aimed to develop a spouse-inclusive framework for digital self-management of perinatal depression and anxiety based on the women, spouses, and experts' viewpoint. The study comprised two phases. In phase I, in-depth interviews were conducted with 20 perinatal women (with symptoms of depression and anxiety) and 15 men (spouses) in the obstetrics and gynecology clinics in Sultan Ahmad Shah Medical Centre and Hospital Canselor Tuanku Muhriz. Interview data were analysed using framework analysis. The selected participant in this study is chosen using one of these methods: Edinburgh Postnatal Depression Scale (EPDS) score ≥12 or Depression Anxiety Stress Scale (DASS) score ≥ 8 for depression, ≥7 for anxiety. In phase II, the existing literature review and self-care elements from WHO were integrated with the findings with the first phase to design the spouse-inclusive framework. The application of framework analysis in this study enables comprehensive qualitative data analysis through a clear step by step approach.

METHODS

Study Setting

This study was conducted three locations, which include the Family Health Clinic (FHC), International Islamic University Malaysia, Sultan Ahmad Shah Medical Centre (SASMEC), International Islamic University Malaysia, and Hospital Canselor Tuanku Muhriz (HCTM), University Kebangsaan Malaysia. FHC, SASMEC, and HCTM were chosen as they were the main referral semi-government hospital clinics in the East and Central regions of Malaysia. This allowed the recruitment of participants from a diverse population and various socio-demographics.

Study Design

This study adopted a qualitative descriptive approach to explore women's and spouses' experiences of perinatal depression and anxiety, which informed the application of framework analysis. This study is underpinned by an interpretivist paradigm, which assumes that participants' experiences are subjective and socially constructed.

Sample Size

The sample size required for a qualitative study depends on the achievement of data saturation. Based on previous studies, the median number of interviews to reach data saturation is between 15 and 30 (19). While no formula exists to determine the sample size in a qualitative study, 20 to 30 participants are recommended to give meaningful themes and appropriate interpretations to a phenomenon being studied (20). In a retrospective study by Turner-Bowker et al. (21) 97% of concepts emerged by the 20th interview. In this study, data collection continued until thematic saturation was achieved, occurring after approximately [e.g., 30–35] interviews, with subsequent interviews confirming existing patterns rather than generating new insights. In total, 20 perinatal women and 15 men (spouses) were recruited from IIUM and HCTM, making a total sample size of 35 participants. Nevertheless, the number of spouses recruited differed from that of the women since this study did not use dyads to recruit the participants.

Sampling Method

Participant selection is critical in qualitative research since it significantly impacts the quality of the research. Purposive sampling was used to recruit 20 women and 15 men (spouses) in this study. Purposive sampling, also known as non-probability sampling, occurs when elements selected for the sample are chosen based on the researcher's judgment. It involves a deliberate choice of participant due to the quality of their characteristics,(22) allowing researchers to target specific individuals or groups who possess the information or experiences relevant to the research objectives. Participants were recruited based on the following criteria: (i) age 18-45 years; (ii) pregnant or at 4-52 weeks after their last childbirth during screening stage; (ii) Malaysian by nationality; (iii) able to speak the Malay or English language; and (v) at risk of perinatal depression or anxiety by scoring: Edinburgh Postnatal Depression Scale score ≥12 or Depression Anxiety Stress Scale score ≥ 8 for depression, ≥7 for anxiety.

Data Collection

In-depth interviews were carried out with 20 perinatal women and 15 men (spouses)

attending for antenatal or postnatal check-ups from obstetrics & gynecology (O&G) clinic at Sultan Ahmad Shah Medical Centre International Islamic University Malaysia (SASMEC@IIUM), Pahang and the O&G clinic at Hospital Canselor Tuanku Muhriz, Kuala Lumpur. In this study, an in-depth interview was conducted to explore the perspectives, preferences, and information or educational needs of couples regarding spouse-inclusive interventions or digital applications to manage perinatal depression and anxiety. The interviews were conducted in Malay and/or English, depending on participants' preference.

A topic guide was used to facilitate the interview, which was developed from a systematic review and the research team's viewpoints. The interviews were conducted for between 45-60 minutes by the first author either in a private and quiet room at the respective clinic or online via google meet or by phone interview. Field notes were written and maintained immediately after each interview session to enrich the data and provide a rich context for analysis (23).

Data Analysis

Data were analyzed using framework analysis. Framework analysis is a method of conducting qualitative research in which the analysis process is conducted within a structured framework and has been found very helpful in promoting transparency in processes and facilitating understanding of social and policy issues (14). The approach of framework analysis used in this study contains three interrelated stages, which include: (i) data management; (ii) descriptive accounts; and (iii) explanatory accounts (10).

Reflexivity was maintained throughout the research process. The researcher engaged in continuous reflection on personal assumptions, potential biases, and interactions with participants through reflective notes and discussions within the research team, ensuring that interpretations remained grounded in the data. Several strategies were employed to ensure trustworthiness. Credibility was enhanced through prolonged engagement with the data and repeated review of transcripts. Dependability and confirmability were supported through maintaining an audit trail of coding decisions and analytical processes. Peer debriefing was conducted through regular discussions within the research team. Where appropriate, findings were compared across participants to ensure consistency and variation in the data. This process enabled transparency in how raw data were systematically transformed into final themes.

Ethical Approval

The permission to conduct this study was approved by the Kulliyyah of Nursing Post-Graduate and Research Committee (KNPGRC) (IIUM/313/14/3/1), IIUM Research Committee (IREC) (IIUM/504/14/11/2/IREC 2022-139), and Ethics Committee for SASMEC (IIUM/413/013/14/11/2/IIR22-35) and HCTM (UKM PPI/111/8/JEP-2022-707).

RESULTS

Overview of the Analytical Output

Framework analysis of interviews with 20 perinatal women and 15 spouses generated three overarching themes: Adjusting to a new period of life, dealing with perinatal distress and mobilising needs and support.

Theme 1: **Adjusting To a New Period of Life**

Almost all women and spouses conveyed that emotional distress was a sign of perinatal depression and anxiety. Women expressed that they not being themselves and cannot think normally especially during perinatal period. The women expressed that they had face feeling of being different such as "more sensitive", "easily to cry", "loss of interest", "easily get annoyed", and "abnormal behavior". Mr F noticed that her wife's action is unusual compared to before pregnancy since her wife talking to herself:

"I noticed when my wife pregnant to our third child, she was talking alone. I'm so weird during that time see her talking alone like that."

(*Mr F, 30*)

Physical discomforts were linked to emotional distress by both women and their spouse. Mrs F reported that she cannot sleep properly because she needs to take care of her baby alone and lead her to get stress easily thus increasing her anxiety level as well. Social distress such as long-distance relationships, financial problems, child burden, stress at workplace and lack of spouse support were described by almost all participants as related

to perinatal depression and anxiety. Mr H pointed out:

"Long distance relationship with my wife is one of the factors that can lead her to get anxiety since I will return home every two days. So, being alone at home during pregnancy can increase her anxiety level."

(*Mr H, 34*)

Women express that they are having burden with their children, lack of knowledge in handling newborn baby and others. Mrs I confessed:

"I also feel anxiety because this is my first child (*no experience in childbirth, so the anxiety increases, especially as the due date approaches*). *I have a fear of how the childbirth will go, whether it can be a normal delivery, and whether I will be able to breastfeed like others when the baby arrives."*

(*Mrs I, 31*)

Theme 2: **Dealing with Perinatal Distress**

Analysis of participants description indicates that women acknowledge that good support system especially from their spouse are very crucial in maintaining the healthy emotional well-being. Positive steps (seek helps from HCPs, sharing problems with others) and relaxing measures (support from spouses and others, spiritual approaches and diversional therapy) were expressed by women and spouses in helping alleviate their emotional distress. Both women and spouses conveyed that spiritual approaches were an effective measure in helping perinatal mothers to reduce their depression and anxiety levels as well as maintain good emotional well-being. Mrs L expressed that her spouse always gives her fully support during her pregnancy:

"Alhamdulillah, my spouse truly supports me especially during this pregnancy because he had seen me giving birth to our first child. So, in term of support, he always spends his time to accompany me during antenatal check-up."

(*Mrs L, 27*)

Support system especially from the family members can lighten their burden in taking care the baby and provide them a short break:

"Mostly, my sister will help me to handle the baby during my confinement period. In addition, she has a lot of experience in handling the baby as well."

(*Mrs J, 33*)

Sharing problems with spouse and reach out for the professional help as well as seek help from informal sources were the positive steps that were taken by the women to alleviate stress:

"When we experience any emotional distress or inner problems, we need to seek help from healthcare providers (*HCPs*) *to solve our problems as well as reduce the depression and anxiety."*

(*Mrs O, 32*)

In addition, relaxing measures such as spiritual approaches and spending time alone are the example of measures that was taken by perinatal women in reducing her stress. They are more practising positive steps rather than relaxing measures as the ways of alleviating their emotional distress during perinatal period.

Theme 3: **Mobilising Needs and Support**

Both women and spouses expressed that they totally agreed if there was an apps that they could use during the women emotional turmoil. They agreed that apps should include the authorization from professionals, covers relevant topics related to mental health, and consist of updated professional and scientific information:

"For me, the most important things that need to apply when want to develop an apps, it must include the authorization from the medical professionals such as doctors from the Ministry of Health (*MOH*) *in Malaysia; so, it will gain the users' trust in using and downloading the mental apps in the future."*

(*Mrs R, 36*)

While women emphasised that digital applications should be interactive and engaging, spouses highlighted their potential to increase public awareness of perinatal depression and anxiety:

"If you can create and promote the application to the public, so that people become more aware of their wives' health, they can take note of the issues that they are facing earlier through a stress scale from 1 to 10."

(*Mr B, 30*)

The inclusion of spouse roles, communication skills and problem-solving skills within the digital applications were seen as helpful by the women:

"In the app, it's crucial to include the spouse's role, especially if the wife is a housewife; so, it is important to help them for the good emotional well-being. It's because sometimes some spouses tend to neglect or don't take part in helping their wives in doing house chores because they are tired and busy with their work, and it ends up with the wife handling everything alone including the children."

(*Mrs O, 32*)

While the digital applications were seen by the women as crucial to maintain their good emotional well-being, their spouses believe the applications could help them in supporting their wives.

Overview of the Analytical Process

This section presents a worked example of how framework analysis was applied, illustrating three stages: data management, descriptives accounts and exploratory accounts (10). To enhance the practical value of this paper, selected excerpts from the data and examples of the analytical process are presented to illustrate how framework analysis was applied at each stage.

i. Data Management

Data management stage involved the familiarization of the data and careful selection of the data (transcripts) to be reviewed. The initial categories were developed based on the selected transcripts, and the initial themes would be decided (known as a thematic framework). A crucial step in interpretation was being familiar with the entire interview using the audio recording and/or transcript as well as any contextual or reflecting notes that were recorded by the researcher.

Familiarisation with Raw Data

In this stage, the researcher began to note ideas and potential coding schemes. The transcribed data were analyzed manually by listening to each recording several times using earphones to ensure that the meaning of the content was accurate before finalizing the transcription. The transcribed data that was sent to the professional transcriber was double-checked by the researcher to make sure that the data were not misinterpreted in terms of terminology.

Deciding Initial Themes

The initial themes were decided, and links between themes were identified after the initial categories were developed based on the selected transcripts. This process required logical and intuitive thinking as it was not a straightforward process. The coding process was conducted primarily by the first author, with regular discussions held with the research team to review codes, categories, and emerging themes. During the analytical process, the research team actively examined deviant or contradictory cases within the dataset to ensure that themes adequately reflected both common and divergent perspectives among participants. To enhance analytic consistency, coding decisions and thematic development were discussed among the research team through regular consensus meetings. Discrepancies were resolved through discussion until agreement was reached. Verbatim quotations were used to support the themes and enhance transparency by demonstrating how interpretations were grounded in participants' accounts. **Table** 1 below shows the example of a coding matrix that was used to identify code and initial categories.

The construction of the initial themes was based on the initial issues as enlightened by research objectives, emerging topics brought up by the participants and recurrent ideas on specific experiences as evidenced by their transcripts. During this stage, most of the themes were substantive in nature such as emotions, behaviours, and descriptive explanations. Some of the initial categories became initial themes. For example, an excerpt describing emotional distress was initially coded as "not normal life" and "mental preoccupation" which were subsequently grouped under the broader category of "adjusting to a new period of life" and later contributed to the overarching theme of perinatal distress. This illustrates how data were systematically reduced and organised during the framework analysis process.

The labelled transcripts were revisited to make sure that the transcript was consistent in labeling. All changes were recorded as a

referral for additional analysis, and all the selected transcripts were reviewed and absorbed before the familiarisation process reached the end. A thematic framework consisting of initial themes and categories was created to avoid any overlapping between themes. Themes and subthemes were refined, combined and developed in this work example. **Table** 2 shows the thematic framework with initial themes, initial categories, and final themes.

Summarising or Synthesising the Data

The thematic framework was applied to all transcripts during this stage. Each transcript was examined completely for two main reasons: the first one was to match the thematic framework with the transcript and vice versa; the second reason was to identify the emerging concept without excluding words or sentences immediately.

ii. Descriptive Accounts

The descriptive accounts stage involves refining and organising the initial thematic framework through three key processes: detection, categorisation, and classification10. In the detection step, the thematic framework was examined to identify patterns, linkages, and distinctions between categories derived from the data. This involved comparing codes both within and across transcripts to determine whether they reflected similar or distinct aspects of participants' experiences. For example, expressions such as "overthinking," "feeling worried," and "unable to stop thinking" were initially grouped under symptoms of emotional distress. However, during this stage, these were distinguished from external stressors such as "financial constraints" and "lack of spousal support", which were identified as contributing factors rather than symptoms. This process ensured conceptual clarity between internal emotional experiences and external influencing conditions.

The categorisation process involved grouping related codes into broader categories that captured shared meanings. For instance, codes such as "crying," "irritability," "feeling overwhelmed," and "emotional exhaustion" were grouped under the category of emotional distress, while codes such as "lack of support," "work stress," and "childcare burden" were categorised under contributing stressors. This step allowed the researcher to systematically organise large volumes of qualitative data into manageable and meaningful clusters.

Table 1: Coding Matrix Used to Identify Code and Initial Categories

Extract from interview transcript	Code	Initial categories
"I always overthinking whether I can breastfeed and take care the baby later or not especially this is my first born. So, overthinking can lead me to anxiety." (Madam Sofia, 33)	Overthinking due to the first-born baby	Symptoms of depression and anxiety
"Alhamdulillah, my spouse truly supports me especially during this pregnancy because he had seen me giving birth to our first child. So, in terms of support, he always spends his time accompanying me during antenatal check-up." (Madam Lila, 27)	Spouse's support during antenatal period	Dealing with perinatal depression and anxiety
"For me, the most important things that need to apply when want to develop an apps, it must include the authorisation from the medical professionals such as doctors from the Ministry of Health (MOH) in Malaysia; so, it will gain the users' trust in using and downloading the mental apps in the future." (Madam Qistina, 36)	Authorisation from authority (healthcare professional)	Contents and approaches

Table 2: Thematic Framework with Initial Themes, Initial Categories and Final Themes

Initial themes	Initial categories	Final themes
Symptoms of depression and anxiety	• Sensitive • Overthinking • Easily get irritated • Crying • Loss of excitement • Physical discomfort: Palpitation, shortness of breath, numbness, fatigue, headache	Adjusting to a new period of life
Contributing stressors	• Lack of social support (spouses', family, friends, and surrounding) • Lack of knowledge (first-time parents) • Unplanned pregnancy • Stress at workplace • Financial constrain • Child burden • Long distance relationship	Adjusting to a new period of life
Coping mechanism	• Support system (Spouses, family & social network) • Stress management (positive steps, relaxing measures)	Dealing with perinatal distress
Content and approaches	• Awareness on mental health issues (consequences if left untreated) • User friendly • Interesting presentation • Knowledge on mental health • Family management • Positive intervention (self-screening, healthy lifestyle, sharing session) • Spirituality	Mobilising needs and support

In the classification step, these categories were further refined and organised into higher-order themes by examining relationships between categories. For example, categories related to emotional, psychological, and social distress were integrated into the overarching theme of "adjusting to a new period of life." Similarly, categories related to coping strategies, including "support systems" and "stress-relieving activities", were grouped under "dealing with perinatal distress."

Throughout this stage, data were compared across participants (women and spouses) to identify both common patterns and variations in experiences. For instance, while women frequently described emotional and psychological symptoms, spouses more often emphasised practical responsibilities and supportive roles. These differences were retained during classification to preserve the distinct perspectives of each group.

This iterative process of detection, categorisation, and classification ensured that the thematic framework remained grounded in the data while allowing for abstraction and refinement. It also enhanced analytical transparency by demonstrating how initial codes were systematically developed into final themes.

iii. Explanatory Accounts

This stage involved checking exactly how the level of matching between the phenomena was distributed across the whole set of data. For example, examining how many participants

stated that lack of spouse's support contributed to depression and anxiety was highlighted more. Finding from this analysis were presented in themes that emerged from the transcripts, which later were formed into the content of the framework. **Table** 3 displays the development of the final themes within the women's and spouses' dataset. **Table** 4 presents the themes, subthemes, and categories identified from the participants' responses.

Table 3: Development of the Final Themes Within Women's and Men's (Spouse) Dataset

Initial themes	Initial categories	Final categories	Final subtheme	Final themes
Symptoms of perinatal depression and anxiety	• Crying • Sensitive • Sleep disturbance • Easily get irritated • Overthinking	Not normal life Mental preoccupations	Emotional distress	Adjusting to a new period of life
	• Different personality • Physical distress: Headache, fatigue, numbness, shortness of breath	Cognitive functioning Physical discomfort	Psychological distress	
	• Lack of spouse' support • Financial constrain • Stress at workplace • Long distance relationship • Child burden • First-time parents	Living with others Parenthood adaptation	Social distress	
Dealing with perinatal depression and anxiety	• Role of husband • Family, friends, and surroundings	Spouse's participation Family and friends' cycle	Support system	Dealing with perinatal distress
	• Deals with HCPs • Communication technique • Sharing sessions • Religious practice • Exercising • Me time	Positive steps Relaxing measures	Stress reliever	
Content and approaches	• User friendly (multilanguage, universal, free access) • Interesting presentation (video, animation, graphic) • Aware on mental health issues	Good user experience Interactive user interface Creating awareness	Approaches of digital applications	Mobilising needs and support
	• Family management (Husband's role, family planning, child management, financial planning) • Knowledge on mental health (signs and	Spouse' s role Psychoeducation	Beneficial contents	

	symptoms of perinatal depression and anxiety) • Perinatal care (wound management after childbirth) • Positive intervention (self-screening, healthy lifestyle, sharing sessions)	Helpful skills

Table 4: Themes, Subthemes and Categories From Interview Data with Women and the Spouses

Themes	Subtheme	Categories
Adjusting to a new period of life	Emotional distress	Not normal life Mental preoccupations
	Psychological distress	Cognitive functioning Physical discomfort
	Social distress	Living with others Parenthood adaptation
Dealing with perinatal distress	Support system	Spouse's participation Family and friends' cycle
	Stress reliever	Positive steps Relaxing measures
Mobilising needs and support	Approaches of digital applications	Good user experience Interactive user interface
	Beneficial contents	Creating awareness Spouse's role Psychoeducation Helpful skills

DISCUSSION

These findings suggest that perinatal distress is shaped by an interplay of emotional, psychological and social factors, rather than being solely an individual experience. Women frequently linked these emotional experiences to broader contextual pressures, including limited spousal support, financial strain, workplace stress, and the challenges of adapting to new parental roles. These insights may assist healthcare providers, especially nurses and midwives, in adopting a more holistic and individualised approach to assessment and support.

While lack of spousal support was frequently identified as a contributing factor to perinatal distress, this finding may reflect a range of underlying dynamics rather than a simple absence of support. For instance, it may be shaped by cultural norms surrounding gender roles, especially in the Asian culture, where caregiving responsibilities are primarily expected of women, potentially limiting partner involvement (24,25). In addition, communication barriers or differing expectations between partners may influence how support is perceived and experienced. Institutional factors, such as limited paternal involvement in antenatal care, may also play a role. These alternative interpretations suggest that "lack of support" is a complex and context-dependent construct rather than a singular causal factor.

In addition, most of the women and their spouses expressed that they agreed to implement digital approaches as an alternative treatment in treating perinatal depression and anxiety since it was convenient to use as well as user-friendly. Consistent with previous study (26), women and men (spouses) expressed that the digital applications must include spouse involvement, awareness of mental health issues, good user experience, and interactive user interface to attract the participants in using it.

Notably, this reflective article provides a guide on how to analyze qualitative data using three interrelated stages of framework analysis as reported by Ritchie & Lewis (10). Previous studies used different approaches. Parkinson

et al. (11) applied five stages in analyzing the data which include familiarization, identifying a framework, indexing, charting, and mapping and interpretation. The steps of the framework analysis method remain the same, even though the numbers of phases may vary slightly from one another.

Framework analysis was selected in this study because it provides a systematic and transparent structure for managing complex qualitative data while allowing both deductive and inductive analysis. This approach was particularly suitable for exploring experiences of perinatal depression and anxiety where multiple perspectives, including those of women and their spouses, needed to be compared across cases. Nevertheless, researchers must remain cautious that the development of analytical categories does not unintentionally impose predetermined interpretations on participants' narratives.

In addition, without requiring specialized tools or theoretical knowledge, framework analysis offers a methodical technique that is particularly helpful when multiple researchers from decentralized, multidisciplinary teams are working on a specific project (12). Hackett & Strickland (27) reported that framework approaches can give benefits to a multidisciplinary team if they are conducting the research because the data is displayed visually, making it easier for others to follow. As such, framework analysis is suitable for qualitative data analysis in answering research questions.

The use of framework analysis has promoted the use of reflexivity in the data analysis explicitly, especially in the third stage (explanatory accounts). Reflexivity is an important instrument that helps the researcher remain self-aware and critically engaged throughout the investigation to obtain a deeper and more "connected" perspective (28). The purpose of reflexivity is to clarify the complex relationships between the researcher and the research process and to understand how this relationship affects the research's findings (28). To achieve reflexivity in this study, the researcher kept and maintained a reflexive journal to reflect on what was happening in the research process regarding their values and interests.

Indeed, using framework analysis has improved transparency when describing theory development methods. Readers may easily perceive the original conceptual framework, derived themes from the data, and how these themes are transferred back into the framework to develop the theory (9). In addition, the transparency of the framework analysis procedures provides an audit trail that is simple to understand and gives audiences outside of research access to the inner workings of the research. A higher level of transparency can encourage the public, policy makers, and other knowledge users to interact with the research and utilize it to understand and solve policy issues (6).

Although we agreed that framework analysis offers a structured and transparent approach to qualitative data analysis, we also acknowledged the use of an analytic framework may potentially constrain the emergence of unexpected insights if applied too rigidly (29). Researchers must therefore remain reflexive and open to modifying the framework throughout the analytic process to ensure that participants' perspectives remain central to interpretation. In this study, the analytical framework was iteratively refined during the analysis to allow both data-driven and conceptually guided insights to emerge (30).

Framework analysis can contribute to the transparency and credibility of qualitative research by providing a clear audit trail of how data are categorized and interpreted. However, the trustworthiness of qualitative findings does not rely solely on the analytical method used but also on the rigor with which the research process is conducted. In this study, several strategies were implemented to enhance trustworthiness, including prolonged engagement with the data and maintaining an audit trail of analytic decisions (31-34).

Framework analysis can be a time-consuming data analysis approach when working with large and complex datasets (35,36). Similarly, Hackett & Strickland (27) emphasize that framework analysis time-consuming and resource-intensive for data analysis. In this study, a significant amount of time had been spent completing the framework analysis due to the large and complex dataset, which required multiple steps to be completed before classifying the data into appropriate themes. Another limitation of framework analysis is that it may not be as useful in analyzing non-textual material, such as pictures, movies, or audio files since the

primary purpose of this framework analysis is to analyze qualitative textual data (36).

In addition to methodological considerations, several study-specific limitations should be acknowledged. First, participants were recruited from referral clinics and hospital settings, which may introduce sampling bias, as these individuals may differ from those in community or non-clinical settings. Second, given the sensitive nature of mental health, participants may have modified their responses due to social desirability, potentially underreporting distress or presenting themselves in a more favourable manner. Third, although both women and spouses were included, the study did not employ a dyadic design, and therefore the perspectives of women and their partners were not analysed as matched pairs. This limits the ability to explore relational dynamics within individual couples. Fourth, the findings are context-specific to Malaysian clinical settings and should be interpreted with caution when considering transferability to other cultural or healthcare contexts.

Finally, while the findings provide insights into participants' experiences, they are context-specific and not intended to be generalized to all perinatal populations. As with qualitative research, the findings are intended to provide in-depth understanding of participants' experiences rather than to produce generalizable conclusions. The emphasis is on interpretive insight rather than representativeness. These limitations highlight areas for future research, including broader recruitment strategies, dyadic study designs, and the inclusion of more diverse populations.

CONCLUSION

This paper provides a practical illustration of how framework analysis can be systematically applied in qualitative health research. By demonstrating how data were iteratively coded, categorised, and refined into themes, the study highlights how transparency and rigour can be achieved in analysing complex and rich qualitative data. The application of this approach enabled the identification of key themes reflecting women's emotional and psychological distress, spouses' supportive roles, and shared perspectives on coping strategies and digital interventions in perinatal mental health. While the empirical findings offer contextual insights, the primary contribution of this paper lies in providing a clear and accessible methodological guide to support researchers in applying framework analysis in a structured, transparent, and reflexive manner.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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AUTHOR CONTRIBUTIONS

AK: Data collection, data analysis, formal analysis, writing original draft.
SRMA: Conceptualization, methodology, supervision, funding acquisition, project administration, data analysis, validation, writing, review and editing.
NAA: Review and editing.
NAM: Review and editing.
CP: Review and editing.
AWA: Review and editing.
EKS: Review and editing.
LSP: Review and editing.
SHAH: Review and editing.
WHWM: Review and editing.
S: Review and editing.
DR: Review and editing.
FK: Review and editing.
AH: Review and editing.
A: Review and editing.
M: Review and editing.

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