The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives

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Abstract

Purpose: In recent decades, the institutionalisation of childbirth has led to increasingly medicalised maternity settings, with growing recognition of the impact this has on childbirth experiences. However, research has largely explored women's perspectives and the physical aspects of the birth environment using qualitative methods. This study addresses these gaps by quantitatively investigating midwives' perspectives on how various dimensions of the hospital birth environment shape the childbirth experience.

Aim: To examine midwives' views on the impact of the birth environment on the woman's childbirth experience.

Objectives: To identify midwives' perceptions of physical factors in the birth environment that influence the woman's childbirth experience; to assess midwives' perceptions of psychological and emotional factors in the birth environment that influence the woman's childbirth experience and to evaluate midwives' reported practices in utilising the birth environment to enhance the woman's childbirth experience.

Methodology: A quantitative, non-experimental, cross-sectional design was employed using a self-designed online questionnaire distributed to midwives working in selected maternity settings within the main public hospital. Purposive sampling recruited 141 participants from a total population of 213 midwives, representing a 66.2% response rate. Quantitative findings were evaluated through descriptive and inferential statistical methods, whereas qualitative responses were examined using content analysis. The study was guided by the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024), which provided the theoretical lens for interpreting findings.

Results: Midwives highlighted key physical factors of the birth environment, including privacy, lighting and availability of birthing aids, while a calm and supportive atmosphere was recognised as crucial for psychological and emotional wellbeing. Novel findings included concerns about the delivery bed quality and functionality, the impact of swinging doors on privacy and soundproofing, and the anxiety-inducing presence of large wall clocks opposite delivery beds. Midwives identified various practices used to enhance the birth environment, however, institutional barriers were often reported to limit these efforts.

Conclusion: This study contributes to the existing body of knowledge by providing quantitative evidence of midwives' perspectives, a group previously underrepresented, and by extending focus beyond the physical to the psychological and emotional factors of the birth environment. Findings underscore the need for a balanced approach integrating environmental design, professional empowerment and institutional support to enhance childbirth experiences. The study provides a foundation for future research on broader dimensions of the birth environment and the factors that facilitate or hinder improvements in maternity care settings.

Keywords: birth environment, childbirth experience, midwives, quantitative research

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Abbreviations and Acronyms

BESP	Birth Environment Spatial Perception
BUDSET	Birth Unit Design Spatial Evaluation Tool
CASP	Critical Appraisal Skills Programme
CDS	Central Delivery Suite
CEO	Chief Executive Officer
CNM	Council for Nurses and Midwives
CTG	Cardiotocography
DLM	Discharge Liaison Midwifery
DPO	Data Protection Officer
FREC	Faculty of Health Sciences Research Ethics Committee
ICM	International Confederation of Midwives
NOIS	National Obstetric Information System
NPICU	Neonatal and Paediatric Intensive Care Unit
PEO	Population, Exposure, Outcome
PICO	Population, Intervention, Comparison, Outcome
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QIMS-DTT	Qualitative Interpretive Meta-Synthesis - Deductive Theory Testing
RCT	Randomised Controlled Trial
SPIDER	Sample, Phenomenon of Interest, Design, Evaluation, Research Type
SPSS	Statistical Package for the Social Sciences
TSCS	Theory of Supportive Care Settings
UM	University of Malta
WHO	World Health Organization

Definitions of Key Concepts

Birth Partner	The individual a woman chooses to accompany her while she gives birth.
Birthing Aids	Equipment used to support women in staying active, coping with pain and facilitating labour progress (e.g., birthing balls and peanut balls).
Complementary Therapies	Natural therapies and remedies used alongside conventional medical care to support wellbeing (e.g., music, aromatherapy and hydrotherapy).
Midwifery-led Care	A model of maternity care in which midwives take primary responsibility for providing perinatal care to women with low-risk pregnancies.
Obstetric-led Care	A hospital-based model of maternity care in which obstetricians hold primary responsibility for managing pregnancy, labour and childbirth.

Chapter 1

Introduction

1.1 Background to the Study

Across cultures and throughout history, women have consistently used their surroundings to foster comfort and control during labour and childbirth. Traditionally, birth took place in familiar home settings, supported by trusted female companions. However, over the past century, childbirth in Western societies has become increasingly institutionalised, resulting in more medicalised birthing environments (Walsh & Gutteridge, 2011). Shah and Setola (2019) argue that architecture can influence the functioning of the human body in ways comparable to anatomy and physiology. Indeed, there is growing evidence indicating that the built environment, particularly within healthcare contexts, can shape human behaviour, interactions and movement, thereby influencing stress levels, health outcomes, user experiences and even the quality of care provided by professionals (Shah & Setola, 2019).

Birthing facilities such as labour wards, maternity units and birth centres, are typically found within hospital buildings that primarily serve ill patients (Shah & Setola, 2019). In Malta, for instance, data from the most recent National Obstetric Information System (NOIS) report, shows that of the 4,463 births registered in 2023, 4,449 (99.7%) of them occurred in hospitals, with only eight home births and six births taking place elsewhere before hospital transfer (Gatt & Borg, 2024). This framing reinforces the notion of birth as a medical event requiring clinical management rather than a natural physiological process (Walsh & Gutteridge, 2011). Moreover, the users of these birth spaces are women, partners and newborns and hence, are not considered ‘patients’ in the traditional sense (Shah & Setola, 2019).

Since the mid-twentieth century, this shift toward hospital-based births has profoundly influenced the design of maternity spaces. Institutional models prioritising efficiency and clinical functionality have become the standard blueprint for birthing environments.

As a result, spaces intended for physiological labour are rarely differentiated from those designed for high-risk births requiring medical intervention (Shah & Setola, 2019).

Over more recent years, there has been a growing recognition that the birth environment profoundly shapes women's labour experiences (Walsh & Gutteridge, 2011). Research such as the cross-sectional study by Baranowska et al. (2020), identified the birth environment as a critical determinant of maternal satisfaction with the childbirth experience. Moreover, the World Health Organization (WHO, 2018) advocates for person-centred, supportive birthing environments that are safe and comfortable, meet women's psychological and emotional needs, and promote a sense of achievement, empowerment and autonomy.

1.2 Rationale and Significance of the Study

The researcher's interest in the birth environment stems from professional experience in a midwifery-led birth centre in the United Kingdom, and from recognising gaps in the existing literature on how the birth environment influences the childbirth experience. Current global research on the topic largely prioritises women's perspectives, with comparatively little attention given to midwives' views, and a complete lack of such research within the local context. While understanding women's experiences is crucial, midwives occupy a unique position, taking part in multiple childbirth experiences within the birth environment. Their insights, therefore, offer a broader, practice-based understanding of how different environmental factors can shape the maternal childbirth experience.

Furthermore, much of the existing evidence exploring the impact of the birth environment is grounded in qualitative research. Although qualitative studies provide valuable depth, there remains a need for quantitative approaches that can capture the

views of a larger and more representative sample of midwives, which this study intends to accomplish.

Additionally, previous research has primarily focused on the physical aspects of the birth environment, such as the delivery bed, lighting and equipment, while giving less consideration to its psychological, emotional and organisational dimensions. This study seeks to address this gap by examining how the physical, psychological, emotional, interpersonal and institutional factors of the birth environment collectively influence women's childbirth experiences. By exploring midwives' perspectives, the research aims to contribute to a more holistic understanding of the birth environment, enhance insight into this issue, especially within the local context, and potentially inform future institutional policies and resource allocation to improve the quality of maternity care, where the birth environment allows for more positive birth experiences.

1.3 Purpose of the Study

To address the identified gaps in the literature, the following research question, aim and objectives were developed to guide the study.

1.3.1 Research Question

What are midwives' views on how the birth environment impacts the woman's childbirth experience?

1.3.2 Aim of the Study

To examine midwives' views on the impact of the birth environment on the woman's childbirth experience.

1.3.3 Objectives

1- To identify midwives' perceptions of physical factors in the birth environment that influence the woman's childbirth experience.
2- To assess midwives' perceptions of psychological and emotional factors in the birth environment that influence the woman's childbirth experience.
3- To evaluate midwives' reported practices in utilising the birth environment to enhance the woman's childbirth experience.

1.4 Summary of the Research Methodology

To address the study's aim and objectives, a quantitative research design was employed. Data was collected using a one-time, self-administered online questionnaire, developed specifically for the purposes of this study. The questionnaire was distributed to midwives working in selected maternity settings within the main public hospital. Of the total population of 213 midwives, 141 participated in this study, yielding a response rate of 66.2%.

The study was underpinned by two complementary theoretical frameworks: the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024), both of which focus on how various elements of the birth environment impact mothers' childbirth experiences. Quantitative data were examined through descriptive and inferential statistical methods. The qualitative data generated from open-ended responses were analysed using inductive conventional content analysis (Ho & Limpaecher, 2023).

1.5 Overview of the Chapters

This dissertation is organised into six chapters, each outlining a stage in the systematic progression of the research. Chapter 1 introduces the study by presenting its

background, rationale and overall methodological approach. Chapter 2 provides a comprehensive review of the literature, detailing the selection, appraisal and synthesis of relevant studies.

Chapter 3 outlines the methodology, including the rationale for the chosen research design, sampling strategy, instrument development, validation and reliability testing, data collection and analysis procedures, and ethical considerations. It also discusses the theoretical frameworks guiding the research and their relevance to the study's objectives. Chapter 4 presents the findings, integrating descriptive and inferential analyses of the quantitative data and the content analysis of the qualitative responses.

Chapter 5 provides a critical interpretation of the findings, in relation to existing literature and interpreted through the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024). This chapter also acknowledges the methodological strengths and limitations of the study. Chapter 6 concludes the dissertation by summarising research findings, highlighting the study's unique contributions to knowledge and providing recommendations for practice, education and future research.

Chapter 2

Literature Review

2.1 Introduction

This chapter presents the findings of the literature review conducted for the purpose of this study. This includes a detailed account of the review question which this review sought to answer, the search strategy, the review methodology and its rationale, a description of the selected studies, and a critical discussion and analysis of the findings.

2.2 Type of Literature Review

Prior to initiating the process of the literature review, a three-hour session was held with a librarian from the University of Malta. In this session, the fundamentals and step-by-step process of how to conduct a literature search and review were discussed. Firstly, the different types of reviews were considered, predominantly a narrative review, rapid review, systematic review, scoping review, umbrella review and meta-analysis. It was determined that a narrative review was the most suitable for the purpose of this study.

A narrative review is a valuable tool that enables researchers to describe, summarise, interpret and critique a wide range of literature, providing an overview of what is known on a topic. Narrative reviews offer several strengths: they are highly flexible and practical, allowing researchers to synthesise evidence from multiple sources into a coherent, readable format. This makes them particularly useful for learning and teaching about a topic. Furthermore, narrative reviews are effective in identifying gaps in the literature and suggesting directions for future studies. However, they are not without limitations. Their interpretive nature means they are inherently subjective, often reflecting the perspectives and potential biases of the author. Additionally, narrative reviews may lack the methodological rigour and depth found in more systematic approaches, which can affect their reliability and reproducibility (Sukhera, 2022).

2.2.1 Framing the Review Question

After selecting the type of review, the next and most critical step was to clearly define the focus of the review by formulating the question it aims to answer. A well-structured question is essential, as it guides multiple aspects of the review, such as eligibility criteria, search strategy, data extraction, synthesis structure and the presentation of findings (Thomas et al., 2024).

To formulate an appropriate review question, several frameworks were considered: namely PICO (Population, Intervention, Comparison, Outcome), PEO (Population, Exposure, Outcome) and SPIDER. After evaluating these options, SPIDER was selected as the most suitable framework. Originally developed by Cooke et al. (2012) as an adaptation of the quantitatively focused PICO framework, SPIDER is an acronym for Sample, Phenomenon of Interest, Design, Evaluation and Research Type. These elements allow for the identification of, not only quantitative studies, but also qualitative and mixed-methods research. The application of this framework based on the aim of this study is illustrated in Table 2.1.

Table 2.1 *Application of the SPIDER Framework (Cooke et al., 2012)*

SPIDER Tool	Keywords
Sample	Midwife, Midwives, Midwifery
Phenomenon of Interest	Birth environment, Birth unit, Birthing room, Delivery room, Childbirth experience
Design	Survey, Focus group, Observation, Audio recording, Field notes, Interviews: Structured, Unstructured, Semi-structured, Open-ended, Closed-ended, In-person, Online, Telephone
Evaluation	Views, Perceptions, Experiences, Perspectives, Opinions, Influences, Beliefs, Attitudes, Thoughts, Practices
Research Type	Quantitative, Qualitative, Mixed methods

The following review question was formulated to guide the literature search and review:

What are midwives' perspectives on the influence of the birth environment on women's childbirth experiences?

2.3 The Literature Search

2.3.1 Search Strategy

The next step involved combining the identified keywords corresponding to the elements of the SPIDER framework, to form a comprehensive search string. However, as guided by the librarian, the 'Design' and 'Research Type' elements were excluded from the search strategy, as their inclusion could overly narrow the scope and potentially omit relevant studies. Following a process of testing and refinement, the final search string was developed as follows:

(midwives OR midwife OR midwifery) AND ("birth environment" OR "birthing room" OR "delivery room" OR "birth unit") AND "childbirth".

Boolean logic operators were used strategically to combine keywords and enhance the precision of the search. The conjunction 'OR' was applied to capture a broader range of results, while 'AND' was used to narrow the search and ensure relevance to the aim of the review.

2.3.2 Information Sources

The literature search was conducted between March and November 2025. The following five databases were selected for their relevance to the health sciences: PubMed, CINAHL Complete, Cochrane Database of Systematic Reviews, APA PsycINFO and Scopus. Additionally, Google Scholar was used to supplement the search. The same search strategy was applied across each database.

2.3.3 Eligibility Criteria

To ensure the inclusion of only relevant and high-quality studies while minimising potential bias, clearly defined inclusion and exclusion criteria were established and are presented in Table 2.2.

Table 2.2 *Inclusion and Exclusion Criteria for Studies*

Inclusion Criteria	**Exclusion Criteria**
Empirical research focusing on the birth environment and childbirth experience	Non-empirical research
Midwives' perspectives (views/experiences/perceptions /opinions/beliefs/practices)	Perspectives of other healthcare professionals, student midwives, mothers, fathers and couples
Any type of research design	Architectural focus
Studies published in the English or Maltese language	Studies published in languages other than English or Maltese
Studies available in full text	Studies not available in full text

Each inclusion and exclusion criterion was selected based on a clear rationale. Only empirical studies were considered for inclusion, whereas non-empirical works, such as theoretical articles, were excluded. As the review aimed to explore the perspectives of qualified clinical midwives, studies investigating the views of other healthcare professionals, (e.g. obstetricians or nurses), student midwives or service users (e.g., mothers, fathers, birth partners or couples) were excluded. Similarly, studies examining the birth environment from an architectural or design-focused perspective were not considered, as they fell outside the scope of this review. To avoid overlooking valuable insights, no restrictions were placed on research design, allowing for the inclusion of quantitative, qualitative and mixed-methods studies. Language was limited to English and Maltese to reflect the researcher's fluency, as translation services were not feasible due to lack of funding. Finally, no publication date restrictions were applied not to limit

the scope of the review. This decision was informed by a preliminary search, which revealed a lack of more dated and relevant publications. By keeping the search parameters open, the review aimed to capture all relevant and available literature focusing on the birth environment from the midwives' perspectives.

2.3.4 Screening and Selection of Studies

To ensure transparency and replicability, the search strategy was documented following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Initially developed by Moher et al. (2009), PRISMA was designed to help researchers clearly report the rationale, methodology and findings of their reviews. This review adopted the updated PRISMA 2020 guidelines, published by Page et al. (2021), which reflect the more recent methodological advances in the processes of identifying, selecting, appraising and synthesising evidence.

Searches conducted across the five previously mentioned databases yielded a total of 261 records. These were imported and organised using the reference management software RefWorks. Following the removal of 119 duplicate records, 142 studies remained for preliminary screening based on their title and abstract. This led to the exclusion of 130 records for various reasons as detailed in Figure 2.1 depicting the PRISMA flowchart. The remaining 12 records were subsequently retrieved in full-text format, primarily through the University of Malta's library subscriptions, and assessed for eligibility. Following this evaluation, seven articles met the inclusion criteria and were included in the literature review.

In addition, the supplementary search using Google Scholar resulted in an extensive number of hits. Therefore, only the first 10 pages or 100 results were considered for screening, as recommended by the librarian. From these, 28 duplicate records which were already identified through the primary database searches were removed, leaving 72

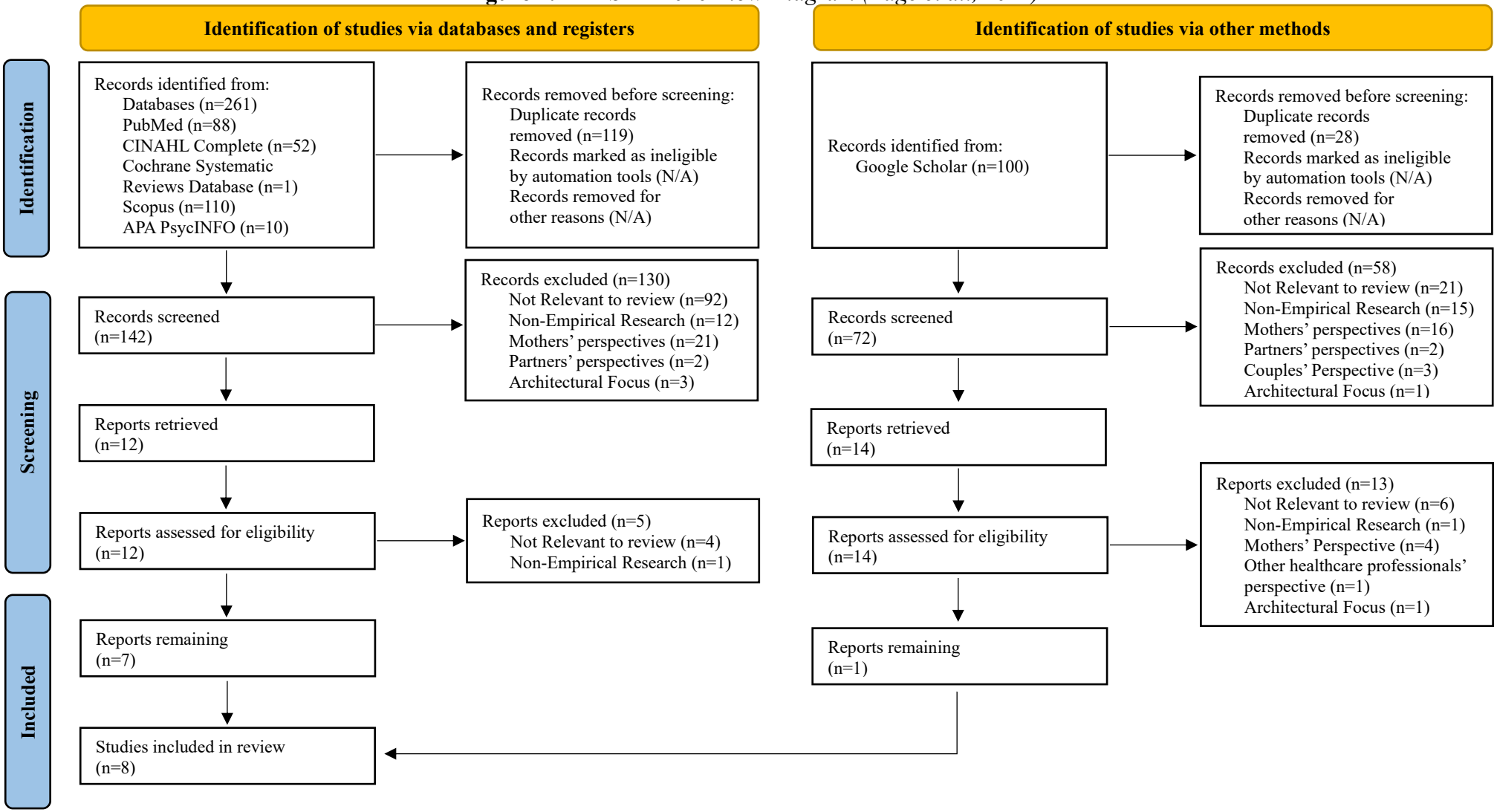
records for title and abstract screening. Subsequently, 58 records were excluded for reasons outlined in the PRISMA flowchart (Figure 2.1). The remaining 14 records were successfully retrieved in full text format and assessed for eligibility, 13 of which were excluded based on the reasonings depicted in the same figure (Figure 2.1). As a result, one additional study met the inclusion criteria, bringing the total number of included literature in this review to eight studies.

2.3.5 Critical Appraisal

Critical appraisal refers to the systematic and comprehensive evaluation of research to assess its quality, validity, reliability and relevance. This process enables researchers to identify the strengths and limitations of a study, as well as its overall applicability to a specific context. Effective critical appraisal involves understanding the research question/s, assessing the methodology used, interpreting the results, evaluating the conclusions drawn and considering the broader implications of the study (Critical Appraisal Skills Programme [CASP], 2025).

To ensure a structured and consistent approach, various frameworks and checklists are available to guide the appraisal process. In this review, the CASP tool was employed, specifically the CASP Qualitative Studies Checklist (CASP, 2025), as all included studies used qualitative methodologies. Following such quality appraisal, all eight studies were deemed to be of good quality and were therefore retained and included in this review. The checklist questions along with the critical appraisal outcomes for each study are presented in Appendix A.

Figure 2.1 *PRISMA 2020 Flow Diagram (Page et al., 2021)*



2.4 Results of the Literature Review

2.4.1 Characteristics of the Included Studies

A summary table outlining the characteristics of the included literature is provided in Appendix B. Although no date restrictions were applied to the search, the number of relevant articles retrieved (n = 8) were manageable. The publication dates ranged from 2010 to 2025, with the majority of studies published within the last five years. The studies were conducted across various countries; including three in Europe; namely Sweden (Andrén et al., 2021; Goldkuhl et al., 2023) and Denmark (Eidhammer et al., 2025), one in South Africa (Malesela, 2021), two in Asia; namely China (Xu et al., 2025) and Japan (Igarashi et al., 2014), and two in Australia (Foureur et al., 2010; Townsend et al., 2016). All eight studies adopted a qualitative research approach. The majority of studies (n = 7) used interviews as their primary data collection method, while one study utilised focus groups (Malesela, 2021).

2.4.1.1 Samples and Sampling Techniques

Across the included studies, sample sizes were relatively small, ranging from 10 to 20 midwifery participants. All included studies made use of non-probability sampling techniques. The majority (n = 5) used purposive sampling, while one study adopted convenience sampling (Townsend et al., 2016) and another combined convenience and snowball sampling methods (Igarashi et al., 2014). The sampling technique utilised in Foureur et al. (2010) was not reported.

Non-probability sampling involves selecting participants based on the researcher's judgment rather than randomly, hence, not all individuals in the population have an equal chance of being included in the sample. This approach is particularly valuable in research aimed at exploring or gaining in-depth insights into a specific population or phenomenon. It is commonly employed in qualitative research, where the focus is on

understanding complex experiences, behaviours or social contexts in detail (Alex, 2024).

However, it is important to note that non-probability sampling does have its limitations. One of the primary drawbacks is the inability to generalise findings to the wider population due to the lack of randomisation. Additionally, there is high potential for selection bias, whether by the researchers or participants, which can compromise the representativeness and credibility of the sample (Alex, 2024).

2.4.1.2 Settings

Given that the focus of this literature review is the birth environment, it is imperative to consider the various settings in which the included studies were conducted. The majority of the studies (n = 6) took place in hospital settings, although some of these explored new birthing room designs within the hospital settings themselves.

Goldkuhl et al. (2023) examined midwives' perceptions of a newly implemented birthing room at a Swedish university hospital, developed as part of the Room4Birth randomised controlled trial (RCT). Apart from the new birthing room, the labour ward comprised eight standard birth rooms and two isolation rooms, each with private ensuite facilities. These standard rooms followed a conventional hospital layout, with centrally positioned birthing beds, limited options for upright birthing positions, no in-room bathtubs, fixed lighting and visible medical equipment. In contrast, the redesigned room aimed to support the physiological process of birth through features such as natural materials, earthy tones, soft-edged furnishings, adjustable lighting and concealed medical equipment behind wooden panels. The room also promoted mobility and sensory comfort with a secluded bed, an in-room bathtub, birthing aids (e.g., Pilates ball, walker, ceiling-mounted birth rope) and multimedia nature projections accompanied by ambient sounds (Goldkuhl et al., 2023).

Similarly, Eidhammer et al. (2025) focused on transforming the four traditional, clinical birthing rooms of the North Denmark Regional Hospital, into multisensory environments through collaboration between artists and researchers. These redesigned rooms incorporated immersive elements including soundscapes, lighting and video projections, to create an immersive atmosphere. Central to the design was a multisensory artwork developed over 18 months, using footage of natural landscapes in North Jutland (Eidhammer et al., 2025). The contrast between the original and redesigned birthing rooms is clearly illustrated in Appendix C.

In Townsend et al. (2016), the setting was a public hospital birth suite that included eight standard birthing rooms, comparable to those described by Goldkuhl et al. (2023), alongside two birth centre rooms. These birth centre rooms were designed with a more home-like atmosphere; with a large pool as the room's central feature, beds positioned to the side and dressed in domestic-style quilts, wooden flooring, artwork, dimmable lighting and concealed medical equipment (Townsend et al., 2016).

The settings in the study by Andrén et al. (2021) included four hospitals and six labour wards. Notably, one of these wards was the same setting used in the Room4Birth RCT, and hence the study by Goldkuhl et al. (2023), meaning some participants had direct experience with the same redesigned birthing room. This overlap added value to the study by Andrén et al. (2021), as it provided a broader range of midwives' perspectives on both traditional and newly designed birth environments.

In contrast, Igarashi et al. (2014) focused on non-hospital settings, specifically midwifery homes and home births in Japan. Midwifery homes were defined as places where midwives provide care outside hospitals. These facilities are privately operated by midwives and are often located within the same building as the midwife's residence.

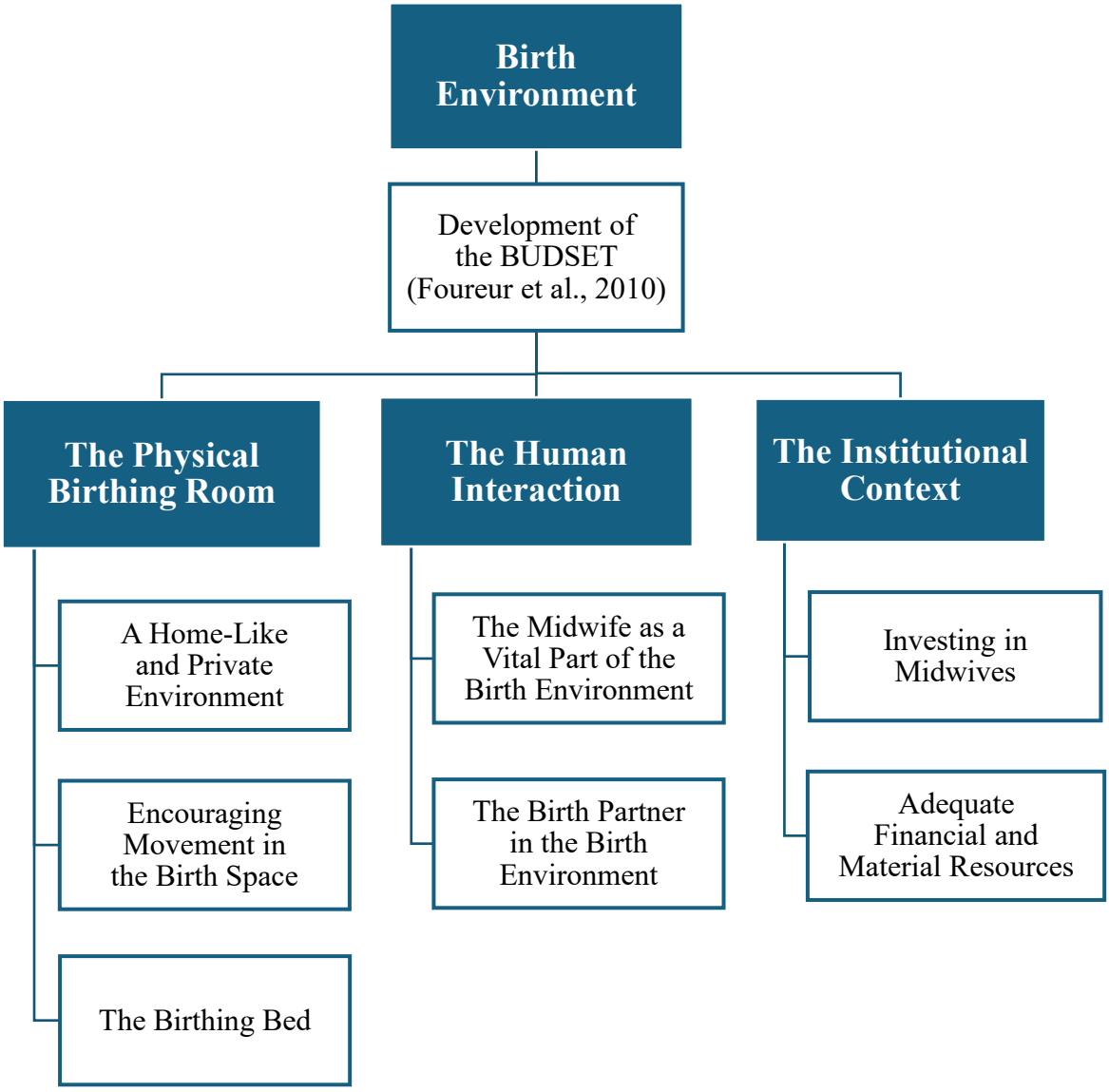
The responsibilities of midwives in these settings are similar to those in Western birth centres (Igarashi et al., 2014)

Finally, Foureur et al. (2010) reported that participating midwives had clinical experience across both hospital and home birth contexts, further contributing to the diversity of settings explored in this review.

2.4.2 Analysis and Synthesis of the Study Findings

Following the critical appraisal of the included studies, an analysis and synthesis of their findings was conducted. Given the qualitative nature of all the studies, a narrative synthesis using thematic analysis was deemed the most appropriate approach. Themes were developed following Braun and Clarke's (2021) latest framework as a guide. This process involved becoming familiar with the data, generating initial codes of relevant data and grouping patterns into potential themes, and then refining and clearly defining those themes (Braun & Clarke, 2021). To further guide the analysis of the findings from the different literature included in this review, the operational definition of the birth environment, as established by Goldkuhl et al. (2022) was used. They defined the birth environment as "the physical birthing room, the human interaction within it, and the institutional context in which birth took place" (Goldkuhl et al., 2022). Utilising this definition helped to ensure that the analysis remained focused on the key dimensions of the birth environment and supported the systematic organisation of themes. The resulting themes and sub-themes are illustrated in Figure 2.2.

Figure 2.2 *Themes and Sub-themes Emerging from the Literature*



2.4.3 Seminal Study: Development of the Birth Unit Design Spatial Evaluation Tool (BUDSET) by Foureur et al. (2010)

The earliest study included in this review is by Foureur et al. (2010), which led to the development of the BUDSET. This study is regarded as a seminal work in the field of birth environment research and is extensively cited by subsequent studies. Although prior to its development several empirical studies and theories had explored birth spaces, there was no standardised instrument for evaluating their design. Foureur et al. (2010) aimed to address this gap by synthesising existing literature and professional

insights to develop the first tool of its kind, capable of measuring the optimality of different birth environments.

The BUDSET tool was developed using a qualitative, multi-method design comprising of a literature review, key informant interviews and consultation with an expert panel. This triangulated approach enhanced the credibility of the findings. The first phase involved an extensive review of design and health-related literature, as well as relevant government reports and policy documents. This review focused on three key areas: the physiological processes that facilitate normal childbirth; the perspectives of women and healthcare professionals on ideal birth environments; and the architectural quality and functional use of space in hospital-based maternity settings. In the second phase, 10 midwives with clinical and academic experience in both hospital and homebirth contexts were interviewed. Participants were invited to describe the typical pathway women follow when labour begins. These interviews offered practice-based insights that grounded the tool in real-world maternity care. A strength of this approach was its focus on how spatial features influence physical and emotional responses during labour.

However, a notable limitation of this study is the lack of transparency regarding the sampling strategy. Although Foureur et al. (2010) reported a sample size of 10 midwives, they did not specify the sampling method utilised in the published study, nor provide details about their clinical backgrounds or levels of experience. This omission raises concerns about the diversity and representativeness of the sample. Given the study's aim to develop a broadly applicable design evaluation tool, a more diverse sample, including practitioners from different cultural and geographical backgrounds, and experience within various models of care and healthcare contexts, would have strengthened the generalisability of the findings. Additionally, three architects or architecture students with experience in designing healthcare environments, particularly

maternity units, were also interviewed. While their input provided valuable insights into the architectural design process and how it might be optimised, the authors did not clearly differentiate between the insights gathered from the midwives and the architects, instead findings were presented collectively. Moreover, the smaller number of architects (n = 3) compared to midwives (n = 10) skewed the data towards a predominantly midwifery perspective, which is consistent with the scope and inclusion criteria of this review.

In the final phase of the study, Foureur et al. (2010) carried out a consultation with an expert panel comprising of midwives and architects. Over the two-year duration of the project, the panel met regularly to synthesise the data gathered from both the literature and interviews. While this longitudinal engagement allowed for frequent refinement and likely improved the robustness of the final tool, the published study lacked detail regarding the structure and format of these meetings, such as whether they were held online, in-person or were organised as focus groups. Providing such methodological clarity would have strengthened the transparency and reproducibility of the research process.

Foureur et al. (2010) claimed that the expert panel discussed how midwives routinely modified the hospital environment to better support the birthing process. This included dimming harsh lighting, moving the bed away from the centre of the room, introducing soft furnishings, playing chosen music, aromatherapy and drawing a bath to offer water immersion. These consistent modifications suggested that the original design of many hospital birth rooms, failed to consider the sensory and emotional needs of labouring women. In contrast, such efforts were unnecessary in homebirth settings, as women had already established comfort in their familiar surroundings. This comparison underscored

the importance of designing institutional birth spaces that are adaptable, personal and supportive of stress reduction.

Foureur et al. (2010) adopted the Pattern Language framework developed by Alexander et al. (1977, as cited in Foureur et al., 2010) as the foundation for their analysis, enabling the identification of recurring design problems, the underlying assumptions behind them and potential solutions. This led to 18 design characteristics, aligned with the sequential journey of a woman through a birth unit, from arrival to discharge. Using thematic analysis, these characteristics were then grouped into the four domains of the BUDSET tool: ‘Fear Cascade’, ‘Facility’, ‘Aesthetics’ and ‘Support’. The domains along with the design characteristics and essential aspects that make up the BUDSET tool are summarised in Table 2.3.

Table 2.3 *Domains, Design Characteristics and Essential Aspects of the BUDSET*

Domain	Design Characteristic	Essential Aspects
Fear Cascade	Space • Arrival at the Birth Unit	– Clearly identified entrance – Dedicated entry/lounge space – Easy navigation and short corridors
	• Outside Area	– Access to gardens or courtyards
	• Reception Area	– Comfortable seating – Aesthetic touches e.g., flowers, artwork
	• The Birthing Room	– Private, flexible retreat spaces e.g., bath – Bed not the central feature
	Sense of Domesticity	– Table and chairs near a window – Hidden medical equipment – Storage for personal belongings
	Privacy	– Screened entrances
	Noise Control	– Soundproofing
	Universal Precautions	– Separate clinical hand basins
Facility	Physical Support	– Equipment e.g., mattresses, balls, ropes
	Birthing Bath	– For pain relief and physiological labour
	En Suite Bathroom	– Including a toilet, hand basin, shower
Aesthetics	Light	– Natural light – Dimmable, non-overhead lighting
	Colour	– Warm, subdued tones and pastels
	Texture	– Domestic-style materials e.g. timber-look vinyl and sterilisable curtains/bedspreads
	Indoor environment	– Views of nature – Spacious – Essential oils – Temperature control
	Feminine Symbols	– Curved architecture – Feminine visuals e.g., a pregnant woman
Support	Food and Drink for Women	– Provision of snacks, tea and coffee
	Accommodation for Birth Partners	– Food, bathroom and sleeping arrangements

The BUDSET functions as a practical checklist of spatial design elements to guide in the refurbishment or development of birth units that support physiological birth (Foureur et al., 2010). Its scoring system assesses the presence of key design characteristics and generates weighted scores for each domain and the overall facility. This allows for benchmarking against an ideal standard and comparison between multiple maternity settings. Grounded in the premise that well-designed environments can reduce stress, enhance experiences and improve outcomes for childbearing women, the tool offers a meaningful contribution to maternity care design.

Although this study focused on the initial development phase of the BUDSET, Foureur et al. (2010) claimed that further validation of the tool was ongoing at the time of publication. This included interviews with pregnant women, postpartum mothers, maternity care providers, and assessing the tool's applicability across diverse maternity settings in Australia. Since its publication in 2010, the BUDSET has gained significant recognition, been widely cited, informed subsequent work and reinforced the critical role of birth environment design in supporting physiological birth.

As a seminal contribution to the field of the birth environment, Foureur et al.'s (2010) development of the BUDSET, the first standardised instrument of its kind, laid a foundational framework for evaluating birth settings. As will be demonstrated, all subsequent literature included in this review were published after the BUDSET and frequently align with its core domains.

2.4.4 The Physical Birthing Room

In recent years, there has been a growing recognition of the crucial role that the physical environment plays in patient care within hospitals. The concept of *healing architecture*, introduced in the 1980s, highlights the potential of thoughtfully designed health care

environments to promote both physical healing and emotional wellbeing. This concept has become particularly relevant in the context of childbirth, where the design and layout of the birthing space can shape women's birth experiences (Eidhammer et al., 2025). This theme explores the influence of the physical environment on the childbirth experience through three key sub-themes: *A Home-Like and Private Environment*, *Encouraging Movement in the Birth Space*, and *The Birthing Bed*.

2.4.4.1 A Home-Like and Private Environment

A consistent theme across three studies was the importance of designing hospital birthing rooms to evoke the comfort, familiarity and emotional safety typically associated with home (Andrén et al., 2021; Eidhammer et al., 2025; Goldkuhl et al., 2023). Key environmental features contributing to this home-like atmosphere included dimmable lighting, earthy tones, calming artwork, green plants, soft furnishings, a bathtub and the option for women to bring personal items from home (e.g., photographs, fabrics, pillows or a music speaker) (Andrén et al., 2021; Eidhammer et al., 2025; Goldkuhl et al., 2023), most of which have already been highlighted in the BUDSET (Foureur et al., 2010). The new birthing room in Goldkuhl et al. (2023) also incorporated multisensory design elements including projected nature films with soothing audio. Eidhammer et al. (2025) further highlighted the benefits of a multisensory design that integrates lighting, soundscapes, visuals, cues from familiar landscapes, and seasonal and circadian rhythms to create a responsive environment.

This sense of familiarity helped women feel more welcomed and emotionally secure, encouraged them to take ownership of the space and fostered trust in their care providers (Andrén et al., 2021; Eidhammer et al., 2025; Goldkuhl et al., 2023). Flexibility in room design also emerged as a key factor. When women and their companions could adjust features of the environment, such as lighting, spatial layout or

decor to align with their preferences, it enhanced their sense of control, comfort and autonomy (Eidhammer et al., 2025; Goldkuhl et al., 2023).

In contrast, more conventional hospital rooms characterised by visible medical equipment, fluorescent lighting, white walls and an overall sterile aesthetic, were seen to prioritise a risk-focused model of care (Andrén et al., 2021; Goldkuhl et al., 2023). These spaces often felt as if they belonged to the care providers rather than the birthing woman, making her feel like a guest instead of the central figure. Midwives reported that such environments could heighten anxiety and required additional effort to establish emotional security, such as by repositioning medical equipment or explaining its purpose to reduce fear (Andrén et al., 2021).

Goldkuhl et al. (2023) also emphasised the element of privacy as essential in creating a home-like atmosphere in the birthing room, this has similarly been highlighted in the *Fear Cascade* domain of the BUDSET (Foureur et al., 2010). Andrén et al. (2021) explored this further, with midwives highlighting the door as central in safeguarding the privacy and security of the birthing space. The door functions as a physical and symbolic boundary, controlling access to the mother's personal space and body during childbirth. When closed, it offers protection from the outside world, fostering an environment of peace and emotional safety. To further respect and preserve the mother's privacy, midwives would knock and wait for a response before entering, reinforcing that the space belongs to her. Aware that the door could open unexpectedly, some midwives employed additional strategies, such as using screens and verbally warning the mother in advance if an obstetrician or colleague was about to enter (Andrén et al., 2021).

Additional environmental elements such as the bathtub and window also influenced the perception of privacy. In particular, whether the bathtub was located within the birthing room or elsewhere, hence, forcing the woman to leave her private space to use it.

Similarly, activities outside the window, such as external noises (e.g., an ambulance siren) or the possibility of being seen or overheard, could disrupt the mother's sense of security and privacy (Andrén et al., 2021).

2.4.4.2 Encouraging Movement in the Birth Space

The design of the birthing room plays a crucial role in either facilitating or hindering the mother's ability to move freely during labour, which can substantially impact her autonomy and the progression of birth. Igarashi et al. (2014) emphasised the importance of spontaneous body movements in labour, noting that midwives working in midwifery homes or at the mother's home ensured the environment did not disturb these to facilitate delivery. Additionally, Igarashi et al. (2014) highlight that the mother's nesting instincts, characterised by the desire to find a comfortable and safe space to give birth, should also be respected.

These principles of promoting movement for labour progress have also been applied in hospital settings. According to Andrén et al. (2021), a room that promotes activity includes features such as adequate floor space, visible equipment options such as birthing balls, yoga mats, and a large bathtub. Moreover, the presence of images depicting different birthing positions on the walls can further inspire movement from mothers (Andrén et al., 2021). The importance of providing adequate space to allow for free movement and easy access to equipment, have been previously emphasised in the *Aesthetics* and *Facility* domains of the BUDSET tool (Foureur et al., 2010).

In contrast, the design of a hospital room can easily promote passivity, limiting the mother's ability to move freely and reinforcing a more clinical, risk-centered approach to childbirth. This is often reflected in the placement of the birth bed as the room's central feature, surrounded by medical equipment such as cardiotocography (CTG) devices, nitrous oxide supply and infusion pumps. This setup subtly suggests to the

mother that the bed is the primary place she should remain, often reducing her confidence in moving freely and diminishing her sense of control over the birth process (Andrén et al., 2021).

2.4.4.3 The Birthing Bed

The birthing bed is consistently recognised in the literature as one of the most influential elements of the birth environment. Townsend et al. (2016) explored midwives' perceptions of the bed in depth, highlighting its complex role in shaping both clinical practice and women's experiences. In the findings focusing on women's wishes in relation to the birthing bed, 10 out of 14 midwives observed that women often expected or preferred to labour and give birth on the bed, which was linked to cultural and media portrayals that construct the bed as the normative setting for childbirth. Some midwives also noted that women used the bed as a way to claim ownership of the room or to signal a need for support. In more medicalised cases, for instance an induction of labour, the bed often became the default space due to practical considerations, such as restricted mobility from intravenous lines (Townsend et al., 2016).

Moreover, some midwifery participants regarded the birthing bed as a practical and necessary tool for providing care. Midwives described it as central to performing key tasks such as foetal heart monitoring, vaginal examinations, assessing labour progress and managing complications such as postpartum haemorrhage (Andrén et al., 2021; Townsend et al., 2016). Andrén et al. (2021) also found that many midwives viewed the bed as a central and safe place around which care was organised. This sense of caution was further emphasised when some midwives, particularly those working in hospital settings, expressed anxiety about repositioning or avoiding the bed due to institutional norms, peer judgement and concerns about emergency preparedness (Townsend et al., 2016). Goldkuhl et al. (2023) added that while some midwives valued secluded beds for

promoting physiological birth, others expressed similar concerns and fear of compromising the bed's functionality, leading to a reluctance to reconfigure the space.

In contrast, additional findings relating to the avoidance of the birthing bed showcased a more flexible approach among midwives, especially those with experience in birth centre environments. These midwives intentionally discouraged default use of the bed by raising it, covering it with colourful quilts or surrounding it with alternative tools such as birth balls, mats or bean bags (Townsend et al., 2016). This approach aligns with the *Fear Cascade* domain of the BUDSET tool, which advocates for a birth environment where the bed is not the central feature (Foureur et al., 2010). Similarly, midwives in the study by Andrén et al. (2021) adapted their clinical practices by performing assessments in chairs, showers or on the floor, and used telemetry to facilitate continuous foetal monitoring while maintaining the woman's mobility. In line with this, Goldkuhl et al. (2023) found that some midwives valued a de-emphasised bed as a symbol of active birth, enhancing their ability to support the physiology of labour.

2.4.5 The Human Interaction

While considerable attention has been devoted to the design and physical features of the birth environment, human interaction is also a critical factor in shaping women's childbirth experiences. The social environment encompasses interactions with midwives, birth partners and other individuals present. It plays a central role in fostering a sense of safety, emotional support and overall wellbeing. This section examines two key aspects identified in the literature relating to human interaction within the birth setting, explored through the subthemes *The Midwife as a Vital Part of the Birth Environment* and *The Birth Partner in the Birth Environment*.

2.4.5.1 The Midwife as a Vital Part of the Birth Environment

Midwives are not only the clinical professionals present within the birth environment but are also deeply embedded in the emotional and relational aspects of it. As highlighted in the studies by Igarashi et al. (2014) and Malesela (2021), midwives considered themselves to be a central part of the mother's human environment during childbirth. Their presence involves providing clinical expertise but also offering emotional support and fostering interpersonal relationships with women and their families. Given their major responsibility to ensure the safety of both the mother and foetus, midwives in Malesela's (2021) study emphasised the importance of regular self-reflection on their intrapartum care practices and professional behaviour.

Midwives also play a crucial role in shaping the birth environment through sensitive communication and interpersonal skills. However, this may be challenged by contextual factors such as language barriers, which can limit meaningful interactions (Malesela, 2021). Similarly, Igarashi et al. (2014) emphasised the importance of fostering open trusting relationships in which women feel physically and emotionally secure, and free to voice preferences and exercise autonomy, including the ability to refuse procedures.

The physical environment itself can enhance or hinder this relational dimension of care. Findings from Goldkuhl et al. (2023), highlighted how the warm atmosphere of the newly implemented birthing room enabled midwives to slow down, take in their natural surroundings and temporarily detach from the hectic hospital environment outside of the birthing room. This sense of calm helped midwives become more physically present and emotionally attuned to the mother's birthing process. Rather than focusing solely on clinical tasks and assessments, participants felt they were more able to follow the natural rhythm of labour. Importantly, midwives recognised that their own mental state

of calmness could be transmitted to the birthing woman, fostering a more reassuring and supportive environment (Goldkuhl et al., 2023).

In particular, multisensory birthing rooms emerged as powerful tools for relationship-building between midwives and birthing couples. According to Goldkuhl et al. (2023), features such as nature projections or ambient sounds, not only promoted relaxation but also served as easy conversation starters. Eidhammer et al. (2022) similarly observed that such environments facilitated relational attunement between midwives and families, enhancing collaboration throughout the birth process. For instance, projections of local landscapes in a Danish hospital provided shared cultural reference points, enabling midwives to connect with couples in a more personal way beyond maternity care. This was especially useful when natural conversation was otherwise difficult to initiate, helping midwives establish rapport and emotional connection with the woman and birth partner (Eidhammer et al., 2022).

However, the ability of midwives to be fully present is not solely determined by their intentions or communication skills, it is also shaped by structural and environmental constraints. Andrén et al. (2021) illustrated how layout and technological infrastructure of the birthing room can either promote or hinder a midwife's physical and mental presence. Responsibilities outside the room, such as attending to other mothers or administrative tasks, often draw midwives away from the birthing process. Tools such as centralised foetal monitoring systems where CTG tracings are displayed in external offices, while useful for overseeing multiple patients, can replace in-person observation and reduce opportunities for embodied care. Moreover, alarm systems audible throughout the ward further disrupt the birth space, increasing stress for both midwives and women (Andrén et al., 2021).

2.4.5.2 The Birth Partner in the Birth Environment

Although not explored in depth, findings from three of the studies included in this review, also presented midwives' perspectives on the birth partner's role as a vital part of the human environment during childbirth (Andrén et al., 2021; Goldkuhl et al., 2023; Xu et al., 2025). This aligns with the previously discussed fourth domain of the BUDSET tool by Foureur et al. (2010), which recognises the importance of support and having accommodations for birth attendants within the birth space. Similarly, Andrén et al. (2021) emphasised that the birthing room should not only accommodate the birthing woman but also her companion, providing sufficient space for them to offer support while also meeting their own needs for rest and recovery. Goldkuhl et al. (2023) also reinforced this as their findings highlighted the importance of designing spaces that facilitate emotional presence, suggesting features that encourage upright birthing positions and hence greater partner involvement. Both Andrén et al. (2021) and Goldkuhl et al. (2023) pointed to the value of physical closeness and touch, noting that such interactions help foster a sense of security, enhance the woman's ability to relax and manage pain, and promote the release of oxytocin; all of which contribute to a more positive birth experience.

However, not all findings across the included studies, positioned the birth partner's presence as beneficial. Xu et al. (2025) in their exploration of midwives' perceptions of barriers and facilitators to positive childbirth experiences, reported that a companion's presence could sometimes hinder rather than support. Specifically, interpersonal violence; manifesting as cold, apathetic or neglectful behaviour from partners, relatives or friends, was identified as a meso-level barrier. Such dynamics were found to have far-reaching psychological and emotional consequences for the mother, potentially undermining her sense of safety and wellbeing during labour (Xu et al., 2025).

In the study by Igarashi et al. (2014), midwives were also found to play an active role in influencing the human environment in ways that help the woman stay focused and undisturbed during labour. One aspect of this role involved offering advice to women about who should be present during the birth, encouraging them to choose companions who would provide genuine support. Midwives also reported attempting to limit the presence of individuals who might disrupt the woman's emotional state, most commonly mothers-in-law. At times, this even extended to managing their own presence in the room, with midwives consciously minimising unnecessary interruptions to allow the woman to labour in peace (Igarashi et al., 2014).

2.4.6 The Institutional Context

While the physical and interpersonal aspects of the birth environment are considered central to shaping women's childbirth experiences, the broader institutional context also plays a pivotal role. Organisational decisions around staffing models, workforce support and resource allocation can greatly influence the quality and safety of the birth environment. This theme explores how institutional structures either facilitate or undermine a positive birth environment, focusing on two key subthemes identified in the literature: *Investing in Midwives* and *Adequate Financial and Material Resources*.

2.4.6.1 Investing in Midwives

To maintain a high-quality birth environment, it is essential that institutions invest in the ongoing development and wellbeing of their midwives (Malesela, 2021). Midwives emphasised the importance of continuous professional development, viewing themselves as lifelong learners who require regular opportunities to expand their knowledge and skills. Participants noted that skilled and experienced midwives enhance the birth environment, not only through their clinical expertise but also through

mentorship, role modelling and upskilling. Continued development was seen as a shared responsibility. While midwives acknowledged their personal role in seeking out learning opportunities such as workshops, reading current research and attending courses, they also stressed the need for institutional support. This includes protected time for learning, access to educational resources, and platforms to implement newly acquired skills. Furthermore, midwives highlighted the value of structured team-building and debriefing sessions to strengthen interprofessional collaboration and safeguard mental wellbeing (Malesela, 2021).

In addition to supporting the development of existing staff, participants also stressed the importance of investing in additional human resources (Malesela, 2021). This concern was echoed in Xu et al.'s (2025) study, where the shortage of midwives was identified as a macro-level factor contributing to negative childbirth experiences. The persistent issue of understaffing results in midwives assuming excessive workloads, resulting in compromised care. Under such pressure, essential tasks such as thorough documentation are often deprioritised, increasing the risk of unsafe care and potential malpractice. These conditions not only affect the quality of care but also take a toll on midwives' physical and mental wellbeing and diminish their sense of professional satisfaction. To address this, Malesela (2021) and Xu et al. (2025) suggested that institutions must develop innovative and sustainable strategies to attract, recruit and retain new midwives to ensure safe staffing levels.

2.4.6.2 Adequate Financial and Material Resources

In addition to investing in human resources, participants in the studies by Malesela (2021) and Xu et al. (2025), emphasised the importance of allocating sufficient financial and material resources to improve the overall quality of the birth environment. Malesela (2021) noted that institutional priorities often focus heavily on controlling costs,

sometimes at the expense of acquiring essential equipment and resources necessary for safe and effective care. This lack of investment compromises both the functionality and safety of the birth setting. Similarly, Xu et al. (2025) highlighted how substandard hospital conditions, including outdated equipment, poor infrastructure and overcrowded facilities, pose significant barriers to creating a positive childbirth experience. These findings underscore the need for a more holistic and adequately funded approach to improving the physical aspects of maternity care environments.

2.5 Strengths and Limitations of the Literature Review

This literature review provides a comprehensive and thematically structured exploration of midwives' perspectives on how physical, interpersonal and institutional aspects of the birth environment influence mothers' childbirth experiences. A notable strength is the researcher's direct involvement in the entire review process, including the screening, quality appraisal and thematic synthesis of the studies. The inclusion of recent, geographically diverse literature helps ensure that the findings are reflective of contemporary practices across various healthcare contexts. Additionally, no restrictions were placed on publication date, allowing the review to incorporate valuable insights from a range of studies, encompassing both foundational and recent research. The scope was also not limited to hospital-based birth environments, enabling the inclusion of a broader range of relevant and potentially valuable insights.

Another strength is the methodological inclusiveness of the review. By not limiting the search to a specific research design, the review avoided prematurely excluding studies that could offer valuable contributions. Despite this, all included studies were qualitative in nature. While qualitative research provides depth and context, the absence of quantitative studies indicates there is limited representation of measurable outcomes

or statistical comparisons, which may affect the generalisability of the conclusions and implications of the findings.

Another limitation of this review is that a single reviewer carried out all stages including the search strategy, study selection, data extraction, quality appraisal and synthesis. This increases the potential for subjective bias and reduces the reliability typically gained through inter-rater verification. However, to mitigate this, the researcher consulted with a librarian and regularly sought guidance from the academic research supervisor to enhance rigour throughout the review process.

2.6 Conclusion

This literature review has examined midwives' perspectives on how the birth environment influences women's childbirth experiences. The findings consistently showed that midwives consider the birth environment to be a determinant of comfort, emotional wellbeing, coping ability and overall sense of safety during labour, key contributors to a positive childbirth experience. Central themes that emerged included the physical design of the birthing space, the interactions with midwives and birth partners, and the availability of institutional support and resources. Notably, the review also identified key gaps in the existing body of literature, particularly the scarcity of quantitative methodologies to assess the perspectives of a larger sample of midwives, and the absence of research within purely obstetric-led maternity systems such as the local context. This study seeks to address these gaps by exploring local midwives' views on the influence of the birth environment on the childbirth experience. The following chapter outlines the methodological approach as well as the theoretical framework guiding this study.

Chapter 3

Methodology

3.1 Introduction

This chapter presents a detailed overview of the research methodology employed in this study. It outlines the study's research question, aim and objectives. The chosen research approach and design are discussed, as well as the theoretical framework underpinning the study. This is followed by a description of the participant recruitment process, the development and validation of the research instrument, and the procedures for data collection and analysis. Finally, the chapter concludes with a discussion of the ethical considerations followed throughout the research process.

3.2 Research Question

The research question guiding this study was the following:

What are midwives' views on how the birth environment impacts the woman's childbirth experience?

3.3 Aim and Objectives

The aim of this study was to examine midwives' views on the impact of the birth environment on the woman's childbirth experience.

To accomplish this, the following objectives were established:

1- To identify midwives' perceptions of physical factors in the birth environment that influence the woman's childbirth experience.
2- To assess midwives' perceptions of psychological and emotional factors in the birth environment that influence the woman's childbirth experience.
3- To evaluate midwives' reported practices in utilising the birth environment to enhance the woman's childbirth experience.

3.4 Operational Definitions

Operationalising is a common research practice used to define a variable within a study, thereby enabling a clear and meaningful response to the research question (Slife et al., 2016). For the purposes of this study, the following operational definitions have been established.

- ***Influence*** – The term influence refers to the effect that somebody or something, that is the birth environment, has on the way that something works or develops, that is the childbirth experience (Oxford University Press, 2025a).

- ***Birth Environment*** – As established by Goldkuhl et al. (2022), the birth environment comprises the physical delivery room, the interpersonal interactions occurring within it and the organisational setting in which it is situated.

- ***Childbirth Experience*** – The term 'childbirth experience' denotes a woman's subjective perception of the events and emotions associated with the birthing process (Viirman et al., 2023).

- ***Midwife*** – According to the International Confederation of Midwives (ICM, 2024), a midwife is a qualified, responsible and accountable professional whose scope of practice includes supporting, caring for, and advising women throughout the perinatal period, managing births and providing care for newborns and infants. For the purposes of this study, midwives working in the Central Delivery Suite, Obstetric Wards, Discharge Liaison Midwifery, Neonatal and Paediatric Intensive Care Unit and the Midwifery Relieving Pool at the main local public hospital will be included.

- ***Perspective*** – The term ‘perspective’ refers to a particular attitude towards something or a specific way of thinking about it (Oxford University Press, 2025b). For the purposes of this study, perspective denotes the eligible midwives’ views, perceptions and practices.

3.5 Research Approach

The research approach refers to the general techniques utilised by researchers when carrying out a study, with the aim of collecting, analysing and presenting findings. The choice of the most suitable approach is determined by its characteristics, the nature of the research topic, the type of data to be collected, and the anticipated practical implications that may come out of it. The three most common research approaches are qualitative, quantitative and mixed methods (Kankam, 2020).

The qualitative approach seeks to explore the meaning of a societal or human phenomenon by examining individual or group perspectives, shaped by participants’ unique values, beliefs and experiences. This is typically achieved through methods such as observations, interviews or focus groups with relatively small participant groups. Limitations include the lack of control over independent variables, the potential for subjective interpretation of findings and the inability to randomise sampling (Kankam, 2020). While qualitative research provides rich, in-depth accounts, this is not consistent with the aim of this study, making it an unsuitable research approach.

The quantitative approach focuses on the collection and statistical analysis of numerical data. It is characterised by a specific structure which can be explicitly defined and recognised, and the ability to test for validity and reliability. It produces objective results that are replicable and generalisable due to the feature of a large sample size. This makes it the most suitable approach for the present study, which seeks to capture

diverse perspectives from a substantial number of midwives. An additional strength is researcher detachment, which minimises bias from personal perspectives and experiences (Kankam, 2020). However, a limitation of quantitative research is its inability to capture the depth of participants' feelings and underlying reasonings (Taherdoost, 2022).

The mixed methods approach integrates qualitative and quantitative techniques within one study, allowing researchers to draw on the strengths of each while mitigating their respective limitations. It offers methodological flexibility, fosters creativity and enhances the robustness of the research design. This approach can yield a more thorough understanding of the research problem, strengthen the validity and reliability of findings, and reveal insights that might be overlooked when relying on a single method. However, achieving these benefits, makes the data collection process more complex, resource-intensive and time-consuming. For these reasons, the mixed methods approach was not considered feasible for the present study (Kankam, 2020).

3.6 Research Design

Within the quantitative approach, there are several types of research designs, each providing a framework for structuring a study. These designs can be grouped into four main categories. The first is experimental design, which tests causal relationships by manipulating an independent variable and measuring its impact on a dependent variable, with participants randomly allocated to experimental or control groups. Quasi-experimental design is similar but does not involve randomisation; instead, it often compares outcomes between pre-existing groups. As the aim of the present study does not involve testing casual relationships between variables, neither of these designs were deemed suitable. The remaining two categories are correlational and descriptive, both of

which measure variables without manipulating them, allowing observation of how they naturally occur. Correlational designs assess whether variables are related and, if so, the strength of that relationship (Bhandari, 2025). However, this approach is not aligned with the aim of the present study.

On the other hand, descriptive research seeks to systematically and accurately depict a population, situation or phenomenon. It is particularly valuable when little is known about a topic, as it helps establish how, when and where something occurs before exploring why it happens. Given that the present study seeks to identify characteristics, frequencies, trends and categories, descriptive research was selected as the most appropriate quantitative design (McCombes, 2023).

Further variants of research designs include cross-sectional and longitudinal studies. A cross-sectional study collects data from a number of individuals at one point in time, providing a snapshot of the variables of interest. Conversely, longitudinal studies gather data repeatedly from the same participants over an extended period, typically focusing on a smaller, defined group sharing a common characteristic. Cross-sectional studies are particularly useful for gathering initial data and identifying trends, which can then inform more in-depth longitudinal research. For this study, a cross-sectional design was preferred due to its practicality, considering the time and financial constraints impacting the study (Thomas, 2023).

3.7 Theoretical Framework

The theoretical framework forms the foundation of a research study, providing the structural support for the study's rationale, research problem, objectives, significance and research questions. Acting as both a grounding base and an anchor, the theoretical framework guides the choice for the methodology and the approach to analysis. When

integrated into a research plan, it ensures that the study remains coherent, well-structured and logically organised. The theory informs the researcher's understanding of the topic and guides the investigation, incorporating concepts and definitions from the theory that are directly relevant (Grant & Osanloo, 2014).

In reviewing the literature to identify a suitable theoretical framework for this study, several theories were examined for their relevance to the research focus. Two theories emerged as highly pertinent: the well-established Birth Territory Theory by Fahy et al. (2008) and the more recent Theory of Supportive Birth Settings by Maxwell et al. (2024). Following a detailed evaluation of both theories, it was determined that they would be used in combination, providing complementary perspectives that guide the study and enhance the interpretation of findings, strengthening the overall analytical lens for this research.

3.7.1 The Birth Territory Theory

The Birth Territory Theory is the first framework of its kind to examine the influence of the environment on childbearing in a way that is both experientially grounded and theoretically integrated. Initially conceptualised by Fahy and Parratt (2006) and further developed by Fahy et al. (2008), the theory seeks to explain how women can be supported to achieve what is termed a *genius birth*. A genius birth occurs when a woman meets the challenges of labour by drawing upon deep, usually hidden, inner capacities. Such an experience fosters a strong sense of achievement, joy and empowerment, and is characterised by the maintenance of normal physiological processes in a safe and undisturbed environment. By contrast, a *forced birth* is one in which external power is used to impose a particular outcome, thereby disconnecting the woman from her intrinsic power. The theory posits that women who experience a genius

birth tend to have a more positive sense of self and stronger attachment to their newborns than those who experience a forced birth.

Within this theory, the *birth territory* is defined as the environment external to the woman and baby, comprising of two interrelated components: *terrain* and *jurisdiction*.

- **Terrain**

Terrain refers to the physical features of the birth space, including its layout, furnishings and accessories. Fahy et al. (2008) describe a continuum between two terrain types:

  - **Sanctum**: A home-like environment intended to enhance privacy, comfort, control and ease of movement, with access to a toilet, bath and outdoor space, where a closed door ensures safety and privacy, promoting the woman's confidence, emotional wellbeing and optimal physiological function.
  - **Surveillance Environment**: A clinical setting designed for staff convenience and monitoring, where equipment is on display, the bed dominates the room, and access to bathroom or outdoor facilities is limited. Doors may remain open or have viewing windows, compromising privacy and contributing to feelings of vulnerability.

This theory hypothesises that the further a birth space deviates from *sanctum* towards *surveillance*, the more likely the woman is to experience fear, diminished self-agency and inhibited physiological function (Fahy et al., 2008).

- **Jurisdiction**

Jurisdiction refers to the use of power within the birth environment and exists along a continuum from *integrative power* to *disintegrative power*.

  - **Integrative power** unites all forms of influence toward a shared goal, that is facilitating a genius birth. In practice, this is enacted through *midwifery*

guardianship, which involves protecting the birth terrain, enabling undisturbed labour, and respecting the woman's values, beliefs and autonomy.

- **Disintegrative power** is self-serving, fragmenting other sources of power and undermining the woman's role as decision-maker. When used by professionals, it manifests as *midwifery domination*, which interferes with the labour process, leading the woman to respond with compliance or resistance.

The Birth Territory Theory's central proposition is that when midwives use integrative power within a sanctum environment, they maximise support for both the woman and foetus, increasing the likelihood of a genius birth. Women who achieve a genius birth are more likely to be satisfied with their experience, maintain a positive self-concept, and adapt more easily postpartum (Fahy et al., 2008).

A notable strength of the Birth Territory Theory is that its concepts and propositions were originally derived from the reflections and practice-based insights of four senior practicing midwives and researchers, giving it strong clinical relevance. The concepts are clearly defined, logically structured and have been repeatedly tested against midwifery practice, demonstrating both explanatory and predictive power, as well as face validity. However, a limitation is that the theoretical and empirical relationships between women's emotional states and their physiological functioning require further exploration. The theory also focuses primarily on the individual birth room, leaving scope to extend its application to the broader social and organisational levels of maternity services (Fahy et al., 2008).

3.7.2 Theory of Supportive Birth Settings

In addition to the Birth Territory Theory, the present study also adopts the applied version of the Theory of Supportive Care Settings (TSCS). Originally developed by Edvardsson et al. (2005) to identify processes that contribute to supportive

environments across healthcare contexts such as hospice, geriatric and acute care, the TSCS was recently adapted and tested for application to the birthing environment by Maxwell et al. (2024). In this adaptation, the authors sought to determine what constitutes a safe and sacred healing environment for women during childbirth, resulting in the development of the Theory of Supportive Birth Settings made up of the following five components.

- **Willingness to Serve in the Environment**; demonstrated by the healthcare staff through thoughtful, personalised actions such as remembering the mother's name, preferences and individual attributes. Specifically, within the birth environment, this also includes providing comforting distractions such as music or aromatherapy, adjusting the lighting and temperature, and minimising disruptive noises.

- **Recognising Oneself in the Environment**; achieved by creating a familiar and culturally sensitive setting for the couple, by incorporating relevant materials, familiar foods and drinks, music and personal objects. It also involves, enhancing the beauty of the environment through the use of natural light and warm colours, maintaining a calm atmosphere with minimal noise, and allowing freedom of movement.

- **Social Relations in the Environment**; Maxwell et al. (2024) emphasised how access to social support is strongly linked to improved birth outcomes and positive perceptions of the birthing experience. Therefore, support persons should feel genuinely welcomed and included in the birth environment, which can be facilitated by features such as family alcoves, along with professionals actively involving them throughout the birthing process.

- **Welcoming in the Environment**; simple actions such as being greeted warmly, treated with genuine care from healthcare professionals, and believed about pain levels and the labour experience, significantly enhance maternal satisfaction and the overall birthing experience. Moreover, providing clear and practical information upon arrival, such as directions to the cafeteria and bathrooms for support persons, further contributes to the welcoming atmosphere.

- **Safety in the Environment**; arises from feeling well-informed, comforted and able to trust healthcare professionals. This involves honest communication and respectful acknowledgement of the mother's needs, requests and birth plan, as well as an environment that is clean, organised and visually appealing. Safety is also reinforced by giving the mother a sense of control over the birthing experience, by allowing her to personalise the space with music, photos, pillows, plants, adjustable lighting and temperature, and by supporting freedom of movement during labour.

To verify this, Maxwell et al. (2024) employed qualitative interpretive meta-synthesis with deductive theory testing (QIMS-DTT). This analysis confirmed that all five core components of the original Theory of Supportive Care Settings (TSCS), were evident across the birthing environment literature. This consistent thematic overlap between the theory and the literature provided empirical validation of the theory's relevance.

3.8 Research Site and Access

A research site is defined as the specific location where data collection takes place. Beyond being a physical space, it encompasses the broader context, available resources and the population involved in the research (Misa, 2025). In the context of this study, the research site comprised of a range of maternity care settings within one main public

hospital. These included the Central Delivery Suite, Obstetric Wards 1, 2, and 3, the Discharge Liaison Midwifery service, the Neonatal and Paediatric Intensive Care Unit, and the Midwifery Relieving Pool. Permission to conduct research within these settings was obtained from the hospital's Data Protection Officer (DPO), Chief Executive Officer (CEO), Director of Obstetrics and Gynaecology, Director of Paediatrics, Director of Nursing and Midwifery, Chief Midwifery Manager (Appendix D) and the Midwifery/Nursing Officers of each respective setting (Appendix E). Ethical clearance to access the research site was also granted by the Faculty of Health Sciences Research Ethics Committee (FREC) (Appendix F).

3.9 Research Sample

The research sample is a limited number of participants which form part of and represent the larger target population. The target population refers to the entire group of individuals whose characteristics are of interest to the researcher (Martínez-Mesa et al., 2016). For the purposes of this study, the target population consists of midwives employed within the previously specified maternity settings of the main public hospital. These settings were intentionally selected, rather than extending inclusion to all midwives in the institution, to ensure that participants worked closely to the birth environment, which is not applicable to midwives working in outpatient departments or clinics. Moreover, these midwives must be in accordance with the following eligibility criteria and voluntarily willing to participate in this study.

3.9.1 Inclusion and Exclusion Criteria

Inclusion criteria are the key characteristics that members of the target population must possess to address the research question (Patino & Ferreira, 2018). For this study, the inclusion criteria include midwives working in the Central Delivery Suite, Obstetric

Ward 1, Obstetric Ward 2, Obstetric Ward 3, the Neonatal and Paediatric Intensive Care Unit, the Discharge Liaison Midwifery service or the Midwifery Relieving Pool of the main public hospital.

Exclusion criteria refer to characteristics present in otherwise eligible participants that may compromise the validity of the study or result in an unfavourable outcome (Patino & Ferreira, 2018). For this study, any other midwives working in the same public hospital but in other clinical settings not identified in the inclusion criteria were excluded.

3.9.2 Sampling Technique

The sampling technique refers to the process used to select participants from the target population and can be categorised as either probability or non-probability sampling. In probability sampling, each individual has the same likelihood of being chosen for the study, whereas non-probability sampling involves a non-systematic process that does not guarantee equal chances for selection (Elfil & Negida, 2017). For this study, a non-probability approach known as purposive (or judgmental) sampling was utilised. This method is particularly suitable when the aim is to gather insights from individuals with specific expertise or experience relevant to the research topic (Martínez-Mesa et al., 2016). Accordingly, midwives who fulfilled the study's eligibility criteria were selected to participate.

3.9.3 Sample Size

To ensure that the sample is representative of the target population, it is essential not only to select an appropriate sampling method but also to determine an adequate sample size. A sample that is too small may lack sufficient statistical power to answer the research question, resulting in inconclusive findings. This could lead to participants being inconvenienced without contributing meaningfully to the existing body of

knowledge, which raises ethical concerns. Conversely, a larger sample may better represent the target population and improve the accuracy of findings, but only up to a certain point. Once the marginal gains in accuracy become insignificant, the additional effort, time and cost required to recruit extra participants are no longer justified. Moreover, recruiting more participants than required may inconvenience individuals unnecessarily, which is also ethically incorrect (Andrade, 2020).

Therefore, to ensure the sample was adequately representative, the required sample size was determined using the following standard formula, as advised by the statistician consulted for this study.

$$n = \frac{N \times Z^2 \times p(1-p)}{(N-1)e^2 + Z^2 \times p(1-p)}$$

Where:

n = sample size to be calculated

N = total estimated population (N = 213)

Z = confidence interval (Z = 1.96)

e = margin of error (e = 0.05)

p = population proportion (p = 0.5)

According to a representative of the local Council for Nurses and Midwives (CNM), a total of 213 midwives were employed in the maternity care settings identified for this study. The other parameters for sample size calculation were set at a 95% confidence level, a 5% margin of error and a 50% population proportion. This calculation resulted in a required sample size of 138 participants (n = 138).

3.10 Research Instrument

In quantitative research, one of the most frequently used instruments is the questionnaire, which is a highly structured tool consisting of a set of predefined questions designed to obtain specific information from respondents. Questionnaires can capture statistical data on variables such as facts, behaviours and preferences, making them a suitable data collection method for this study (Taherdoost, 2021). An extensive literature search was conducted to identify an established and validated tool aligned with the aim and objectives of this research. This process identified two potentially relevant instruments. The primary authors of both tools were contacted via email to request access to the full versions.

The first tool was the Birth Environment Spatial Perception (BESP) Questionnaire, developed by Setola et al. (2022) in their study *A Broad Study to Develop Maternity Units Design Knowledge Combining Spatial Analysis and Mothers' and Midwives' Perception of the Birth Environment*. This tool focuses on perceptions of the physical birthing environment. However, the present study also sought to investigate psychological and emotional dimensions, making the BESP unsuitable in its current form.

The second tool identified in the literature was the Birth Unit Assessment Scale, developed by Aktas Reyhan et al. (2023) to evaluate mothers' views on the effects of the birth unit. This instrument evaluates physical, emotional and social aspects of the birth environment, but it is specifically designed for postpartum women. Consequently, it does not address the third objective of this study of evaluating midwives' practices. Moreover, several scale items were not applicable to the local Central Delivery Suite, further limiting its relevance.

Given that no existing tool fully addressed this study's objectives, an original, self-designed questionnaire was developed (Appendix G), informed by the relevant literature and under the guidance of the academic research supervisor. The questionnaire consisted of 22 items, including both closed-ended and open-ended questions. The closed-ended questions comprised nominal scale items with single or multiple responses, as well as ordinal and Likert scale items. These formats enable respondents to select from predetermined options, facilitating statistical analysis. Moreover, open-ended questions are used to explore more complex issues, allowing participants to express their views in their own words and potentially reveal insights beyond the researcher's initial scope (Rouder et al., 2021; Taherdoost, 2021). Some items also included a part b) follow-up which gave participants the opportunity to explain or elaborate on their answers. The research tool was designed exclusively in the English language, as it is recognised that all participants are healthcare professionals with a strong command of the language, especially given that their training was carried out in English.

The questionnaire was structured into the following four sections (Appendix G).

- **Demographic Information**: This section consisted of four questions on age, educational background, years of experience and current maternity work setting.
- **Physical Factors in the Birth Environment**: This section addressed the first study objective by identifying midwives' views on physical factors in the birth environment that influence the childbirth experience.
- **Psychological and Emotional Factors in the Birth Environment**: This section aimed at fulfilling the second objective of the study by assessing midwives' views on the psychological and emotional factors of the birth environment and their impact on the childbirth experience.

- **Midwives' Practices in Enhancing the Birth Environment**: This section addressed the third objective of the study by evaluating midwives' reported practices in utilising the birth environment to improve the childbirth experience.

3.11 Validity

Methodological rigour in quantitative research reflects both the quality of a study and its applicability to the target population. A key component of rigour is validation testing, which assesses how accurately a research instrument measures the intended variable. Validity can take several forms. In this study, face validity and content validity were examined. Face validity considers whether the instrument seems to measure what it is intended to measure, whereas content validity determines whether the instrument comprehensively covers all essential aspects of the variable being studied (Alele & Malau-Aduli, 2023).

To establish these forms of validity, a panel of five midwifery experts representing a range of professional roles, including a senior midwife, a practice midwife, an academic midwife and midwifery managers, reviewed the questionnaire using two structured validation forms (Appendix H). The Content Validation Form assessed whether the questions were relevant to the study's objectives, clearly worded and comprehensive in covering essential topics. The Face Validation Form evaluated readability, language and the time required to complete the questionnaire, with the aim of ensuring the instrument was user-friendly for participants. All expert feedback was carefully considered and incorporated where deemed appropriate to improve the clarity, relevance and overall effectiveness of the research tool. Moreover, the following statistical analyses indicated satisfactory face and content validity.

3.11.1 Face Validity

The Friedman test (Table 3.1) was conducted to compare the mean rating scores provided to eight items between five experts. The null hypothesis states that there are only marginal differences in mean ratings among the experts and is retained if the p-value is larger than the 0.05 significance level. Conversely, the alternative hypothesis states that the mean ratings differ significantly across the experts and is accepted if the p-value is below the 0.05 threshold.

Table 3.1 *Face Validity Descriptive Statistics*

	N	Mean	Std. Dev.	Minimum	Maximum
Expert 1	8	5.00	0.000	5	5
Expert 2	8	4.00	0.000	4	4
Expert 3	8	4.75	0.463	4	5
Expert 4	8	4.88	0.354	4	5
Expert 5	8	4.75	0.463	4	5

$X^2(4) = 1.960$, $p = 0.743$

The mean rating scores provided to the eight items by the five experts ranged from 4 to 5, indicating satisfactory face validity. Moreover, the Friedman test showed that the evaluations of the eight items varied marginally between the five experts.

3.11.2 Content Validity

The Kendall's Tau test is normally used to assess content validity because the rating scores provided by the five raters have an ordinal categorical scale. However, since the vast majority of the raters' responses were either 4 or 5, there was very little within variation and the test did not yield an output. For this reason, the Friedman test (Table 3.2) was used again to compare the mean rating scores provided to 42 items between five experts.

Table 3.2 *Content Validity Descriptive Statistics*

	N	Mean	Std. Dev.	Minimum	Maximum
Expert 1	42	4.86	0.472	3	5
Expert 2	42	4.05	0.216	4	5
Expert 3	42	4.79	0.415	4	5
Expert 4	42	4.48	0.862	2	5
Expert 5	42	4.60	0.701	3	5

$X^2(4) = 1.78$, $p = 0.776$

The mean rating scores provided to the 42 items by the five experts range from 4.05 to 4.86 indicating satisfactory content validity. Moreover, the Friedman test showed that the evaluations of the 42 items varied marginally between the five experts.

3.12 Reliability

Reliability is another aspect of methodological rigour and refers to the degree to which a research instrument yields consistent results when administered on different occasions or by different investigators. In this study, the reliability of the self-designed questionnaire was assessed using the test-retest method. Test-retest reliability assesses the degree of consistency between the outcomes of the same instrument, administered to the same participants at different points in time, ideally within an interval of 10 to 14 days. High consistency across both administrations indicates strong reliability (Alele & Malau-Aduli, 2023).

For this study, the test-retest procedure was facilitated by an intermediary person who distributed the questionnaire in paper format to 10 eligible midwives. The same group of participants completed the questionnaire again 12 days later. The paired datasets were statistically analysed under the guidance of a statistician using the Kappa test and Kendall's Tau Test.

3.12.1 Kappa Test

The Kappa test was applied to evaluate test-retest reliability for items measured on a nominal categorical scale. Kappa values range from 0 to 1, with values approaching 1 indicating satisfactory reliability. The null hypothesis indicates poor test-retest reliability and is retained if the p-value exceeds the 0.05 significance level. Conversely, the alternative hypothesis indicates satisfactory test-retest reliability and is accepted if the p-value is below the 0.05 threshold.

Example - Question 3: *What is your level of experience as a midwife?*

Table 3.3 *Crosstabulation (Question 3)*

		Post-test		
		Less than 5 years	5-10 years	11-20 years
Pre-test	Less than 5 years	2	0	0
	5-10 years	0	5	0
	11-20 years	0	0	3

Table 3.4 *Kappa Test (Question 3)*

		Value	Standard Error	Approximate T	P-value
Measure of Agreement	Kappa	1.000	0.000	4.337	<0.001

3.12.2 Kendall's Tau Test

The Kendall's Tau test was used for items measured on an ordinal categorical scale. Kendall's Tau values range from 0 to 1, with values approaching 1 indicating satisfactory test-retest reliability. The null hypothesis indicates poor test-retest reliability and is retained if the p-value exceeds the 0.05 significance level. Conversely, the alternative hypothesis indicates satisfactory test-retest reliability and is accepted if the p-value is below the 0.05 threshold.

Example - Question 5: *How important do you consider the physical environment in influencing the childbirth experience?*

Table 3.5 *Crosstabulation (Question 5)*

		Post-test		
		Moderately important	Very important	Extremely important
Pre-test	Moderately important	1	0	0
	Very important	0	3	0
	Extremely important	0	2	4

Table 3.6 *Kendall's Tau Test (Question 5)*

		Value	Standard Error	Approximate T	P-value
Ordinal by Ordinal	Kendall's tau-b	0.750	0.148	3.110	0.002

All p-values were below the 0.05 threshold for statistical significance, indicating satisfactory test-retest reliability of the questionnaire.

3.13 Data Collection

The data collection for this study was conducted between the third week of August 2025 and the fourth week of September 2025. In each maternity care setting, the Midwifery or Nursing Officers that agreed to act as intermediaries (Appendix E), were responsible for distributing the questionnaire. Eligible midwives were invited to participate via email, which included a hyperlink to the online questionnaire and the Participant Information Letter (Appendix I) as an attachment. The information letter provided a detailed overview of the study and what it entailed to participate. To enhance participation, a reminder email was issued by the intermediaries during the first week of September 2025. Upon accessing the hyperlink, participants were directed to a self-administered online questionnaire via Google Forms, which was completed and submitted electronically.

3.14 Data Analysis

Quantitative data analysis relies on statistical methods to interpret numerical data and derive meaningful results. Statistics transform raw numbers into evidence that can address the research question (Kotronoulas et al., 2023). The data collected via Google Forms was automatically compiled into a spreadsheet, which was then exported and analysed using IBM Statistical Package for the Social Sciences (SPSS)® version 29, under the guidance of a statistician.

Statistics serve two main purposes. Firstly, descriptive statistics summarise the dataset to illustrate what is typical or characteristic of the sample. Secondly, inferential statistics are used to examine relationships between variables and to draw conclusions that extend beyond the study sample to the wider population (Kotronoulas et al., 2023). Both types of statistics were applied in this study to analyse the collected data.

3.14.1 Descriptive Statistical Analysis

Descriptive statistics provide a summary of the variables in a dataset, offering an overview of the characteristics of the sample. These statistics were expressed through frequencies (numbers and percentages), measures of central tendency (mean, median and mode), and measures of dispersion (standard deviation). The analysed data was then presented narratively in text form and visually represented using tables, graphs or pie charts, which facilitated clearer interpretation and enhanced readability (Kotronoulas et al., 2023).

3.14.2 Inferential Statistical Analysis

Inferential statistics are used to test hypotheses and determine the probability that an observed effect, relationship or difference is genuine rather than due to chance. Following consultation with a statistician, the Kruskal-Wallis test was recommended based on the nature of the variables and the relationships being investigated. The

questionnaire included several Likert scale items to which the Kruskal-Wallis test was applied to compare the mean ratings provided to a statement across participant groups defined by demographic characteristics (e.g., years of work experience and maternity setting). All mean rating scores ranged from 1 to 5, where 1 corresponds to *'Strongly disagree'*, *'Not important'*, *'Very inadequate'*, *'Never'* or *'Not empowered'*, while 5 corresponds to *'Strongly agree', 'Extremely important', 'Very adequate'*, *'Always'* or *'Extremely empowered'*.

The null hypothesis states that the mean rating scores for the statement differ only minimally across the groups and is accepted when the p-value exceeds the 0.05 significance level. Conversely, the alternative hypothesis states that the mean rating scores differ significantly across the groups and is accepted when the p-value is below the 0.05 threshold (Kotronoulas et al., 2023).

3.14.3 Content Analysis

The questionnaire included open-ended questions, either as standalone items or as follow-ups that allowed participants to elaborate on their responses to preceding questions. These items generated qualitative data, which was analysed using inductive conventional content analysis. Content analysis is a systematic research method used to interpret textual data by identifying patterns, concepts and themes, to gain insight into the meaning and context of the data. This approach is well-suited for analysing open-ended survey responses, as it enables the identification of trends in participants' responses and complements quantitative findings (Ho & Limpaecher, 2023).

Ho and Limpaecher (2023) outline the six steps of carrying out inductive content analysis, which were applied to the qualitative findings of this study. The first step involved data collection, which was carried out as described in the previous section. Second, the researcher immersed themselves in the data through repeated readings in

order to identify emerging patterns and trends. Third, a codebook was developed inductively from the data and initial codes were generated. Fourth, coding rules were established to ensure consistency, after which the codebook was systematically applied to the remaining data. Finally, the results were analysed to identify categories and overarching themes. Frequency counts were also used to illustrate the relative prominence of key themes within participants' responses (Ho & Limpaecher, 2023).

3.15 Ethical Considerations

Ethical considerations in research comprise a set of guiding principles aimed at protecting participants' rights, upholding academic integrity and strengthening the overall validity of a study. Researchers must follow established codes of conduct when collecting data from human participants (Bhandari, 2024). For this study, all processes were carried out in accordance with the University of Malta's (UM, 2019a) Research Code of Practice and Research Ethics Review Procedures (UM, 2019b). In addition, the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research [National Commission], 1979) is a foundational statement of ethical principles and guidelines for research involving human participants. This report was also used to inform and reinforce the application of the core ethical principles of *respect for persons*, *beneficence* and *justice*.

The first ethical principle, respect for persons, emphasises that individuals should be regarded and treated as autonomous beings. This usually demands that participants enter into the research voluntarily and with adequate information (National Commission, 1979). In this study, participation was entirely voluntary, with comprehensive information about the study provided in the Participant Information Letter. Consent was implied through the completion and submission of the questionnaire. Participants were

clearly informed that there were no direct personal benefits associated with participation and that the study entailed no known or anticipated risks.

The second principle, beneficence, requires researchers not only to protect participants from harm, but also to actively promote their wellbeing and maximise possible benefits (National Commission, 1979). In this study, the anticipated benefit was the generation of new insights into midwives' views on how the birth environment influences the childbirth experience. Findings may contribute to local understanding of this issue and potentially inform future institutional policies or resource allocation aimed at improving maternity care.

The third principle, justice, concerns ensuring fairness in how participants are selected and in how the burdens and benefits of the research are distributed (National Commission, 1979). In this study, justice was implemented through the protection of participants' privacy and anonymity. No personally identifiable information was collected and only the necessary data was gathered. The use of intermediaries to distribute the questionnaire further protected participants' anonymity, as it eliminated the need for direct communication between the researcher and the respondents. In addition, all data were stored securely on a password-protected device in encrypted format, with access restricted solely to the researcher.

Another crucial ethical step in this study was obtaining all necessary permissions and approvals prior to commencing data collection. This included clearance from the Midwifery Dissertation Panel Board of Studies and the Faculty of Health Sciences Research Ethics Committee (Appendix F). In addition, institutional approval to access the participants was granted by senior officials of the main public hospital, including the Data Protection Officer (DPO), Chief Executive Officer (CEO) and other key gatekeepers (Appendices D and E).

3.16 Conclusion

This chapter provided an in-depth description of the research design and methodology adopted for this study, along with the rationale underpinning the choices made. The theoretical frameworks guiding the study were outlined and the ethical principles and procedures adhered to during the research process were also discussed. The next chapter will present a detailed account of the findings generated from this research study.

Chapter 4

Results

4.1 Introduction

This chapter reports the findings derived from the questionnaire responses, following a comprehensive analysis of the collected data. Quantitative data from the closed-ended questions were examined using descriptive and inferential statistics with IBM SPSS® Statistics (Version 29). Qualitative data obtained from the open-ended questions were analysed using content analysis (Ho & Limpaecher, 2023).

The questionnaire was distributed to all eligible midwives (N = 213) from the third week of August until the end of September 2025. Since the test-retest reliability assessment conducted prior to data collection did not necessitate any revisions to the questionnaire, the 10 participants from reliability testing were included in the main analysis. A total of 141 responses were received (n = 141), yielding a total response rate of 66.2%.

4.2 Demographic Data

Four demographic variables were collected in this study: age, level of education, years of experience and current maternity setting. The largest proportion of participants were aged 20 to 29 years (n = 64, 45.4%), while the least represented age group was 40 to 49 years (n = 17, 12.1%). In terms of level of education in midwifery, the majority of respondents held a bachelor's degree (n = 95, 67.4%), whereas the fewest participants possessed a diploma (n = 16, 11.3%). Regarding professional experience, the highest proportion of midwives (n = 48, 34.0%) had been working for less than five years, while the lowest proportion (n = 26, 18.4%) had more than 20 years of experience. In relation to current maternity settings in which participants were working, the Central Delivery Suite (CDS) was the most represented area (n = 40, 28.4%), whereas the Discharge Liaison Midwifery (DLM) setting had the fewest participants (n = 8, 5.7%).

A full summary of the participants' demographic characteristics is presented in Table 4.1.

Table 4.1 *Participants' Demographic Characteristics*

Age (in years)	**Frequency (n = no. of participants)**	**Percentage (%)**
20–29	64	45.4%
30–39	42	29.8%
40–49	17	12.1%
50+	18	12.8%
Level of Education in Midwifery	**Frequency (n = no. of participants)**	**Percentage (%)**
Diploma	16	11.3%
Bachelor's Degree	95	67.4%
Master's Degree	30	21.3%
Midwifery Practice Experience (in years)	**Frequency (n = no. of participants)**	**Percentage (%)**
Less than 5	48	34.0%
5–10	40	28.4%
11–20	27	19.1%
More than 20	26	18.4%
Current Work Setting	**Frequency (n = no. of participants)**	**Percentage (%)**
Central Delivery Suite	40	28.4%
Obstetric Ward 1	20	14.2%
Obstetric Ward 2	15	10.6%
Obstetric Ward 3	15	10.6%
Discharge Liaison Midwifery	8	5.7%
Neonatal and Paediatric Intensive Care Unit (NPICU)	15	10.6%
Midwifery Relieving Pool	28	19.9%

4.3 Statistical Analyses of Quantitative Data

To address the study's three objectives, data obtained from the questionnaire, comprising a combination of Likert scales and multiple-response items, were analysed using descriptive statistics, including frequencies, means and standard deviations. Notably, for the three items that allowed participants to select all the options that applied, the total number of responses exceeded the total number of participants. In

addition, where variations in responses were observed, inferential statistical analysis using the Kruskal-Wallis test was conducted to examine potential associations between participants' responses and the demographic variables of years of experience and current maternity work setting.

4.3.1 Physical Factors in the Birth Environment That Influence the Childbirth Experience

4.3.1.1 The Importance of the Physical Environment

Midwives were asked how important they consider the general physical environment to be, in influencing the childbirth experience. As shown in Table 4.2, participants demonstrated a strong positive consensus, where the majority (n = 72, 51.1%) rated the physical environment as *extremely important*, followed by the next largest group (n = 56, 39.7%) who considered it *very important*. Notably, no participants reported that the physical environment was not important.

Table. 4.2 *The Importance of the Physical Environment*

	Frequency (n = no. of participants)	Percentage
Slightly Important	1	0.7%
Moderately Important	12	8.5%
Very Important	56	39.7%
Extremely Important	72	51.1%

No significant associations were found between the perceived importance of the physical environment and either the midwives' years of experience (Table 4.3) or their current maternity setting (Table 4.4), as indicated by the p-values generated using the Kruskal-Wallis test (p = 0.207 and p = 0.572, respectively).

Table 4.3 *The Importance of the Physical Environment and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	4.48	0.684	0.207
5–10 years	40	4.45	0.639	
11–20 years	27	4.15	0.770	
More than 20 years	26	4.50	0.583	

Table 4.4 *The Importance of the Physical Environment and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	4.53	0.599	0.572
Obstetric Ward 1	20	4.15	0.813	
Obstetric Ward 2	15	4.60	0.507	
Obstetric Ward 3	15	4.40	0.632	
Discharge Liaison Midwifery	8	4.50	0.535	
NPICU	15	4.47	0.640	
Midwifery Relieving Pool	28	4.29	0.810	

4.3.1.2 Physical Elements Enhance the Childbirth Experience

Participants were asked on the specific physical elements found within the birth environment, such as adjustable lighting and the availability of birthing aids, and to what extent they agreed that these elements enhance the childbirth experience. As shown in Table 4.5, the great majority of midwives expressed agreement with 63.8% (n = 90) *strongly agreeing* and 32.6% (n = 46) *agreeing* with the statement.

Table. 4.5 *Physical Elements Enhance the Childbirth Experience*

	Frequency (n = no. of participants)	Percentage
Strongly Disagree	1	0.7%
Neutral	4	2.8%
Agree	46	32.6%
Strongly Agree	90	63.8%

Further analysis using the Kruskal-Wallis test examined whether perceptions varied according to years of experience (Table 4.6) or current maternity setting (Table 4.7). No significant association was found with the midwives' current workplace (p = 0.408). However, a statistically significant difference emerged across years of experience

(p = 0.049). All experience groups demonstrated high mean scores, indicating overall positive agreement, however, midwives with 5 to 10 years of experience reported the highest mean (M = 4.78, SD = 0.423), while midwives with longer experience of more than 10 years reported slightly lower, though still positive, mean scores.

Table 4.6 *Physical Elements Enhance the Childbirth Experience and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	4.63	0.531	**0.049**
5–10 years	40	4.78	0.423	
11–20 years	27	4.41	0.572	
More than 20 years	26	4.42	0.945	

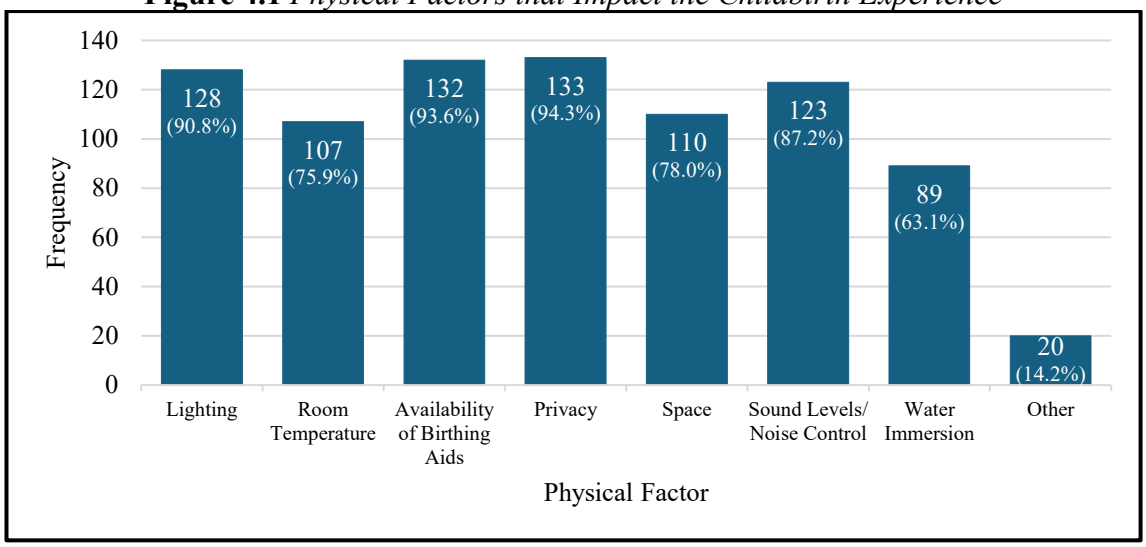
Table 4.7 *Physical Elements Enhance the Childbirth Experience and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	4.72	0.452	0.408
Obstetric Ward 1	20	4.30	1.031	
Obstetric Ward 2	15	4.73	0.458	
Obstetric Ward 3	15	4.47	0.516	
Discharge Liaison Midwifery	8	4.38	0.744	
NPICU	15	4.67	0.488	
Midwifery Relieving Pool	28	4.61	0.567	

4.3.1.3 Physical Factors that Impact the Childbirth Experience

Midwives were tasked with selecting the physical factors among a list of options which they believed impacted the childbirth experience. As illustrated in Figure 4.1, the majority of participants highlighted *privacy* (n = 133, 94.3%), the *availability of birthing aids* (n = 132, 93.6%) and *lighting* (n = 128, 90.8%) as the most influential factors. In addition, a number of participants (n = 20, 14.2%) selected *other* and cited several factors not listed in the provided options. The main additional factors mentioned were music (n = 5), the smell of the room (n = 2), the people present in the room (n = 9) (e.g., birth partner, midwife, doctors and carers) and the layout of the room (n = 4), including the positioning of the birthing bed and surrounding equipment.

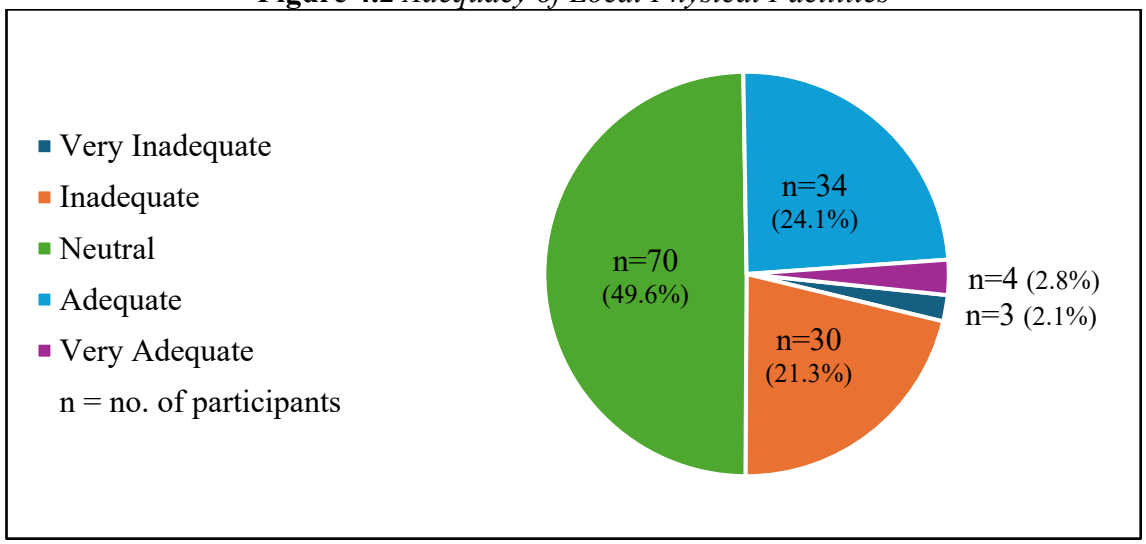
Figure 4.1 *Physical Factors that Impact the Childbirth Experience*



4.3.1.4 Adequacy of Local Physical Facilities

In the final questionnaire item focusing on the physical environment, midwives were given the opportunity to rate the adequacy of the physical facilities in the central delivery suite of the main public hospital, in supporting a positive childbirth experience. As illustrated in Figure 4.2, nearly half of the respondents (n = 70, 49.6%) expressed a *neutral* view toward this. The remaining responses were relatively balanced between positive (*adequate* n = 34, 24.1%; *very adequate* n = 4, 2.8%) and negative ratings (*inadequate* n = 30, 21.3%; *very inadequate* n = 3, 2.1%).

Figure 4.2 *Adequacy of Local Physical Facilities*



Inferential analysis using the Kruskal-Wallis test explored whether perceptions of facility adequacy differed according to years of experience (Table 4.8) and current maternity setting (Table 4.9). While no statistically significant association was identified with the midwives' current workplace ($p = 0.066$), a significant difference was observed across years of experience ($p = 0.037$). Midwives with more than 10 years of experience reported slightly higher adequacy ratings compared to those with 10 years of experience or less.

Table 4.8 *Adequacy of Local Physical Facilities and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	2.94	0.633	**0.037**
5–10 years	40	2.83	0.781	
11–20 years	27	3.30	0.953	
More than 20 years	26	3.31	0.884	

Table 4.9 *Adequacy of Local Physical Facilities and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	2.85	0.975	0.066
Obstetric Ward 1	20	3.10	0.788	
Obstetric Ward 2	15	2.93	0.594	
Obstetric Ward 3	15	3.67	0.617	
Discharge Liaison Midwifery	8	3.00	0.535	
NPICU	15	2.93	0.704	
Midwifery Relieving Pool	28	3.07	0.766	

4.3.2 Psychological and Emotional Factors in the Birth Environment

4.3.2.1 Impact of the Birth Environment on Psychological and Emotional Wellbeing

Midwives were asked to what extent they agreed that the birth environment affects the psychological and emotional wellbeing of women during childbirth. As shown in Table 4.10, the majority of participants indicated strong agreement, with 88 participants (62.4%) selecting *strongly agree* and 45 participants (31.9%) selecting *agree*.

Table 4.10 *Impact of the Birth Environment on Psychological and Emotional Wellbeing*

	Frequency (n = no. of participants)	Percentage
Strongly Disagree	3	2.1%
Neutral	5	3.5%
Agree	45	31.9%
Strongly Agree	88	62.4%

Further analysis using the Kruskal-Wallis test examined whether such perceptions varied according to the midwives' years of experience (Table 4.11) and current maternity setting (Table 4.12). While there was no significant difference identified with level of experience ($p = 0.054$), a statistically significant difference was observed across maternity settings ($p = 0.040$). Overall, mean scores across all settings indicated strong agreement, however, midwives in Obstetric Ward 2 reported the highest agreement ($M = 4.87$, $SD = 0.352$) and those in Obstetric Ward 1 the lowest agreement ($M = 3.90$, $SD = 1.373$).

Table 4.11 *Impact of the Birth Environment on Psychological and Emotional Wellbeing and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	4.63	0.570	0.054
5–10 years	40	4.72	0.506	
11–20 years	27	4.37	0.839	
More than 20 years	26	4.19	1.132	

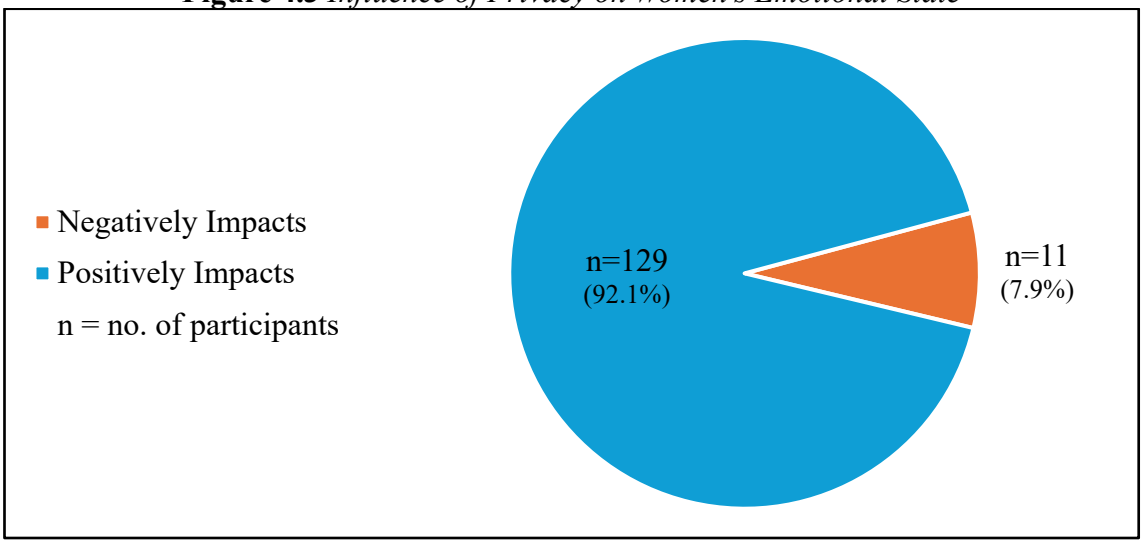
Table 4.12 *Impact of the Birth Environment on Psychological and Emotional Wellbeing and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	4.65	0.483	**0.040**
Obstetric Ward 1	20	3.90	1.373	
Obstetric Ward 2	15	4.87	0.352	
Obstetric Ward 3	15	4.53	0.516	
Discharge Liaison Midwifery	8	4.75	0.463	
NPICU	15	4.67	0.724	
Midwifery Relieving Pool	28	4.46	0.637	

4.3.2.2 Influence of Privacy on Women's Emotional State

The next question focused on a specific aspect of the birth environment: privacy. Midwives were asked, based on their professional opinion and/or experience, how the level of privacy in the birth environment influences women's emotional state during childbirth. As illustrated in Figure 4.3, the great majority of participants (n = 129, 92.1%) indicated that privacy *positively impacts* a mother's emotional state. A small proportion of midwives (n = 11, 7.9%) reported a *negative impact* and no participants selected that privacy *has no impact*.

Figure 4.3 *Influence of Privacy on Women's Emotional State*



4.3.2.3 Impact of the Birth Environment on the Midwife-Mother Relationship

Focusing on the interpersonal dimensions of the birth environment, midwives were asked to what extent they agreed that the birth environment impacts the midwife-mother relationship. As presented in Table 4.13, the majority of participants expressed agreement with this statement, with 68 (48.2%) *strongly agreeing* and 55 (39.0%) *agreeing*. Only a small proportion reported *neutral* views (n = 14, 9.9%), while very few *disagreed* (n = 2, 1.4%) or *strongly disagreed* (n = 2, 1.4%). These findings indicate a strong overall consensus among midwives that the birth environment plays a

meaningful role in shaping the quality of their relationship with mothers during childbirth.

Table 4.13 *Impact of the Birth Environment on the Midwife-Mother Relationship*

	Frequency (n = no. of participants)	Percentage
Strongly Disagree	2	1.4%
Disagree	2	1.4%
Neutral	14	9.9%
Agree	55	39.0%
Strongly Agree	68	48.2%

Further analysis using the Kruskal-Wallis test, revealed no significant associations between midwives' perceptions of the impact of the birth environment on the midwife-mother relationship and either their years of experience (Table 4.14, p = 0.282) or current maternity setting (Table 4.15, p = 0.081).

Table 4.14 *Impact of the Birth Environment on the Midwife-Mother Relationship and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	4.21	0.771	0.282
5–10 years	40	4.47	0.640	
11–20 years	27	4.26	0.764	
More than 20 years	26	4.31	1.158	

Table 4.15 *Impact of the Birth Environment on the Midwife-Mother Relationship and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	4.47	0.599	0.081
Obstetric Ward 1	20	3.80	1.196	
Obstetric Ward 2	15	4.60	0.828	
Obstetric Ward 3	15	4.20	0.561	
Discharge Liaison Midwifery	8	4.63	0.518	
NPICU	15	4.27	0.799	
Midwifery Relieving Pool	28	4.29	0.854	

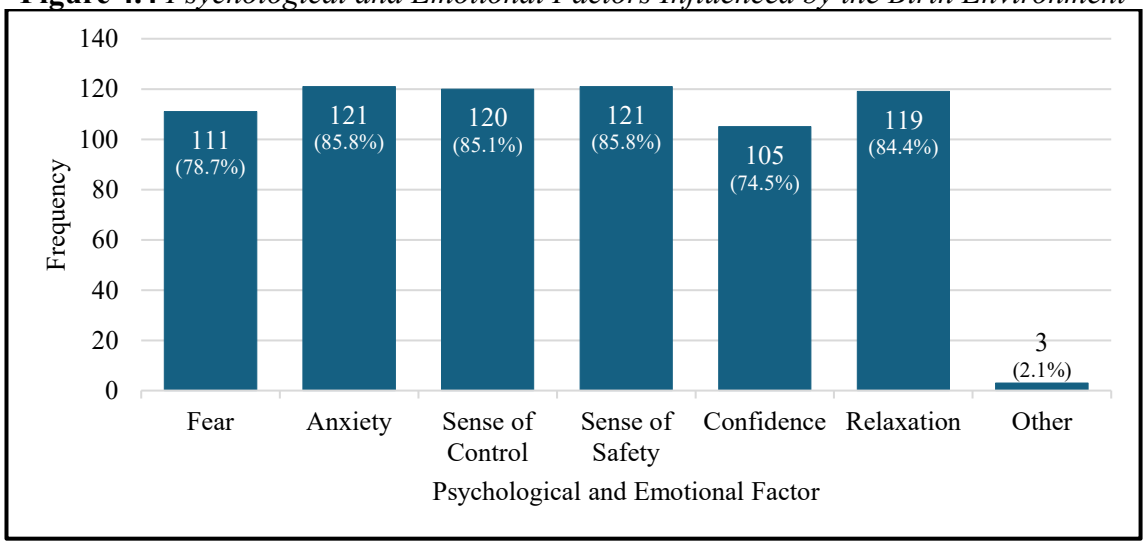
4.3.2.4 Providing a Calm and Supportive Atmosphere in the Birth Environment

When asked to rate the importance of providing a calm and supportive atmosphere in the birth environment, participants demonstrated a strong collective agreement, recognising it as crucial. The vast majority of midwives rated it as *extremely important* (n = 120, 85.1%), while a smaller proportion rated it as *very important* (n = 20, 14.2%). Only one participant (0.7%) considered it *moderately important,* and none rated it as *slightly* or *not important*.

4.3.2.5 Psychological and Emotional Factors Influenced by the Birth Environment

Finally, within this section, participants were asked to identify which psychological and emotional factors they believed are most influenced by the birth environment. As shown in Figure 4.4, the most frequently selected factors were *anxiety* (n = 121, 85.8%), *sense of safety* (n = 121, 85.8%), *sense of control* (n = 120, 85.1%) and *relaxation* (n = 119, 84.4%). Additionally, a small number of participants (n = 3, 2.1%) indicated additional factors under the *other* category, which reflected deeper emotional and relational dimensions, such as feeling supported and empowered, being heard and respected, and having trust in the team and in oneself.

Figure 4.4 *Psychological and Emotional Factors Influenced by the Birth Environment*

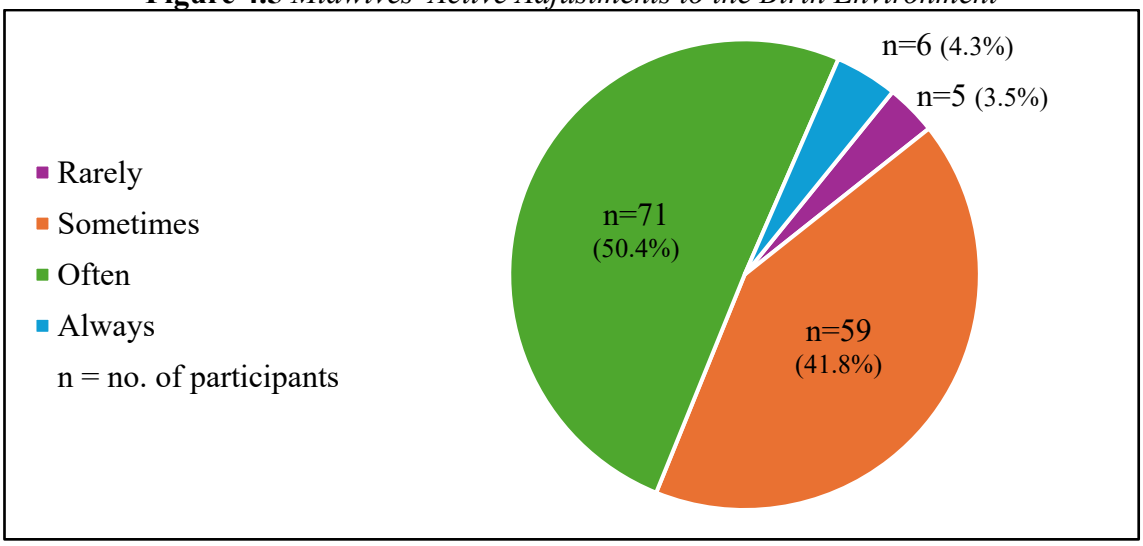


4.3.3 Midwives' Practices in Utilising the Birth Environment to Enhance the Childbirth Experience

4.3.3.1 Midwives' Active Adjustments to the Birth Environment

To explore midwives' practices, participants were asked how often midwives actively adjust the birth environment to enhance the childbirth experience. As shown in Figure 4.5, responses indicated that such adjustments are commonly made, as 50.4% (n = 71) selected *often* and 41.8% (n = 59) selected *sometimes*. Only a small minority selected *always* (n = 6, 4.3%) or *rarely* (n = 5, 3.5%) and no participants selected *never*.

Figure 4.5 *Midwives' Active Adjustments to the Birth Environment*



Further analysis using the Kruskal-Wallis test indicated that the perceived frequency of midwives' active adjustments to the birth environment did not significantly differ based on years of experience (Table 4.16, p = 0.949) or current maternity setting (Table 4.17, p = 0.169).

Table 4.16 *Midwives' Active Adjustments to the Birth Environment and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	3.56	0.616	0.949
5–10 years	40	3.55	0.597	
11–20 years	27	3.48	0.802	
More than 20 years	26	3.62	0.571	

Table 4.17 *Midwives' Active Adjustments to the Birth Environment and Maternity Setting*

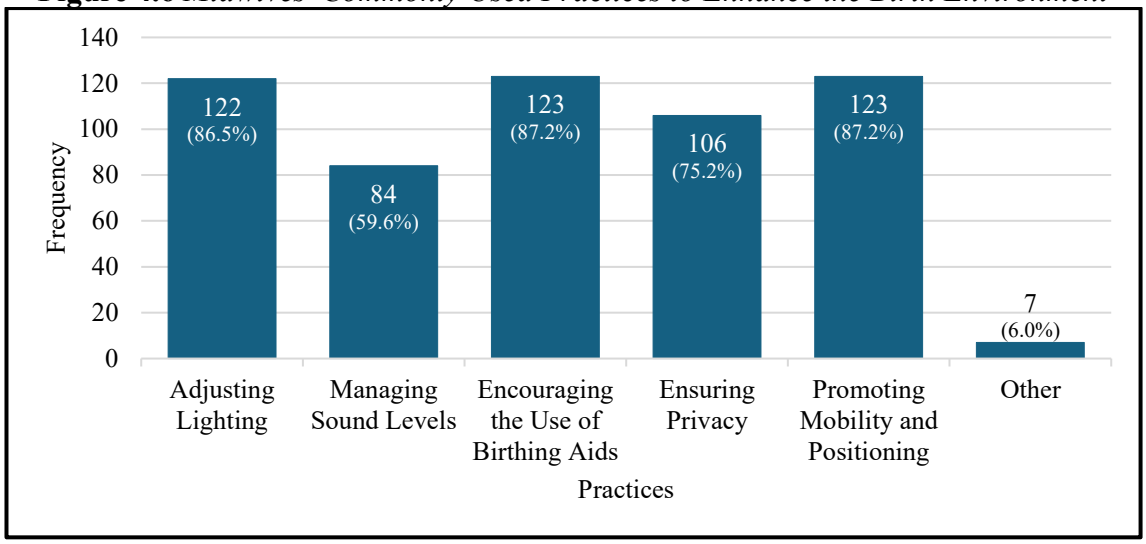
	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	3.75	0.588	0.169
Obstetric Ward 1	20	3.25	0.639	
Obstetric Ward 2	15	3.40	0.632	
Obstetric Ward 3	15	3.60	0.737	
Discharge Liaison Midwifery	8	3.63	0.744	
NPICU	15	3.47	0.516	
Midwifery Relieving Pool	28	3.57	0.634	

4.3.3.2 Midwives' Commonly Used Practices to Enhance the Birth Environment

Participants were asked to identify practices commonly employed to enhance the birth environment. Figure 4.6 clearly illustrates that the most frequently reported practices included *promoting mobility and positioning* (n = 123, 87.2%), *encouraging the use of birthing aids* (n = 123, 87.2%), and *adjusting lighting* (n = 122, 86.5%). *Ensuring privacy* was also commonly reported (n = 106, 75.2%), while *managing sound levels* was the practice least selected (n = 84, 59.6%) by participants.

A few participants (n = 7, 6.0%) indicated *other* practices not listed in the provided options. These included being present next to the mother as much as possible (n = 1), using essential oils (n = 1) or music (n = 1), involving the birth partner (n = 1) and facilitating water immersion (n = 1) when available and clinically appropriate**.**

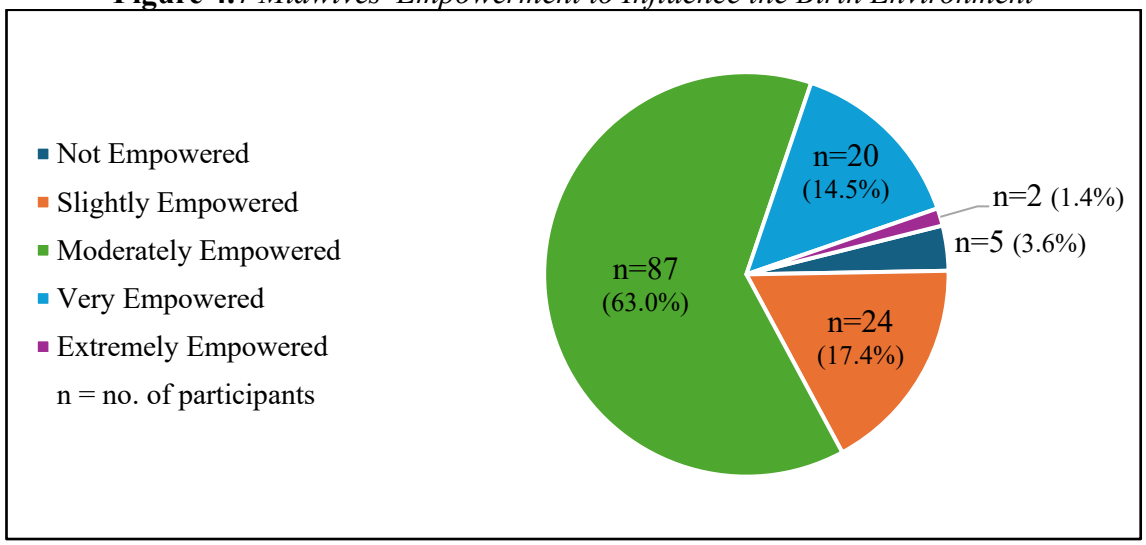
Figure 4.6 *Midwives' Commonly Used Practices to Enhance the Birth Environment*



4.3.3.3 Midwives' Empowerment to Influence the Birth Environment

Participants were asked to indicate the extent to which midwives feel empowered to make changes to the birth environment to enhance the childbirth experience. As shown in Figure 4.7, the majority of responses (n = 87, 63.0%) indicated midwives feel *moderately empowered*. Smaller proportions reported *slightly empowered* (n = 24, 17.4%) or *very empowered* (n = 20, 14.5%), while only a few participants indicated the two extremes of *not empowered* (n = 5, 3.6%) or *extremely empowered* (n = 2, 1.4%).

Figure 4.7 *Midwives' Empowerment to Influence the Birth Environment*



Further analysis using the Kruskal-Wallis test revealed no statistically significant differences in perceived empowerment across midwives' years of experience (Table 4.18, p = 0.249) or current maternity setting (Table 4.19, p = 0.591).

Table 4.18 *Midwives' Empowerment to Influence the Birth Environment and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	3.00	0.652	0.249
5–10 years	40	2.90	0.744	
11–20 years	25	2.68	0.852	
More than 20 years	25	3.08	0.640	

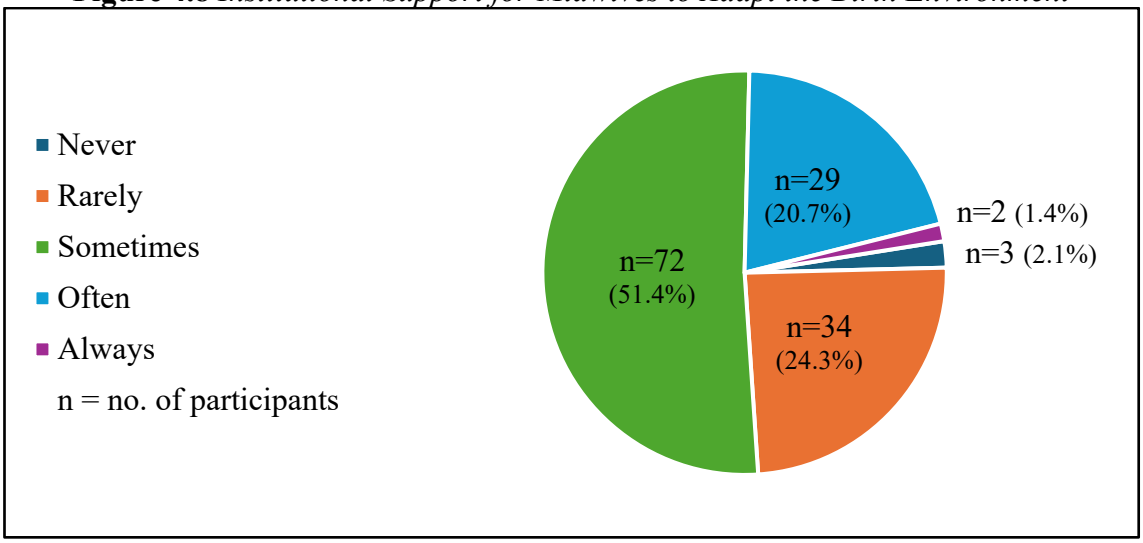
Table 4.19 *Midwives' Empowerment to Influence the Birth Environment and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	39	3.03	0.843	0.591
Obstetric Ward 1	20	2.90	0.852	
Obstetric Ward 2	15	2.73	0.458	
Obstetric Ward 3	13	3.15	0.689	
Discharge Liaison Midwifery	8	3.00	0.535	
NPICU	15	2.87	0.516	
Midwifery Relieving Pool	28	2.82	0.723	

4.3.3.4 Institutional Support for Midwives to Adapt the Birth Environment

Participants were asked how often their institution supports midwives in adapting the birth environment. As illustrated in Figure 4.8, the majority of participants reported moderate levels of institutional support, as 51.4% (n = 72) selected *sometimes*. Smaller proportions reported *often* (n = 29, 20.7%) or *rarely* (n = 34, 24.3%), while only a minority selected *never* (n = 3, 2.1%) or *always* (n = 2, 1.4%).

Figure 4.8 *Institutional Support for Midwives to Adapt the Birth Environment*



Inferential analysis using the Kruskal-Wallis test revealed no statistically significant differences in perceived institutional support based on years of experience (Table 4.20, $p = 0.208$) or current maternity setting (Table 4.21, $p = 0.086$).

Table 4.20 *Institutional Support for Midwives to Adapt the Birth Environment and Years of Experience*

	Sample Size	Mean	Std. Dev.	P-value
Less than 5 years	48	2.96	0.771	0.208
5–10 years	40	2.78	0.660	
11–20 years	26	2.92	0.845	
More than 20 years	26	3.23	0.815	

Table 4.21 *Institutional Support for Midwives to Adapt the Birth Environment and Maternity Setting*

	Sample Size	Mean	Std. Dev.	P-value
Central Delivery Suite	40	3.10	0.841	0.086
Obstetric Ward 1	20	2.95	0.605	
Obstetric Ward 2	15	3.07	0.704	
Obstetric Ward 3	14	3.29	0.726	
Discharge Liaison Midwifery	8	2.50	0.756	
NPICU	15	2.60	0.737	
Midwifery Relieving Pool	28	2.82	0.772	

4.4 Content Analysis of Qualitative Data

The questionnaire included five open-ended questions with an additional three questions containing a part b), allowing participants to elaborate on their previous responses. Qualitative data from these sections were analysed using inductive conventional content analysis (Ho & Limpaecher, 2023), which facilitated the systematic identification and interpretation of ten categories grouped into three overarching themes emerging from the participants' responses. This process is detailed in Table 4.22, along with the frequency of responses for each theme. Throughout this section, direct excerpts from participants' responses were included to provide contextual insights into their perspectives. Each participant was assigned a unique identifier, ranging from Participant, P.1 to P.141, according to the order in which the questionnaires were submitted.

Table 4.22 *Content Analysis of the Open-Ended Questions*

Codes	Categories	Themes (Frequency n = no. of participants)
Birthing Aids	Room Functionality and Equipment	Physical Influences of the Birth Environment (n = 129)
Delivery Bed		
Mobility and Positioning		
Space and Layout		
Storage		
Privacy	Sensory and Comfort	
Lighting		
Noise		
Home-Like	Design and Aesthetics	
Colour and Decor		
Clock		
Music	Complementary Therapies	
Water Immersion		
Aromatherapy		
Fear of the Unknown	Emotional Responses and Wellbeing	Psychological and Emotional Influences of the Birth Environment (n = 138)
Stress and Anxiety		
Emotional Comfort		
Sense of Control	Maternal Autonomy and Safety	
Communication and Knowledge		
Trust in Healthcare Professionals		
Midwife-mother Relationship	Support and Reassurance	
Birth Partner Involvement		
Staff Shortages	Workforce Challenges	Systemic and Organisational Influences of the Birth Environment (n = 127)
Increased Workload		
Lack of Awareness		
Supporting Natural Birth	Promoting Normality in Childbirth	
Decrease Medicalisation		
Midwifery-led care		
Leadership and Management	Institutional Changes	
Resistance to Change		
Infrastructure Improvements		

4.4.1 Physical Influences of the Birth Environment

4.4.1.1 Room Functionality and Equipment

Participants described the birthing bed and birthing aids as having high influence on both the mother and the midwife regarding mobility and positioning during labour. They considered birthing aids to be essential tools used for supporting physiological birth, facilitating labour progression and acting as a natural pain relief, through the increased release of oxytocin and endorphins. Hence, mothers tend to experience a shorter first and second stage of labour, cope much better and feel more in control when making use of such tools.

Given these benefits, midwives highlighted the need for greater availability and variety of birthing aids within the local delivery suite. They recommended increasing the number of commonly used aids, such as birthing balls and peanut balls, and introducing additional tools that support upright birthing positions such as the rebozo, birth support ropes and birthing pools.

> *"Sometimes when the delivery suite is full (almost on the daily rather than not) not each room is equipped with certain equipment for example the peanut ball - only 3 available that need to be shared between 9 delivery rooms"* (P.71)

The limited availability of birthing aids restricts the mothers to give birth on the bed, which midwives suggested can negatively impact the childbirth experience. Moreover, the position of the bed within the room's layout was also seen as influential. Many participants observed that when the bed is placed in the centre of the room, it becomes the visual focal point and signals to women that it is the primary place to give birth. This setup was described as medicalised, putting the mother on display and potentially inhibiting the natural release of oxytocin. Several midwives recommended the simple yet impactful change of repositioning the bed to the side of the room.

> *"The bed is right in the middle of the room almost shouting at you to climb in bed especially during those painful contractions"* (P.36)
>
> *"When the mother walks into the delivery room, the first thing she sees is the bed in the middle and not always, the other birthing aids available to them since these are not always readily available"* (P.106)

Participants also commented on the quality and functionality of the bed. Many described them as uncomfortable and limited in the birthing positions they support. To address this, midwives recommended upgrading to more adjustable beds, as well as incorporating additional comfortable furnishings such as bean bags, cushions and seating for the birth partner.

> *"Investing in more adaptable and comfortable birthing beds would also be helpful, as the current ones are often difficult to adjust and not ideal for all labouring positions"* (P.122)

Furthermore, repositioning the delivery bed to the side of the room would also enhance another crucial physical factor in the birth environment: space. Adequate space within the delivery room allows mothers freedom to move, walk, change positions and use different birthing aids.

Midwives highlighted that space in the delivery room is often limited due to the presence of several medical equipment such as pumps, monitors and metal trolleys. In addition, built-in cupboards used for general storage within each room further reduce available space for movement. To address this, participants recommended that equipment be stored outside the delivery room when not in use and proposed the establishment of dedicated storage areas within the delivery suite.

> *"A room that feels spacious, calm, and less medical creates a sense of freedom and comfort, allowing women to move, choose positions, and feel more in control during labour"* (P.88)

4.4.1.2 Sensory and Comfort

Midwives described the lighting options within the local delivery suite as limited, noting that the predominant use of bright, harsh white ceiling lights creates a medicalised atmosphere that can trigger stress. Although the delivery rooms are equipped with dimmable lights, this feature was frequently reported to be faulty or non-functional.

In contrast, midwives emphasised that soft, warm and dimmed lighting would contribute to a more serene environment, helping women feel relaxed, safe and in control, and facilitating the release of oxytocin, further enhancing the childbirth experience.

> *"... soft, warm dimmed lighting often creates a calm and comfortable atmosphere, supporting relaxation and oxytocin release, contrary to bright lights, which increases distress and makes the environment feel medical"* (P.48)

Consequently, midwives proposed several lighting improvements for the local birthing environment, including the use of fairy lights, battery-operated candles, colour-changing lights and projectors to create adjustable mood lighting.

Moreover, participants highlighted the importance of privacy, describing birth as an intimate and vulnerable experience. Maintaining privacy was viewed as essential for mothers to feel calm, safe, respected and comfortable, reducing stress and anxiety, and supporting the natural release of oxytocin and endorphins.

> *"Because when women feel their space is respected, with minimal unnecessary interruptions and an environment that maintains dignity, it helps them relax and feel safe"* (P.67)

However, midwives identified several factors that frequently compromise privacy in the local delivery suite. These included frequent unnecessary disturbances by healthcare professionals, students and carers, observed to heighten maternal tension. In addition,

physical aspects of the room, such as the swinging doors were also found to undermine privacy.

> *"Swinging doors are inadequate. They pose safety risks and allow noise intrusion, affecting privacy and focus"* (P.122)

To address these concerns, midwives recommended limiting the number of staff allowed inside the birthing space, prohibiting restocking while rooms are in use, replacing swinging doors which would also soundproof the delivery rooms, and reinforcing the practice of knocking and asking for permission before entering.

Noise control was also identified as a crucial factor for maintaining a calm birthing environment. High sound levels were described as creating a sense of chaos and panic in the room, preventing mothers from relaxing and increasing stress.

> *"When new mothers come in and are admitted, they hear other mothers screaming in pain [and] it frightens them"* (P.30)

Midwives emphasised that a peaceful environment helps mothers remain at ease, relaxed, comfortable and promotes the natural release of oxytocin. Conversely, excessive noise was thought to increase adrenaline, potentially inhibiting labour and making the childbirth experience more painful or prolonged. Midwives noted that maintaining quietness was also challenging due to noise from monitors and ward activity. To address this, they recommended encouraging staff to speak in lower tones of voice and minimising machine alarms.

Finally, midwives briefly discussed the importance of maintaining an appropriate room temperature during labour. They noted that a room that is too warm can cause discomfort for the mother, while one that is too cold may cause harm for the newborn. Maintaining an optimal temperature was therefore viewed as part of ensuring comfort

and safety. Midwives recommended improving temperature control within delivery rooms by implementing more adjustable and responsive heating and cooling systems.

4.4.1.3 Design and Aesthetics

Midwives described the current delivery suite as sterile and highly clinical in appearance, featuring white walls, blue cupboards, stainless-steel trolleys and several visible medical equipment. This environment was perceived to induce stress, hinder relaxation and potentially slow the progress of labour.

> *"The majority of birthing women are healthy therefore not patients. I feel a clinical environment does not promote the mother to trust her own body's ability to labour and birth …"* (P.118)

Midwives consistently highlighted that a homier environment would help mothers feel calmer, more comfortable, safer and facilitate oxytocin release. To achieve this, they suggested using warmer and softer colour schemes and allowing couples to personalise the space with familiar items from home, such as photos, blankets and pillows. Further suggestions included adding positive birth affirmations, motivational quotes and artwork that aligns with midwifery philosophy around the delivery suite.

An interesting point raised was the placement of wall clocks in the delivery rooms. While midwives acknowledged their importance for clinical timekeeping, they noted that large, prominently placed clocks often became a source of anxiety for mothers. Midwives suggested repositioning clocks out of the mother's direct line of sight to reduce time-related stress and support a more relaxed birthing experience.

> *"…some mothers report heightened anxiety as they find themselves staring at this large clock, waiting in desperation for the arrival of their newborn"* (P.48)

4.4.1.4 Complementary Therapies

Midwives discussed the limited availability and use of complementary therapies within the local delivery suite, particularly focusing on music therapy, aromatherapy and hydrotherapy.

Music therapy was described as a powerful tool for creating a calm and relaxing environment that helps the couple feel at ease. However, participants noted that the current sound systems consist of outdated devices with limited functionality. They suggested upgrading them to include Bluetooth connectivity, allowing couples to play their preferred music during labour.

> *"Music therapy is useful, but radios are outdated and not available in all rooms, leading many to rely on personal phones"* (P. 122)

Moreover, midwives expressed that the smell of the delivery room can also have an impact on the childbirth experience. They recommended introducing essential oils for aromatherapy, aroma diffusers or incense sticks, as the local delivery suite currently lacks any means to personalise or enhance the sensory environment through scent.

Finally, hydrotherapy was recognised for its physiological benefits during labour, however, access remains limited due to lacking facilities. Midwives therefore recommended installing baths in every delivery room.

> *"Not all delivery rooms come with a bath so not all mothers wishing to use water immersion can do so especially if they have a room where only a shower is available"* (P.71)

4.4.2 Psychological and Emotional Influences of the Birth Environment

4.4.2.1 Emotional Responses and Wellbeing

Participants described labour as an unpredictable process that often brings many unknowns, especially for primiparous women. Uncertainty surrounding the process, the

healthcare providers present, the environment, pain, complications or the baby's wellbeing can evoke fear and vulnerability.

> *"Having a baby is one of the most precious events in life, and the love you have and feel towards your baby is expressed as fear/anxiety until you see them safely delivered"* (P.22)

Midwives explained that if such fears are not managed effectively, they can manifest as anxiety, accompanied by physical symptoms such as a racing heartbeat, nausea and muscle tension. This can also lead to mothers losing their sense of control and confidence, making it more difficult to relax. Additionally, increased stress triggers the release of adrenaline and cortisol, reducing the levels of oxytocin and endorphins. This physiological response can slow down labour progress, increase pain and negatively affect the childbirth experience.

Participants emphasised that the birth environment plays a crucial role in mitigating these emotional responses. A calm and serene setting helps reduce stress and anxiety, promotes relaxation and enhances emotional safety. This encourages the natural release of oxytocin which facilitates labour progression and improves pain tolerance, ultimately contributing to a more positive birth experience.

> *"Mothers are already anxious when it comes to labour, I believe seeing the delivery room and its equipment further enhances this anxiety"* (P.26)

Moreover, midwives highlighted their own vital role in creating a tranquil atmosphere by acknowledging women's fears and providing reassurance.

> *"Tackling fear at the beginning of birth can have a positive cascade of effects on other emotions including trust in the midwife taking care of her"* (P.98)

4.4.2.2 Maternal Autonomy and Safety

According to participants, a calm birthing environment is essential for supporting maternal perceptions of safety and control. They reported that a lack of security can heighten tension and anxiety, inhibit oxytocin release and labour progression. In contrast, a sense of control enables women to relax, follow their instincts and engage confidently in the birthing process. However, midwives observed that many local mothers struggle to take ownership of their labour or assert their preferences. This challenge is often attributed to the medicalised environment and approach to care, which can render women passive participants rather than active decision-makers.

> *"In Malta we are more medicalized therefore women are sometimes left to feel less in control. They are more 'followers' in their own birthing experience as they have to listen to their midwife or obstetrician"* (P.81)

To enhance maternal autonomy, midwives recommended the implementation of birth plans, which despite their recognised value in enabling women to express their wishes, remain underutilised and overlooked in local practice. Furthermore, midwives highlighted the importance of ensuring that mothers are well-informed, actively involved and respected in decision-making throughout labour. When interventions occur without sufficient explanation, women may feel lost and agitated, negatively affecting their experience. In contrast, clear and compassionate communication fosters feelings of being cared for, listened to, and emotionally supported, promoting calmness, confidence, trust in the midwife and a more positive birthing experience.

> *"The mothers trust us with their birth experience so when they know that whatever we are doing is for both the mother's and baby's safety trust is built"* (P.73)

4.4.2.3 Support and Reassurance

Participants emphasised that a supportive birthing environment is fundamental to a positive childbirth experience. Emotional support helps mothers feel safe, calm, respected, empowered, promoting the natural release of oxytocin and improving coping with pain. Conversely, a lack of support or feelings of neglect can lead to fear, anxiety, stress and isolation, negatively impacting the mother's emotional perception of birth.

> *"Even when the birth takes unexpected turns, feeling emotionally supported can shape how the experience is remembered and processed afterwards"* (P.122)

Midwives recognised their own pivotal role in fostering a supportive environment through empathy, physical presence and a responsive approach. During labour, midwives build a relationship with the mother, advocate for her and adapt the environment to meet her individual needs.

> *"The midwife is the person that the couple is going to see most during labour, we are their only 'friend' and advocate at that time"* (P.39)

The presence of the birth partner was also highlighted as a critical element of emotional support. Being the only person the mother knows, the birth partner provides familiarity, comfort and a sense of safety. Midwives emphasised the importance of involving birth partners in the childbirth process and acknowledged their integral role in the birth environment.

> *"Support by birthing partner is very important since they are the person that the mother knows most and is most comfortable with, so she will feel safe, loved and cared for during such a vulnerable time of her life"* (P.46)

4.4.3 Systemic and Organisational Influences of the Birth Environment

4.4.3.1 Workforce Challenges

While discussing the barriers that hinder the optimisation of the local birth environment, midwives identified several workforce-related challenges. Chief among these were increased workload and persistent staff shortages, which were described as major contributors to stress, low morale and professional burnout. Participants emphasised that adequate staffing levels are essential to allow midwives sufficient time to optimise the environment, provide one-to-one care and offer emotional support to mothers.

> *"High workload and staff shortages also reduce the time midwives can dedicate to creating a calm and supportive atmosphere"* (P.48)

In addition, midwives highlighted the importance of continuous professional development through regular training, seminars, and workshops in order to maintain clinical competence, build confidence and promote evidence-based practices related to birth environment optimisation. Suggested training topics included positions during labour, the use of birthing aids, aromatherapy and hypnobirthing techniques. Furthermore, participants stressed the need for interprofessional education, noting that members of the wider maternity team, particularly doctors, often lacked awareness of how environmental factors influence labour and the maternal experience.

> *"Although we ensure that the mother has privacy during birth unfortunately this is not always done so by the doctors ..."* (P.98)

4.4.3.2 Promoting Normality in Childbirth

As previously addressed, the physical appearance of a highly medicalised birth environment can create a stressful atmosphere for mothers. However, midwives also emphasised that the attitudes and practices of healthcare professionals play a crucial role in reinforcing this medicalised approach. Participants described the local maternity care

system as obstetric-led, with institutional policies and routines that prioritise medical interventions over physiological birth.

> *"The fact that the local birth environment is obstetric-led, unfortunately leaves midwives in a position where they generally have to 'adapt' to a more medicalised birth"* (P.4)

Midwives explained that when healthcare professionals adopt a highly medicalised mindset, they are more likely to resort to interventions that are not always clinically indicated. This not only decreases the likelihood of a normal birth but also negatively impacts women's childbirth experiences. Commonly mentioned interventions included induction and augmentation of labour, which necessitates continuous foetal monitoring and intravenous infusions, thereby restricting women's mobility. Such interventions were also associated with increased pain, greater reliance on epidural analgesia which further confines women to the bed, and a higher likelihood of emergency procedures. Participants therefore argued that promoting normality in birth extends beyond the physical environment, but it also requires a cultural and professional shift towards trusting the physiological process of labour, and believing in women's innate ability to give birth, which could be achieved through further staff education and training.

Another recommendation for promoting normality was the empowerment of midwives through midwifery-led care models. Participants highlighted that midwives should be recognised as autonomous professionals and equal members of the multidisciplinary team, with greater control and decision-making authority in the management of low-risk births. They also suggested reducing unnecessary ward rounds or obstetric input unless clinically required and enabling midwives to independently perform essential aspects of care, such as booking blood tests or managing basic procedures.

> *"Let's go back to the old golden days where the midwife was autonomous, assertive and worked with the doctors as a team not as a subservient"* (P.6)

4.4.3.3 Institutional Changes

Midwives emphasised the crucial role of management in driving change within maternity care settings. They believed that persons in charge need to be more proactive and assertive in advocating for institutional investment to improve resources and facilities. However, participants also noted that change is often met with reluctance, especially from senior members of staff.

Several midwives expressed frustration that their professional input is not sufficiently valued or incorporated into decision-making processes related to the clinical environment. In fact, participants shared several ideas for system-level improvements to address current limitations. These included expanding the delivery suite to accommodate more delivery rooms and meet the rising service demand.

> *"While we may voice what is needed to improve the space, changes are not always implemented, often due to limited funding or the physical space required for improvements … At times, there is also resistance to change, even from within the team"* (P.122)

Other suggestions included introducing an admission and monitoring area for early labour assessment, with transfer to delivery rooms once active labour is established. Some midwives also advocated for more ambitious institutional changes, such as the establishment of midwifery-led clinics and birth centres. These would reduce pressure for rapid deliveries, improve workflow and foster calmer birthing environments.

4.5 Conclusion

This chapter presented the findings from the data collected for this study. A total of 141 completed questionnaires were returned from a target population of 213 midwives, yielding a response rate of 66.2%. Quantitative data from the closed-ended questions

were examined using descriptive and inferential statistical methods, while content analysis was used for the qualitative responses to open-ended questions.

Overall, midwives acknowledged the importance of the physical environment in shaping childbirth experiences, emphasising elements such as privacy, lighting and the availability of birthing aids. They also perceived the atmosphere of the birth environment as highly influential on women's psychological and emotional wellbeing and supportive of interpersonal relationships. Finally, while midwives reported several practices to enhance the environment, institutional barriers were noted as limiting these efforts.

The following chapter provides a detailed discussion of these findings in the context of previous literature and the study's guiding theoretical frameworks; the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024).

Chapter 5

Discussion

5.1 Introduction

This chapter presents a critical interpretation of the study's findings in relation to the previously reviewed literature and the guiding theoretical frameworks; the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024). This discussion highlights how the present findings contribute to, extend or challenge current understandings within the field of the birth environment. The chapter concludes by outlining the key strengths and limitations of the study.

5.2 Demographic Data

A total of 213 midwives (N = 213) were recruited for the present study, of whom 141 participated (n = 141), yielding a response rate of 66.2%. The demographic profile of participants indicates that the majority were relatively young, with most falling within the 20-to-29-year age group (n = 64, 45.4%). Consequently, a large proportion of participants (n = 88, 62.4%) had up to 10 years of professional midwifery experience. These demographic patterns contrast with those reported in previous studies, were average participant ages ranged from 35.2 years (Xu et al., 2025) to 58 years (Igarashi et al., 2014), while average years of midwifery experience ranged from 12.7 years (Xu et al., 2025) to 27 years (Igarashi et al., 2014). Accordingly, the findings of the present study primarily reflect the perspectives of a younger generation and more recently qualified midwives. This may be attributed to the use of an online survey for data collection, which may have been more accessible or appealing to younger and more technologically confident participants.

In terms of educational level, the majority of respondents held a bachelor's degree (n = 95, 67.4%), which aligns with the educational profiles reported in other studies that included this demographic variable (Townsend et al., 2016; Xu et al., 2025). Regarding

current place of work, participants in this study were drawn from multiple maternity settings within the main public hospital, with the Central Delivery Suite (CDS) being the most represented (n = 40, 28.4%). In contrast, previous qualitative studies with smaller sample sizes, focused specifically on midwives providing direct intrapartum care across a range of birth settings, including labour wards, birth centres, midwifery-led units and home births.

5.3 Midwives' Perceptions of Physical Factors in the Birth Environment That Influence the Childbirth Experience

5.3.1 The Importance of the Physical Birth Environment

Midwives in this study overwhelmingly viewed the physical birth environment as a crucial factor in shaping the childbirth experience, with the majority rating it as either extremely important (n = 72, 51.1%) or very important (n = 56, 39.7%). They emphasised that the physical features of the setting play a key role in ensuring functionality and supporting maternal comfort during labour. This finding aligns with Fahy et al.'s (2008) Birth Territory Theory, which conceptualises the physical environment as the *terrain* and highlights its importance in enabling women to achieve a *genius birth*.

5.3.2 Physical Elements Influencing Mobility in the Birth Environment

Participants identified several physical elements within the birth environment that they perceived to be most impactful on the childbirth experience. One of the most mentioned factors was the availability of birthing aids (n = 132, 93.6%), which midwives associated with promoting maternal mobility and supporting a variety of positions during labour. This finding aligns with previous literature, which emphasises that access to such equipment facilitates maternal activity, supports physiological movement and

respects women's innate nesting behaviours throughout labour (Andrén et al., 2021; Foureur et al., 2010; Igarashi et al., 2014; Townsend et al., 2016).

In addition to the availability of equipment, participants reported that the position of the delivery bed in relation to the rest of the room also had a substantial impact on mobility. The central placement of the bed was described to make it the most dominant feature of the environment, implicitly directing attention and activity towards it. Midwives suggested that repositioning the bed to the side of the room would encourage greater freedom of movement. This observation is consistent with findings from several studies, which similarly highlight the symbolic and practical influence of bed placement on the childbirth experience (Andrén et al., 2021; Foureur et al., 2010; Goldkuhl et al., 2023; Townsend et al., 2016).

While much of the existing research has focused on the positioning of the delivery bed, participants in this study also drew attention to its quality and functionality. They noted that the beds were uncomfortable and limited in the range of birthing positions they could accommodate. This limitation may reflect the lack of alternative equipment within the local delivery suite, such as ropes, bean bags, mats and bathtubs; resources listed as available in the birth environments of other studies (Andrén et al., 2021; Foureur et al., 2010; Townsend et al., 2016). Consequently, midwives in the local setting may be restricted to using the delivery bed as the primary means of supporting labour.

Participants further noted that repositioning the delivery bed to the side of the room would not only reduce its dominance but also increase the available space, thereby further enhancing opportunities for maternal mobility. Space itself was identified as a physical factor that midwives believed to influence the childbirth experience (n = 110, 78.0%). They also recommended storing unused equipment outside the delivery room to further maximise space. Both of these considerations of bed placement and equipment

storage reflect principles identified in Foureur et al.'s (2010) Birth Unit Design Spatial Evaluation Tool (BUDSET), which recognises spatial arrangement as a key determinant of an optimal birth setting.

5.3.3 Sensory and Comfort Aspects of the Birth Environment

Among the various physical factors that influence the childbirth experience, midwives in this study highlighted several sensory and comfort elements, including lighting (n = 128, 90.8%), noise (n = 123, 87.2%), temperature (n = 107, 75.9%) and privacy (n = 133, 94.3%). This observation aligns with Fahy et al.'s (2008) description of the *Physiology of Undisturbed Birth* within their Birth Territory Theory, in which the authors conceptualise each individual as a neuro-hormonally regulated dynamic physical system that interacts with and is continually influenced by the surrounding environment. These interactions occur through the senses of sight, smell, hearing, taste, and touch. The brain processes such sensory inputs to determine whether the environment is perceived as safe or unsafe. This notion is echoed in Eidhammer et al.'s (2025) study on multisensory birthing rooms, which demonstrated how carefully designed sensory features such as adaptable lighting, sound and visuals, can create a calming and supportive atmosphere that meets the needs of women, birth partners and staff.

Focusing first on lighting, midwives in the present study described limited options within delivery rooms, noting the predominance of bright, harsh white ceiling lights that could not be adjusted and created a medicalised atmosphere, with similar findings reported by Andrén et al. (2021). In response, participants recommended the use of soft, warm and dimmable lighting to promote a more relaxing atmosphere. The importance of such features is also reiterated throughout the literature (Andrén et al., 2021; Foureur et al., 2010; Igarashi et al., 2014). Maxwell et al. (2024) in their Theory of Supportive

Birth Settings, further argued that adjustable lighting, alongside control over temperature and noise, can act as comforting distractions for mothers and serve as a tangible expression of supportive care within the birth environment. Moreover, the literature has consistently emphasised the benefits of natural light (Foureur et al., 2010; Igarashi et al., 2014), which was shown to support circadian biorhythms and enhance mood, relaxation and concentration, all of which are vital to a positive birth experience. The lack of discussion on natural light in the present study may suggest that it is not a concern in the local setting or that other aspects of lighting were given more importance by the midwives.

Although not prioritised to the same extent as lighting, room temperature and its adjustability were also mentioned as important environmental considerations. Maintaining optimal temperature was described as essential for both maternal comfort and neonatal safety. This finding aligns with earlier research, including Igarashi et al. (2014), who emphasised the influence of temperature on labour progression, as well as Foureur et al. (2010) and Maxwell et al. (2024), who underscored the importance of providing individual thermal control to achieve comfort during labour.

Sound levels were also identified by midwives as crucial for maintaining a calm and comfortable birthing atmosphere, consistent with findings from previous studies (Andrén et al., 2021; Foureur et al., 2010; Maxwell et al., 2024). However, participants reported challenges in managing noise due to the lack of soundproofing in delivery rooms, frequent monitor alarms and general ward activity. The literature highlights the importance of effective soundproofing not only for creating a peaceful environment but also to reassure women that their labour and birth sounds cannot be overheard by others. Likewise, minimising exposure to noises from neighbouring delivery rooms has been observed to reduce anxiety and distractions (Andrén et al., 2021; Foureur et al., 2010).

Midwives further identified the presence of swinging doors within the local delivery suite as having substantial impact on both soundproofing and, more importantly, the sense of privacy. Privacy emerged as a central theme throughout the study, with the vast majority of participants (n = 129, 92.1%) indicating that privacy within the birth environment positively impacts a mother's emotional state by fostering peace, security and emotional safety during childbirth. The design and use of the delivery room door in maintaining privacy have also been addressed in earlier research. Both Andrén et al. (2021) and Foureur et al. (2010) noted the door's critical role in protecting the birth space from external intrusion. Andrén et al. (2021) observed that in rooms where privacy is effectively protected, the door remains closed; however, this is not feasible within the local delivery suite due to the presence of swinging doors.

In the local context, participants revealed that the delivery room doors are frequently opened, with staff moving in and out freely. Such conditions, as described by Andrén et al. (2021), are characteristic of a public rather than private birthing space. Xu et al. (2025) further argue that failure to respect privacy constitutes a form of obstetric violence, which they defined as disrespectful or abusive behaviour towards women during childbirth. Whether intentional or habitual, such practices can contribute to a negative childbirth experience. To address this, both the findings of the present study and those of Andrén et al. (2021) highlight the need to reinforce respectful practices, such as knocking and seeking permission before entering the delivery room, as a means of acknowledging that the space belongs to the mother and safeguarding her privacy.

5.3.4 Creating a Home-Like Birth Environment

Turning to the aesthetics of the birth environment, midwives described the local delivery suite as conveying a cold and sterile impression, largely due to its highly clinical appearance and the prominent display of medical equipment. Such an

environment was perceived as inducing stress and hindering relaxation among women. This description aligns closely with Fahy et al.'s (2008) concept of the *surveillance environment* within their Birth Territory Theory, in which spatial design primarily serves to facilitate observation of the woman and to maximise convenience for healthcare professionals. Other features characteristic of this environment includes the dominance of the delivery bed and the absence of a closed door; features that have already been addressed earlier in this discussion.

In contrast, Fahy et al (2008) propose the notion of the *sanctum*; described as a homely, familiar environment designed to promote comfort, confidence and emotional security for the birthing woman. The sanctum is characterised by features such as a door that can be closed for privacy and familiar elements that foster a sense of safety. Fahy et al. (2008) hypothesise that the further a birth space deviates from the sanctum and leans more towards a *surveillance environment*, the greater the likelihood that the woman will experience fear, inhibited physiological functioning, diminished emotional wellbeing and increased distress.

This idea of creating a home-like environment and its benefits was consistently highlighted by midwives in the present study, as well as across the literature (Andrén at el., 2021; Eidhammer at al., 2025; Foureur et al., 2010; Goldkuhl et al., 2023). To achieve this, participants in this study, echoing previous research, emphasised the importance of colour, particularly the use of warm and soft tones throughout the delivery suite to positively influence mood and elicit calm psychological responses (Andrén at el., 2021; Foureur et al., 2010; Maxwell et al., 2024). Additional recommendations from the literature include the incorporation of natural elements (e.g., green plants), aesthetically pleasing bedding and the concealment of medical equipment (e.g., oxygen, suction and nitrous oxide systems) behind cabinetry or service panels to maintain a more domestic appearance (Andrén at el., 2021; Foureur et al., 2010).

Maxwell et al.'s (2024) Theory of Supportive Birth Settings also explores this theme, emphasising the importance of familiarity and personalisation in fostering emotional safety. They suggest that allowing couples to recognise aspects of themselves in the birth environment through the ability to personalise the space with items from home such as photographs, blankets, pillows or plants, can reduce labour duration and pain intensity. This point was also brought up by the midwives of the present study and by Andrén et al. (2021) who emphasised the importance of welcoming and encouraging such nesting behaviours.

A particularly novel finding in relation to design within the present study concerned the placement of large wall clocks directly opposite the delivery bed, which midwives observed to increase feelings of stress and anxiety among women. Interestingly, this issue has not been addressed in previous literature, possibly reflecting variations in international delivery suite design, where such prominently displayed clocks are uncommon and midwives may instead rely on personal timekeeping devices such as fob watches.

5.3.5 Integrating Complementary Therapies into the Birth Environment

Midwives also discussed several physical elements within the birth environment that could support the use of complementary therapies during childbirth. One of the most frequently mentioned factors was music, which participants described as a means of creating a relaxing atmosphere. The value of music therapy has also been highlighted in the literature. Andrén at el. (2021) suggested that encouraging mothers to bring personal devices from home to play their preferred music can contribute to a homely atmosphere and enhance the childbirth experience. Midwives in the present study further proposed that delivery rooms should be equipped with modern devices that allow couples to connect and play their own music. Similarly, Maxwell et al. (2024), in their Theory of

Supportive Birth Settings, identified music along with aromatherapy as examples of sensory-based interventions which healthcare professionals can use to offer comforting distractions and demonstrate their supportive presence during labour.

Aromatherapy was also identified as an important complementary therapy in both the present study and the literature. Within the BUDSET, Foureur et al. (2010) noted that the sense of smell is among the most primitive and powerful means by which individuals perceive their surroundings. They further argued that the characteristic antiseptic odours of hospital environments can provoke fear. Consequently, the authors recommended masking these clinical smells with more pleasant fragrances. Midwives in the present study similarly acknowledged the influence of smell on the childbirth experience, and recommended the introduction of essential oils, aroma diffusers or incense sticks, which are lacking from the local delivery suite.

The final complementary therapy discussed by midwives was water immersion, which 63.1% of participants (n = 89) recognised as beneficial due to its physiological benefits aiding in relaxation and pain relief. Consequently, midwives recommended that baths be installed in every delivery room. This aligns with the findings of Foureur et al. (2010), who emphasised that access to a pool or large bath can assist mothers in coping with labour pain, support mobilisation and promote upright birthing positions, all of which contribute to a more positive childbirth experience.

5.3.6 Perceptions of Facility Adequacy to Support a Positive Childbirth Experience

In addition to examining individual physical elements, this study also explored midwives' overall perceptions of the adequacy of the physical facilities within the local central delivery suite. Findings revealed that participants generally rated the adequacy of the facilities as neutral (n = 70, 49.6%). In addition, inferential analysis using the Kruskal-Wallis test identified a statistically significant difference across years of

professional experience (p = 0.037). Specifically, midwives with more than ten years of experience reported slightly higher adequacy ratings than those with ten years or less.

Several factors may account for this difference. More experienced midwives may have developed greater adaptability in navigating the physical constraints of their environment, having adjusted their practice over time to accommodate existing limitations. Their prolonged exposure to the same facilities may also foster a degree of acceptance or normalisation of current conditions. In contrast, midwives with fewer years of experience may hold higher expectations regarding the physical environment, informed by their more recent education and exposure to contemporary international standards for birth settings. Consequently, this group may have a heightened awareness of deficiencies within the local birth environment.

5.4 Midwives' Perceptions of Psychological and Emotional Factors in the Birth Environment That Influence the Childbirth Experience

5.4.1 Emotional and Psychological Impact of the Birth Environment

To develop a more holistic understanding of the birth environment, this study extended its focus beyond physical factors to also consider psychological and emotional ones. Findings revealed that midwives strongly believe the birth environment and its components affect women's psychological and emotional wellbeing during childbirth, with the majority either strongly agreeing (n = 88, 62.4%) or agreeing (n = 45, 31.9%).

Further analysis using the Kruskal-Wallis test identified a statistically significant difference in these perceptions according to the midwives' current maternity setting (p = 0.040). Although mean scores across all settings reflected strong overall agreement, midwives working in Obstetric Ward 2 reported the highest mean score (M = 4.87,

SD = 0.352), while those in Obstetric Ward 1 reported the lowest (M = 3.90, SD = 1.373). This variation may reflect the different nature of care provided within these wards; as midwives in Obstetric Ward 1 primarily deliver postnatal care, whereas those in Obstetric Ward 2 are more frequently involved in antenatal and miscarriage care, which may heighten their awareness of the emotional impact of the environment on women's experiences.

5.4.2 Fear and Psychological Responses in the Birth Environment

Midwives in this study described childbirth as an unpredictable experience, particularly for primiparous women, where inherent uncertainties can provoke fear and anxiety. They also identified anxiety (n = 121, 85.8%) and fear (n = 111, 78.7%) as two psychological and emotional factors strongly influenced by the birth environment. Similarly, Xu et al. (2025) observed that such fear of childbirth acts as a psychological barrier to a positive childbirth experience.

Participants in the current study, further explained that when such fear and anxiety are not effectively addressed, they can escalate and manifest into physical symptoms such as an increased heartrate, nausea and muscle tension. This heightened state can hinder relaxation, reduce confidence and diminish a woman's sense of control during labour. Midwives further noted that elevated stress and anxiety, trigger the release of adrenaline and cortisol, which reduce the production of oxytocin and endorphins, hormones essential for labour progress and natural pain relief.

These observations align closely with the *Fear Cascade Hypothesis*, referenced in the birth environment literature by Fahy et al. (2008) in their Birth Territory Theory, and Foureur et al. (2010) in their development of the BUDSET tool. The hypothesis proposes that fear and acute stress activate the sympathetic nervous system, releasing catecholamines such as adrenaline and activating the 'fight or flight' response. During

labour, this can disrupt oxytocin secretion leading to irregular or slowed contractions. Adrenaline is also known to cause vasoconstriction, which raises blood pressure and heart rate while diverting blood away from non-essential organs. This reduces uterine and placental perfusion and may lead to foetal distress.

Furthermore, Fahy et al. (2008) emphasised that for optimal birth physiology and the achievement of a *genius birth*, the woman must be in a space that she perceives as safe. This activates the parasympathetic nervous system, orchestrated by oxytocin, which reduces stress, increases pain tolerance, enhances labour contractions and promotes relaxation by lowering blood pressure and heart rate. The present study reinforces this understanding as midwives rated the importance of providing a calm and supportive atmosphere as extremely important (n = 120, 85.1%) and highlighted the birth environment's role in fostering a sense of safety (n = 121, 85.8%) and relaxation (n = 119, 84.4%), both of which contribute to a positive childbirth experience.

Finally, midwives recognised their crucial role in creating such an atmosphere by acknowledging mothers' fears and offering reassurance. Andrén et al. (2021) similarly highlighted that especially in hospital-like birth environments, midwives must actively work harder to make mothers feel emotionally secure. This often involves normalising the clinical environment by explaining the purpose of medical equipment and controls, ensuring that nothing appears unfamiliar or threatening, and thereby reducing fear during labour (Andrén et al., 2021).

5.4.3 Maternal Autonomy and Control in the Birth Environment

Midwives in the present study emphasised that the birth environment strongly influences women's perceptions of control (n = 120, 85.1%), which enables them to relax, follow their natural instincts and engage more confidently in the birthing process. These findings are consistent with Maxwell et al.'s (2024) Theory of Supportive Birth

Settings, which highlights perceived control as a key contributor to women's sense of safety within the birth environment. Confidence itself was also identified by participants as an important psychological factor shaped by the birth environment (n = 105, 74.5%) and one that supports a positive childbirth experience. Similarly, Xu et al. (2025) found that low confidence is associated with reduced childbirth self-efficacy and less favourable birth experiences.

Nevertheless, midwives observed that many mothers struggle to take ownership of their labour or assert their preferences. This challenge was frequently attributed to the medicalised nature of the birth environment and approach to care, which can position women as passive participants rather than active decision-makers. Similar observations were made by Andrén et al. (2021), who noted that hospital-like birthing spaces often convey a sense that the room belongs to the staff rather than the mother, reinforcing the notion that the midwife must retain control. In contrast, home-like environments were found to encourage women to take possession of the space, move freely and change positions, all of which foster a stronger sense of agency and enhance the overall birth experience (Andrén et al., 2021). Likewise, Goldkuhl et al. (2023) and Eidhammer at al. (2025) emphasised that flexible, multisensory birth environments that can be personalised by women and their partners further reinforces a sense of autonomy and control.

In relation to this, Fahy et al. (2008), through their Birth Territory Theory, offer valuable insight into the power dynamics that shape childbirth experiences. Central to this theory is the concept of *jurisdiction*, defined as the ability to act autonomously within one's environment. Jurisdiction exists along a continuum between *integrative power* and *disintegrative power*. Integrative power aligns all sources of power within the birth environment toward the shared goal of achieving a *genius birth*. When present, the woman experiences mind-body harmony, enabling her to respond instinctively to her

bodily instincts. Conversely, *disintegrative power* arises when authority figures, in this case healthcare professionals, undermine the woman's role as the primary decision-maker of her birth experience. This disconnects her from her sense of control, potentially leading to a *forced birth*. Within this theory, this can take the form of *midwifery domination*, which may elicit responses of submission or resistance, both of which diminish the woman's empowerment and emotional safety (Fahy et al., 2008).

To promote greater maternal autonomy, midwives in the present study recommended implementing birth plans in local practice. Moreover, clear and compassionate communication was also highlighted as central to a positive childbirth experience. In line with these findings, Maxwell et al. (2024), through their Theory of Supportive Birth Settings, noted that respecting birth plans and maintaining open communication strengthens both autonomy and the relational connection between women and care providers. This aligns with Malesela (2021), who emphasised that midwives' sensitive communication and strong interpersonal skills are essential to creating a supportive birth environment.

However, the findings of this study also revealed that when effective communication is lacking, the opposite effect can occur. Midwives observed that when interventions take place without adequate explanation or discussion, women often feel confused and distressed. This finding aligns with Andrén et al. (2021), who noted that mothers who do not understand the events unfolding during labour may experience heightened fear. Similarly, Xu et al. (2025) identified that a lack of freedom of choice, or the performance of coercive and non-consensual procedures, can constitute forms of obstetric violence.

5.4.4 Supportive Relationships in the Birth Environment

Midwives in the present study highlighted that a supportive atmosphere characterised by encouragement and reassurance is central to a positive childbirth experience. Conversely, feelings of abandonment and isolation were described as triggers for fear, anxiety and stress, which can negatively shape women's emotional perceptions of labour. These findings reinforce the importance of emotional and social support within the birth environment. In line with this, Maxwell et al. (2024), in their Theory of Supportive Birth Settings, associate strong interpersonal relationships with improved birth outcomes and more positive perceptions of childbirth.

Participants also recognised their pivotal role in cultivating trusting relationships through ongoing presence and empathy. This aligns with Maxwell et al. (2024), who identified interpersonal connection as a key contributor to feeling safe within the birth space and emphasised the importance of ensuring that women feel heard and valued throughout labour. Similarly, Xu et al. (2025) and Igarashi et al. (2014) found that midwives viewed themselves as integral to the mother's human environment and actively worked to foster open, trusting relationships.

Establishing this bond of trust also enables midwives to advocate more effectively for the woman's individual needs. Maxwell et al. (2024) described advocacy as an expression of the midwife's willingness to serve, which can include practical measures such as limiting the number of unnecessary people in the birthing space. This concept resonates with Fahy et al. (2008), whose Birth Territory Theory, describe this idea as *midwifery guardianship*; a form of integrative power where the midwife protects the woman and her birthing territory, allowing her to labour undisturbed while safeguarding her values, preferences and beliefs.

Most midwives in the present study also acknowledged that the characteristics of the birth environment influence the quality of the midwife-mother relationship (*strongly agree* n = 68, 48.2%; *agree* n = 55, 39.0%). This aligns with findings by Eidhammer et al. (2025) and Goldkuhl et al. (2023), who observed that multisensory elements in the birth environment can act as natural conversation starters, promoting relational attunement between midwives and couples. Goldkuhl et al. (2023) further noted that calming features within the environment not only benefit mothers but also influence midwives themselves, encouraging them to slow down, remain physically present and engage more emotionally in the birth process. This further strengthens the midwife-mother relationship, contributing to a calmer and more supportive birthing atmosphere.

In addition to the role of the midwife, the presence of a birth partner was also highlighted as a critical source of emotional support for the mother. Midwives in the present study emphasised the importance of involving partners throughout the labour process, recognising their integral role in fostering a sense of comfort, safety and familiarity within the birth environment. To facilitate this, Igarashi et al. (2014) and Maxwell et al. (2024) recommended that midwives actively welcome birth partners, cultivate supportive relationships with them, and provide the knowledge and guidance needed to help them participate confidently in the birth experience.

Midwives further emphasised the importance of designing birth spaces that accommodate and support the presence of birth partners. They suggested incorporating comfortable furnishings such as bean bags, cushions and additional seating, which are currently limited in the local birth environment. The literature supports this view, highlighting the need for sufficient space within the birthing room to allow partners to participate actively, as well as the inclusion of features that facilitate upright birthing positions involving partner support (Goldkuhl et al., 2023). Furthermore, designated

areas for rest and recovery, both for the partner individually and for the couple together, were also considered beneficial, as physical closeness fosters a sense of security and promotes oxytocin release, enhancing the overall emotional atmosphere of the birth environment (Andrén et al., 2021; Maxwell et al., 2024).

5.5 Midwives' Reported Practices in Utilising the Birth Environment to Enhance the Childbirth Experience

Midwives in this study described how their ability to optimise the birth environment was often influenced by factors extending beyond the delivery room itself. These findings suggest that the birth environment operates within a wider organisational and systemic context. This interpretation aligns with Fahy et al.'s (2008) Birth Territory Theory, which defines the Birth Territory as the designated space for birth but also recognises that it can be understood at multiple levels: from the individual birth space to the wider maternity unit and health service as an integrated social system. Adopting this broader perspective provides a more comprehensive understanding of how institutional structures shape midwives' practices in the birth environment.

5.5.1 Workforce Challenges and Professional Development in the Birth Environment

The majority of midwives reported regularly adjusting the birth environment to optimise conditions and enhance the childbirth experience (*often* n = 71, 50.4%; *sometimes* n = 59, 41.8%). Despite these efforts, participants identified several barriers that hinder the consistent application of these practices, particularly high workloads and persistent staff shortages. Midwives described how these challenges contribute to increased stress, low morale and burnout, directly affecting the quality of care they can provide and

consequently, mothers' childbirth experiences. Similar concerns have been documented in the literature, with several studies reporting that staffing pressures undermine the provision of one-to-one care, increase the risk of malpractice and compromise maternal safety (Andrén et al., 2021; Malesela, 2021; Maxwell et al., 2024; Xu et al., 2025). These findings suggest that such challenges represent an international issue across maternity services.

Participants further emphasised that greater investment in human resources would allow them the time required to provide one-to-one care and to optimise the birth environment more effectively. On top of this, Xu et al. (2025) stressed that adequate staffing is also vital to safeguard midwives' physical and mental wellbeing and enhance their sense of professional fulfilment; factors that indirectly contribute to more positive childbirth experiences.

In addition to concerns about staffing levels, midwives in the present study also reflected on the quality of the workforce. They emphasised the importance of ongoing education and training to maintain competence and confidence in providing evidence-based care within the birth environment. This finding aligns with Malesela (2021), who argued that continuous professional development should be viewed as both an individual and an employer's responsibility. Participants also highlighted the need for interprofessional education, noting that certain members of the maternity team, particularly doctors, often lack awareness of how environmental factors influence labour and the maternal experience. Supporting this, Goldkuhl et al. (2023) suggested that physically modifying delivery rooms to reflect a more health-promoting view of birth, can help healthcare professionals better appreciate the impact of environmental conditions on childbirth experiences.

5.5.2 Empowering Midwives to Support Normal Birth

Midwives in the present study reported several practices they regularly use to enhance the birth environment and promote normality. The most frequently identified strategies included encouraging mobility and active positioning (n = 123, 87.2%) and supporting the use of birthing aids (n = 123, 87.2%) to facilitate labour progress. Other practices, such as adjusting lighting (n = 122, 86.5%), ensuring privacy (n = 106, 75.2%) and managing sound levels (n = 84, 59.6%), were also implemented to reduce the medicalised atmosphere of the birth space. These findings align with Andrén et al. (2021), who highlighted that midwives act as guardians of normal, physiological and healthy birth, and that the design and activities of the birthing environment can either support or hinder this act.

The literature on medicalised birth environments aligns with this study's findings, portraying such settings as products of a biomedical paradigm focused on risk management and technological control. The visible presence of medical equipment and constant surveillance reinforces the perception of childbirth as a procedure requiring professional management rather than a natural physiological process. As a result, midwifery care in such settings often becomes centred on control and intervention, instead of supporting the normal progression of labour (Andrén et al., 2021; Eidhammer et al., 2025; Goldkuhl et al., 2023).

Midwives in the present study similarly described the local maternity care system as obstetric-led, noting that this structure shapes professional attitudes and practices toward medicalisation. Participants expressed concern that such a model encourages the use of interventions that are not always clinically indicated, such as inductions or labour augmentations. Fahy et al. (2008), through their Birth Territory Theory, assert that while medical interventions can coexist with a *genius birth* when used appropriately to

safeguard maternal wellbeing, maintaining normality should remain central whenever possible.

Furthermore, Goldkuhl et al. (2023) emphasised that organisational change is necessary to counteract the rising rates of intervention, as redesigning the physical environment alone cannot transform underlying care practices. In alignment with this, participants in the present study argued that promoting normality in childbirth requires more than environmental modifications, it demands a cultural and professional shift towards trusting the physiological process of labour and believing in women's innate ability to give birth.

Another key strategy identified in this study to promote normality in childbirth was the empowerment of midwives to make meaningful changes to the birth environment to enhance the childbirth experience. Most participants (n = 87, 63.0%) reported that local midwives only have a moderate level of agency in influencing birth environmental factors, suggesting that greater professional autonomy could facilitate more women-centred care. Similarly, Andrén et al. (2021) explained that, as guardians of normal childbirth, midwives must actively engage with and adapt the delivery room to create a supportive atmosphere for the mother. In line with this, Eidhammer at al. (2025) found that multisensory birthing rooms encouraged midwives to take greater ownership of the environment. These rooms made midwives feel valued and proud to offer an inviting, unique and professional setting for women to give birth in. This enhanced sense of ownership not only supported midwives in their professional roles but also contributed to more positive birth experiences.

Midwives in the present study also recommended the introduction of midwifery-led care models as another approach to promote normal childbirth. Participants emphasised the importance of recognising midwives as autonomous professionals and equal members

of the multidisciplinary team, with increased control and decision-making authority in the management of low-risk births. The literature further underscores the value of effective teamwork within the birth environment. Maxwell et al. (2024), in their Theory of Supportive Birth Settings, highlight that effective collaboration and clear communication among providers are essential for supporting mothers and ensuring a positive birthing experience. Conversely, when coordination is lacking, the birthing process can become chaotic, leaving mothers feeling unsafe and dissatisfied. Malesela (2021) similarly underscores the importance of team-building and debriefing sessions to strengthen interprofessional collaboration and enhance the functioning of the birth unit.

5.5.3 Institutional Support and Barriers to Change

Midwives in the present study indicated that consistent institutional support for adapting the birth environment was relatively limited (*sometimes* n = 72, 51.4%). They emphasised that meaningful change within maternity care settings depends heavily on proactive leadership, highlighting the pivotal role of managers in advocating for institutional investment to improve resources, facilities and overall working conditions, which would enhance both staff performance and women's birthing experiences. Similarly, Malesela (2021) found that midwives expressed frustration with managerial priorities that often centred on cost control rather than on improving the quality of care.

Participants also described how attempts to implement change are often met with resistance, particularly from senior members of the maternity team who are reluctant to alter established routines. This resistance fosters a culture in which midwives feel hesitant to modify the birth environment. Townsend et al. (2016) similarly reported that midwives sometimes felt anxious about making minor adjustments to the birth environment such as repositioning the delivery bed, out of fear of criticism from senior colleagues. Collectively, these findings indicate the importance of cultivating a

supportive organisational culture that embraces change and facilitates the implementation of evidence-based practices to optimise the birth environment.

To overcome such reluctance to change, Eidhammer et al. (2025) highlighted the benefits of involving midwives directly in the process of transforming birth environments, noting that participation fostered feelings of pride, empowerment and motivation. Such collaborative approaches appear to be limited within the local context. Several midwives in the present study expressed frustration that their professional input was often undervalued and rarely incorporated into decision-making processes. This represents a missed opportunity, as when invited to share recommendations for improving the birth environment, participants proposed numerous institutional changes, particularly regarding infrastructure. Xu et al. (2025) similarly observed that inadequate infrastructure within the birth environment can act as a significant barrier to positive childbirth experiences, reinforcing the need for institutional investment and collaborative design processes that integrate midwives' expertise.

5.6 Strengths and Limitations of the Study

5.6.1 Strengths

This study demonstrates several notable strengths. Following an extensive review of the existing literature, it represents the first local study to investigate midwives' perspectives on the influence of the birth environment on childbirth experiences, thereby addressing an important gap in knowledge.

The study employed a quantitative research design, a method comparatively underrepresented in the literature on the birth environment, which enabled the collection of data from a substantial number of midwives using a self-designed questionnaire. The

research instrument was carefully developed and rigorously validated. Content and face validity were assessed by a panel of five midwifery experts using two structured validation forms and subsequent statistical analyses. Reliability was established through a test-retest procedure with ten eligible midwives, in which paired datasets were analysed statistically to ensure consistency. The involvement and guidance of a statistician throughout the research process ensured methodological precision, further strengthening the study's reliability.

The anonymity of the questionnaire, in which no personal identifiers were collected, enabled participants to express themselves freely and provide more honest responses without concern that their answers could be linked to their identity. Despite being an online survey, which is typically associated with lower response rates, the study achieved a high level of participation that exceeded the minimum sample size required for statistical analysis. This strong response rate reinforces the reliability of the findings and enhances the generalisability of midwives' perspectives across the local workforce.

5.6.2 Limitations

While acknowledging the strengths of this study, it is also important to consider the inherent limitations. The use of purposive sampling, although advantageous for targeting midwives with relevant expertise, remains a non-random sampling method and may introduce bias, potentially limiting the representativeness of the findings within the target population. Additionally, reliance on a self-administered questionnaire may have restricted participants' ability to fully express their perspectives, thereby limiting the depth of information obtained. This limitation was partially mitigated through the inclusion of open-ended questions, which allowed participants to elaborate on their responses. Social desirability bias may also have occurred; however, the anonymous nature of the data collection helped mitigate this risk. Finally, the findings may reflect

the specific features, practices and workplace culture of the local maternity service, which may limit their applicability to other birth settings.

5.7 Conclusion

This chapter provided a comprehensive discussion of the study's key findings in relation to its objectives and relevant literature. The interpretation of findings was also guided by the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024), which offered valuable conceptual lenses for understanding the birth environment. The chapter also highlighted the strengths and limitations of the study. The following chapter will present the study's conclusions, highlight the main findings and offer recommendations for clinical practice, research and education, building on the insights discussed in this chapter.

Chapter 6

Conclusion

6.1 Introduction

This chapter provides an overall summary of the study, highlighting its key findings and their broader implications. Drawing on the insights derived from this research, it also presents a series of recommendations for clinical practice, education and future research.

6.2 Summary of the Study

The research process began with a systematic literature review, in which the SPIDER framework representing Sample, Phenomenon of Interest, Design, Evaluation and Research Type (Cooke et al., 2012), was employed to formulate the review question. The review was then guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (Page et al., 2021) to identify and select studies exploring midwives' perspectives on how the birth environment influences childbirth experiences. All included studies were critically appraised using tools from the Critical Appraisal Skills Programme (CASP, 2025). Following the review, the study's aim and objectives were developed. The research was grounded in two complementary theoretical frameworks; the Birth Territory Theory (Fahy et al., 2008) and the Theory of Supportive Birth Settings (Maxwell et al., 2024), both of which provide valuable insights into how different aspects of the birth environment shape maternal experiences of childbirth.

To explore midwives' perspectives, a self-designed questionnaire was developed in the absence of a suitable pre-existing tool. The instrument underwent content and face validation, as well as test-retest reliability assessment, to ensure methodological rigour. The questionnaire was distributed to midwives (N = 213) employed within selected maternity settings of the main public hospital, facilitated by designated intermediaries.

A total of 141 midwives completed the questionnaire anonymously, resulting in a response rate of 66.2%. The collected data, comprising of predominantly quantitative responses supplemented by qualitative insights, were analysed using descriptive and inferential statistical methods (Kotronoulas et al., 2023), alongside qualitative content analysis (Ho & Limpaecher, 2023). Collectively, these analyses provided a comprehensive understanding of midwives' perspectives on how the birth environment influences the childbirth experience.

6.3 Overview of the Key Findings

6.3.1 Midwives' Perceptions of Physical Factors in the Birth Environment

Midwives in this study emphasised the crucial role of the physical birth environment in shaping maternal childbirth experiences. Key elements included birthing aids and the delivery bed, which were highlighted for their role in promoting maternal mobility. A distinctive finding of this study was that midwives also drew attention to the quality and functionality of the delivery beds, noting that they were often uncomfortable and limited in the range of birthing positions they could accommodate.

Sensory and comfort factors such as lighting, noise, temperature and privacy were also identified as important influences. Notably, midwives described the presence of swinging doors in the delivery rooms as a unique environmental feature that compromised both privacy and soundproofing. Participants further characterised the local delivery suite as cold and sterile, largely due to its clinical appearance and prominent display of medical equipment, which they perceived as hindering relaxation and increasing stress. In contrast, midwives consistently highlighted the benefits of creating a homely, familiar environment to promote comfort and emotional security.

A particularly novel finding was the negative impact of large wall clocks placed opposite delivery beds, which midwives believed heightened women's anxiety. Participants also emphasised the positive influence of complementary therapies such as music, aromatherapy and water immersion, in enhancing relaxation and supporting physiological birth. To facilitate these practices, they recommended equipping delivery rooms with modern music systems, essential oils and baths.

Finally, this study made a unique contribution by quantitatively assessing midwives' evaluations of local facilities. The overall rating of adequacy was neutral, suggesting that while the current environment provides basic functionality, there remains considerable potential for improvement.

6.3.2 Midwives' Perceptions of Psychological and Emotional Factors in the Birth Environment

Beyond physical features, midwives highlighted the psychological and emotional impacts of the birth environment. They described childbirth as inherently unpredictable, with uncertainty often provoking fear and anxiety. Participants emphasised the importance of a calm and supportive atmosphere that fosters safety, relaxation and confidence, which collectively contribute to a positive childbirth experience.

Participants also identified the environment's role in supporting maternal autonomy, noting that clear communication, encouragement and reassurance are central to helping women take ownership of their labour and actively participate in decision-making. Nonetheless, many mothers were observed to struggle with asserting preferences, a challenge often linked to the medicalised nature of the birth environment and approach to care.

Relational aspects of care were similarly emphasised. Midwives recognised their pivotal role in cultivating trust through ongoing presence and empathy. Most participants also acknowledged that the characteristics of the birth environment influence the quality of the midwife-mother relationship. Furthermore, the presence of a birth partner was identified as a vital source of emotional support, with midwives highlighting the importance of involving partners throughout labour and designing birth spaces to accommodate their presence.

6.3.3 Midwives' Reported Practices in Utilising the Birth Environment

Midwives in this study reported regularly engaging in practices involving the birth environment to enhance maternal childbirth experiences. These included promoting mobility and positioning, encouraging the use of birthing aids, adjusting lighting, managing sound levels and ensuring privacy. However, high workloads and persistent staff shortages were identified as major barriers to maintaining these practices consistently. Participants emphasised that greater investment in human resources would enable more one-to-one care and effective environmental optimisation.

Midwives described the local maternity system as obstetric-led, shaping professional attitudes and practices towards medicalisation. A distinctive finding of this study was that participants expressed concern that such a model often encouraged interventions that were not always clinically necessary. To address this and promote normality in childbirth, participants argued for a cultural and professional shift towards trusting the physiological process of labour, which they suggested could be achieved through ongoing education and interprofessional training.

The quantitative design of this study also enabled an assessment of midwives perceived level of empowerment in making changes to the birth environment, revealing that many felt only moderately empowered to do so. To promote greater professional autonomy,

participants suggested the introduction of midwifery-led care models, such as enabling midwives to independently manage low-risk cases and routine aspects of care.

Proactive leadership was identified as critical for achieving meaningful change. Managers were viewed as pivotal in advocating for institutional investment in resources, facilities and working conditions. However, participants reported that institutional support was often limited, with attempts at change frequently met with resistance, particularly from senior staff. Many midwives expressed frustration that their professional input was undervalued and rarely incorporated into decision-making processes, representing a missed opportunity to improve the birth environment.

6.4 Recommendations

The following recommendations have been developed based on the study's key findings. They aim to translate the evidence into actionable strategies to enhance local clinical practice, strengthen continuous professional midwifery development and guide future research related to the birth environment, thereby contributing to the overall improvement of maternity care.

6.4.1 Recommendations for Clinical Practice

Findings from this study highlight several opportunities to enhance the local birth environment. These recommendations encompass both physical improvements to the delivery suite and system-level changes to optimise quality of care.

6.4.1.1 Physical Improvements

It is recommended to:

- reposition delivery beds to the side of the room to encourage mobility and upgrade them to improve comfort and flexibility.
- provide a greater availability and variety of birthing aids to support mobility and upright birthing positions.
- store unused equipment outside delivery rooms and establish dedicated storage areas to maximise space and reduce clutter.
- incorporate soft, warm and dimmable lighting to create a calming atmosphere, with options such as fairy lights and battery-operated candles.
- create a more home-like environment through warmer colour schemes, inclusion of personal items (e.g., photos and blankets) and display of motivational artwork or positive birth affirmations.
- protect women's privacy and minimise disruption by replacing swinging doors with soundproof alternatives and limiting staff entry into delivery rooms.
- reposition wall clocks out of the mother's direct line of sight to reduce anxiety and support a more relaxed birthing experience.
- expand the use of complementary therapies in delivery rooms by installing modern music systems, aromatherapy diffusers and baths to facilitate water immersion.

6.4.1.2 System-level and Professional Recommendations

It is recommended to:

- implement birth plans to enhance maternal autonomy and facilitate clear communication of women's preferences.

- provide midwives with greater authority over low-risk births and reduce unnecessary obstetric input.
- enable midwives to independently perform essential aspects of care, such as ordering routine blood tests and managing basic procedures.
- establish midwifery-led clinics and birth centres to reduce workflow pressures and foster calmer birthing environments.

6.4.2 Recommendations for Education

It is recommended to:

- ensure continuous professional development through regular training, seminars and workshops on topics such as labour positions, use of birthing aids, aromatherapy, hypnobirthing and water immersion techniques.
- provide interprofessional education for doctors and other maternity team members, to enhance understanding of how environmental factors influence labour and maternal wellbeing.

6.4.3 Recommendations for Future Research

It is recommended to:

- conduct a qualitative study using interviews to gain a deeper understanding of local midwives' perspectives on the influence of the birth environment on childbirth experiences, which could help validate and expand upon the findings of this study.
- explore additional dimensions of the birth environment, including social and spiritual factors, to provide a more holistic understanding of how the environment shapes maternal experiences.

- investigate the barriers and facilitators to implementing the recommended changes in local maternity setting, focusing on organisational factors, resource needs and cost-effectiveness to inform policy development and guide resource allocation.
- examine the operating theatre as a birth environment for women undergoing both elective and emergency caesarean sections, to understand its influence on maternal childbirth experiences.

6.5 Conclusion

This study highlighted midwives' perspectives on the critical role of the birth environment in shaping maternal childbirth experiences. The findings underscore the importance of promoting normality, empowering midwives and fostering supportive organisational cultures, alongside practical improvements to delivery room design. By translating these insights into actionable recommendations for clinical practice, education and institutional policy, this study provides a foundation for enhancing maternity care, strengthening midwifery practice and ultimately improving the childbirth experience for mothers.

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Appendix A

Critical Appraisal of the Included Studies

Table A1. *Questions of the Critical Appraisal Skills Programme Tool for Qualitative Studies (CASP, 2025)*

Section	Question Number	Appraisal Question
A: Are the results valid?	1	Was there a clear statement of the aims of the research?
	2	Is a qualitative methodology appropriate?
	3	Was the research design appropriate to address the aims of the research?
	4	Was the recruitment strategy appropriate to the aims of the research?
	5	Was the data collected in a way that addressed the research issue?
	6	Has the relationship between researcher and participants been adequately considered?
B: What are the results?	7	Have ethical issues been taken into consideration?
	8	Was the data analysis sufficiently rigorous?
	9	Is there a clear statement of findings?
C: Will the results help locally?	10	How valuable is the research?

Table A2. *Answers of CASP Tool for Qualitative Studies*

Research Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Andrén et al., 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It showed that birthing rooms can either optimise or hinder midwives in fulfilling their role as guardians of normal physiological birth.
Eidhammer et al., 2025	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It highlighted that the transition to multisensory birthing rooms enhanced midwives' professionalism and work environment, while also facilitating stronger connections with couples during childbirth.
Foureur et al., 2010	Yes	Yes	Yes	No	Yes	Can't tell	Can't tell	Yes	Yes	The development of the BUDSET tool provides a checklist of design elements to guide the refurbishment or planning of new birth units that promote physiological birth.
Goldkuhl et al., 2023	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It demonstrated that care providers valued the birthing room intervention, recognising it as consistent with their understanding of factors that support women's birth physiology.
Igarashi et al., 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It illustrated how midwives shape the birth environment around autonomy, supportive physical space, maternal movement and safety.
Malesela, 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It underscored that midwives' professional capabilities, alongside adequate human, material and financial resources are essential for sustaining birth environments that support optimal intrapartum care.
Townsend et al., 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It highlighted that midwives can actively reconfigure birth spaces, e.g., by moving the bed away from its central position, encouraging women to work more effectively with their bodies during labour.
Xu et al., 2025	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	It emphasised that addressing macro-level barriers, particularly midwife shortages and inadequate hospital environments, is vital for improving women's childbirth experiences.

Appendix B

Summary of the Included Literature

Table B. *Summary of the Included Literature*

Title **Author/s** **Year** **Country**	**Research Design** **Research Tool**	**Sampling Method** **No. of Participants** **Setting**	**Findings**	**Categories**
The birthing room and its influence on the promotion of a normal physiological childbirth – A qualitative interview study with midwives in Sweden Anna Andrén, Cecily Begley, Helena Dahlberg and Marie Berg 2021 Sweden	Qualitative Phenomenological, Reflective Lifeworld Approach Individual interviews using an audio recorder.	Purposive Sampling 15 midwives Four different hospitals and at six different labour wards. Two of the midwives also assisted at homebirths.	**A Private or a Public Room** - Door: central to providing privacy, peace and safety. - Bathtub: placement influences sense of privacy. - Window: outside sounds/visibility can disrupt privacy. **A Home-like or Hospital- like Room** - Home-like: dim lighting, warm colours, décor and personal items, provide emotional safety. - Hospital-like: sterile, medical equipment, fluorescent lights and white walls, reinforce risk and fear. **A Room Promoting Activity or Passivity** - Active: spacious, birth aids and pictures of positions. - Passive: bed as central feature and medical equipment. **A Room Promoting the Midwife's Presence or Absence** - Influenced by activities outside the birthing room. - Main barrier is caring for multiple mothers at the same time; enabled by technology (CTG and alarm systems) - Support the presence of the mother's companion.	**The Physical Birthing Room** - A Home-Like and Private Environment - Encouraging Movement in the Birth Space - The Birthing Bed **The Human Interaction** - The Midwife as a Vital Part of the Birth Environment - The Birth Partner in the Birth Environment

Exploring midwives' perceptions of the multisensory birthing room work environment: A qualitative analysis Anya Eidhammer, Dorte Melgaard, Louise Sofia Madsen, Julie Glavind, Sissel Raahede Lundgaard and Marie Koldkjær Højlund 2025 Denmark	Braun and Clarkes' Reflexive Thematic Analysis Approach Individual semi-structured interviews: in-person (n = 11) online (n = 3) telephone (n = 2)	Purposive Sampling 16 midwives North Denmark Regional Hospital	**Sensing the Environmental Transformation** - Adjustable elements of lighting, sound and visuals: • Create a cohesive and responsive environment. • Enhances the couple's sense of autonomy. - Design features such as artistic content, furniture, a bathtub and designated spaces for personal items: • Foster a homely environment. • Reduce the clinical and risk-focused atmosphere. - Incorporating atmospheres of local nature, seasonal changes and circadian rhythms: • Preserves a sense of homeliness. • Restores elements often lost in hospital settings. **A Supportive Atmosphere** - Strengthened relational attunement between the midwife and couple, encouraging collaboration. - Nature-inspired design: • Served as a good conversation starter. • Created opportunities for bonding beyond the birth process.	**The Physical Birthing Room** - A Home-Like and Private Environment **The Human Interaction** - The Midwife as a Vital Part of the Birth Environment

Developing the Birth Unit Design Spatial Evaluation Tool (BUDSET) in Australia: A Qualitative Study Maralyn Foureur, Nicky Leap, Deborah Davis, Ian Forbes and Caroline Homer 2010 Australia	Qualitative Research Design - A review of the literature - Interviews with key informants (individual and in groups) - Expert panel for validity testing	Non-Probability Sampling <u>Key informants:</u> - 10 midwife clinicians and researchers who attended both home and hospital births - 3 architects or students of architecture who were involved in the design of health settings, including maternity units	Four key domains that make up the BUDSET tool to assess the optimality of birth unit design: **1) Fear Cascade** • Space (arrival at the birth unit, outside, the reception area and the birthing room) • Sense of Domesticity • Privacy • Noise Control • Universal Precautions **2) Facility** • Physical Support • Birthing Bath • En Suite Bathroom Facilities **3) Aesthetics** • Light • Colour • Texture • Indoor Environment • Feminine Symbols **4) Support** • Food and Drink for Women • Accommodation for Companions and Birth Attendants	**The Physical Birthing Room** - A Home-Like and Private Environment - Encouraging Movement in the Birth Space - The Birthing Bed **The Human Interaction** - The Birth Partner in the Birth Environment

Implementing a new birthing room design: A qualitative study with a care provider perspective Lisa Goldkuhl, Malin Tistad, Hanna Gyllensten and Marie Berg 2023 Sweden	Exploratory Research Design Individual, semi-structured interviews: in-person (n = 3) by phone (n = 16) by video (n = 2)	Purposive Sampling <u>21 care providers</u>: Assistant Nurses (n = 5) Midwives (n = 12) incl. 3 managers Obstetricians (n = 4) incl. 1 manager Swedish University Hospital	**Respecting the Needs of Women and Companions** - Homely, spa- or hotel-like design supported privacy, eased transition from home and fostered trust in healthcare professionals. - Flexible room design allowed couples to control the environment, respecting individual values. **Negotiating Paradigms of Birth** - A secluded bed symbolised active birth and supported women's birth physiology. However, it is impractical for clinical assessments and emergencies. **Providing Space for Emotional Presence** - Warm, calming atmosphere encouraged midwives to slow down, be more physically present, emotionally invested and transmit calmness to mothers. - Room features promoting companion involvement (e.g. upright birthing positions), enabled women to relax and better cope with pain. - Multisensory elements facilitated communication and relationship-building with healthcare providers.	**The Physical Birthing Room** - A Home-Like and Private Environment **The Human Interaction** - The Midwife as a Vital Part of the Birth Environment - The Birth Partner in the Birth Environment

Birth environment facilitation by midwives assisting in non-hospital births: A qualitative interview study Toshiko Igarashi, Mariko Wakita, Kikuko Miyazaki and Takeo Nakayama 2014 Japan	Qualitative Descriptive Approach (Written questionnaire used to collect demographic data) Semi-structured interviews	Convenience and Snowball Sampling 20 midwives - 14 working in midwifery homes - 6 working in homebirths	**An Environment Where the Mother and Family Feel Autonomous** - Midwives form part of the human environment. - Forming candid relationships encourages women to express their opinions at birth. **A Physical Environment That Facilitates Birth** - Maintaining a warm room temperature. - Using dim, natural or indirect lighting. - Arranging the human environment. **An Environment That Facilitates the Movements of the Mother for Birth** - Allowing the mother to sleep before birth. - Supporting the mother's nesting instinct. - Trusting the mother's spontaneous movements. **Scrupulous Safety Preparation** - Prior arrangements in the case of an emergency. - Ensure more than one midwife is available. - Setting up a dedicated space and equipment.	**The Physical Birthing Room** - Encouraging Movement in the Birth Space **The Human Interaction** - The Midwife as a Vital Part of the Birth Environment - The Birth Partner in the Birth Environment

Midwives perceptions: Birth unit environment and the implementation of best intrapartum care practices Jacobeth Mmabyala Louisa Malesela 2021 South Africa	Qualitative Descriptive Phenomenological Approach Three focus group interviews using a semi-structured interview guide, field notes and an audiotape recorder.	Purposive Sampling 18 midwives Public hospital birth unit in the Gauteng Province in South Africa	**Interpersonal Skills** - Midwives form part of the birth environment. - Emphasise the need for self-introspection on intrapartum care practices and professional behaviour. - Sensitive communication and strong interpersonal skills are essential to the birth environment. **Improved Staff Development** - Experienced and competent midwives add value to the birth unit environment. - Midwives need to be lifelong learners through continuous professional development. **Adequate Resources** - Human resources: shortage of midwives compromises women's safety and increases the risk of malpractice. - Financial and Material resources: management's focus on cost control limits the procurement of equipment.	**The Human Interaction** - The Midwife as a Vital Part of the Birth Environment **The Institutional Context** - Investing in Midwives - Adequate Financial and Material Resources

The birth bed: A qualitative study on the views of midwives regarding the use of the bed in the birth space Bethan Townsend, Jennifer Fenwick, Vicky Thomson and Maralyn Foureur 2016 Australia	Qualitative Descriptive Approach (Short, written demographic sheet) Unstructured interviews using field notes and an audio recorder.	Convenience Sampling 14 midwives (incl. 1 student) Birth suite at a regional Queensland public hospital: - 8 standard rooms (57%) - 2 birth centre rooms (7%) - 36% of midwives worked in both	**'Women want to use the bed'** - Women expected, wanted or preferred the bed during labour, likely influenced by social media messaging. **'I need the bed she needs the bed'** - The bed supports midwives to carry out assessments. - Women being on the bed is safer during emergencies. - Doctors generally prefer women in this position. **'I help her avoid the bed'** - Distracted women from the bed by raising it to lean on - Offered alternatives e.g., balls, mats and bean bags. - Observations and assessments routinely done in chairs, on the floor or in the shower. - Used Telemetry for foetal monitoring as well as oils, music, lighting and personal objects from home. **'I'm too fearful to avoid the bed'** - Some midwives felt nervous and anxious about changing the position of the bed. - Fear of disapproval from senior colleagues and potential blame if emergencies occurred.	**The Physical Birthing Room** - The Birthing Bed

Midwives perspectives of barriers and facilitators for the practice of promoting women's positive childbirth experience in China: A qualitative study Yaxuan Xu, Yuhan Tang, Mengxue Wang, Xiaoyue Wang, Wenli Xu, Fengying Zhang and Lihua Zhou 2025 China	Qualitative Research Design Semi-structured interviews	Purposive Sampling 18 midwives Birth units in four public hospitals in Hefei City, Anhui Province	**Micro-Level Factors Affecting Positive Childbirth Experience** - Barriers: poor maternal mental health and unrealistic childbirth expectations. - Facilitators: access to institutionalised and standardised antenatal education. **Meso-Level Factors (Social and Community Level)** - Barriers: interpersonal violence, medical mistrust of healthcare providers and the system, obstetric violence - Facilitators: continuity of community-based care and respectful and understanding care from professionals. **Macro-Level Factors (Healthcare System Level)** - Barriers: • Midwife Shortage: excessive workload - places strain on midwives' wellbeing, - reduces professional fulfilment. • Hospital Environment: poor infrastructure and outdated facilities in the birth unit, such as crowded waiting areas, limited parking and slow lift access.	**The Human Interaction** - The Birth Partner in the Birth Environment **The Institutional Context** - Investing in Midwives - Adequate Financial and Material Resources

Appendix C

Birthing Rooms (Eidhammer et al., 2025)

Figure C. *The original traditional birthing room and the redesigned multisensory birthing room at North Denmark Regional Hospital (Eidhammer et al., 2025).*

Appendix D

Permission Letters

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

February 2025

Mr. Simon Caruana
Data Protection Officer

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Research Study: 'The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'.

Dear Mr. Caruana,

My name is Abigail Grima, and I am a master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'".

This research study aims to explore midwives' views on how the birth environment impacts the childbirth experience.

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the maternity settings at Mater Dei hospital by means of a one-time anonymous online questionnaire. Midwifery/nursing officers of the respective settings will act as intermediaries by distributing an information letter, which includes the questionnaire link, to eligible participants via email. I am anticipating that data collection will take place in May 2025.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

[redacted]

Abigail Grima

Master of Science in Midwifery Student

[redacted]

Dr. Rita Pace Parascandalo

Academic Research Supervisor

Outlook

RE: Permission to Conduct Research Study

From Caruana Simon at MHA - MDH <[redacted]>
on behalf of
Data Protection at MHA - MDH <[redacted]>

Date Thu 2/27/2025 1:43 PM

To [redacted]

Cc Young Sharon at MHA <[redacted]>; Data Protection Approval Form at MHA - MDH <[redacted]>; Grima Abigail at MHA - MDH <[redacted]>

Ms Grima

On the basis of the documentation you submitted, from the MDH data protection point of view you have been cleared to proceed with your study titled ***The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*** provided that you obtain approval from MDH CEO ([redacted]- please provide the relevant documents including – Prof David Pace's, Prof Yves Muscat Baron's and Dr Victoria Sultana's approval with this email).

-

- Your potential participants to reply your online questionnaire are *Midwives working within the Department of Paediatrics and Obstetrics & Gynaecology, MDH*

- Your intermediaries to approach potential participant Midwives through the gov email on your behalf are:

    - *Ms Doris Spagnol Abela who works at the Obstetric Ward 1*
    - *Ms Astrid Zarb who works at the Obstetric Ward 2*
    - *Ms Miriam Borg who works at the Obstetric Ward 3*
    - *Ms Antoinette Formosa who works at the Central Delivery Suite*
    - *Ms Maria Cassar who works at the Discharge Liaison Midwifery*
    - *Ms Charmaine Psaila who works at the Midwifery Reliving Pool*
    - *Ms Winifred Buhagiar who works at the Neonatal and Paediatric Intensive Care Unit*

-

All data will be provided to you already anonymized given that Midwives working within the Departments of Obstetrics & Gynaecology and Paediatrics, MDH will reply the anonymous online questionnaire through the declared hyperlink.

-

-

Anonymisation

-

The identity of your potential participants cannot be divulged to anyone by the above-mentioned intermediaries not even to academic staff at the UOM.

Consent Criteria

For this study, consent is implied with affirmative action, meaning that if participants click on the hyperlink and reply, they will be consenting.

The hyperlink should not prompt any log-in dialog box to enter one's credentials otherwise personal data would be collected by the platform provider.

At no point you can be handed contact details of potential participants given that they will be approached by the above-mentioned intermediaries.

The above-mentioned intermediaries cannot feed Google Forms with a list of email addresses otherwise consent would be bypassed. Only your declared hyperlink through your declared invitation email can be used.

This clearance does not allow you to communicate with participants given that they will only be approached by the above-mentioned intermediaries through the gov email.

The above-mentioned intermediaries must approach potential participants only through the gov mail given that they will be representing MDH. Personal email accounts must not be used.

This clearance does not cover the above-mentioned intermediaries to approach potential participants through social media or any other means. MDH clearance is applicable for MDH grounds and not for public domains or any other spheres that are not under MDH's responsibility.

Potential participants for this questionnaire are Midwives working within the Departments of Obstetrics & Gynaecology and Paediatrics, MDH; not staff or any other public servant who is not under the responsibility of MDH's Data Controller.

The above-mentioned intermediaries cannot obtain any email addresses lists specifically for your research otherwise personal data would be processed without consent. Instead, your intermediaries must reach potential participants from their already contacts.

When the above-mentioned intermediaries will send the mail shot to invite potential participants, the list of recipients should be in **Bcc** not ***To*** or ***Cc***.

Clarifications

This clearance does not cover ethical approval.

This clearance is valid for your report to be included with your dissertation only and not in medical journals or elsewhere given that you are not obtaining approval from MDH legal office.

This clearance is only valid for your questionnaire to be distributed online and not paper-based.

This clearance doesn't cover any form of interviews.

This clearance doesn't cover access to medical records or Health Information Systems.

This clearance doesn't allow patient contact / communication / observations / examinations.

What was declared during this clearance process is what you will abide by.

Your submitted documentation and declarations must remain unchanged.

You must abide by all the articles of the GDPR (EU) 2016 / 679 throughout the data collection process and thereafter.

You are requested to submit a copy of your findings to this office at the end of your study.

This clearance covers your research to be carried out only within the Departments of Obstetrics & Gynaecology and Paediatrics, MDH and not in any other department / institution such as Primary Healthcare, GGH, KGH, MHS, SVPR, DHIR or any other institution / department that doesn't form part of MDH Data Controller.

Please present this email to the above-mentioned intermediaries.

To sign the data protection form, please contact Ms Graziella Aquilina through [redacted] *to provide the following:*

1. *This clearance email in PDF – to provide in PDF*
2. *MDH CEO's approval in PDF - pending*
3. *The name of the Chairpersons and Director who approved your research – Prof David Pace, Prof Yves Muscat Baron and Dr Victoria Sultana*
4. *The period of data collection – April 2025 (after you sign the Data Protection form) – July 2025*
5. *Title of your research - The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*
6. *Your ID number: - pending*

NB: You must sign this form before starting. You will receive an email from adobe sign to sign electronically.

In summary – next step

1. Obtain approval from MDH CEO through [redacted]
2. Sign the Data Protection form at Ms Graziella Aquilina through [redacted] (please provide the above six points)

Regards

Simon Caruana
Senior Manager (Compliance)
Health Informatics Directorate
Health-Mater Dei Hospital

MINISTRY FOR HEALTH AND ACTIVE AGEING
Mater Dei Hospital, Triq Id-Donaturi Tad-Demm,
Msida, Malta

SPTAR MATER DEI

Data Protection Clearance Declaration Form

REF: 37/2025

Full Name: Abigail Grima

ID Number: [redacted]

Approval Date from DPO: 27th February 2025

Approval Date from CEO: 08th March 2025

Data Collection Period (From – To): April 2025 - July 2025

MDH Official Approval Names: Prof D Pace, Prof Y Muscat Baron, Dr V Sultana

Name of Study / Audit: The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives

Applicant's Signature: _____

Signature: [redacted]
Email: [redacted]

Data Protection Approval Form - Abigail Grima

Final Audit Report 2025-03-16

Created:	2025-03-16
By:	Data Protection Approval Form ([redacted])
Status:	Signed
Transaction ID:	CBJCHBCAABAA53NizLL_JBFxjrx_zi5cyvgBZHi6Z-4x

"Data Protection Approval Form - Abigail Grima" History

Document created by Data Protection Approval Form ([redacted])
2025-03-16 - 9:30:25 AM GMT

Document emailed to [redacted] for signature
2025-03-16 - 9:30:28 AM GMT

Email viewed by [redacted]
2025-03-16 - 11:29:50 AM GMT

Signer [redacted] entered name at signing as Abigail Grima
2025-03-16 - 11:34:46 AM GMT

Document e-signed by Abigail Grima ([redacted])
Signature Date: 2025-03-16 - 11:34:48 AM GMT - Time Source: server

Agreement completed.
2025-03-16 - 11:34:48 AM GMT

Adobe Acrobat Sign

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

February 2025

Ing. Keith Attard
Chief Executive Officer

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Research Study: 'The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'.

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This research study aims to explore midwives' views on how the birth environment impacts the childbirth experience.

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I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the maternity settings at Mater Dei hospital by means of a one-time anonymous online questionnaire. Midwifery/nursing officers of the respective settings will act as intermediaries, by distributing an information letter with the questionnaire link to eligible participants via email. I am anticipating that data collection will take place in May 2025.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

Abigail Grima

Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo

Academic Research Supervisor

Outlook

RE: Permission to Conduct Research Study

From Farrugia Alexandra 1 at MHA - MDH <[redacted]>
on behalf of
CEO at MHA - MDH <[redacted]>
Date Sat 08/03/2025 09:38
To Grima Abigail at MHA - MDH <[redacted]>; CEO at MHA - MDH <[redacted]>
Cc Magri Caroline Jane at MHA - MDH <[redacted]>

Dear Ms Grima,

Your study entitled "***The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives***" is being approved on behalf of Ing. Keith Attard, CEO, Mater Dei Hospital.

Kindly make sure to ascertain that the guidelines provided by DPO are fully adhered to and ethical clearance is sought.

Good luck in your studies.

Regards,

Alexandra

Alexandra Farrugia
Assistant Director
Admin - Office Of The CEO
MHA-Mater Dei Hospital
[redacted]
https://health.gov.mt

MINISTRY FOR HEALTH AND ACTIVE AGEING
Mater Dei Hospital, Triq Id-Donaturi Tad-Demm,
Msida, Malta

Kindly consider your environmental responsibility before printing this e-mail

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Prof. Yves Muscat Baron
Director of the Department of Obstetrics and Gynaecology

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Research Study: 'The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'.

Dear Prof. Muscat Baron,

My name is Abigail Grima, and I am a master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

This research study aims to explore midwives' views on how the birth environment impacts the childbirth experience.

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the maternity settings at Mater Dei hospital by means of a one-time anonymous online questionnaire. Midwifery officers of the respective settings will act as intermediaries, by distributing an information letter with the questionnaire link to eligible participants via email. I am anticipating that data collection will take place in May 2025.

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356[redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356[redacted].

L-Università ta' Malta
Faculty of Health Sciences

Your support is greatly appreciated.

Yours sincerely,

[redacted]

Abigail Grima
Master of Science in Midwifery Student

[redacted]

Dr. Rita Pace Parascandalo
Academic Research Supervisor

I would like to support this research work.

[redacted]

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Prof. David Pace
Director of the Department of Paediatrics

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Research Study: 'The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'.

Dear Prof. Pace,

My name is Abigail Grima, and I am a master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

This research study aims to explore midwives' views on how the birth environment impacts the childbirth experience.

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the Neonatal and Paediatric Intensive Care Unit in Mater Dei hospital by means of a one-time anonymous online questionnaire. The nursing officer of the Neonatal and Paediatric Intensive Care Unit will act as intermediary, by distributing an information letter with the questionnaire link to eligible participants via email. I am anticipating that data collection will take place in May 2025.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

[redacted] [redacted]

Abigail Grima — Dr. Rita Pace Parascandalo

Master of Science in Midwifery Student — Academic Research Supervisor

Outlook

Re: Request for Permission to Conduct Research Study

From Pace David at MHA - MDH <[redacted]>
Date Thu 2/27/2025 8:21 AM
To Grima Abigail at MHA - MDH <[redacted]>

Dear Ms Abigail Grima,

I have now seen the proposal of this study and approve.
I wish you the very best with your studies.

Kind regards,

Prof. David Pace MD, PgDip PID (Oxf), FRCPCH, PhD
Clinical Chairperson Department of Child and Adolescent Health
Consultant Infectious Disease Paediatrician

SPTAR MATER DEI

T Secretary: +356 +356 [redacted]
E [redacted]

Mater Dei Hospital, Triq id-Donaturi tad-Demm, l-Imsida, Malta MSD 2090 | Tel +356 2545 0000 |

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Dr Victoria Sultana
Director of Nursing and Midwifery

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Research Study: 'The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'.

Dear Dr Sultana,

My name is Abigail Grima, and I am a master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

This research study aims to explore midwives' views on how the birth environment impacts the childbirth experience.

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the maternity settings at Mater Dei hospital by means of a one-time anonymous online questionnaire. Midwifery/nursing officers of the respective settings will act as intermediaries, by distributing an information letter with the questionnaire link to eligible participants via email. I am anticipating that data collection will take place in May 2025.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

[redacted] [redacted]

Abigail Grima — Dr. Rita Pace Parascandalo

Master of Science in Midwifery Student — Academic Research Supervisor

Outlook

RE: Request for Permission to Conduct Research Study

From Sultana Victoria at MHA - MDH <[redacted]>
Date Mon 20/01/2025 17:27
To Grima Abigail at MHA - MDH <[redacted]>

Approved subject to Ethics clearance.
Best of luck
Vicky

Dr Victoria Sultana
Head of Nursing and Midwifery
Mater Dei Hospital

t +356 [redacted] e [redacted]
www.gov.mt | www.publicservice.gov.mt | fb.com/servizzpubbliku

MINISTRY FOR HEALTH AND ACTIVE AGEING

Appendix E

Permission Letters with Intermediary Acceptance

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Ms Charmaine Psaila
Chief Midwifery Manager

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Research Study: 'The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives'.

Dear Ms Psaila,

My name is Abigail Grima, and I am a master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

'*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*'.

This research study aims to explore midwives' views on how the birth environment impacts the childbirth experience.

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the maternity settings at Mater Dei hospital by means of a one-time anonymous online questionnaire. Midwifery/nursing officers of the respective settings will act as intermediaries, by distributing an information letter with the questionnaire link to eligible participants via email. I am anticipating that data collection will take place in May 2025.

L-Università ta' Malta
Faculty of Health Sciences

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in the Midwifery Relieving Pool via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital.

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

Abigail Grima

Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo

Academic Research Supervisor

Outlook

Re: Request for Permission and Intermediary Role for Research Study

From Psaila Charmaine at MHA - MDH <[redacted]>
Date Mon 20/01/2025 10:44
To Grima Abigail at MHA - MDH <[redacted]>

Dear Abigail,

I confirm my assistance in a much needed topic within the Obstetrics and Gynaecology Department, MDH.

Regards,
Charmaine

Sent from Outlook for Android

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima

[redacted]

January 2025

Ms Antoinette Formosa
Midwifery Officer at Central Delivery Suite

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Dear Ms Formosa,

My name is Abigail Grima, and I am master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the Central Delivery Suite at Mater Dei Hospital by means of a one-time online questionnaire. I am anticipating that data collection will take place in May 2025.

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in the Central Delivery Suite via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

[redacted]

Abigail Grima
Master of Science in Midwifery Student

[redacted]

Dr. Rita Pace Parascandalo
Academic Research Supervisor

[redacted]

ANT. FORMOSA
11.2.25

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

[redacted]

Ms Doris Spagnol Abela
Midwifery Officer at Obstetric Ward 1

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Dear Ms Spagnol Abela,

My name is Abigail Grima, and I am master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within Obstetric Ward 1 at Mater Dei Hospital by means of a one-time online questionnaire. I am anticipating that data collection will take place in May 2025.

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in Obstetric Ward 1 via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356[redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356[redacted].

Your support is greatly appreciated.

Yours sincerely,

Abigail Grima
Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo
Academic Research Supervisor

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Ms Astrid Zarb
Midwifery Officer at Obstetric Ward 2

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Dear Ms Zarb,

My name is Abigail Grima, and I am master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr. Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within Obstetric Ward 2 at Mater Dei Hospital by means of a one-time online questionnaire. I am anticipating that data collection will take place in May 2025.

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in Obstetric Ward 2 via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

Abigail Grima

Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo

Academic Research Supervisor

Outlook

RE: Request for Permission and Intermediary Role for Research Study

From Zarb Astrid at MHA - MDH <[redacted]>
Date Sun 26/01/2025 08:24
To Grima Abigail at MHA - MDH <[redacted]>

Dear Abigail,

Trust this mail finds you well. I find no problem in helping out.

Regards

Astrid

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Ms Miriam Borg
Midwifery Officer at Obstetric Ward 3

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Dear Ms Borg,

My name is Abigail Grima, and I am master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within Obstetric Ward 3 at Mater Dei Hospital by means of a one-time online questionnaire. I am anticipating that data collection will take place in May 2025.

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in Obstetric Ward 3 via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

Abigail Grima

Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo

Academic Research Supervisor

Outlook

Re: Request for Permission and Intermediary Role for Research Study

From Borg Miriam at MHA - MDH <[redacted]>
Date Wed 22/01/2025 08:20
To Grima Abigail at MHA - MDH <[redacted]>

Dear Abigail noted with thanks Miriam Borg Sen Charge midwife.

Sent from Outlook for Android

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima

[redacted]

January 2025

Ms Maria Cassar
Midwifery Officer of the Discharge Liaison Midwives

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Dear Ms Cassar,

My name is Abigail Grima, and I am master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the Discharge Liaison Midwives at Mater Dei Hospital by means of a one-time online questionnaire. I am anticipating that data collection will take place in May 2025.

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in the Discharge Liaison Midwives via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital.

L-Università ta' Malta
Faculty of Health Sciences

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr. Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

[redacted]

Abigail Grima
Master of Science in Midwifery Student

[redacted]

Dr. Rita Pace Parascandalo
Academic Research Supervisor

[redacted]

L-Università ta' Malta
Faculty of Health Sciences

Abigail Grima
[redacted]

January 2025

Ms Winifred Buhagiar
Nursing Officer at the Neonatal and Paediatric Intensive Care Unit

Mater Dei Hospital
Triq id-Donaturi tad-Demm
L-Imsida
MSD 2090

Dear Ms Buhagiar,

My name is Abigail Grima, and I am master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"*The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives*".

The Midwifery Studies Dissertation Panel has approved my research title and finds no objection to the nature of the study, as it is not seen to be deceptive or unethical. Approval to conduct the research will also be sought from the Faculty of Health Sciences Research Committee, as well as from the University Research Ethics Committee if deemed necessary.

I am aware that I must strictly adhere to ethical issues when conducting such as study, especially regarding participants' anonymity. Therefore, I will be consulting with my academic research supervisor, Dr Rita Pace Parascandalo, throughout the research process.

I would be grateful if you could grant me permission to collect data from the midwives working within the Neonatal and Paediatric Intensive Care Unit at Mater Dei Hospital by means of a one-time online questionnaire. I am anticipating that data collection will take place in May 2025.

It would also be appreciated if you would kindly agree to act as an intermediary for the study. This would involve distributing an information letter to all eligible midwives working in the Neonatal and Paediatric Intensive Care Unit via email, which will consist of the details of the study, what it entails to participate and an online link to the questionnaire.

L-Università ta' Malta
Faculty of Health Sciences

In order to be considered eligible to participate in this study, midwives must be working in the Central Delivery Suite, Obstetric Wards 1/2/3, Neonatal and Paediatric Intensive Care Unit, Discharge Liaison Midwifery, or Midwifery Relieving Pool of the main public hospital.

If you require any further information, please do not hesitate to contact me via email on [redacted] or on +356 [redacted], or my supervisor, Dr Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

Your support is greatly appreciated.

Yours sincerely,

Abigail Grima

Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo

Academic Research Supervisor

Outlook

Re: Request for Permission and Intermediary Role for Research Study

From Buhagiar Winifred at MHA - MDH <[redacted]>
Date Tue 21/01/2025 14:42
To Grima Abigail at MHA - MDH <[redacted]>

Dear Abigail,

I have no objections regarding the study.

Regards,

Winifred Buhagiar
Charge Nurse

Appendix F

FREC Ethical Approval

L-Università ta' Malta

FHS-2025-00125 Abigail Grima

Research Ethics HEALTHSCI <[redacted]> 16 April 2025 at 15:20
To: [redacted]
Cc: Paulann Grech <[redacted]>, Rita Pace Parascandalo <[redacted]>

Dear Abigail,

I am pleased to inform you that FREC has reviewed your application and it was found to be consistent with the University of Malta Research Code of Practice.

Approval is therefore granted and you may start collecting data.

Since the data collection tool is self-designed, and so piloting is recommended, kindly provide FREC with the updated tool if there are any amendments following the pilot testing.

Good Luck with your study!

Sincere Regards,
Christabel

L-Università ta' Malta

Christabel Vella | Administration Specialist
B.A. (Hons) in Maltese

FREC Secretary
Faculty of Health Sciences
Room 6, Block A, Level 1
+356 [redacted]

L-Università ta' Malta

FHS-2025-00125 Abigail Grima

Paulann Grech <[redacted]> 1 August 2025 at 10:58
To: Abigail Grima <[redacted]>
Cc: Research Ethics HEALTHSCI <[redacted]>, Rita Pace Parascandalo <[redacted]>

Dear Abigail,

Thank you for the update. Approval is granted on behalf of FREC.

Please make sure that the updated tool forwarded to FREC has also been uploaded on the URECA portal, without track changes.

You may continue with your data collection.

Good luck.

Best wishes,

Paulann

L-Università ta' Malta

Prof. Paulann Grech
Ph.D.(Sheffield), M.Sc.(Psych.), M.Sc.(Hlth.Sci.)

Chair/ FREC - Faculty of Health Sciences
Department of Mental Health
Faculty of Health Sciences
Room 59, Block A, Level 1
+356 [redacted]

Appendix G

Questionnaire

L-Università ta' Malta
Faculty of Health Sciences

The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives

Questionnaire

Section 1: Demographic Information

1. What is your age?

☐ 20–29 years
☐ 30–39 years
☐ 40–49 years
☐ 50+ years

2. What is your highest level of education in midwifery?

☐ Diploma
☐ Bachelor's Degree
☐ Master's Degree
☐ PhD

3. What is your level of experience as a midwife?

☐ Less than 5 years
☐ 5–10 years
☐ 11–20 years
☐ More than 20 years

4. Which maternity setting do you currently work in?

☐ Central Delivery Suite
☐ Obstetric Ward 1
☐ Obstetric Ward 2
☐ Obstetric Ward 3
☐ Discharge Liaison Midwifery (DLM)
☐ Neonatal and Paediatric Intensive Care Unit (NPICU)
☐ Midwifery Relieving Pool
☐ Other (please specify): _____

Section 2: Physical Factors in the Birth Environment
Examples: lighting, temperature, space, equipment, etc.

5. How important do you consider the physical environment in influencing the childbirth experience?

- ☐ Not important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

6. To what extent do you agree that certain physical elements in the birth environment (e.g., adjustable lighting, availability of birthing aids) enhance the childbirth experience?

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

7. Which physical factors do you believe have an impact on the childbirth experience? (Please select all that apply)

- ☐ Lighting
- ☐ Room temperature
- ☐ Availability of birthing aids (e.g., birthing balls, mats)
- ☐ Privacy
- ☐ Space
- ☐ Sound levels/noise control
- ☐ Water immersion
- ☐ Other (please specify): _____

8. a) Rate the adequacy of physical facilities in the central delivery suite at your workplace to support a positive childbirth experience.

- ☐ Very inadequate
- ☐ Inadequate
- ☐ Neutral
- ☐ Adequate
- ☐ Very adequate

b) Explain your answer (Please write in the space provided)

_____

_____

9. a) In your opinion and/or experience, 'what' is the physical factor in the birth environment that impacts mostly the childbirth experience?

_____

b) Explain 'why' you selected this factor (Please write in the space provided)

_____

_____

Section 3: Psychological and Emotional Factors in the Birth Environment

Examples: support, control, safety, fear, anxiety, etc.

10. To what extent do you agree that the birth environment affects the psychological and emotional wellbeing of women during childbirth?

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

11. In your opinion and/or experience, how does the level of privacy in the birth environment influence a woman's emotional state during childbirth?

☐ Negatively impacts
☐ Has no impact
☐ Positively impacts

12. To what extent do you agree that the birth environment impacts the midwife-mother relationship?

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

13. Rate the importance of providing a calm and supportive atmosphere in the birth environment.

☐ Not important
☐ Slightly important
☐ Moderately important
☐ Very important
☐ Extremely important

14. Which of the following psychological and emotional factors do you believe are most influenced by the birth environment? (Select all that apply)

- ☐ Fear
- ☐ Anxiety
- ☐ Sense of control
- ☐ Sense of safety
- ☐ Confidence
- ☐ Relaxation
- ☐ Other (please specify): _____

15. a) In your opinion and/or experience, 'what' is the emotional factor in the birth environment that impacts mostly the childbirth experience?

_____

b) Explain 'why' you selected this factor (Please write in the space provided)

_____

_____

Section 4: Midwives' Practices in Enhancing the Birth Environment

16. How often do midwives actively make adjustments to the birth environment to improve the childbirth experience?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

17. Which of the following practices are commonly used by midwives to enhance the birth environment? (Select all that apply)

- ☐ Adjusting lighting
- ☐ Managing sound levels
- ☐ Encouraging the use of birthing aids
- ☐ Ensuring privacy
- ☐ Promoting mobility and positioning
- ☐ Other (please specify): _____

18. To what extent do midwives feel empowered to make changes to the birth environment to enhance the childbirth experience?

- ☐ Not empowered
- ☐ Slightly empowered
- ☐ Moderately empowered
- ☐ Very empowered
- ☐ Extremely empowered

19. How often does your institution support midwives' ability to adapt the birth environment?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

20. What specific change/s to the birth environment do you believe can have the greatest impact on the childbirth experience? (Please write in the space provided)

_____

_____

_____

21. What do you think are the main barriers that hinder midwives when attempting to optimise the birth environment? (Please write in the space provided)

_____

_____

_____

22. What recommendations would you make to improve birth environments in your workplace? (Please write in the space provided)

_____

_____

_____

Thank you for your participation!

Appendix H

Validation Forms

Content Validation Form

Thank you for agreeing to assist in the validation of my questionnaire, as part of the study

"The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives."

This study aims to examine midwives' views on the impact of the birth environment on the woman's childbirth experience, by addressing the following objectives:

1- To identify midwives' perceptions of physical factors in the birth environment that influence the woman's childbirth experience.
2- To assess midwives' perceptions of psychological and emotional factors in the birth environment that influence the woman's childbirth experience.
3- To evaluate midwives' reported practices in utilising the birth environment to enhance the woman's childbirth experience.

This content validation tool primarily assesses whether the questions are relevant to the study's objectives and whether they are clear and understandable for the target audience. The tool also ensures that all essential topics are covered, leaving no critical areas unaddressed. Additionally, it checks for consistency in the format and language of the questions. Expert feedback gathered through this tool helps refine the questionnaire, enhancing its reliability and validity to ensure accurate and meaningful study results.

Instructions: Kindly fill out the following socio-demographic questions, prior to commencing the content validation section of this form.

1. Age (in years)

☐ Under 30
☐ 30–39
☐ 40–49
☐ 50–59
☐ 60 and above

2. Highest Level of Education in Midwifery

☐ Bachelor's Degree
☐ Master's Degree
☐ Doctorate (PhD)

3. Current place of employment (please specify)

_____

4. Years of Experience in the Field

☐ Less than 5 years
☐ 5–10 years
☐ 11–15 years
☐ More than 15 years

5. Current Professional Role

☐ Senior midwife
☐ Charge midwife
☐ Practice midwife
☐ Academic midwife
☐ Other (please specify): _____

8. **Previous Experience with Survey/Questionnaire Development**

☐ Yes
☐ No

Instructions: Please review each question in the questionnaire and provide feedback using the scales and open-ended questions provided. Your input is crucial in ensuring that the questions are clear, relevant, and comprehensible.

For each question, rate the following:
a) Clarity: How clear and easy to understand is this question?
b) Relevance: How relevant is this question to the topic of the birth environment?

Section 1: Demographic Information

1. What is your age?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

2. What is your highest level of education in midwifery?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

3. What is your level of experience as a midwife?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

4. Which maternity setting do you currently work in?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

- Is there any question you would remove from this section?

_____

- Are there any additional questions you think should be included in this section?

_____

Section 2: Physical Factors in the Birth Environment

5. How important do you consider the physical environment (e.g., lighting, temperature, space) in influencing the childbirth experience?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

6. To what extent do you agree that certain physical elements in the birth environment (e.g., adjustable lighting, availability of birthing aids) enhance the childbirth experience?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

7. Which physical factors do you believe have an impact on the childbirth experience?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

8. Rate the adequacy of physical facilities in the central delivery suite at your workplace to support a positive childbirth experience.

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

9. In your opinion and/or experience, 'what' is the physical factor in the birth environment that impacts mostly the childbirth experience and 'why'?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

- Would you suggest any changes to improve the comprehension or relevance of the questions in this section?

_____

- Are there any further questions you would recommend adding to this section?

_____

Section 3: Psychological and Emotional Factors in the Birth Environment

10. To what extent do you agree that the birth environment affects the psychological and emotional wellbeing of women during childbirth?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

11. In your opinion and/or experience, how does the level of privacy in the birth environment influence a woman's emotional state during childbirth?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

12. Which of the following psychological and emotional factors do you believe are most influenced by the birth environment?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

13. Rate the importance of providing a calm and supportive atmosphere in the birth environment.

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

14. In your opinion and/or experience, 'what' is the emotional factor in the birth environment that impacts mostly the childbirth experience and 'why'?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

- Would you suggest any additional questions or modifications to improve the comprehension or relevance of the questions in this section?

  _____

- Are there any questions in this section that you find unclear or confusing?

  _____

Section 4: Midwives' Practices in Enhancing the Birth Environment

15. How often do midwives actively make adjustments to the birth environment to improve the childbirth experience?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

16. Which of the following practices are commonly used by midwives to enhance the birth environment?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

17. To what extent do midwives feel empowered to make changes to the birth environment to enhance the childbirth experience?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

18. How often do institutional policies or guidelines support midwives' ability to adapt the birth environment?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

19. What specific change to the birth environment do you believe can have the greatest impact on the childbirth experience?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

20. What do you think are the main barriers that hinder midwives when attempting to optimise the birth environment?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

21. What recommendations would you make to improve birth environments in your workplace?

	Very low	Low	Moderate	High	Very High
Clarity	☐	☐	☐	☐	☐
Relevance	☐	☐	☐	☐	☐

- How well do the questions in this section capture the necessary information?

  _____

- Are there any question you would add or remove from this section?

  _____

Face Validation Form

Thank you for agreeing to assist in the validation of my questionnaire, as part of the study

"The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives."

This study aims to examine midwives' views on the impact of the birth environment on the woman's childbirth experience, by addressing the following objectives:

1- To identify midwives' perceptions of physical factors in the birth environment that influence the woman's childbirth experience.
2- To assess midwives' perceptions of psychological and emotional factors in the birth environment that influence the woman's childbirth experience.
3- To evaluate midwives' reported practices in utilising the birth environment to enhance the woman's childbirth experience.

This face validation tool is designed to gather feedback on the comprehension, understandability, language, and time required to complete the questionnaire on the birth environment. Your feedback will help in refining the questionnaire to ensure it is clear, relevant, and user-friendly.

Instructions: Please indicate your level of agreement with the following statements about the questionnaire by selecting the number that best reflects your opinion.

Scale:
1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Statement	**1**	**2**	**3**	**4**	**5**
The layout and design of the questionnaire are visually appealing.	☐	☐	☐	☐	☐
The questionnaire is engaging and likely to maintain attention.	☐	☐	☐	☐	☐
The questions are clear and easy to understand.	☐	☐	☐	☐	☐
The questions are relevant to the topic of the birth environment.	☐	☐	☐	☐	☐
The terms and language used are appropriate for midwives.	☐	☐	☐	☐	☐
The questionnaire is an appropriate length for the target audience.	☐	☐	☐	☐	☐
The content comprehensively covers key aspects of the birth environment.	☐	☐	☐	☐	☐
The overall quality of the questionnaire is high.	☐	☐	☐	☐	☐

Optional Comments
Please use the space below for any additional feedback or suggestions for improvement:

_____

_____

_____

Appendix I

Participant Information Letter

L-Università ta' Malta
Faculty of Health Sciences

August 2025

Participant Information Letter

Dear Participant,

My name is Abigail Grima, and I am a master's student, currently following the course Master of Science in Midwifery at the Faculty of Health Sciences at the University of Malta. In partial fulfilment of the programme, I am undertaking a research project titled:

"The Influence of the Birth Environment on Childbirth Experiences:
A Quantitative Study of Midwives' Perspectives".

The aim of this research is to explore midwives' views on how the birth environment impacts the childbirth experience. Your participation in this study would help us gain a better understanding on what midwives' opinions are regarding this topic.

Should you choose to participate, you will be asked to fill in the online questionnaire linked below, which should take 5–10 minutes to complete. All submissions will be completely anonymous and at no point will you be asked to provide any personal or identifiable information. You will only be asked for information relevant to the study. All collected data will be used solely for research purposes and safely stored in a password-secured computer in encrypted format, which can only be accessed by the researcher.

Participation in this study is entirely voluntary, and consent will be implied through the filling in and submission of the questionnaire. Participation does not come with any direct benefits to you and does not entail any known or anticipated risks.

A copy of this information sheet is being provided for you to keep and for future reference.

After the completion of the study and findings are published, all collected data will be retained in its anonymous form.

This study has been approved by the Research Ethics Committee of the Faculty of Health Sciences at the University of Malta.

Thank you for your time and consideration. Should you have any questions or concerns, you can contact me, the researcher via email on [redacted] or on +356 [redacted], or my research supervisor, Dr Rita Pace Parascandalo via email on [redacted] or on +356 [redacted].

L-Università ta' Malta
Faculty of Health Sciences

Sincerely,

Abigail Grima

Master of Science in Midwifery Student

Dr. Rita Pace Parascandalo

Academic Research Supervisor

https://forms.gle/x9GXJBSZcGKnqnAR9

The Influence of the Birth Environment on Childbirth Experiences: A Quantitative Study of Midwives' Perspectives

Abigail Grima

A dissertation submitted in partial fulfilment for the Degree of Master of Science in Midwifery

Faculty of Health Sciences

University of Malta

December 2025

Word count approximately 27,500 words