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# Perineal Care, Childbirth Practices, and Maternal Health: A Survey

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## Abstract

This survey paper presents a comprehensive examination of perineal care, childbirth practices, and maternal health, emphasizing the critical role these elements play in ensuring maternal well-being during and after childbirth. The historical evolution of childbirth practices reveals a shift towards standardized and medicalized approaches, highlighting the need for continuous innovation in maternal care, particularly in low- and middle-income countries where birth-related perineal trauma (BPT) remains prevalent. Evidence-based practices, such as continuous support during labor and the use of warm compresses, have demonstrated efficacy in reducing perineal trauma and improving maternal outcomes. The integration of advanced technologies, including AI and expert systems like MatES, offers promising avenues to enhance perineal care practices. Cultural influences significantly impact childbirth practices, affecting birth location preferences and the normalization of harmful practices, thus underscoring the necessity for culturally sensitive care. The role of healthcare systems is pivotal, with systemic barriers such as inadequate training and resource constraints needing to be addressed to improve maternal health outcomes. Additionally, the influence of medical authority and social class on women's childbirth experiences necessitates interventions that prioritize women's autonomy and satisfaction. This paper advocates for the integration of evidence-based practices with cultural sensitivity to enhance maternal and neonatal health outcomes globally, emphasizing that addressing systemic challenges and promoting a culture of respect and informed choice are essential for improving the quality of maternal care worldwide.

## 1 Introduction

### 1.1 Overview of Perineal Care, Childbirth Practices, and Maternal Health

This survey examines perineal care, childbirth practices, and maternal health, emphasizing their critical roles in safeguarding maternal well-being during and after childbirth. Perineal care is essential due to the high incidence of perineal tears, particularly among primiparous women [1]. Effective practices in this area are vital for reducing birth-related perineal trauma, especially in low- and middle-income countries (LMICs), where data collection is necessary to address management gaps.

Childbirth practices are explored through the concepts of humanization and respectful care, advocating for a patient-centered approach [2]. The survey highlights women's experiences with midwives in urban Tanzania, showcasing both respectful and disrespectful care during labor [3]. Additionally, it investigates service providers' experiences of disrespect and abuse during facility-based childbirth in Addis Ababa, Ethiopia, aiming to enhance care standards [4]. The influence of biomedicine and social class on women's experiences and perceptions of childbirth in the United States is also examined [5].

Maternal health is analyzed through the Continuum of Care (CoC) framework, particularly in contexts like Pakistan, where maternal and neonatal mortality rates remain high [6]. The potential of mobile health (mHealth) programs to provide essential health information to underserved communities is

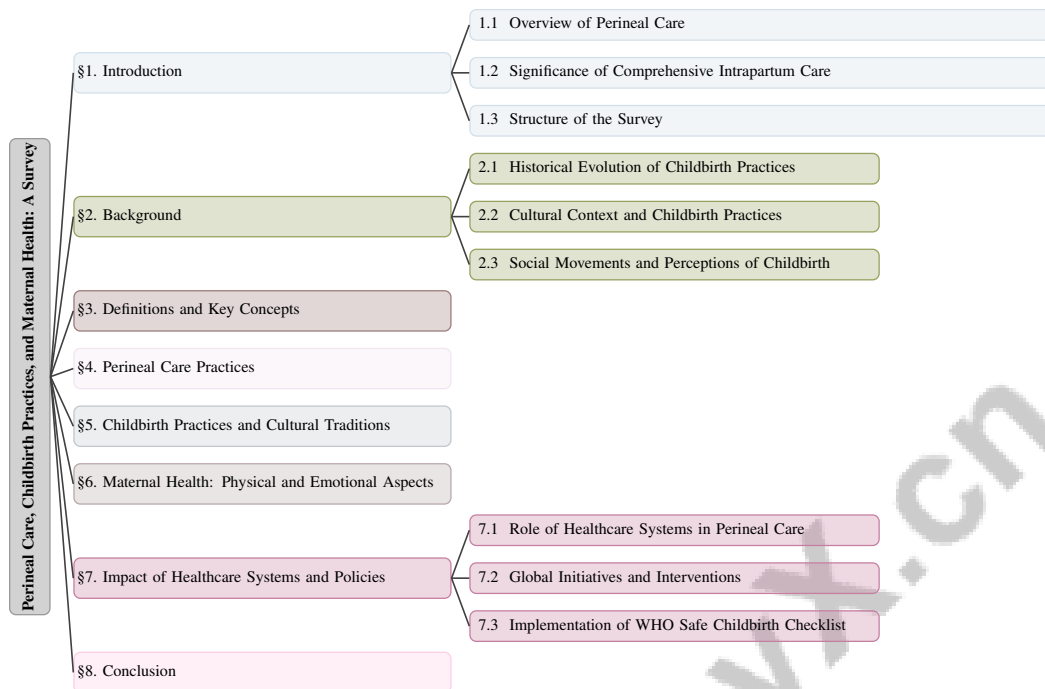


Figure 1: chapter structure

considered, addressing maternal mortality. The need for a comprehensive model of intrapartum care is emphasized, focusing on transforming childbirth experiences to optimize health and well-being [7].

In high-income countries, such as the United States, rising maternal mortality rates over the past two decades contrast with declining rates elsewhere, necessitating interventions that foster positive childbirth experiences [8]. Addressing the fear of childbirth and its negative impact on labor experiences highlights the need for effective coping strategies [9]. The survey aims to identify successful interventions that prevent psychological birth trauma, addressing a critical gap in understanding childbirth experiences [10]. This overview establishes a foundation for exploring the complex interplay between perineal care, childbirth practices, and maternal health, advocating for an integrated, evidence-based, and culturally sensitive approach to maternal care.

## 1.2 Significance of Comprehensive Intrapartum Care

Comprehensive intrapartum care is crucial for enhancing maternal and neonatal outcomes by integrating evidence-based practices (EBPs) and addressing systemic healthcare challenges. Disrespect and abuse (DA) during childbirth pose significant barriers to maternal health service utilization, underscoring the necessity for holistic care throughout labor and delivery [4]. The high incidence of birth-related perineal trauma (BPT) in LMICs further necessitates improved management practices to enhance maternal health outcomes [11].

Accurate estimation of second-degree perineal tears, obstetric anal sphincter injuries (OASI), and high vaginal tears in primiparous women underscores the importance of comprehensive care during childbirth [1]. Incorporating the CoC in maternal, newborn, and child health is particularly vital in regions like Pakistan, where inadequate provision and uptake contribute to high maternal and neonatal mortality rates [6]. The World Health Organization (WHO) recommends EBPs in intrapartum care, emphasizing the significance of a positive childbirth experience as part of comprehensive care [7].

Implementing humanization in childbirth practices amid a historically medicalized approach requires a shift toward more respectful and individualized care [2]. Integrated healthcare systems that address both medical and social determinants of maternal health are critical, particularly in light of rising maternal mortality rates in high-income countries like the United States [8]. The absence of effective strategies to prevent psychological trauma during childbirth further highlights the need for comprehensive care [10].

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Innovative approaches, such as the expert system MatES, aim to provide accessible medical guidance to health extension workers, reinforcing the importance of comprehensive care during labor and delivery [12]. Additionally, engaging men during pregnancy, childbirth, and infancy positively influences maternal and newborn health outcomes, emphasizing the multifaceted nature of comprehensive care [13]. The integration of strengths from randomized controlled trials (RCTs) and observational studies (OSs) to yield robust causal estimates further underscores the significance of comprehensive care in improving maternal outcomes [14]. Moreover, the decline in engagement with automated voice calls delivering maternal health information highlights the need for innovative solutions in comprehensive care [15]. Addressing these multifaceted challenges through comprehensive intrapartum care is vital for promoting positive maternal and neonatal health outcomes globally.

### 1.3 Structure of the Survey

The survey is systematically organized to provide an in-depth exploration of perineal care, childbirth practices, and maternal health, designed to facilitate a comprehensive understanding of these interconnected domains. The paper begins with an **Introduction** section that underscores the significance of perineal care, childbirth practices, and maternal health in ensuring maternal well-being during and after childbirth, along with an overview of these topics and the importance of comprehensive intrapartum care.

Following this is the **Background** section, which offers a historical and cultural context for the evolution of childbirth practices and their impact on maternal health. This section is divided into subsections that explore the historical evolution of childbirth practices, cultural influences, and the role of social movements in shaping childbirth perceptions.

The section titled **Definitions and Key Concepts** provides a comprehensive overview of crucial terminology, including perineal care, childbirth practices, and maternal health, establishing a foundational understanding of their significance in prenatal and postnatal care. This context is essential for addressing the complexities of maternal healthcare, especially concerning ethical considerations and systemic challenges highlighted in contemporary research, such as the need for improved care quality and management of birth-related perineal trauma in various healthcare settings [16, 17, 18, 19, 11].

The section on **Perineal Care Practices** delves into various practices employed during childbirth, emphasizing evidence-based methods for reducing perineal trauma and enhancing maternal outcomes. Subsections address the relationship between perineal care and birth-related trauma, evidence-based practices, and the impact of perineal massage.

The **Childbirth Practices and Cultural Traditions** section examines diverse childbirth practices and cultural traditions worldwide, analyzing their influence on maternal health outcomes and the importance of culturally sensitive care. This discussion encompasses the impact of cultural factors on preferences for birth locations, the normalization of harmful practices, and initiatives aimed at humanizing childbirth by promoting respectful and empathetic care for women while addressing systemic barriers that limit their choices and control during the birthing process [5, 20, 10, 2, 19].

The exploration of **Maternal Health: Physical and Emotional Aspects** focuses on the physical and emotional dimensions of maternal health during prenatal and postnatal periods. This section discusses physical health in relation to perineal care, emotional challenges, psychological support, and the impact of psychological birth trauma.

The **Impact of Healthcare Systems and Policies** section analyzes the role of healthcare systems and policies in shaping perineal care and childbirth practices. It reviews global initiatives aimed at improving maternal health outcomes and the implementation of the WHO Safe Childbirth Checklist.

Finally, the **Conclusion** synthesizes the key findings of the survey, reflecting on the implications for future research and practice in maternal health. This underscores the critical need to integrate evidence-based practices and cultural sensitivity into maternal care, as these elements enhance health outcomes for mothers worldwide and improve their overall childbirth experiences by addressing systemic disparities and fostering supportive clinician-patient relationships [5, 16, 10, 13, 15]. The following sections are organized as shown in Figure 1.

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## 2 Background

### 2.1 Historical Evolution of Childbirth Practices

The evolution of childbirth practices is closely linked to socio-cultural and medical advancements, significantly impacting contemporary maternal care. In regions like Uttar Pradesh, India, inadequate quality of essential care during childbirth contributes to high maternal and neonatal mortality rates, highlighting the urgent need for improvements in maternal healthcare [20]. In urban Tanzania, midwifery practices have shifted from traditional methods to more standardized, evidence-based approaches, mirroring broader trends in low- and middle-income countries (LMICs) [3]. However, the management of birth-related perineal trauma (BPT) during vaginal deliveries remains underreported and poorly managed in many LMICs, indicating a need for further evolution in care practices [11].

Historically, obstetric violence has manifested as patterns of disrespect and abuse during childbirth across various cultural contexts [21]. This has catalyzed a shift towards more respectful and humanized childbirth practices, aiming to enhance maternal satisfaction and overall experience. In the United States, disparities in maternal mortality rates, particularly among non-Hispanic black women, underscore ongoing challenges in achieving equitable maternal care, arising from socio-economic, racial, and healthcare system factors [8].

The Continuum of Care (CoC) model emphasizes integrated care systems spanning pregnancy, childbirth, and postpartum care, highlighting the necessity of comprehensive antenatal care (ANC), skilled birth attendance (SBA), and postnatal care (PNC) to improve maternal and neonatal health outcomes [6]. Engaging men in maternal and newborn health care aims to improve outcomes in LMICs, reflecting evolving gender dynamics in childbirth practices [13]. Moreover, existing question-answering systems often fail to correct implicit assumptions in user inquiries regarding maternal health, perpetuating harmful beliefs, thus indicating a need for more robust educational tools [19].

The evolution of childbirth practices illustrates a complex interaction between traditional customs and contemporary medical advancements, necessitating ongoing innovation and adaptation in maternal care to address global disparities, enhance patient autonomy, and incorporate diverse cultural perspectives. This dynamic underscores the influence of medical hegemony and social determinants on women's experiences during childbirth, emphasizing the importance of ethical frameworks and holistic approaches in improving maternal health outcomes worldwide [6, 5, 16].

### 2.2 Cultural Context and Childbirth Practices

Cultural influences significantly shape childbirth practices, resulting in diverse approaches across societies. Cultural norms and traditions often impact women's experiences during childbirth, sometimes perpetuating practices that conflict with modern healthcare standards. The normalization of harmful practices can obscure the recognition of obstetric violence, affecting women's autonomy and their ability to advocate for respectful and safe childbirth experiences [21].

In Uttar Pradesh, India, cultural practices, geographical inaccessibility, and poor service quality are primary barriers to accessing necessary maternal healthcare [20]. These challenges are exacerbated by inadequate resources and lack of health education, hindering the adoption of evidence-based practices. Similarly, in Pakistan, cultural practices and socio-economic barriers significantly impede access to skilled healthcare providers and essential services, contributing to high maternal and neonatal mortality rates [6].

The diversity of childbirth practices reflects a complex interplay between cultural traditions and healthcare systems. A comprehensive understanding of these contexts is essential for healthcare providers to deliver culturally sensitive care that honors women's individual choices while promoting safe and effective childbirth practices. This requires recognizing power dynamics in clinician-patient relationships, addressing systemic health disparities, and prioritizing women's voices in decision-making. By integrating insights from research on the intersections of medical authority, social class, and technology in maternal healthcare, providers can better navigate the challenges of offering respectful and informed care [5, 16]. Efforts to incorporate cultural competence into maternal healthcare can bridge the gap between traditional practices and modern medical advancements, ultimately enhancing maternal and neonatal health outcomes globally.

## 2.3 Social Movements and Perceptions of Childbirth

Social movements have profoundly influenced perceptions and practices surrounding childbirth, challenging the normalization of disrespect and abuse (DA) during labor and delivery. These movements advocate for respectful maternity care, promoting autonomy and informed choice while opposing the medicalization that often accompanies technological advancements [4, 5]. The medicalization of childbirth, driven by technological interventions, has shifted the focus from natural birthing processes to clinical approaches, leading to unnecessary interventions and high levels of mistreatment reported by women [7]. The lack of standardization in labor practices and insufficient characterization of populations in current studies complicate efforts to address these challenges [11].

While integrating male involvement in maternal health care shows promise, it faces obstacles due to limited direct evidence of its effectiveness on mortality and morbidity outcomes [13]. The need for improved communication, data integration, and real-time processing in maternal health monitoring underscores ongoing challenges in adapting to the evolving landscape of childbirth practices [22].

Social movements are increasingly pivotal in transforming childbirth practices and societal perceptions, advocating for a humanized and respectful approach that emphasizes women's rights, dignity, and well-being during childbirth. This movement calls for practices grounded in empathy, dialogue, and recognition of individual women's needs, as research indicates that humanization of childbirth involves both the ethical responsibilities of healthcare professionals and the empowerment of women to make informed choices regarding their care. Evidence shows that respectful maternity care is essential for improving health outcomes, fostering positive interactions between women and healthcare providers, and enhancing the overall childbirth experience [23, 5, 3, 7, 2].

In examining the complexities of maternal health and childbirth practices, it is essential to understand the interconnectedness of various factors that influence outcomes. As depicted in Figure 2, this figure illustrates the hierarchical structure of key concepts in maternal health and childbirth practices. It highlights the importance of perineal care, along with the socio-cultural and medical influences that shape childbirth practices. Furthermore, the figure delineates the components of maternal health and emphasizes the integration of these concepts into prenatal and postnatal care frameworks, which are crucial for improving both maternal and neonatal outcomes. This visual representation serves to enhance our understanding of how these elements interact and contribute to the overall health of mothers and their infants.

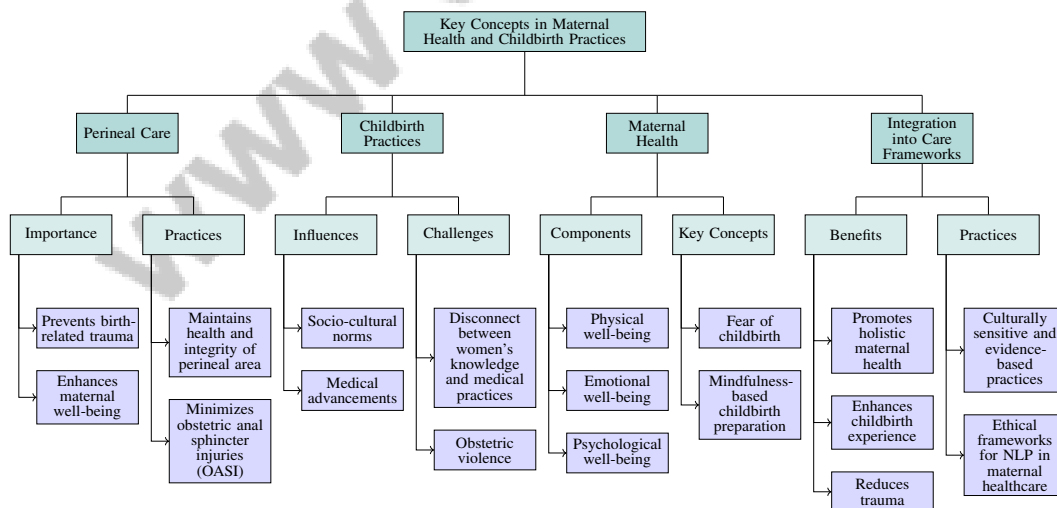


Figure 2: This figure illustrates the hierarchical structure of key concepts in maternal health and childbirth practices, highlighting the importance of perineal care, the socio-cultural and medical influences on childbirth practices, the components of maternal health, and the integration of these concepts into prenatal and postnatal care frameworks for improved maternal and neonatal outcomes.

### 3 Definitions and Key Concepts

#### 3.1 Definitions and Key Concepts

Understanding perineal care, childbirth practices, and maternal health is vital for effective prenatal and postnatal care, particularly in regions like Pakistan, where structured care pathways can significantly reduce maternal and neonatal mortality and morbidity [24, 7, 6, 16]. Perineal care, essential for preventing birth-related trauma and enhancing maternal well-being, involves maintaining the health and integrity of the perineal area during and after childbirth. Evidence-based practices in this area are crucial for minimizing obstetric anal sphincter injuries (OASI) and improving maternal outcomes.

Childbirth practices, shaped by socio-cultural norms and medical advancements, impact maternal autonomy and care quality. Often, a disconnect exists between women's knowledge and authoritative medical practices, limiting their influence over childbirth procedures and affecting their sense of agency and satisfaction [5]. The prevalence of obstetric violence—any act of disrespect or abuse towards women during childbirth—underscores the urgent need for respectful, humanized care that prioritizes women's autonomy and well-being [21].

Maternal health includes the physical, emotional, and psychological well-being of women during prenatal and postnatal periods. Concepts such as 'fear of childbirth' and 'mindfulness-based childbirth preparation' are integral to understanding maternal health in the context of labor [9]. Negative childbirth experiences can lead to psychological birth trauma (PBT) and associated morbidities, highlighting the importance of supportive care environments to mitigate these risks [10].

Integrating these concepts into prenatal and postnatal care frameworks is essential for promoting holistic maternal health. Addressing both the physical and emotional needs of mothers enhances the childbirth experience, reduces trauma, and supports positive maternal and neonatal outcomes. Incorporating culturally sensitive and evidence-based practices in maternal health services not only improves effectiveness but also respects the diverse needs and preferences of women.

As illustrated in Figure 3, the hierarchical structure of key concepts in maternal health and childbirth practices emphasizes the interconnectedness of perineal care, childbirth practices, and maternal health. Each category highlights distinct yet interrelated aspects such as preventing birth trauma, addressing socio-cultural norms, and fostering emotional well-being. Ethical frameworks for the use of natural language processing (NLP) in maternal healthcare emphasize the significance of contextual understanding, holistic measurements, and valuing the perspectives of affected individuals, thereby addressing systemic health disparities and fostering respectful clinician-patient relationships. Qualitative studies indicate that the quality of care, encompassing both respectful and disrespectful practices, significantly influences women's childbirth experiences, underscoring the necessity for healthcare providers to prioritize empathy, privacy, and informed consent in patient interactions [3, 16].

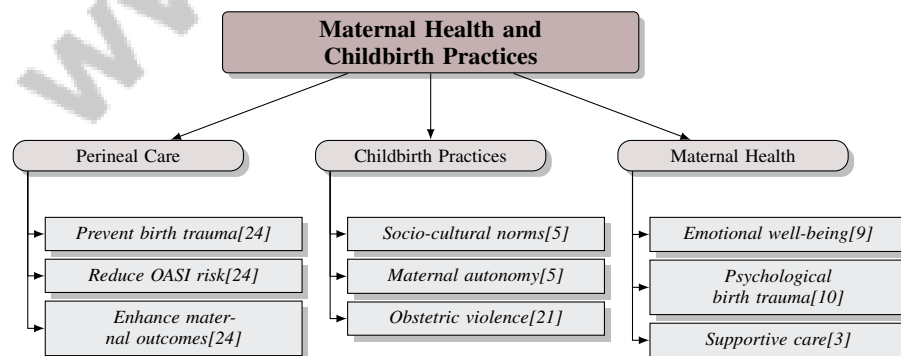


Figure 3: This figure illustrates the hierarchical structure of key concepts in maternal health and childbirth practices, highlighting the importance of perineal care, childbirth practices, and maternal health. Each category emphasizes different aspects such as preventing birth trauma, socio-cultural norms, and emotional well-being.

## 4 Perineal Care Practices

Category	Feature	Method
Perineal Care and Birth-Related Trauma	Analytical Approaches	PIE-QA[19], TPSA[14]
Evidence-Based Practices for Reducing Perineal Trauma	Structured Implementation	MatES[12], BP[23]
	Psychological Resilience Techniques	MIL[9]
	AI and Technology Integration	CDG-T[25], AI-SI[15]

Table 1: This table summarizes the various methods and approaches related to perineal care and birth-related trauma, as well as evidence-based practices aimed at reducing perineal trauma. It categorizes these methods into analytical approaches, structured implementation, psychological resilience techniques, and AI and technology integration, highlighting the diverse strategies employed to improve maternal health outcomes.

Perineal care is crucial in maternal health, affecting women’s physical and psychological experiences during childbirth. This section explores the relationship between perineal care and birth-related trauma, emphasizing interventions and systemic factors that mitigate these risks. Table 3 provides a comprehensive overview of the methods and strategies employed in perineal care and birth-related trauma, emphasizing evidence-based practices and technological innovations aimed at reducing trauma and enhancing maternal health outcomes.

### 4.1 Perineal Care and Birth-Related Trauma

The association between perineal care and birth-related trauma is significant, particularly in vaginal deliveries. Injuries such as episiotomies, second-degree tears, and obstetric anal sphincter injuries (OASI) profoundly impact maternal health [10]. The occurrence of second-degree perineal tears remains high, particularly among first-time mothers, with a reported incidence of 40.6% [14].

Quality perineal care practices are essential for preventing and managing trauma. Evidence-based interventions, including continuous labor support and relaxation techniques, enhance the childbirth experience and reduce trauma [10]. Integrating data from randomized controlled trials and observational studies further optimizes these practices [14].

Systemic healthcare factors also influence trauma incidence. Lack of standardized methods for identifying maternal deaths and inconsistent data reporting impede effective trauma management [8]. Improving communication and addressing implicit beliefs can enhance responses to maternal health concerns, reducing misinformation and increasing satisfaction [19].

Technological advancements, such as the Maternal Care Expert System (MatES), play a crucial role in diagnosing and managing maternal health issues, potentially reducing trauma incidence through timely guidance [12]. AI-driven interventions also ensure timely support, improving health knowledge and practices [15].

The interplay between perineal care and systemic healthcare challenges necessitates comprehensive maternal care strategies. Addressing clinician-patient dynamics, health disparities, and establishing a structured continuum of care from pregnancy to postpartum is crucial. Integrating ethical frameworks and inclusive design principles in healthcare technologies, like natural language processing tools, better serves birthing individuals [6, 16]. Effective perineal care practices, combined with strategic interventions and technological innovations, are key to reducing trauma and improving maternal health outcomes globally.

### 4.2 Evidence-Based Practices for Reducing Perineal Trauma

Implementing evidence-based practices (EBPs) is vital for minimizing perineal trauma during childbirth. Warm compresses during the second stage of labor significantly increase the likelihood of an intact perineum while reducing severe trauma and the need for episiotomy [26]. This practice not only reduces physical trauma but also enhances maternal comfort [10]. Table 2 presents a comprehensive overview of various evidence-based practices and their contributions to reducing perineal trauma, emphasizing the integration of intervention techniques and technologies to enhance maternal outcomes.

As illustrated in Figure 4, various evidence-based practices for reducing perineal trauma are highlighted, including the roles of warm compresses, the WHO Safe Childbirth Checklist, and advanced

Method Name	Intervention Techniques	Technological Integration	Outcome Enhancement
BP[23]	Peer Coaching	-	Improved Adherence
MatES[12]	-	Mates	Maternal Health
AI-SI[15]	Live Service Calls	AI Algorithms	Improved Health Outcomes
MIL[9]	Mindfulness Training	-	Maternal Mental Health
CDG-T[25]	-	Causal Datasheet	Maternal Outcomes

Table 2: Summary of intervention techniques, technological integrations, and outcome enhancements associated with various evidence-based practices aimed at reducing perineal trauma during childbirth. The table highlights the specific methods employed, the integration of technological tools, and the resultant improvements in maternal and neonatal health outcomes.

technologies like MatES and AI-scheduled interventions, all of which contribute to improving maternal outcomes.

Incorporating the WHO’s Safe Childbirth Checklist, as demonstrated in the BetterBirth Program, improves adherence to essential birth practices and enhances maternal and neonatal outcomes [23]. Systematic approaches like these promote the adoption of EBPs that effectively reduce perineal trauma.

Advanced technologies, such as MatES, which uses a rule-based approach to suggest treatment options, represent innovative EBPs that can reduce trauma and improve outcomes [12]. AI’s role in efficiently scheduling interventions ensures timely support, enhancing health knowledge and practices [15].

The Mind in Labor (MIL) program, integrating mindfulness techniques, helps women cope with labor pain and fear, potentially reducing the psychological impact of labor and enhancing outcomes [9]. Tools like the Causal Datasheet Generation Tool (CDG-T) facilitate synthetic dataset generation, providing insights into optimizing perineal care practices [25].

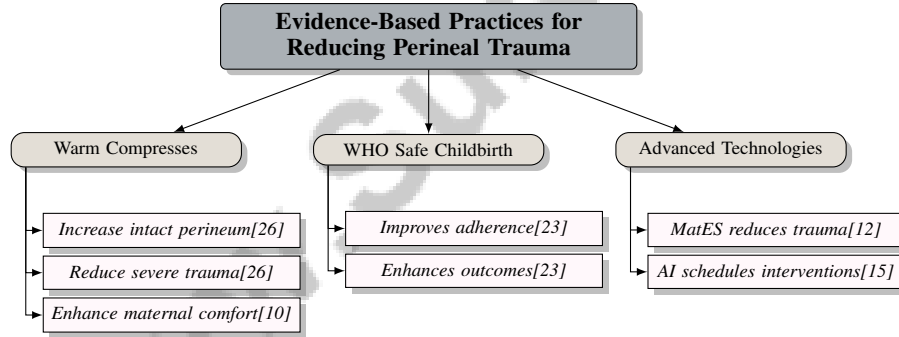


Figure 4: This figure illustrates evidence-based practices for reducing perineal trauma, highlighting the roles of warm compresses, WHO Safe Childbirth Checklist, and advanced technologies like MatES and AI-scheduled interventions in improving maternal outcomes.

### 4.3 Perineal Massage and Its Impact on Maternal Outcomes

Perineal massage during the antenatal period and labor has proven effective in improving maternal outcomes by reducing trauma incidence. This technique, involving gentle stretching and massaging of perineal tissues, increases tissue elasticity, decreasing the likelihood of tears and episiotomies [24].

Warm compresses during the second stage of labor complement perineal massage, further increasing intact perineum incidence and decreasing severe trauma and episiotomy rates, enhancing maternal comfort and satisfaction [26]. Integrating these practices offers a holistic approach to perineal care, ultimately improving birth outcomes and maternal well-being.

Incorporating perineal massage into routine antenatal care empowers women, fostering a sense of control and reducing labor-related anxiety. When combined with supportive measures like warm compresses, this practice contributes to a positive childbirth experience, minimizing physical trauma and promoting faster postpartum recovery. Emphasizing non-invasive, patient-centered interventions highlights the need for individualized care plans that prioritize maternal preferences and outcomes



while addressing systemic disparities and ensuring qualified personnel deliver care, as evidenced by recent studies emphasizing ethical frameworks and technological advancements in maternal healthcare [17, 18, 16, 22].

Feature	Perineal Care and Birth-Related Trauma	Evidence-Based Practices for Reducing Perineal Trauma	Perineal Massage and Its Impact on Maternal Outcomes
Technique	Labor Support	Warm Compresses	Massage Stretching
Outcome Impact	Trauma Reduction	Intact Perineum	Reduced Tears
Technological Integration	Mates System	AI Interventions	Not Specified

Table 3: This table presents a comparative analysis of various perineal care techniques and their impact on birth-related trauma and maternal outcomes. It highlights the role of labor support, warm compresses, and perineal massage in reducing perineal trauma, alongside the integration of technological interventions such as the Maternal Care Expert System and AI-driven approaches. The table underscores the significance of evidence-based practices in enhancing maternal health and reducing the incidence of perineal injuries during childbirth.

## 5 Childbirth Practices and Cultural Traditions

### 5.1 Cultural Influences on Birth Location Preferences

Cultural beliefs significantly influence birth location preferences, impacting childbirth experiences and health outcomes. In many societies, cultural norms favor home births or traditional settings over institutional healthcare facilities, particularly where socio-economic and cultural factors intersect, affecting access to skilled birth attendants and essential maternal healthcare [20]. In Uttar Pradesh, India, home births remain prevalent despite associated risks, driven by cultural beliefs and infrastructural barriers, and reinforced by distrust in healthcare facilities perceived as impersonal or dismissive of traditional practices. These preferences can limit access to skilled providers and essential services, contributing to higher maternal and neonatal mortality rates [6].

Many cultures view childbirth as a natural process best undertaken at home, surrounded by family, contrasting with the medicalized hospital births that may involve perceived unnecessary interventions. Addressing these cultural influences requires a nuanced understanding of socio-cultural contexts and the development of culturally sensitive healthcare policies that respect women’s choices while promoting safe childbirth practices [21].

As illustrated in Figure 5, the cultural influences on birth location preferences are multifaceted, highlighting the impact of cultural beliefs, healthcare barriers, and the pressing need for culturally sensitive policies to improve maternal and neonatal health outcomes. Healthcare providers can enhance maternal care quality by reconciling traditional preferences with contemporary medical practices. Culturally competent care that respects and integrates women’s beliefs can address systemic health disparities and improve clinician-patient relationships, acknowledging diverse populations’ unique needs and values [3, 5, 16]. Recognizing and addressing cultural influences on birth location preferences enables healthcare systems to better support women’s autonomy and improve maternal and neonatal health outcomes globally.

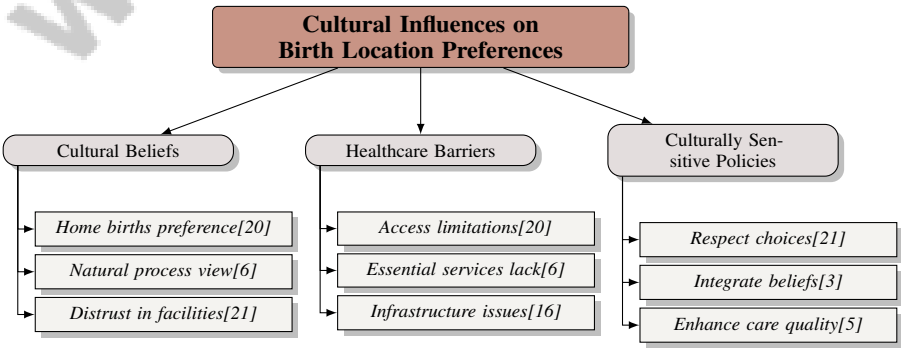


Figure 5: This figure illustrates the cultural influences on birth location preferences, highlighting the impact of cultural beliefs, healthcare barriers, and the need for culturally sensitive policies to improve maternal and neonatal health outcomes.

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## 5.2 Cultural Normalization of Harmful Practices

Culturally normalized childbirth practices can significantly impact maternal health, often perpetuating risks misaligned with evidence-based medical standards. These practices, deeply rooted in cultural traditions, may contribute to obstetric violence, characterized by disrespectful and abusive treatment during childbirth [21]. This issue is prevalent in regions where traditional practices intertwine with societal norms, leading to the acceptance of practices that compromise maternal safety [21]. Obstetric violence manifests through non-consensual medical interventions, dehumanizing treatment, and neglect during childbirth, undermining women's dignity and autonomy, and increasing the likelihood of adverse health outcomes.

Addressing the normalization of harmful practices requires community education, policy reform, and the promotion of respectful maternity care. Raising awareness about the potential risks of specific cultural practices, alongside culturally sensitive education and support, can empower women to make informed decisions about their childbirth experiences. This empowerment is crucial for improving psychological well-being and reducing adverse outcomes such as psychological birth trauma or post-traumatic stress disorder. Effective strategies, such as providing labor support and minimizing interventions during childbirth, can foster positive birth experiences, enhancing women's autonomy [20, 10, 5, 19]. Cultivating a culture of respect and informed choice enables healthcare providers to eliminate harmful practices that jeopardize maternal health and well-being.

## 5.3 Humanization of Childbirth

Efforts to humanize childbirth emphasize creating a supportive and respectful environment that prioritizes women's needs and choices. This movement advocates for a shift from the traditional, medicalized approach, which often prioritizes clinical efficiency over the personal experiences of mothers [2]. A patient-centered model of care that respects women's autonomy, preferences, and cultural values promotes a respectful and individualized birthing experience. Recognizing childbirth as a significant life event, rather than merely a medical procedure, encourages women's involvement in decision-making, ensuring their voices are heard throughout the process. The humanization movement also highlights the importance of a supportive environment where women feel empowered during labor and delivery [5].

In various cultural contexts, humanizing childbirth involves integrating traditional practices with modern medical care, fostering an environment that respects women's choices while ensuring safety [21]. This approach addresses historical patterns of disrespect and abuse in childbirth by promoting practices that prioritize women's dignity and autonomy [4]. Healthcare providers play a crucial role in this transformation by adopting a patient-centered approach that emphasizes communication, empathy, and support throughout childbirth [2]. By fostering a culture of respect and understanding, providers can contribute to positive childbirth experiences, ensuring that women's needs and preferences are acknowledged.

The humanization of childbirth aligns with global initiatives aimed at improving maternal health outcomes by promoting respectful maternity care and reducing instances of obstetric violence [4]. By integrating evidence-based practices with cultural sensitivity, healthcare systems can create a more humane and supportive environment for childbirth, ultimately enhancing mothers' physical and emotional well-being worldwide.

# 6 Maternal Health: Physical and Emotional Aspects

## 6.1 Physical Health and Perineal Care

Perineal care is vital for maternal health during childbirth, especially in low- and middle-income countries (LMICs) where birth-related perineal trauma is prevalent. Approximately 46% of vaginal births in these regions result in perineal trauma, with significant health risks such as infections and incontinence [1, 21, 24, 26, 11]. Evidence-based practices (EBPs), including perineal massage, can reduce severe tears and the need for episiotomies, enhancing maternal outcomes [10, 24]. The WHO emphasizes the importance of EBPs in promoting positive childbirth experiences [7]. However, standardization challenges and cultural barriers in LMICs hinder consistent application [5].

To illustrate these dynamics, Figure 6 presents a comprehensive overview of the key aspects of perineal care in maternal health. This figure highlights the evidence-based practices, the challenges faced in LMICs, and the technological solutions aimed at improving maternal outcomes. Technological advancements, like the Maternal Expert System (MatES) and AI-driven approaches, offer promising solutions for improving perineal care [12, 27]. Furthermore, lactation's impact on postpartum weight illustrates the interconnectedness of perineal care with overall maternal health [14]. Addressing standardization challenges is crucial for optimizing maternal health outcomes [11].

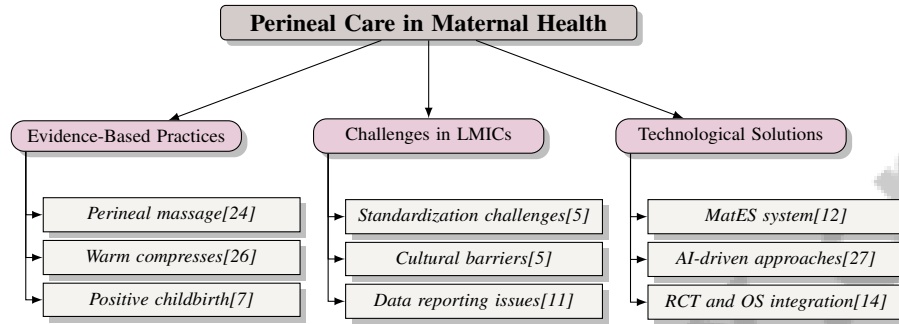


Figure 6: This figure illustrates the key aspects of perineal care in maternal health, highlighting evidence-based practices, challenges in low- and middle-income countries (LMICs), and technological solutions aimed at improving maternal outcomes.

## 6.2 Emotional Health and Psychological Support

Emotional health is critical for maternal well-being, with psychological support mitigating pre-natal and postnatal challenges. Mistreatment during childbirth significantly increases postpartum depression risk, underscoring the need for respectful care practices [28]. Mindfulness training and humanized childbirth practices enhance psychological support and patient satisfaction [9, 2]. Addressing disrespect and abuse (DA) issues requires comprehensive training for healthcare providers to ensure respectful care [4]. Future research should focus on psychological birth trauma and interventions for fear of childbirth, considering women's autonomy and empowerment [10, 13]. Integrating psychological support into maternal care can prevent postpartum depression and enhance the childbirth experience [15, 10, 28, 16].

## 6.3 Psychological Birth Trauma

Psychological birth trauma significantly affects maternal mental health, with traumatic experiences potentially leading to postpartum depression [28]. Factors such as DA during labor and inadequate support exacerbate emotional distress [29]. While practices like warm compresses can reduce perineal trauma, further research is needed to optimize care and minimize psychological trauma risks [26]. Future studies should explore interventions like exercise during pregnancy for postpartum recovery and child development [17]. Addressing psychological trauma requires comprehensive documentation, effective communication, and ongoing support for mothers [29]. A supportive environment can significantly reduce psychological trauma and improve maternal mental health outcomes.

## 7 Impact of Healthcare Systems and Policies

Healthcare systems play a crucial role in shaping maternal care practices, particularly perineal care, which is vital for maternal health outcomes. This section examines systemic factors such as infrastructure, resource allocation, and policy frameworks, which significantly influence perineal care, especially in low- and middle-income countries (LMICs) where perineal trauma rates are high. By analyzing the continuum of maternal health care and the role of innovative technologies like artificial intelligence (AI) in health information delivery, the need for enhanced reporting and management strategies to improve maternal and neonatal health outcomes is underscored [15, 6, 11, 16].

## 7.1 Role of Healthcare Systems in Perineal Care

Benchmark	Size	Domain	Task Format	Metric
QC-EC[18]	275	Maternal Health	Quality Assessment	Overall Quality Score, Adherence Rate
PMBL[24]	3,374	Obstetrics	Meta-analysis	Relative Risk, Confidence Interval
MNM[30]	36,162	Obstetric Health	Incidence Estimation And Quality OF Care Assessment	MNM ratio, Intra-hospital MMR
POPRACT[1]	644	Obstetrics	Incidence Estimation And Risk Factor Analysis	aOR
MMR[31]	3,667,758	Maternal Health	Statistical Analysis	Maternal Mortality Rate, Statistical Significance

Table 4: This table provides a comprehensive overview of various benchmarks related to maternal and obstetric health, detailing their size, domain, task format, and evaluation metrics. The benchmarks include studies on quality assessment, meta-analysis, incidence estimation, and statistical analysis, offering insights into maternal health outcomes and care quality.

Healthcare systems significantly shape perineal care practices and maternal outcomes through healthcare delivery and policy implementation. Integrating evidence-based practices (EBPs) is essential for improving maternal care quality and addressing the high incidence of birth-related perineal trauma. The Maternal Care Expert System (MatES) exemplifies how timely medical advice can enhance perineal care management [12]. However, systemic barriers like inadequate training and resource constraints, especially in LMICs, hinder EBP application [20]. Addressing these barriers requires understanding cultural contexts and developing targeted interventions for specific populations [6]. Identifying key determinants in the Continuum of Care (CoC) can guide effective healthcare system responses to unique challenges [6]. Table 4 presents a detailed compilation of benchmarks relevant to understanding the impact of healthcare systems on perineal care practices and maternal outcomes.

Advanced technologies, such as AI-based systems, offer potential for personalizing interventions and enhancing engagement, leading to improved health outcomes [15]. These technologies enable real-time data collection and analysis, informing policy decisions and clinical guidelines [19]. Addressing disrespect and abuse (DA) in maternal care settings is also crucial, as these negatively impact maternal health outcomes [4]. Promoting humanized and respectful care practices can shift the focus from medicalized childbirth to prioritizing women’s needs and choices, enhancing maternal satisfaction and care quality [2].

Engaging men and incorporating multi-component interventions are vital for comprehensive maternal health care [13]. Involving men in maternal health initiatives addresses gender dynamics influencing maternal outcomes, ensuring a holistic care approach.

Healthcare systems profoundly impact perineal care practices and maternal outcomes. Integrating advanced technologies like natural language processing (NLP) and Medical Cyber-Physical Systems (MCPS) can address systemic barriers and promote culturally sensitive care, significantly improving maternal health service quality. These innovations enhance clinician-patient interactions and facilitate real-time monitoring of maternal risk factors, leading to better global maternal health outcomes. Prioritizing ethical frameworks and inclusive design ensures technological advancements meet the diverse needs of birthing individuals, reducing health disparities [16, 22].

## 7.2 Global Initiatives and Interventions

Global initiatives and interventions have advanced maternal health and perineal care by addressing multifaceted challenges faced by mothers worldwide. A primary focus is promoting respectful maternity care (RMC) to combat disrespect and abuse (DA) during childbirth, significantly affecting maternal health outcomes [4]. These initiatives ensure women receive care that respects their dignity and autonomy, enhancing maternal healthcare quality.

A notable global effort is the World Health Organization’s (WHO) Safe Childbirth Checklist, improving adherence to essential birth practices and enhancing maternal and neonatal health outcomes [23]. This checklist is a vital resource for healthcare providers, ensuring critical practices are consistently applied during labor and delivery, reducing adverse outcomes.

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Technological advancements have played a crucial role in global maternal health initiatives. The Maternal Care Expert System (MatES) in Ethiopia demonstrates how technology can improve maternal health outcomes by providing accessible medical guidance to health extension workers [12]. This system highlights the importance of leveraging technology to support healthcare providers in low-resource settings, ensuring timely and accurate medical interventions.

Telemonitoring systems enhance maternal health outcomes by facilitating continuous monitoring and timely interventions [22]. These systems allow healthcare providers to remotely track maternal health indicators, enabling prompt responses and reducing complication risks.

Integrating artificial intelligence (AI) and machine learning techniques, such as the Bayesian collaborative bandits approach, represents a significant advancement in global maternal health initiatives [27]. These technologies enhance maternal health interventions by providing personalized support and addressing equity in health information access among marginalized communities, improving access to essential maternal health information.

### **7.3 Implementation of WHO Safe Childbirth Checklist**

The adoption of the World Health Organization's (WHO) Safe Childbirth Checklist marks a significant advancement in improving maternal and newborn care during childbirth. This checklist comprises 29 essential birth practices aimed at enhancing care quality provided by birth attendants, reducing maternal and neonatal mortality and morbidity [29]. Its implementation has significantly improved adherence to these practices, especially when combined with peer coaching, supporting birth attendants in effectively integrating these practices into routine care [23].

The checklist systematically guides healthcare providers through essential childbirth phases, minimizing the risk of overlooking vital interventions that enhance maternal and neonatal outcomes. Adherence to evidence-based essential birth practices outlined in the WHO Safe Childbirth Checklist has substantially reduced maternal and perinatal mortality rates, as demonstrated by successful quality improvement initiatives in various healthcare settings [23, 16, 7, 29, 18]. This systematic approach enhances care consistency and quality and empowers healthcare providers to deliver more comprehensive and effective maternal and newborn care. By fostering a culture of accountability and continuous improvement, the checklist contributes to establishing safer and more supportive childbirth environments.

The WHO Safe Childbirth Checklist profoundly impacts maternal care, addressing common challenges in low-resource settings where access to skilled birth attendants and essential medical supplies may be limited. By standardizing care practices and providing clear guidelines, this initiative addresses significant disparities in maternal and neonatal care, ensuring all women receive a consistently high standard of care regardless of geographical location or socio-economic status. This approach enhances adherence to essential birth practices and contributes to improved health outcomes, as evidenced by increased compliance rates and reductions in maternal and perinatal mortality across various healthcare settings [6, 23, 7, 29, 18].

## **8 Conclusion**

The examination of perineal care, childbirth practices, and maternal health underscores the intricate dynamics shaped by historical, cultural, and medical influences on maternal care globally. The shift from traditional to medicalized childbirth approaches highlights the need for continued advancement in maternal care strategies. Comprehensive intrapartum care emerges as crucial, particularly in low- and middle-income countries, where birth-related perineal trauma remains prevalent, often compounded by underreporting and inadequate management. Evidence-based interventions, such as continuous labor support and the application of warm compresses, demonstrate efficacy in mitigating perineal trauma and improving maternal outcomes. The adoption of advanced technologies, including the Maternal Care Expert System and AI-driven interventions, offers promising avenues to enhance perineal care and maternal health outcomes.

Cultural influences play a pivotal role in shaping childbirth practices, affecting women's choices regarding birth settings and the perpetuation of potentially harmful practices. This necessitates culturally attuned care and active community engagement to ensure safe and respectful childbirth experiences. Future research should focus on enhancing service delivery, fostering community

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participation, and integrating cultural insights into healthcare practices. Additionally, involving men in health promotion can be beneficial, though interventions must be carefully structured to maintain healthy couple dynamics.

Healthcare systems significantly impact perineal care practices, with systemic challenges such as inadequate training and resource constraints needing urgent attention. The use of dynamic feature selection in high-dimensional classification tasks shows promise for enhancing computational efficiency, potentially improving decision-making processes in healthcare settings. Furthermore, the influence of medical authority and social class on women's childbirth experiences highlights the necessity for interventions that prioritize women's autonomy and satisfaction.

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