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Review Article

Epidemiology, Burden and Unmet Need of Labour Pain in the Tropics: A Review with Emphasis on Nigeria

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Abstract

Labour pain is among the most severe forms of pain a human can experience, yet access to effective analgesia varies dramatically between high-income and tropical low- and middle-income countries. In Nigeria — Africa's most populous nation and the country with the second-largest absolute number of maternal deaths globally — the gulf between women's demand for labour pain relief and the supply of analgesic services remains wide. Approximately 80% of Nigerian parturients describe their labour pain as "severe" to "agonizing," yet only 5–22% receive any form of intrapartum analgesia, and epidural analgesia remains effectively unattainable for the overwhelming majority. Within a context where the maternal mortality ratio reached 1,047 deaths per 100,000 live births in 2020, and skilled attendance at birth is undermined by a critical shortage of physician anaesthetists and a cultural normalization of labour suffering, untreated pain represents both a clinical and a human-rights concern.

This narrative review synthesizes current evidence on the epidemiology of labour pain, the burden of unmet analgesic need, the cultural and health-system determinants of under-treatment, and the consequences for maternal mental health, with particular emphasis on Nigeria and the broader tropics.

Keywords: Labour Pain; Labour Analgesia; Childbirth; Epidural; Workforce Shortage; Unmet-Need; Positive Pregnancy Experience; Tokophobia

Introduction

Childbirth is simultaneously a physiological process and an event laden with cultural meaning. While survival of mother and baby is the foundational goal of maternity care, the global maternal-health agenda has shifted decisively under the Sustainable Development Goals (SDG–3) and the WHO Global Strategy for Women's, Children's and Adolescents' Health (2016–2030) to encompass women's experience, dignity, and psychological wellbeing [1]. The 2018 WHO recommendations on intrapartum care explicitly frame

a "positive childbirth experience" as a clinical objective on par with the prevention of mortality [1]. Yet for millions of women in the tropics, and particularly in sub-Saharan Africa, labour remains an often solitary, and frequently dehumanised ordeal without pain management.

Labour pain is not merely a symptom; it is a multidimensional construct shaped by physiological, psychological, social, and cultural forces [2]. Effective analgesia, whether pharmacological (epidural, parenteral opioids) or non-pharmacological (massage, companionship, hydrotherapy), is integral to respectful maternity care and to measurable maternal-health outcomes [1,3]. Bibliometric mapping of labour-pain literature from 2000 to 2025 shows that the United States alone produced 388 publications on labour and postpartum pain management, whereas low- and middle-income countries which bear the disproportionate burden of maternal morbidity remain severely underrepresented in the evidence base [2].

Against this backdrop, the current article synthesises the epidemiology of labour pain, quantifies its burden in tropical settings, examines the drivers of unmet analgesic need in Nigeria, and discusses consequences and remediation strategies.

Methods

This narrative review draws on peer-reviewed literature retrieved through structured searches of PubMed-indexed journals, supplemented by reference-list searching of seminal sources. Search terms combined ("labour pain" OR "childbirth pain" OR "obstetric analgesia") with ("Nigeria" OR "sub-Saharan Africa" OR "tropical" OR "low- and middle-income"). Studies were retained if they reported primary epidemiological data on labour-pain perception, utilisation of intrapartum analgesia, determinants of unmet need, or maternal-health consequences, and were conducted in tropical/LMIC settings, with priority given to Nigerian evidence. The review synthesises both quantitative survey studies and qualitative/cultural studies.

The epidemiology of labour pain: A global phenomenon refracted by setting

Magnitude and severity

Labour pain is consistently described in the literature as one of the most intense forms of acute pain a woman will ever endure. Some societies treat it as a natural phenomenon to be tolerated, while modern obstetric practice regards it as a legitimate target for analgesia [4]. Studies from hospital settings across the tropics report high severity scores:

- In Enugu, south-eastern Nigeria, Onah and colleagues documented a mean pain-intensity score of 7.7 ± 2.8 on a 0–10 numerical scale among 181 parturients who delivered vaginally, with primigravidae scoring highest (7.5 ± 2.3) compared with multiparas (6.6 ± 2.5) and grandmultiparas (6.3 ± 2.1) [5].
- In north-eastern Nigeria, Audu and colleagues reported that 80% of women rated their labour pain as "severe" to "agonising", while 78.8% of parturients would "recommend" labour analgesia to others [6].
- Among the Yoruba ethnic group at Wesley Guild Hospital, Ilesa (south-western Nigeria), 68.3% of 281 newly delivered women described their pain as severe and only 5.3% described it as mild; 86% would have liked the pain to be relieved [7].
- In a 2025 study from Port Harcourt, south-south Nigeria, 88.3% of 393 women rated labour pain as severe, 80.9% desired pain relief, but only 5.9% of the entire cohort actually received labour analgesia; the agents used were pentazocine (3.8%), epidural (1.5%), tramadol (0.3%), and paracetamol (0.3%) [8].
- In Ibadan, south-western Nigeria, 96% of 100 newly delivered women reported pain during labour, and 68% indicated a felt need for pain relief, although only 32% had experienced massage therapy and 52% had received emotional support [9].

Together, these data indicate that approximately four of every five Nigerian women in tertiary-hospital cohorts describe their labour pain as severe, and at least two-thirds want it relieved, a demand that the health system is plainly failing to meet.

Determinants within populations

Multivariate analyses from Nigerian cohorts have identified several consistent predictors of perceived labour-pain intensity:

- **Parity**: Pain scores correlate inversely with parity in several studies. In Enugu, primigravidae scored significantly higher than multiparas and grand multiparas ($p = 0.048$) [5]; in

Maiduguri, parity strongly influenced pain perception (p = 0.0002) [6].

- **Ethnicity and "westernisation"**: At University College Hospital Ibadan, pain scores were highest among ethnic groups other than the predominant Yoruba group (9.13; 95% CI 8.13–9.33), and educational attainment was a significant independent predictor; women aged 25–30 with formal education reported lower pain scores than those without (−3.56; 95% CI −4.28, −2.87) [10]. The authors interpreted this as supporting the hypothesis that "westernisation through education" enhances labour-pain perception.
- **Duration and augmentation of labour**: In north-eastern Nigeria, duration of labour significantly influenced pain perception (p = 0.00017) [6]; in Enugu, induced or augmented labours produced markedly higher scores than spontaneous labours (8.9 ± 2.5 vs 7.1 ± 2.8; p = 0.001) [5].
- **Cultural stoicism**: Educational level had no significant influence in some rural-cohort analyses (p = 0.25 in Maiduguri), suggesting that sociocultural factors may dominate over individual-level demographics [6].

The global pattern

Outside the tropics, similar patterns of unmet need are reported but with very different service capacity. Vasquez and colleagues, analysing 46,671 childbirth admissions in a large US hospital system, documented persistent racial and ethnic disparities in pain assessment, evaluation, and treatment during labour [11]. Globally, Jackson and colleagues' meta-analysis of chronic pain in LMICs identified pregnancy-related pain as a significant contributor to the regional disease burden [12], and Sá and colleagues found that chronic pain pooled prevalence in developing countries is 18% (95% CI 10–29%) [13]. A 2023 systematic review noted that intrapartum and postpartum conditions affecting more than 10% of women in the medium- and long-term postpartum period include postpartum depression, tokophobia, low-back pain, and perineal pain, all of which may be aggravated by inadequate intrapartum analgesia [14].

The burden of labour pain in the tropics

Maternal mortality and morbidity context

In 2013, the maternal mortality ratio (MMR) for sub-Saharan Africa was 510 per 100,000 live births, compared with only 95 in Eastern Asia; within sub-Saharan Africa, the 2013 MMR was 1,100 in Sierra Leone, 880 in Central African Republic, 730 in South Sudan, 560 in Nigeria, and 380 in Ghana [15]. More recent estimates for Nigeria place the MMR at 814 per 100,000 live births according to WHO, and the lifetime risk of a Nigerian woman dying from a maternal cause at 1 in 22, compared with 1 in 4,900 in high-income countries [16]. Ajegbile reported even higher figures: an MMR of 512 per 100,000 in 2018 rising to 1,047 per 100,000 in 2020m, a 14% increase in just three years that places Nigeria further from the SDG target of 70 per 100,000 [17].

These mortality figures are relevant to unmet labour-pain needs because: (a) the same women who die are those who labour without analgesia or skilled birth attendance; (b) severe pain, anxiety, and obstetric violence during labour have been independently associated with postpartum depression, post-traumatic stress disorder, and impaired maternal–infant bonding [18,19]; and (c) hospitals overwhelmed by maternal-mortality emergencies cannot be expected to prioritise pain relief.

The place of delivery and the workforce shortage

Where childbirth occurs largely determines whether labour pain can be addressed at all. In Nigeria, the most recent NDHS data show that 63% of all live births are delivered at home, 23% in public-sector facilities, and 13% in private facilities [20]. A 2014 study in Patani (southern Nigeria) confirmed that over 58% of deliveries take place at home and only 37% in hospitals, with women in rural areas being 77% more likely to deliver at home than in a health facility [21]. Among women who do reach facilities, traditional birth attendants remain a major route of contact: a 2018 secondary analysis of the 2013 NDHS found that 23.4% of deliveries were assisted by TBAs, with rural residence, low education, low family wealth, and unemployment as predictors [22]. Ogbo and colleagues' analysis of demographic surveys from 1999 to 2018 showed that the prevalence of TBA-assisted delivery remained essentially unchanged at 20.5% in 2018 (95% CI 18.9–22.1%), although other-unskilled-birth-attendant use declined from 45.5% to 36.2% [23] Reasons women prefer TBAs include greater accessibility, better relationships, lower cost, convenience, freedom to use traditional birthing positions, and the requirement in some communities to obtain husbands' permission before attending a facility [20].

At the facility level, the foundational problem is the acute shortage of physician anaesthetists. Cherian and colleagues,

writing for the WHO, observed that sub-Saharan Africa carries 24% of the global burden of disease with only 3% of the world's health workers. Also, mortality from anaesthetic complications in a Nigerian teaching hospital for caesarean sections was 1 death per 387 anaesthetic procedures which is much higher than the UK Confidential Enquiry benchmark of 1 in 185,000 [24]. Ajuzieogu and Nwosu, surveying eight Nigerian states between 2011 and 2014, found consultant-anesthetist:consultant-surgeon ratios ranging from 1:6.6 in Benin and 1:7.9 in Enugu to 1:9.5 in the orthopaedic hospital, Enugu, and 1:11.7 in Jos, confirming that the per-capita anaesthesia provider is significantly low in the region [25]. Dubowitz and colleagues quantified the wider crisis: the global shortage of healthcare workers is estimated at 4.2 million, with approximately 1 million more workers needed in sub-Saharan Africa alone, even though Africa bears 25% of the global burden of disease with only 2% of the world's workforce [26]. Epiu and colleagues, surveying East African referral hospitals, identified significant shortages of both personnel and equipment needed for safe obstetric anaesthesia [27].

Unmet need for obstetric analgesia in Nigeria: quantification and determinants

The unmet-need gap

Multiple Nigerian studies have directly quantified the gap between desire for analgesia and actual receipt:

- Enugu, 2007: Only 22.1% of parturients received any pain-relieving drug during labour; of the 77.9% who did not, 56% would have liked analgesia [5].
- Benin City, 2006: Although 85.1% of women would have wanted their pain relieved, only 38.9% received any analgesia during labour, and only 26.0% had received prenatal information on labour analgesia [28].
- Maiduguri/Gombe, 2009: Only 11% received pain relief during labour, despite 81.6% wanting it [6].
- Port Harcourt, 2025: Only 5.9% received labour analgesia, despite 80.9% of women desiring it, a 14-fold under-supply relative to demand [8].
- Akadri's south-western Nigeria study reported that non-pharmacological pain-management practices were the most frequently used methods, with most patients experiencing reduction in severity of pain [29]. This is an explicit acknowledgment of the system's failure to deploy effective pharmacologic analgesia.
- A national survey of Nigerian obstetricians documented that the routine prescription and utilisation of obstetric analgesia is still low, with commonest reasons for non-use being fear of respiratory distress (31.1%), cost (24.7%), and late presentation in labour (15.6%) [4].

Epidural Analgesia: The gold standard barely available

Epidural analgesia is the global gold standard for labour pain relief, but its penetration in Nigeria and tropical Africa is minimal. A thematic review in 2024 by Olaogun and colleagues concluded that epidural analgesia remains hugely underutilized in low and middle-income countries like Nigeria [30]. In Norway, Waldum and colleagues found that primiparous women born in sub-Saharan Africa had an epidural utilisation rate of 33.8% during planned vaginal birth, while multiparous women had a rate of just 9%. It also revealed that in women's home countries outside tertiary facilities, management of labour pain often only involves non-pharmacological relief [31]. Fyneface-Ogan emphasised that even where epidural services exist in Nigeria, they face unreliable electricity, unavailability of compressed oxygen, sophisticated machines, and modern drugs, and the absence of resuscitative equipment to manage complications such as high spinal, local-anaesthetic toxicity, or cardiopulmonary arrest [32]. Nnaji summarised the situation as "a wide gap between the desire for labour analgesia and its availability" [33].

At the Aga Khan University Hospital in Nairobi, Kenya, a well-resourced tertiary facility with an established epidural service, qualitative research by Njenga found that misperceptions, cost, and provider reluctance remain the principal barriers, even when the service is technically available [34]. McCauley and colleagues, in a qualitative study in Tanzania, documented the prevailing provider attitude that labour pain is to be tolerated: "We know it's labour pain, so we don't do anything" [35]. This normalisation of suffering appears to pervade sub-Saharan maternity care.

Cultural beliefs: Pain as rite of passage

Cultural patterning of pain response is a powerful determinant of analgesic demand and provider response in the tropics. Wilkinson

and Callister, in a focused ethnography of 24 Ghanaian mothers at the Salvation Army Clinic in Wiamoase, identified themes of "centering on motherhood," "experiencing the pain of childbirth," and "fearing the influence of witchcraft on birth outcomes", with pain framed as a dangerous passage to be endured [36]. Aziato and colleagues, in a qualitative study conducted in Ghana, found that crying during labour is interpreted as a sign of weakness by some women. It also found that women express pain through crying, screaming, and praying; and that socio-cultural orientation produces "stoic" presentations that obscure the underlying pain [37]. In Niger, Alio and colleagues documented the framing of birth as *"going to war"*, with expressions of pain attracting "bad omen" for the child, and pain medication perceived as harmful to the baby — encouraging silent endurance [38]. Higginbottom and colleagues, working with Sudanese women, observed that outward displays of pain in pregnancy and labour are traditionally considered "weakness" and cowardly throughout many African countries, and that women desire to demonstrate their ability to manage their own lives without showing weakness [39]. Power and colleagues' cross-cultural review confirmed that labour pain is shaped by "internal" factors (cultural beliefs, religion, conceptualisation of motherhood) and "external" factors (environment, model of care); the greater the cultural distance between woman and midwife, the greater the risk of misinterpretation of the labour experience [40].

In Nigerian-specific work, evidence is consistent with these regional patterns. In Enugu, 73% of women with a labour companion reported it helpful, and 72.8% of women whose backs were rubbed reported relief. However, those whose companions rubbed their backs actually recorded higher mean pain scores (8.4 ± 2.4 vs 6.8 ± 2.9; p = 0.000) probably because the intervention was deployed only when pain became evident [5]. In Abuja, Emelonye and colleagues found that midwives reported partner presence as contributing to pain relief but only every fourth midwife used partner presence as a routine pain-management intervention [41]. In Ibadan, low preference was noted for spouses' emotional support (37%) [9]. These findings together suggest that cultural expectations shape not only whether women demand analgesia but also whether providers recognise and respond to it.

Quality-of-care and mistreatment

The experience of labour in Nigerian facilities is further compromised by documented mistreatment. Ishola, Owolabi, and Filippi's 2017 systematic review of 14 Nigerian studies on disrespect and abuse during childbirth identified non-dignified care (negative, poor, and unfriendly provider attitude) as the most frequently reported form of abuse, with physical abuse and detention the least frequent; the behaviours undermined facility utilisation and created psychological distance between women and providers [42]. A mixed-methods systematic review in 2015 by Bohren and colleagues found that in a Nigerian teaching hospital in the south-east, almost all women (98.0%) reported at least one kind of mistreatment during childbirth, with 35.7% reporting physical abuse, 17.3% being "restrained or tied down," and 7.2% being "beaten, slapped, or pinched" [43]. The 2017 Abuja qualitative study by the same team found mistreatment to be common, and 23.7% of women in north-western Nigeria who did not give birth in a health facility cited negative provider attitudes as the primary reason for non-use, while 52% of women suggested improvements in provider attitudes were necessary to increase demand for facility-based childbirth [44]. In a more recent survey of two referral hospitals in Ebonyi state, 56% of women reported at least one form of mistreatment during childbirth, with childbirth facilitated by a doctor (AOR 1.7; 95% CI 1.14–2.39; p = 0.007) being a predictor of reported mistreatment — challenging the assumption that physician-led care is necessarily more respectful [45]. In Ile-Ife, 19% of 384 recently delivered women reported having experienced some form of disrespect, most commonly non-dignified care (12.8%) and discrimination (8.1%) [46]. These behaviours likely reduce women's willingness to return to facilities for subsequent births, magnifying the consequences of unmet labour-pain need.

Consequences of unrelieved labour pain

Mental-health sequelae

Severe and untreated labour pain is associated with substantial mental-health morbidity. In Lagos, Adedapo and Anyama, using the Edinburgh Postnatal Depression Scale, found a 27.5% prevalence of probable postpartum depression in 102 nursing mothers, with a significant relationship between traumatic childbirth and PPD ($\chi^2 = 8.62$; $p < 0.01$) and a positive correlation between traumatic childbirth and depressive symptoms ($r = 0.411$; $p < 0.01$) [19]. Adewuya and Aloba reviewed the Nigerian evidence and noted a 5.9% prevalence of PTSD six weeks postpartum after traumatic childbirth, with correlates including hospital admission due to pregnancy complications, instrumental deliveries, and poor

maternal control during childbirth; maternal depression was also longitudinally associated with significantly poorer infant growth at 3 and 6 months [18]. Importantly, perinatal maternal depression remains undertreated in Nigeria. Adeponle and colleagues noted a low number of studies using qualitative methods to investigate local cultural understandings of perinatal depression [47]. Also, Odufuwa and colleagues documented that in their Ibadan sample, more than 80% of mothers with depressive symptoms did not report them to any health professional due to stigma related to a new mother "expected to be strong without showing signs of weakness" [48].

Long-term physical morbidity

Vogel and colleagues' 2023 systematic analysis of medium- and long-term consequences of labour documented that conditions affecting more than 10% of women in the postpartum period include dyspareunia, urinary/anal incontinence, postpartum depression, tokophobia, low-back pain, and perineal pain [14]. The contribution of unrelieved labour pain and operative/instrumental delivery conducted without anaesthesia to these conditions is biologically plausible and clinically recognised but incompletely quantified in tropical settings [18,24].

Migration of skilled-labour demand

The inadequate provision of epidural analgesia for women of sub-Saharan African origin extends beyond their home countries. Waldum and colleagues, examining epidural provision in a Norwegian register, found significantly lower provision among women born in sub-Saharan Africa than in native-born Scandinavian women — a disparity at least partially attributable to suboptimal communication, language barriers, and the home-country norm of non-pharmacological pain relief [31]. This implies that the cultural conditioning of women from tropical settings follows them into diaspora maternity care, an extension of the inequity.

Discussion: Drivers of the unmet-need gap in nigeria and the tropics

The evidence assembled above supports a multi-level model in which unrelieved labour pain in Nigerian women is the consequence of intersecting, mutually reinforcing forces:

- **System-level determinants**: These include an extreme shortage of physician anaesthetists (consultant-surgeon ratios of 1:6.6 to 1:11.7 in surveyed Nigerian centres) [25]; lack of reliable electricity, oxygen, and resuscitative equipment for safe epidural provision [32]; a midwife shortage that limits one-to-one labour support [1]; and disarticulation of the supply chain for analgesic agents.
- **Service-level determinants**: These include default protocols that do not include routine labour analgesia [8]; predominantly facility-based, "skilled-attendant" care concentrated in tertiary centres while 63% of Nigerian births occur at home [20]; high rates of disrespectful and abusive provider behaviour (98% in one Nigerian cohort) that deter return visits [43,44].
- **Provider-level determinants**: Normalisation of labour pain [35]; lack of awareness of WHO labour-pain recommendations; concerns about analgesic side-effects [4]; and de-prioritisation of analgesia within EmOC-driven services are some of the provider-level determinants.
- **Cultural/community-level determinants**: These include culturally sanctioned stoicism [37,39,40]; perception of pain as natural, necessary, and spiritually meaningful [36,38]; fear that analgesic drugs will harm the baby [38]; and preference for traditional birth attendants who provide culturally congruent care but no analgesia [20,23].
- **Individual-level determinants**: Parity, socio-economic status, education/urbanisation, and prior antenatal counselling [5,6,10].

Recommendations

- **Workforce expansion**: Targeted investment to reach the Lancet Commission on Global Surgery target of 20 surgical, anaesthetic, and obstetric physicians per 100,000 population by 2030, with a particular focus on training non-physician anaesthesia providers and obstetricians competent in obstetric analgesia [26,27,49].
- **Implementation of WHO 2018 intrapartum care recommendations**: Routine antenatal counselling about pain-relief options (epidural, parenteral opioids, relaxation techniques, manual massage and warm packs, mobility, oral hydration, and continuous companionship) [1,3,50].
- **Task-shared analgesia models**: Where physician anaesthetists are scarce, midwife-led and nurse-led protocols for systemic analgesia (pentazocine, tramadol, paracetamol) under standing orders can close critical gaps [29,30].

- **Health-system strengthening**: Reliable electricity, oxygen, monitoring, and resuscitation equipment; safe epidural kits and stocking of essential analgesic agents; and 24-hour anaesthetic coverage for maternity units [27,32].
- **Cultural integration**: Engage traditional birth attendants as referral partners; incorporate culturally accepted non-pharmacological techniques (back massage, mobility, companionship, prayer as appropriate) into routine care [37,41]; and respect women's preferences for traditional birthing positions [20].
- **Antenatal education**: Routine, evidence-based antenatal discussions of pain-relief options, side-effects, and benefits, drawing on the Nigerian evidence that information provision significantly affects perceived pain (p = 0.017 in Ibadan) [9].
- **Respectful maternity care**: Implementation of the WHO's "operationalization of respectful maternity care" framework, including consent, privacy, communication, and freedom from mistreatment [42,44,46,51].
- **Research agenda**: Closing the epistemic gap by funding labour-pain research conducted *in* LMICs and published *in* LMIC contexts, including longitudinal studies of postpartum mental health following unrelieved labour pain [2,47].

Conclusion

Labour pain in tropical settings, and in Nigeria in particular, is ubiquitous, severe, intensely desired to be relieved, and yet routinely left untreated. Data from Nigerian cohorts spanning two decades consistently show that 70–88% of women describe their labour pain as severe, 80–86% desire relief, but only 5–22% receive any form of analgesia, and epidural analgesia remains essentially unavailable outside a handful of tertiary centres. Nigeria's MMR of 1,047 per 100,000 live births in 2020, a 1-in-22 lifetime maternal-death risk, a pervasive shortage of physician anaesthetists, and high rates of disrespectful and abusive intrapartum care magnify the human cost. The unmet need for labour analgesia in the tropics is not a technical curiosity but a measurable equity gap with downstream consequences for postpartum mental health, mother–infant bonding, and future care-seeking. Closing this gap will require workforce investment, supply-chain reliability, evidence-based antenatal education, implementation of WHO intrapartum-care recommendations, and the displacement of the cultural normalisation of labour suffering, both among providers and among the women and communities they serve.

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