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Labour Pain Relief Utilisation and Demographic Determinants Among Postpartum Women Attending Primary Healthcare Centres in Obio/Akpor Local Government Area, Rivers State, Nigeria.

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ABSTRACT

Labour pain is one of the most intense forms of pain experienced by women and effective pain relief is an important component of quality and respectful maternity care. Although both pharmacological and non-pharmacological methods for managing labour pain are available, utilization remains low in many low- and middle-income countries, including Nigeria particularly at the primary healthcare level where many women receive maternity services. This study examined labour pain relief utilization (timeliness, accessibility, and cost barriers) and its demographic determinants among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria. A cross-sectional descriptive survey design was adopted. The population comprised postnatal women aged 15 to 49 years who had vaginal delivery within three months at six model primary healthcare facilities. A sample size of 393 women was determined using the Taro Yamane formula. Data were collected using a structured questionnaire. Face and content validity were established by experts, and test-retest reliability yielded a coefficient of 0.82. Data were analysed using descriptive statistics and Pearson chi square with the aid of Statistical Product and Services Solution version 27 at the 0.05 level of significance. 57.0% of the women utilised non-pharmacological pain relief, 35.9% utilised pharmacological methods, and 7.1% received no pain relief. Educational attainment and employment status were significantly associated with timeliness of pain relief administration ($p = 0.020$, $p = 0.041$), ease of access ($p = 0.001$, $p = 0.005$), and cost as a barrier ($p = 0.041$, $p = 0.013$). Marital status, religion, and ethnicity showed no statistically significant associations across the three outcome dimensions. Educational attainment and employment status significantly shape maternal labour pain relief utilisation in primary healthcare settings in Obio/Akpor. Therefore, there is need for government-led intervention in strengthening health literacy support for expectant women, improving facility level access processes to reduce delays, and implementing practical cost mitigation measures to minimise financial barriers.

Keywords: Labour pain relief, utilisation, educational attainment, employment status, primary healthcare, postpartum women, Obio/Akpor Local Government Area, Rivers State

1.0 INTRODUCTION

Labour pain is widely recognised as one of the most intense forms of acute pain that a human being can experience. It arises from the complex physiological processes of uterine contractions, cervical dilatation, and foetal descent through the birth canal. The experience of labour pain is not uniform; it is mediated by a array of biological, psychological, and sociocultural factors that shape both its intensity and the parturient's capacity to endure it (Whitburn et al., 2017). In sub-Saharan Africa, where obstetric care systems have continued to struggle with severe resource constraints, the effective management of labour pain remains an insufficiently prioritised component of maternal care. Within Nigeria, the evidence base consistently reveals that most women perceive labour pain as severe, yet the proportion who actually receive any form of formal analgesic intervention remains unacceptably low (Unamba et al., 2020; Amen et al., 2023). This reality is particularly troubling, given that the World Health Organization has emphasized that dignified, and supportive care during labour, of which effective pain management is a central component, is essential to reducing maternal mortality and improving maternal health outcomes in low- and middle-income countries (WHO, 2023). The management of labour pain is therefore not a peripheral concern in obstetric care but a fundamental indicator of the quality, equity, and humanity of intrapartum services that any healthcare system provides to women in their most vulnerable and consequential moment.

Nigeria occupies a deeply concerning position in the global maternal health landscape, bearing an estimated maternal mortality ratio of 1,047 deaths per 100,000 live births as of 2020, which represents one of the highest in the world and a figure that increased by approximately 14% from its 2017 estimate (WHO/AFRO, 2023; Ameh et al., 2024). The country accounts for nearly 20% of all global maternal deaths, a burden that is concentrated disproportionately among women who deliver in primary and secondary healthcare facilities, particularly in settings where obstetric care is characterised by inadequate staffing, shortages of essential medicines, and an absence of structured pain management protocols (Ameh et al., 2024; Fernández-Carrasco et al., 2022; Bamgboye & Odunukwe, 2018). Within this context, labour pain management has remained a persistently neglected dimension of intrapartum care in the Nigerian health system, with the available evidence indicating a wide and troubling gap between the pain relief that women desire and what they actually receive during childbirth (Obuna & Umeora, 2014; Ndikom & Olejiya, 2015). This neglect is not merely a reflection of individual provider shortcomings, but also a systemic deficiencies related to resource constraints, policy silences, training gaps, and entrenched cultural narratives, all of which have collectively normalised unrelieved labour pain as an acceptable feature of childbirth.

The structural organisation of primary healthcare delivery in several states can create conditions that are relatively unfavourable to the effective provision of labour pain relief. Primary healthcare centres, which often serve as the first point of formal obstetric contact for a substantial proportion of parturient women, particularly within peri-urban and low-income populations, frequently appear to lack consistent pharmacological supplies, functional pain assessment instruments, and sufficiently trained personnel for routine analgesia administration (Adegboye et al., 2020; Anozie et al., 2018). This pattern of underresourcing can be further intensified by high patient-to-provider ratios, which tend to reduce the time and attention that midwives and nurses can devote to non-pharmacological pain management interventions, even when the motivation to provide such care is present (Bishaw et al., 2020; Elgzar et al., 2024). Furthermore, the limited availability of anaesthesiological services at the primary care level appears to constrain access to pharmacological options, including epidural analgesia, for many women who obtain care at this tier of the health system; consequently, pain relief often depends on informal, inconsistently coordinated non-pharmacological support, or on the absence of any analgesic intervention (Adenekan et al., 2013; Anozie et al., 2018). The structural determinants of pain relief utilisation at this level are therefore multi-dimensional, and operate simultaneously at the facility, provider, and patient levels, and they interact in ways that systematically disadvantage the most vulnerable parturient women in the Nigerian healthcare system.

Sociocultural dynamics constitute an equally powerful, though often underappreciated, structural determinant of labour pain relief utilisation in Nigerian healthcare settings. Deeply embedded cultural

narratives, particularly those that frame the endurance of labour pain as a mark of womanhood, spiritual faithfulness, or maternal fortitude, actively discourage women from requesting analgesic intervention, even when they experience labour as severely painful (Chigbu & Onyeka, 2011). These cultural constructions are reinforced by provider attitudes that historically have treated analgesic requests as signs of weakness, with evidence documenting instances of outright refusal of maternal requests for pain relief in Nigerian facilities – a practice that constitutes a violation of both the woman's autonomy and the ethical standards of midwifery and obstetric care (Chigbu & Onyeka, 2011; Adejuyigbe et al., 2015). The sociocultural perception of labour pain also intersects with religious belief systems that are prevalent in Rivers State, where childbirth is often conceptualised through spiritual frameworks that attribute pain to divine design or necessary purification, thus diminishing women's perceived legitimacy in seeking pharmacological or non-pharmacological pain relief (Amen et al., 2023). Understanding these cultural and ideological dimensions is essential for any meaningful analysis of labour pain relief utilisation, as interventions that address only the supply side of analgesic provision without confronting the demand-side dynamics shaped by culture and belief are unlikely to produce durable improvements in women's childbirth experience.

Demographic variables including age, parity, educational attainment, occupational status, and income level are significant mediating factors in the relationship between structural conditions and actual labour pain relief utilisation, and their examination is central to understanding why some women consistently access pain relief while others systematically do not. Education shapes women's health literacy, their awareness of available analgesic options, their confidence in requesting care from providers, and their ability to navigate healthcare bureaucracies. Women with limited formal education are less likely to be aware of their right to labour pain relief or to assert that right in the face of provider indifference (Kehinde et al., 2018; Olorunfemi et al., 2015). Parity is another variable that may influence maternal access to pain relief. Multiparous women possess prior knowledge of labour processes and may develop adaptive coping strategies over successive deliveries. However, this adaptation does not necessarily translate into greater access to formal pain relief, particularly in settings where structural barriers are absolute rather than attitudinal (Arinze et al., 2018; Obuna & Umeora, 2014).

Cost appears to function as an important demographic influence, particularly within low-income contexts where out-of-pocket expenditure for analgesic medications can restrict access to formal pain relief for many parturient women, especially when health insurance coverage remains minimal at the primary healthcare level (Ezeonu et al., 2019; Adegboye et al., 2020). In such settings, financial constraints often interact with broader structural limitations to shape the timeliness of pain relief administration, the relative ease with which analgesic options are obtained, and the extent to which cost is experienced as a practical barrier. Consideration of these interrelated factors helps to clarify the patterned distribution of access to labour analgesia and the ways in which economic vulnerability can contribute to uneven pain management experiences within resource constrained maternity care environments.

Obio/Akpor Local Government Area in Rivers State presents a particularly instructive context for examining these dynamics, as it combines characteristics of urban density, socioeconomic heterogeneity, and healthcare system pressure in ways that make it simultaneously representative of and distinctive from the broader Nigerian urban-poor experience. As one of the most densely populated local government areas in Rivers State, and situated within the Port Harcourt metropolitan region, Obio/Akpor hosts a diverse population of women of reproductive age who access primary healthcare facilities for obstetric care, and whose experience of labour pain management reflects the structural, cultural, and economic conditions of this specific environment (Chilee et al., 2020; Amen et al., 2023). The primary healthcare centres within the local government area are the tier in their resource constraints and staffing challenges, yet they serve a population whose proximity to tertiary facilities does not necessarily translate into access, given financial, informational, and logistical barriers that prevent many women from bypassing the primary care centers (Adegboye et al., 2020). Within Rivers State, including Obio Akpor, existing studies have indicated that women often experience labour pain as severe and pain management commonly occurs through informal approaches; however, the available literature remains insufficient with respect to systematic examination of the prevalence of pain relief utilisation and the structural factors that shape it

within primary healthcare facilities in this local government area, a gap that the present investigation addresses in order to generate evidence capable of informing policy reform.

1.2 Research Objectives

The following objectives guided the study.

1. To determine the association between demographic variables and the timeliness of labour pain relief administration among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria.
2. To examine the association between demographic variables and the ease of accessing labour pain relief among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria.
3. To assess the association between demographic variables and cost as a barrier to labour pain relief utilisation among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria.

1.3 Research Questions

The following questions guided the study.

1. What is the association between demographic variables and the timeliness of labour pain relief administration among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria?
2. What is the association between demographic variables and the ease of accessing labour pain relief among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria?
3. What is the association between demographic variables and cost as a barrier to labour pain relief utilisation among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria?

2.0 METHODOLOGY

2.1 Design: The study employed a cross-sectional descriptive survey design to assess the prevalence and structural determinants of labour pain relief utilisation among postpartum women in primary healthcare settings, while examining associations between utilisation patterns and socio-demographic, obstetric, and structural variables. The cross-sectional design is particularly well-suited for documenting prevalence, identifying patterns, and establishing correlates of healthcare utilisation at a single point in time, especially in observational maternal health research conducted within resource-constrained environments that demand efficient and representative data collection from defined populations (Uakarn et al., 2021; Yamane, 1973). The study was carried out in Obio/Akpor Local Government Area of Rivers State, Nigeria, a predominantly urban-periurban locality in the Niger Delta characterised by rapid urbanisation, considerable socioeconomic diversity, and substantial maternal health service demands (Chilee et al., 2020). Six model primary healthcare centres offering comprehensive antenatal, intrapartum, and postnatal services were purposively selected as study sites, namely: Obio Cottage Hospital, Elelenwon Primary Health Care Centre, Rumuodomaya Primary Health Care Centre, Rumuokwushi Primary Health Care Centre, Eliozu Primary Health Care Centre, and Rumuigbo Primary Health Care Centre (Rivers State Primary Health Information Management System, 2021).

2.2 Population and Sample: The target population consisted of approximately 21,000 postnatal women between the ages of 15 and 49 years who had undergone spontaneous vaginal delivery within the three months preceding the study at the selected primary healthcare facilities. This population estimate was derived from projected institutional birth figures, drawing on local crude birth rate data and national demographic statistics (National Bureau of Statistics, 2023; World Bank, 2022). Women were eligible for inclusion if they had experienced a vaginal delivery within the preceding three months, fell within the stipulated age range, were clinically stable at the time of postnatal attendance, were able to communicate in either English or Pidgin English, and were willing to provide informed consent. Women who had undergone emergency caesarean section, experienced severe preeclampsia, postpartum haemorrhage, or multiple gestation, or who had any condition that would impair questionnaire completion were excluded

from participation. A sample of 393 participants was determined through the application of the Taro Yamane formula for finite populations: $n = N / [1 + N(e)^2]$, with N set at 21,000 and a margin of error (e) of 0.05 at the 95% confidence level, thereby ensuring adequate statistical power for both descriptive and inferential analyses (Yamane, 1973; Uakarn et al., 2021). Participants were recruited through simple random sampling by balloting during scheduled postnatal clinic sessions, a procedure that minimised selection bias while guaranteeing each eligible woman an equal probability of inclusion.

2.3 Data Collection: Data were collected using a structured questionnaire which was organized into sections that reflected the respondent characteristics and service utilisation dimensions examined in the study. The first section elicited socio-demographic information, including age group, marital status, religion, ethnicity, highest educational attainment, and employment category. The second section captured obstetric characteristic, including parity, distinguishing between primigravida and multigravida respondents. The third sections focused on structural factors affecting labour pain relief utilization within the facility. Items assessed whether pain relief was administered in a timely manner, whether available pain relief options were easy to access during labour, and whether cost constituted a barrier to utilisation. Face and content validity of the instrument were established through review by maternal health specialists, while reliability was confirmed through test-retest administration on a pilot group of 30 postpartum women over a two-week interval, yielding a reliability coefficient of 0.82. Fieldwork was conducted over a three-month period from January to March 2025, coinciding with routine postnatal clinic visits. Eligible women were approached by the principal researchers and trained research assistants, who provided study information in accessible language, responded to enquiries, and obtained informed consent. Questionnaires were self-administered in private, comfortable settings to protect confidentiality of the respondents. Research team members offered neutral clarification only upon request. All completed forms were inspected on-site for completeness, with immediate follow-up to address any missing responses.

2.4 Data Analysis: Data were analysed using Statistical Product and Services Solution version 27. Descriptive statistics, specifically frequencies and percentages, were used to summarise respondents' demographic characteristics and the distribution of key service variables, including timeliness of pain relief administration, ease of accessing pain relief within the facility, and cost as a barrier to utilisation. Inferential analysis was conducted using the chi-square test of association to examine relationships between demographic variables and each structural outcome variable, namely timeliness of pain relief administration, ease of access to pain relief, and cost as a perceived challenge. The level of statistical significance was set at 0.05.

2.5 Ethical Considerations: Ethical clearance for the study was obtained from the Research Ethics Committee of the University of Port Harcourt Teaching Hospital, with additional institutional permissions secured from the Rivers State Ministry of Health, the Medical Officer of health of the Local Government Area and the heads of the participating facilities. Participation was entirely voluntary, and confidentiality was safeguarded through the anonymisation of participant identities, secure storage of all collected data, and restricted access to research materials. Participants were explicitly informed of their unconditional right to withdraw from the study at any stage without consequence.

3.0. RESULTS

3.1 Demographic Characteristics of Participants

The Table 1 shows that most participants were within the main reproductive age range, as 89.1% were aged 25 to 49 years, with a mean age of 33.91 years (SD = 7.76). The sample was largely made up of married women (94.9%), and religious affiliation was varied; 58.0% women identified themselves as Christians, 26.0% as African Traditional worshipers, and 16.0% as Muslims. Ethnic composition was also diverse; minority groups such as Ikwere, Ijaw, Ogoni, Efik, Ijaw, and Ibibio forming the largest share (45.8%), followed by Igbo (31.0%), Hausa (16.0%), and Yoruba (7.1%).

Table 1: Demographic Characteristics of participants (n= 393)

Variable	Sub-Variable	Frequency (n)	Percentage (%)
Age Group Mean ± SD = 33.9 ± 7.8.	15–24	43	10.9
	25–34	177	45.0
	35–49	173	44.1
Marital Status	Single	12	3.1
	Married	373	94.9
	Divorced	8	2.0
Religion	Christian	228	58.0
	Muslim	63	16.0
	African Traditional beliefs	102	26.0
Ethnicity	Yoruba	28	7.1
	Ibo	122	31.0
	Hausa	63	16.0
	Others (Ikwerre, Ijaw, Ogoni etc	180	45.8
Education	Primary	39	9.9
	Secondary	118	30.0
	Tertiary	236	60.1
Employment	Housewife	31	7.9
	Civil Servant	31	7.9
	Business	149	37.9
	Trader	59	15.0
	Farmer	12	3.1
	Others	111	28.2
Parity	Primigravida	204	51.9
	Multigravida	189	48.1
Type of Delivery	Vaginal Delivery	377	95.9
	Assisted Vaginal Delivery	16	4.1
Type of Labour	Spontaneous	310	78.9
	Induced with Oxytocin	59	15.0
	Induced with Misoprostol	24	6.1
Method of Pain Relief	No pain relief	28	7.1
	Pharmacological	141	35.9
	Non-pharmacological	224	57.0

Educational attainment was relatively high; 60.1% of the respondents reportedly had tertiary education, while employment patterns showed a strong informal-sector presence, indicating that 37.9% of the women engaged in business, 15.0% in trading, and 28.2% in other occupations. Parity was almost evenly split between primigravida (51.9%) and multigravida (48.1%). Most deliveries were unassisted vaginal births (95.9%), and labour started spontaneously in 78.9% of cases, although 21.1% involved induction, mainly with oxytocin (15.0%) and misoprostol (6.1%). Pain relief was more often non-pharmacological (57.0%) than pharmacological (35.9%), while 7.1% of participants received no pain relief.

Table 2: Chi-Square Test of Association between Demographic Variables and Timeliness of Pain Relief Administration

Demographic Variable	Category	Timely Pain Relief n (%)	Not Timely Pain Relief n (%)	Total	χ^2 (df)	p-value
Marital Status	Single	5 (41.7)	7 (58.3)	12	7.300 (8)	0.505
	Married	157 (42.1)	216 (57.9)	373		
	Divorced	3 (37.5)	5 (62.5)	8		
Religion	Christian	125 (54.8)	103 (45.2)	228	11.993 (12)	0.446
	Muslim	45 (71.4)	18 (28.6)	63		
	Others	56 (54.9)	46 (45.1)	102		
Ethnicity	Yoruba	24 (85.7)	4 (14.3)	28	12.698 (12)	0.391
	Ibo	104 (85.2)	18 (14.8)	122		
	Hausa	63 (100.0)	0 (0.0)	63		
	Others	173 (96.1)	7 (3.9)	180		
Education	Primary	34 (87.2)	5 (12.8)	39	24.090 (12)	0.020
	Secondary	107 (90.7)	11 (9.3)	118		
	Tertiary	229 (97.0)	7 (3.0)	236		
Employment	Housewife	27 (87.1)	4 (12.9)	31	32.250 (20)	0.041
	Civil Servant	28 (90.3)	3 (9.7)	31		
	Business	149 (100.0)	0 (0.0)	149		
	Trader	57 (96.6)	2 (3.4)	59		
	Farmer	12 (100.0)	0 (0.0)	12		
	Others	106 (95.5)	5 (4.5)	111		

Table 2 revealed that marital status showed no statistically significant association with timeliness ($p = 0.505$), as receipt of timely pain relief was similarly low across single (41.7%), married (42.1%), and divorced (37.5%) women, suggesting that relationship status exerts negligible influence on this outcome. Religion equally failed to reach significance ($p = 0.446$), though Muslim women recorded notably higher timeliness (71.4%) compared to Christians (54.8%) and others (54.9%), a pattern that warrants contextual interpretation. Ethnicity also produced no significant association ($p = 0.391$). By contrast, educational attainment demonstrated a statistically significant association ($p = 0.020$), whereby timeliness increased progressively from primary (87.2%) through secondary (90.7%) to tertiary level (97.0%), indicating that higher education correlates with more timely receipt of pain relief. Employment status similarly yielded a significant association ($p = 0.041$); women in business and farming reported 100% timeliness, whereas housewives recorded the lowest rate (87.1%), suggesting that occupational engagement and associated health literacy may be shaping access to timely administration of relief.

Table 3: Chi-Square Test of Association between Demographic Variables and Ease of Accessing Pain Relief

Demographic Variable	Category	Accessible n (%)	Not Accessible n (%)	Total	χ^2 (df)	p-value
Age Group	15–24	26 (60.5)	17 (39.5)	43	8.517 (8)	0.385
	25–34	108 (61.0)	69 (39.0)	177		
	35–49	104 (60.1)	69 (39.9)	173		
Marital Status	Single	8 (66.7)	4 (33.3)	12	5.669 (8)	0.684
	Married	222 (59.5)	151 (40.5)	373		
	Divorced	6 (75.0)	2 (25.0)	8		
Religion	Christian	135 (59.2)	93 (40.8)	228	9.385 (8)	0.311
	Muslim	37 (58.7)	26 (41.3)	63		
	Others	67 (65.7)	35 (34.3)	102		
Ethnicity	Yoruba	18 (64.3)	10 (35.7)	28	19.927 (12)	0.068
	Ibo	64 (52.5)	58 (47.5)	122		
	Hausa	48 (76.2)	15 (23.8)	63		
	Others	107 (59.4)	73 (40.6)	180		
Education	Primary	19 (48.7)	20 (51.3)	39	38.380 (8)	0.001
	Secondary	81 (68.6)	37 (31.4)	118		
	Tertiary	145 (61.4)	91 (38.6)	236		
Employment	Housewife	17 (54.8)	14 (45.2)	31	39.728 (20)	0.005
	Civil Servant	16 (51.6)	15 (48.4)	31		
	Business	95 (63.8)	54 (36.2)	149		
	Trader	45 (76.3)	14 (23.7)	59		
	Farmer	7 (58.3)	5 (41.7)	12		
	Others	58 (52.3)	53 (47.7)	111		
Parity	Primigravida	129 (63.2)	75 (36.8)	204	10.639 (8)	0.223
	Multigravida	111 (58.7)	78 (41.3)	189		

Table 3 showed that age group, marital status, religion, and parity each produced non-significant associations (p = 0.385, 0.684, 0.311, and 0.223 respectively), indicating that accessibility was broadly comparable across demographic categories, with overall access rates hovering near 60% irrespective of grouping. Ethnicity approached but did not attain significance (p = 0.068), though Hausa women reported notably higher accessibility (76.2%) compared to Ibo women (52.5%). Education yielded a highly significant association (p = 0.001), while accessibility was lowest among women with primary education (48.7%) and highest among secondary-educated women (68.6%), suggesting that educational attainment shapes navigational capacity within healthcare settings. Employment status equally demonstrated a significant association (p = 0.005); traders recorded the highest accessibility (76.3%), whereas civil servants (51.6%) and others (52.3%) fared poorest, implying that occupational context and associated socioeconomic resources meaningfully mediate pain relief access.

Table 4: Chi-Square Test of Association between Demographic Variables and Cost as a Barrier

Demographic Variable	Category	Cost was a Challenge n(%)	No Challenge n(%)	Total	χ^2 (df)	p-value
Marital Status	Single	2 (16.7)	10 (83.3)	12	4.502 (8)	0.809
	Married	46 (12.3)	327 (87.7)	373		
	Divorced	2 (25.0)	6 (75.0)	8		
Religion	Christian	34 (14.9)	194 (85.1)	228	9.401 (12)	0.668
	Muslim	6 (9.5)	57 (90.5)	63		
	Others	15 (14.7)	87 (85.3)	102		
Ethnicity	Yoruba	4 (14.3)	24 (85.7)	28	9.619 (12)	0.649
	Ibo	9 (7.4)	113 (92.6)	122		
	Hausa	11 (17.5)	52 (82.5)	63		
	Others	25 (13.9)	155 (86.1)	180		
Education	Primary	4 (10.3)	35 (89.7)	39	16.078 (8)	0.041
	Secondary	12 (10.2)	106 (89.8)	118		
	Tertiary	37 (15.7)	199 (84.3)	236		
Employment	Housewife	5 (16.1)	26 (83.9)	31	36.561 (20)	0.013
	Civil Servant	2 (6.5)	29 (93.5)	31		
	Business	18 (12.1)	131 (87.9)	149		
	Trader	7 (11.9)	52 (88.1)	59		
	Farmer	4 (33.3)	8 (66.7)	12		
	Others	17 (15.3)	94 (84.7)	111		

Table 4 revealed that marital status, religion, and ethnicity yielded non-significant associations ($p = 0.809$, 0.668, and 0.649 respectively), indicating that cost-related challenges were distributed without meaningful pattern across these categories; overall, the majority of women across all groupings reported no cost barrier, with challenge rates generally ranging between 7% and 25%. Education demonstrated a statistically significant association ($p = 0.041$), though the gradient was non-linear; cost burden was comparably low among primary (10.3%) and secondary-educated women (10.2%), yet rose among tertiary-educated respondents (15.7%), suggesting that higher education does not insulate women from financial barriers and may reflect heightened awareness or expectation of formal analgesia. Employment status similarly produced a significant association ($p = 0.013$); farmers reported the highest cost challenge (33.3%), contrasting sharply with civil servants (6.5%), suggesting that occupational insecurity and irregular income were likely amplifiers of financial vulnerability to healthcare costs, whereas salaried employment affords comparatively greater economic resilience in accessing pain relief services.

3.2 DISCUSSION OF FINDINGS

The findings observed from this study collectively reveal a consistent and theoretically coherent pattern: marital status, religion, and ethnicity exert no statistically significant influence on timeliness of pain relief, ease of access, or cost-related barriers, whereas educational attainment and employment status emerge as the two most structurally consequential demographic determinants across all three outcome dimensions. This convergence is not coincidental; it reflects the intersecting roles that cognitive resources, economic capacity, and occupational positioning play in shaping a woman's capacity to navigate the intrapartum care environment and assert her needs within it. The socially patterned nature of these findings aligns with the broader understanding, established in the Nigerian and international literature, that access to labour pain relief is not uniformly distributed but is systematically stratified along lines of human capital and economic vulnerability (Kehinde et al., 2018; Metogo et al., 2022; Almuntashiri et al., 2022; Sapira-Ordu et al., 2025; Fernández-Carrasco et al., 2022).

With respect to timeliness of pain relief administration (Table 2), education and employment were the only variables to attain statistical significance. The progressive increase in timely receipt, from 87.2%

among women with primary education to 97.0% among those with tertiary education, is a reflection of the well-documented relationship between formal education and health-seeking efficacy; educated women demonstrate greater awareness of available analgesic options, greater willingness to request care, and greater communicative confidence in clinical encounters (Olorunfemi et al., 2015; Kehinde et al., 2018). The employment pattern reinforces this interpretation: women engaged in business and farming reported 100% timeliness, whereas housewives recorded the lowest rate at 87.1%, suggesting that occupationally active women may bring into the clinical encounter socioeconomic assertiveness and health literacy that facilitate prompt attention from providers. This is consistent with evidence from Metogo et al. (2022) in Cameroon, where public and private sector employees were significantly more likely to utilise analgesia during labour, and with Sapira-Ordu et al. (2025) in Port Harcourt, where educational level and employment status significantly influenced pain-related outcomes in a comparable postpartum population. The findings on ease of accessing pain relief (Table 3) deepen this interpretive framework whilst introducing a more nuanced occupational gradient. Education reached high significance ($p = 0.001$), yet the relationship was non-linear: accessibility was lowest among women with primary education (48.7%), highest among those with secondary education (68.6%), but declined modestly among tertiary-educated women (61.4%). This non-linear pattern may reflect the differential expectations that tertiary-educated women bring to the healthcare encounter – a heightened consciousness of what adequate care should entail, which, when unmet, can be registered as perceived inaccessibility, even in settings where the same service is evaluated more favourably by women with lower educational baselines. Employment also reached significance ($p = 0.005$); traders reported the highest accessibility at 76.3%, contrasting sharply with civil servants (51.6%) and others (52.3%). The comparatively poor access reported by civil servants is particularly notable given their salaried status, and may reflect time constraints and shift-based postnatal attendance patterns that limit their opportunities for personalised engagement with pain relief services. Ndikom and Olejiya (2015) similarly found that over half of women in Ibadan who desired pain relief were unaware they could request it; this finding suggest that information asymmetry and provider-patient communication were insufficient, remain critical mediators of access, irrespective of occupational or educational category.

Cost as a barrier to labour pain relief (Table 4) presents the most complex pattern, and its findings challenge the assumption that higher socioeconomic indicators are uniformly protective against financial vulnerability. While marital status, religion, and ethnicity each failed to attain significance ($p = 0.809$, 0.668, and 0.649 respectively), both education and employment produced significant associations. Crucially, the educational gradient was counter-intuitive: cost burden was comparably low among women with primary (10.3%) and secondary education (10.2%), yet rose among tertiary-educated respondents (15.7%). This pattern, rather than representing a paradox, likely reflects the differential expectations and demands of tertiary-educated women, who are more aware of and more inclined to seek formal pharmacological analgesia – services that carry higher associated costs at primary care level, whereas women with lower educational attainment may rely on non-pharmacological or informal alternatives that are effectively cost-free (Ezeonu et al., 2019; Obuna & Umeora, 2014). The employment findings are more straightforward in their implications: farmers reported the highest cost burden at 33.3%, compared to civil servants at just 6.5%, affirming that irregular income and occupational insecurity translate directly into financial vulnerability in accessing intrapartum analgesic care (Ezeonu et al., 2019; Metogo et al., 2022). Taken together, these findings underscore that while socioeconomic empowerment generally facilitates access, its relationship with cost perception is shaped by the type of care that different women seek, expect, and are positioned to demand.

4.0 CONCLUSION

This study provided evidence that demographic variables are important determinants of labour pain relief utilisation in primary healthcare settings; educational attainment and employment status exert substantial influence on the three outcome dimensions: timeliness of pain relief administration, ease of accessing pain relief, and cost as a barrier. Both variables shaped how promptly women received pain relief, how easily they could access it, and the degree to which its cost constituted a financial challenge. By contrast,

marital status, religion, and ethnicity each exerted no statistically significant influence across any of these dimensions. Based on these findings, the study concludes that educational attainment and occupational status significantly shape labour pain relief utilisation among postpartum women attending primary healthcare centres in Obio/Akpor Local Government Area, Rivers State, Nigeria.

5.0 RECOMMENDATIONS

In line with the findings, the following recommendations were made:

1. The government should, through the Rivers State Ministry of Health, ensure that primary healthcare centres in Obio/Akpor Local Government Area implement structured health literacy programmes targeted at women with lower educational attainment, with a view to improving their awareness of available pain relief options and their confidence in requesting timely analgesic care during labour.
2. Primary healthcare facility managers should ensure that pain relief services are planned and delivered in a manner that reduces access inequities associated with occupational status, particularly by streamlining the process through which all women – irrespective of employment category, can obtain pain relief without undue delay or navigational burden.
3. The Rivers State Primary Healthcare Development Agency should develop and enforce cost-mitigation policies for intrapartum analgesic services at the primary care level, so that financial barriers do not disproportionately disadvantage women in irregular or low-income occupations, such as subsistence farmers, from accessing adequate labour pain relief during childbirth.
4. Facility heads should ensure that frontline midwives and nurses are trained to proactively offer and administer pain relief without waiting for women to self-initiate requests, thereby reducing the influence of health literacy gaps on timeliness and ensuring that all women, regardless of educational background or occupational status, receive equitable and dignified intrapartum pain management

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