

# Factors Associated with the Use of Caesarean Section in Nigeria

Mercy Mgbere<sup>a</sup> Azumah Mercy kelechi<sup>b</sup>

Email: mngbere@gmail.com<sup>a</sup> mercyazumah25@gmail.com<sup>b</sup>

Department of nursing sciences, faculty of basic medical sciences; Rivers State University, Nigeria, Department of nursing sciences, faculty of basic medical sciences; Rivers State University, Nigeria,

---

## Abstract

Caesarean Section (CS) is a life-saving obstetric surgery, which may be necessitated (sometimes the only feasible option) in high risk pregnancies such as those with multiple/ large fetus, breech presentations, obstructed labour, as well as in women with transmissible infections such as HIV/AIDS. Women in low-income countries have continue to show strong aversions to caesarean section despite the improvement in the safety of caesarean delivery associated with advances in anaesthesia, antibiotics, surgical techniques and blood transfusion. Thus, the aim of this review is to discuss the challenges involved in myths and misconception of caesarean and the factors associated with CS delivery in Nigeria and recommend the way forward. For CS to become more widely accepted in Nigeria, all relevant stakeholders must work collectively to support women undergoing this procedure

Keywords: Caesarean Section; Myth & Misconception; Pregnancy; Nigeria

---

## 1. Introduction

Maternal mortality is one of the major public health problems for which adequate medical intervention is the key to its elimination. The World Health Organization (WHO) fact sheets in 2012 stated that more than half a million women die annually from complications of pregnancy and child birth, while in 2015, about 303,000 women died during and after pregnancy and child birth (WHO 2012, 2015); majority of these death occurred in low income countries like Nigeria. Caesarean Section (CS) is a life-saving obstetric surgery, which may be necessitated in high risk pregnancies such as those with multiple/ large fetus, breech presentations, obstructed labour, as well as in women with transmissible infections such as HIV/AIDS (WHO, 2015).

Nevertheless, in recent years, governments and clinicians have expressed concern about the rise in the numbers of caesarean section births and the potential effect on maternal and infant health (WHO, 2015). Several studies have shown that women in low-income countries have continued to show strong aversions to caesarean section despite the improvement in the safety of caesarean delivery associated with advances in anaesthesia, antibiotics, surgical techniques and blood transfusion (Enabudoso, Ezeanochie & Olagbuju , 2011; Sunday-Adeoye & Kalu 2011).

Caesarean section can be performed either as an elective (planned) or emergency procedure ((Betrán et al. 2007; Althabe et al. 2006; Ronsmans, Holtz & Stanton 2006). . Elective caesarean sections have been considered safer for both mother and the fetus compared to their emergency counterpart. However, emergency caesarean sections have continued to form majority of caesarean deliveries in Nigeria (Nwobodo et al. 2011).

In addition, caesarean delivery has the potential for reducing maternal/neonatal mortalities and morbidities including delivery complications such as obstetric fistula (Betran et al. 2016; Keag, Norman & Stock, 2018). Evidence shows Nigeria has the highest prevalence of obstetric fistula in the world, with between 400,000 and 800,000 women living with the problem and about 20,000 new cases each year, ninety percent are left untreated (WHO, 2015; Save the

Children International, 2016). Sequel to these, the World Health Organization has estimated based on rates of fistula that in 15.5% of pregnancies in Nigeria, a CS is medically necessary (WHO, 2015; Betran et al. 2016).

According to the WHO (1985), the recommended optimal range of CS is between 10% and 15%, with a declaration that 'there is no justification for caesarean section rates in any region to be higher than 10%–15%. Though CS when performed accordingly increases the changes of live births. Consequently, Betran et al. (2016) asserts that elective caesarean delivery is over-utilised in many middle-income to high-income countries such as high as in China (25.9%), in Australia/New Zealand (32.3%) and Brazil (45.9%). Arguably, many of the caesarean deliveries in these countries were in excess medically unjustifiable; as elective CS constitutes bulk of the cases and thus unnecessary (Gibbons et al. 2010). While the above countries are over utilizing CS, in Africa, only 7.4% of all births occurred by CS in 2014, this implies that there is underutilization which could be part of the reason for the high level of maternal and infant mortality in the region.

Nonetheless, there has been a rise in the number of Caesarean sections (CS) globally over the last decade (Gibbons et al. 2010; Roberts & Nippita, 2015; Betran, 2016; Vogel, 2015). Although CS are potentially life-saving; preventing maternal and infant mortality, the adverse maternal and prenatal outcomes when a CS is not medically necessary have become a major public health concern as the associated expenses decrease resources available for other maternal and child health interventions (Althabe & Beliza, 2006; Souza et al. 2010).

However, in several low-income countries, where over 60% of the world's births occur, the population-based prevalence of CS is low; for instance, 4.1% in West Africa (Betrán et al. 2016; Gibbons et al. 2010). This low prevalence may reflect poor availability of-/accessibility to comprehensive essential obstetric care services (EOC) in the countries (Gibbons et al. 2012). Comprehensive EOC refers to a package of clinical services for managing pregnancy/childbirth-related complications of which CS is a critical component (WHO, 2009).

Moreover, Mazzone et al. (2011) posits that a predisposing factors affecting the escalation of caesarean section rate (CSR) around the world is doctors' decisions and patients' demand. Whereas in developed countries where patients are given the option to choose between vaginal and caesarean delivery; women's preference for caesarean delivery has appeared as an important determinant (Ash & Okah 2007). However, Lauer et al. (2010) asserts that doctors' referrals to perform caesarean surgery appear to be a more significant determinant than the woman's preference in developing countries.

In Nigeria, the incidence of caesarean section (CS) ranges from 2-2.7% (NDHS, 2018), and Udobang (2018) opine that the myths and perception surrounding caesarean surgery and other forms of breech presentations were the major predisposing factor for the low incidence of CS. Thus, the considerably low population-based prevalence of CS in Nigeria suggests unmet needs which may contribute to poor maternal and neonatal outcomes in the country (Nigeria Demographic and Health Survey 2013; Gibbons et al. 2010). Consequently, it is on record that about 58,000 women die each year in childbirth in Nigeria; maternal mortality ratio (MMR) is 512 deaths per 100,000 live births (NDHS, 2018), the fourth highest globally (UNICEF, 2018). Infant mortality currently stands at 69 per 1,000 live births and this could be as a result of the country's very low CS rates. Therefore, it is worrisome that there has been no significant increase in the population-based CS rates for several years in the country (Nigeria Demographic and Health Survey 2018).

### 1.1 Aim of the Review

The aim of this review is to discuss the challenges involved in myths and misconception of caesarean and the factors associated with CS delivery in Nigeria and recommend the way forward.

## 1.2 Objectives of the Review

- i. Review literatures and factors associated with caesarean delivery in Nigeria
- ii. Discuss the challenges involved in myths and misconception of caesarean delivery in Nigeria
- iii. Present the way forward

## Strategy

Grey literature such as reports and research briefs from WHO, UNICEF, Nigeria Population Commission, National Demographic Health Survey Nigeria was used for this review. In addition literature searches from peer-reviewed articles published between 2000 to date in databases such as Pubmed, Medline, Google Scholar, BioMED, were also used for this review.

## 2. Literature Review on Caesarean Delivery and Associated Factors in Nigeria

### 2.1 Factor Associated with Caesarean Delivery in Nigeria

#### 2.1.1 Aversion towards Caesarean Section

According to WHO (2015), most maternal deaths are preventable with the use of quality obstetric care, including caesarean section. However, Ribak et al. (2011) posit that a woman's refusal of caesarean section can create a challenging situation for obstetric care providers. For example, refusal of caesarean delivery, especially when medically indicated, can be a problem for the woman herself; this consequently leads to emergency caesarean section. Emergency caesarean section is a type of surgical procedure which is performed when there is an immediate threat to the life of foetus or woman during delivery (Ribak et al. 2011). According to the American College of Obstetrics & Gynaecology (ACOG) and American Academy of Pediatrics (AAP) recommendation, the emergency caesarean section should be performed in a time phase of 30 minutes from the decision to conduct it (Nasrallah et al. 2004). Decision to delivery interval (DDI) is the time interval from decision made to perform an emergency caesarean section till the delivery of the baby (Ribak et al. 2011).

In a study conducted by Aziken et al. (2007) findings from the study indicate that 12% women are unwilling to accept caesarean delivery under any circumstances. Chigbu and Iloabachie (2007) assert that reasons underlying the fears of CS in Nigeria were death of close relatives during CS, past unpleasant experiences in previous caesarean deliveries and unpleasant stories that they heard from other women.

According to a study by Chigbu and Iloabachie (2007), there is a caesarean section refusal rate of 11.6% among all cesarean deliveries in Nigeria. A study showed that infants born by CS in Nigeria were roughly three times more likely to die than those born vaginally (Ezeh et al. 2019), indicating that the intervention might be used too late. Other factors associated with increased risk of adverse neonatal outcome during labour in Nigeria include referral status, parity, gestational age (Okonofua et al. 2019), male gender and rural residence (Ezeh et al. 2019).

#### 2.1.2 Socio-Economic Status

Several studies have reported that an average woman in the wealthiest quintile is 2.4 times more likely to give birth by CS than women in the poorest quintile (Boerma et al. (2018). Thus, the financial implication of the procedure especially in settings without functional health insurance schemes is another reason why women refused it as the cost of CS is twice the price for a vaginal delivery. Similarly, in a study carried out by Zechi et al. (2004), 66.5% of respondents in their study declined caesarean delivery due to the high cost of the procedure.

Moreover, Lori (2011) asserts that maternal socio-demographic such as age, social class, education occupation, type of residence, cultural and psychological factors have been found to be strongly correlated with caesarean section rate. In terms of cultural aspects, studies have shown that the culture plays a pivotal role in constructing the patterns of women's behaviour towards pregnancy-related issues and mode of delivery. On the other-hand, psychological factors which may be due to fear related to prolonged labour and vaginal delivery pain reinforce women's preferences for caesarean delivery (Betran et al. 2016; Gibbons et al. 2010). However, Ugwu & de-Kok (2015)

in a study observed that women refuse caesarean section due to fear of abandonment by their husband and in-laws, inability to have desired number of children as a result of previous use of caesarean section.

### 2.1.3 Disparities in Caesarean Section Rates in Region of Residence

Disparities in CS rate exist within different region in Nigeria; for instance, the Nigerian North-West and North-East regions have the highest number of births and the lowest percentage of deliveries by caesarean section as illustrated on table 1 (Berglund, Benova, Olisaeke, & Hanson, 2021). Rural residence, religious beliefs, and a lack of education in the husband/partner were all substantially related with a lower prevalence and lower probabilities of caesarean birth (Adewuyi et al. 2019). Consequently, the highest numbers of maternal mortality rates are seen in the same regions of the country with low caesarean section rate as shown in table 1. Evidence have shown that acceptance and utilization of caesarean section among Nigerian women living in urban and semi-urban setting is low (Eifediyi, 2015).

Furthermore, majority of deliveries and childbirths in Nigeria occur at homes and not in hospitals where adequate medical interventions can be administered (Mallick, Tukur, & Kerry, 2016). This is also coupled with the fact that a higher percentage of deliveries occur in rural settlements. People living in urban areas have more access to caesarean sections, this can be attributed to the number of skilled medical practitioners in these environments and women in rural areas in serious need of this life saving caesarean section operation have little or no access to this medical intervention. The rural areas need more access to the C-section and more skilled attendances and also financial support as C-sections are more expensive than Natural births. According to NDHS (2018), the percentage delivered by caesarean section by rural–urban residence in Nigeria is 5.2% in urban areas and 1.2% in the rural areas.

Table 1: Regional Percentage of Deliveries by Caesarean Section in Nigeria

Region	No of births	% delivered by CS	Before onset of labour pains	After onset of labour pains
North-West	12,558	0.7	0.3	0.4
North-East	6,213	0.9	0.2	0.7
North-Central	4,619	2.7	1.2	1.5
South-East	3,428	5.8	2.9	2.9
South –West	4,407	7	3	4
South-South	2,968	5.1	2.1	3

(NDHS 2018)

### 2.1.4 Personal Autonomy and Cultural Norms

Nigeria is a male predominant country and cultural factors such as gender inequalities influences a woman's decision to deliver at a healthcare facility (Babalola & Fatusi 2009). For instance, in most traditional societies especially those with high prevalence of child marriage, it is common for women to have little autonomy over their health choices. Often, their husbands or elder family members decide for them and thus, require permission to seek care.

Although, certain obstetric risks such as dystocia (difficulty in birth, typically caused by a large or awkwardly positioned foetus, by smallness of the maternal pelvis, or by failure of the uterus and cervix to contract and expand normally), previous caesarean section, foetal distress, breach births, post-term pregnancy, multiple pregnancy, hypertensive disorder and HIV infection in pregnancy are considered to be justifiable medical reasons for carrying out a caesarean section (Mishra & Ramanathan, 2002; El–Ardat et al. 2013), however, irrespective of an obvious clinical indication, most women in Nigeria ‘pray’ not to undergo caesarean section (Adeoye, 2011). Thus, the CS rate in Nigeria remains low, at 2.7% of births from 2013 to 2018 (NDHS, 2018).

### 2.1.5 Health System Financing and Patients Trust

According to Vora et al. (2019), capacity and resources within the health system has been associated with the rate of CS being performed. Number of hospitals, hospital beds and supplies in hospital per capita are some of the associated determinants. Regardless of medical need there is an observed effect wherein the greater the capacity of the system the greater the surgical obstetric procedures performed. Meanwhile, the World Health Organization puts the doctor-patient ratio at 1:600 standards. However, Nigeria’s Education Minister Mallam Adamu stated that Nigeria’s doctor to patients’ ratio is 1:6,000 which falls below the global recommendation (Vanguard Newspaper, November

2021). The inability of Nigeria to meet the United Nations' benchmark for the doctor to patient ratio contributes to the country's healthcare challenges.

Furthermore, the way health systems are financed and designed can promote or obstruct CS procedure as frequent strikes by the Nigerian Medical Association contributes to high maternal mortality because sufficient trained medical personnel may be unavailable for obstetric emergencies. In addition, low minimum wage, poor implementation of the National Health Insurance Scheme and low uptake of family planning practices combine to inflict more economic pressures on households leaving little or nothing for proper health maintenance (Aziken et al. 2007).

#### 2.1.6. Knowledge of Caesarean Section

Meanwhile, it is vital that during ANC visits health care professionals incorporate information that makes mothers prepared for possible complications and procedures during childbirth. According to a study by Ezeonu et al. (2017), it was reported that 17.7% (n=209) of mothers were unaware/have never heard of the procedure. Whereas, the decision-making process for the woman involves a multiplicity of factors which include knowledge of the CS process, finances and family support.

### 2.2 Myths and Misconception of Caesarean Delivery in Nigeria

A major predisposing factor affecting increase in caesarean section rate in Nigeria is the case of having to contend with CS myths and misconceptions amongst a good number of Nigerians. In a study carried out by Aziken et al. (2007), 19% of women assert their refusal in CS even if it meant risking their lives or the lives of their babies; as some believed that a woman's inability to have a spontaneous vaginal birth was due to a lack of prayers for heavenly intervention or a previous offense committed by the lady.

Furthermore, many households in Nigeria still have numerous negative perceptions regarding caesarean delivery. In these settings, women who had caesarean delivery were considered as weaklings and a reproductive failure (Udobang, 2018). Failure to deliver vaginally may be attributed to a curse on an unfaithful woman (Adeoye, 2011). Rather, vaginal delivery in such settings is considered as the proof of womanhood (Aziken et al. 2007). Other reasons for the aversion to CS by women in developing countries include the morbidity and mortality from the procedure, prolonged hospital stay and perceived high cost of hospital bills. A large number of people in low-income countries still hold strong negative cultural perceptions regarding caesarean delivery, despite the availability of evidence-based safe techniques and improvements.

Adeoye et al. (2011) reported that 34% of respondents in their study stated that the cultural influence of their communities was responsible for their negative perception of CS delivery. Similarly, Aziken et al. (2007) reported that 1.8% of women rejected caesarean delivery because it was not acceptable by their culture. In the same vein, Orji et al. (2003) and Bello et al. (2011) documented that these cultural reasons also include the belief that caesarean delivery was felt to be due to spiritual attacks, retribution for women's infidelity and failure of a woman to fulfil her reproductive functions.

In addition, fear of death during or after the procedure is another significant reason why many women will refuse to have a caesarean delivery (Chigbu & Iloabachie 2007). Therefore it is imperative to address these misconceptions so as to improve maternal and child mortality rates in Nigeria.

### 2.3 The Way Forward

For CS to become more widely accepted in Nigeria, all relevant stakeholders must work collectively to support women undergoing this procedure.

Health educators should ensure pregnant women receive adequate counselling and health education concerning the safety and risk of the procedure. This should be done during antenatal visits. Educating the potential women will help reduce their fears and increase utilization.

Family and intimate partner support: close family members should give the right counsel and support the women undergoing this procedure as the right support system would boost the women's acceptance of CS and reduce stigmatization and mortality during the procedure.

Government should ensure that women become empowered, have access to free or affordable antenatal care and delivery services by ensuring that adequate budgetary allocations are made to finance the health system and to see that the money allocated is spent judiciously.

Religious and traditional leaders also have a significant and massive role to play in correcting wrong religious and cultural beliefs and perceptions about the procedure. This can be done by helping to sensitize their followers on the importance of CS when there is a threat to life.

### Conclusion

In conclusion this review has discussed the challenges involved in the myths and misconception of caesarean section and reviewed the literature on the factors associated with CS delivery in Nigeria. It has further shown the way forward towards increasing the utilization of caesarean section.

### References

- Adeoye, S.I. & Kalu, C.A. (2011). Pregnant Nigerian women's view of caesarean section. *Nigerian Journal of Clinical Practice*, 14(3), 276-279.
- Adeyuyi, E.O., Auta, A. & Khanal, V. (2019). Caesarean delivery in Nigeria: prevalence and associated factors—a population-based cross sectional study. *British Medical Journal* ;9:e027273. <https://doi:10.1136/bmjopen-2018-027273>
- Ahmad, N., Syed Nor, S., & Daud, F. (2019). Understanding myths in pregnancy and childbirth and the potential adverse consequences: a systematic review. *Malays Journal of Medical Science*, 17–27.
- Akinola, O.I., Fabamwo, A.O., Tayo, A.O., Rabiou, K.A., Abisowo, O.Y. & Alokha, M.E. (2014). Caesarean section-an appraisal of some predictive factors in Lagos Nigeria. *BMC Pregnancy and Childbirth*, 14(1), 217.
- Althabe, F., Sosa, C., Belizan, J.M., Gibbons, L. & Jacquerioz, F. (2006). Caesarean section rates and maternal and neonatal mortality in low-medium-, and high-income countries: an ecological study. *Birth*, 33, 270-277.
- Althabe, F. & Belizan, J.M. (2006). Caesarean section: the paradox. *The Lancet*, 368(9546), 1472–1473.
- Anyasor, C. (2017). "Perception and Cultural Belief of Pregnant Women towards Caesarean Section: A Case Study of Pregnant Women Living in a Rural Community in Southwest Nigeria." *IOSR Journal of Nursing and Health Science*, 6(5), 22–26.
- Aziken, M., Omo-Aghoja, L. & Okonofua, F. (2007). Perceptions and attitudes of pregnant women towards caesarean section in urban Nigeria. *Acta obstetrica et gynecologica Scandinavica*, 86, 42-47. <http://www.10.1080/00016340600994950>
- Babalola, S. & Fatusi, A. (2009). Determinants of use of maternal health services in Nigeria-looking beyond individual and household factors. *BMC Pregnancy and Childbirth*, 9(1), 43.
- Bello, F.A., Tsele, T.A. & Oluwasola, T.O. (2015). Decision-to-delivery intervals and perinatal outcomes following emergency cesarean delivery in a Nigerian tertiary hospital. *International Journal of Gynecology and Obstetrics*, 130(3), 279–283.
- Bello, F.A., Olayemi, O., Ogunbode, O.O. & Adekunle, A.O. (2011). Attitude to caesarean section amongst antenatal clients in Ibadan, Nigeria. *Tropical Journal of Health Science*, 18(1). <http://doi:10.4314/tjhc.v18i1.64483>
- Berglundh, S., Benova, L., Olisaekke, G. & Hanson, C. (2021). Caesarean section rate in Nigeria between 2013 and 2018 by obstetric risk and socio-economic status. *Tropical Medicine & International Health*, 26(7), 775-788.
- Betran, A.P., Torloni, M.R. & Zhang, J.J. (2016). WHO Statement on Caesarean Section Rates. *BJOG*, 123, 667–670.

- Betran, A.P., Ye, J., Moller, A.B., Zhang, J., Gu'Imezoglu, A.M. & Torloni, M.R. (2016). The increasing trend in caesarean section rates: global, regional and national estimates: 1990–2014. *PLoS ONE* 11(2), e0148343. <https://doi.org/10.1371/journal.pone.0148343> PMID:26849801
- Betran, A.P., Meriardi, M., Lauer, J.A., Bing-Shun, W. & Thomas, J. (2007). Rates of caesarean section: analysis of global, regional and national estimates. *Paediatric and Perinatal Epidemiology*, 21, 98-113.
- Chigbu, C.O. & Iloabachie, G.C. (2007). The burden of caesarean section refusal in a developing country setting. *BJOG*, 114(10), 1261-1265. <http://doi:10.1111/j.1471-0528.2007.01440.x>
- Daniel, C.N. & Singh, S. (2016). Caesarean delivery: An experience from a tertiary institution in north western Nigeria. *Nigerian Journal of Clinical Practice*, 19, 18-24.
- De Brouwere, V., Dubourg, D., Richard, F. & Van-Lerberghe, W. (2002). Need for caesarean sections in West Africa. *Lancet*, 359, 974-975.
- Eifediyi, R.A., Isabu, P., Akhimiona, V., Affusim, C.C., Ikheloa, J. & Njoku, A. (2015). Caesarean section: awareness, perception and acceptability of CS amongst sub-rural Nigerian patients. *International Journal of Gynecological and Obstetrical Research*, 3(1), 7-12.
- El-Ardat, M.A., Izetbegovic, S., Mehmedbasic, E. & Duric, M. (2013). Frequency of vaginal birth after cesarean section at clinic of gynecology and obstetrics in Sarajevo. *Medical Archives*, 67(6), 435–437.
- Enabudoso, E.J., Ezeanochie, M.C. & Olagbuji, B.N. (2011). Perception and attitude of women with previous caesarean section towards repeat caesarean delivery. *Journal of Maternal-Fetal and Neonatal Medicine*, 24, 1212-1214.
- Ezeh, O.K., Uche-Nwachi, E.O., Abada, U.D., & Agho, K.E. (2019). Community- and proximate-level factors associated with prenatal mortality in Nigeria: evidence from a nationwide household survey. *BMC Public Health* 2019: 19: 811.
- Ezeonu, P.O., Ekwedigwe, K.C., Isikhuemen, M.E., Eliboh, M.O., Onoh, R.C., & Lawani, L.O. (2017). Perception of caesarean section among pregnant women in a rural missionary hospital. *Advance Reproductive Science*, 5, 33–38. <http://doi:10.4236/arsci.2017.53004>
- Gibbons, L., Belizan, J.M., Lauer, J.A., Betran, A.P., Meriardi, M., & Althabe, F. (2010). The global numbers and costs of additionally needed and unnecessary caesarean sections performed per year: overuse as a barrier to universal coverage. *World Health Report*, 30, 1–31.
- Gunn, J.K.L., Ehiri, J.E., Jacobs, E.T., Ernst, K.C., Pettygrove, S. & Center, K.E. (2017). Prevalence of Caesarean sections in Enugu, southeast Nigeria: Analysis of data from the Healthy Beginning Initiative. *PLoS ONE*, 12(3), e0174369. <https://doi.org/10.1371/journal.pone.0174369>
- Hilekaan, S.K.H., Ojabo, A. & Idogah, S. (2015). Caesarean Section Rate in a Tertiary Hospital in Makurdi, North-Central Nigeria. *Gen Med (Los Angel)* 3: 183. <https://doi:10.4172/2327-5146.1000183>
- Isah, A.D., Adewole, N. & Zaman, J. (2018). A five-year survey of caesarean delivery at a Nigerian tertiary hospital. *Tropical Journal of Obstetric Gynaecology*, 35, 14-17.
- Keag, O.E., Norman, J.E. & Stock, S.J. (2018). Long-term risks and benefits associated with caesarean delivery for mother, baby, and subsequent pregnancies: Systematic review and meta-analysis. *PLoS Med*, 15, e1002494.
- Lauer, J.A., Betran, A.P., Meriardi, M. & Wojdyla, D. (2010). Determinants of caesarean section rates in developed countries: supply, demand and opportunities for control. Geneva: World Health Organization.
- Mazzoni, A., Althabe, F., Liu, N.H., Bonotti, A.M., Gibbons, L. & Sanchez, A.J. (2011). Women's preference for caesarean section: a systematic review and meta-analysis of observational studies. *BJOG*. 2011;118(4):391–9.
- Nasrallah, F.K., Harirah, H.M., Vadhera, R., Jain, V., Franklin, L.T. & Hankins, G.D. (2004). The 30-minute decision-to-incision interval for emergency cesarean delivery: fact or fiction? *American Journal of Perinatology*, 21(2), 63–68.
- National Population Commission, (NPC) [Nigeria], ICF. Nigeria Demographic and Health Survey 2018 – Final Report. Abuja, Nigeria and Rockville, Maryland: NPC and ICF; 2019.
- Nwobodo, E.I. Isah, A.Y. & Panti, A. (2011). Elective caesarean section in a tertiary hospital in Sokoto, north western Nigeria. *Nigerian Medical Journal*, 52, 263-265.
- Okonofua, F.E., Ntoimo, L.F.C. & Ogu, R. (2019). Prevalence and determinants of stillbirth in Nigerian referral hospitals: a multicentre study. *BMC Pregnancy Childbirth*, 19, 533.
- Olofinbiyi, B.A., Olofinbiyi, R.O., Aduloju, O.P., Atiba, B.P., Olaogun, O.D. & Ogundare, O.R. (2015). Maternal views and experiences regarding repeat Caesarean section. *Nigerian Journal of Clinical Practice*, 18, 489-492.
- Orji, E.O., Ogunniyi, S.O. & Onwudiegwu, U. (2003). Beliefs and perceptions of pregnant women at Ilesha about caesarean section. *Tropical Journal of Obstetric Gynecology*, 20(2), 141-143.
- Rashid N, Nalliah S. (2007). Understanding the Decision-Delivery Interval in Caesarean Birth. *IeJSME*, 1(2), 61–68.
- Roberts, C.L. & Nippita, T.A. (2015). International caesarean section rates: the rising tide. *The Lancet Global Health*, 3(5), 241–242. [https://doi.org/10.1016/S2214-109X\(15\)70111-7](https://doi.org/10.1016/S2214-109X(15)70111-7) PMID: 25866356.

- Ronsmans, C., Holtz, S., Stanton C (2006) Socioeconomic differentials in caesarean rates in developing countries: a retrospective analysis. *Lancet* 368, 1516-1523.
- Sunday-Adeoye, I. & Kalu, C.A. (2011). Pregnant Nigerian women's view of caesarean section. *Nigerian Journal of Clinical Practice*, 14, 276-279.
- Villar, J., Valladares, E., Wojdyla, D., Zavaleta, N. & Carroli, G. (2006). Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and prenatal health in Latin America. *Lancet*, 367, 1819-1829.
- Vora, K.S., Cottagiri, S.A., Saiyed, S. & Tailor, P. (2019). Public Health aspects of Cesarean section including overuse and underuse of the procedure. *International Research Journal of Public Health*, 3, 30.
- Udobang, W. (2018). Silence about C-sections: Nigeria has some of the highest infant and maternal mortality rates in the world, in part, because of taboos over Caesarean sections. *Index on Censorship*, 45-47.
- Ugwu, N.U., De-Kok, B.(2015). Socio-cultural factors, gender roles and religious ideologies contributing to Caesarian-section refusal in Nigeria. *Reproductive Health*, 12, 70.
- United Nations (2016). Sustainable Development Goals: 17 Goals to Transform Our World 2016. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- WHO (2015). WHO Statement on Caesarean Section Rates. Geneva: World Health Organization. Geneva.
- WHO (2015). State of inequality: reproductive, maternal, newborn and child health. Geneva: World Health Organization.
- WHO (1985). Appropriate technology for birth. *Lancet*, 2, 436-437.