

Cultural and Economic factors influencing awareness and knowledge of Rhesus Incompatibility among women of reproductive age in Southeast Nigeria

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Abstract

This study examined the cultural and economic factors affecting knowledge of rhesus incompatibility among women of reproductive age in South-east Nigeria. Rhesus incompatibility is a common factor responsible for perinatal deaths. This paper examines the cultural and economic factors affecting the level of awareness and knowledge of this very important issue. The symbolic interactionist theory was adopted to as the theoretical framework for this study. The study adopted the mixed methods research design involving quantitative and qualitative research methods. The questionnaire served as the instrument for quantitative data collection while the IDI was used to collect qualitative data. A sample size of 1,111 respondents were selected for the study. The respondents were selected based on their knowledge and experience with Rhesus incompatibility related problems. The quantitative data were processed using SPSS and analyzed using simple percentages and frequency tables. The data were cleaned and processed using Nvivo, a tool for qualitative data processing in the social sciences. Analysis was presented in line with the study objectives and themes that were generated in the study. It was found that there is an increased knowledge of Rhesus incompatibility among women of reproductive age in South-east Nigeria. Several factors like education, place of residence, religion and ignorance were identified as the social factors responsible for poor knowledge and action towards Rhesus incompatibility in the study area. The study recommends that efforts should be made to improve the level of knowledge and awareness of Rhesus incompatibility. Also, there should be increased access to education especially for women, to improve their knowledge about the issue of Rhesus incompatibility.

Keywords: Cultural factors, economic factors, Rhesus incompatibility, perinatal death, maternal mortality

1. Introduction

According to Bethesda (2005), the discovery of the Rh factor had significant implications in transfusion medicine and obstetrics because of the new understanding that Rh incompatibility between a mother and her foetus can lead to hemolytic disease of the newborn (HDN); a condition where the mother's antibodies attack and destroy the red blood cells of the foetus. This can result in severe complications or even death for the newborn. However, with the knowledge of the Rh factor, preventive measures such as Rh immunoglobulin (RhIg) injections can be administered to Rh-negative mothers during pregnancy to prevent the development of Rh antibodies. Since its discovery, further research has identified multiple subtypes of the Rh factor, including RhD, the most clinically significant antigen. The Rh factor is now an integral part of blood typing and compatibility testing in transfusion medicine and prenatal care, ensuring safe blood transfusions and managing pregnancies at risk of Rh incompatibility (Pinapothu, Guvvada, Sowjanya & Vasanthi, 2019). Perinatal mortality is defined as foetal loss at or after 28 weeks of gestation (stillbirth) or neonatal death within 7 days of life [early neonatal mortality] (Goba, Tsegay, Gebregergs, Mitiku, Kim, & Alemayehu, 2018). Globally, out of the estimated 3 million perinatal deaths that occur each year, low- and middle-income countries share the highest burden (97–99%) (WHO, 2006). Perinatal mortality is a reflection of poor socio-economic status of a country, poor maternal health service utilization and the quality of obstetric and neonatal care facilities available (WHO, 2006; Central Statistical Agency [Ethiopia] and ICF International, 2012; Andargie, Berhane, Worku, and Kebede, 2013). Furthermore, inappropriate maternal health care provision during the course of pregnancy, labour, delivery and postpartum periods, particularly when complications happen and lack of new-born care immediately after delivery and within the first 7 days of life were the main contributing factors for the highest burden of perinatal death in low resource settings (WHO, 2006).

Rhesus disease has been identified as one of the causes of perinatal death. Couples with incompatible rhesus are at risk of this condition. It is important to note that sensitization occurs in the first pregnancy but the risk is only to the subsequent pregnancies (Letsky, Leck & Bowman, 2000). Obviously, injury or trauma may result in the mixing of blood between the mother and baby. This is seen occurring in approximately 10% of cases (Bowman, 1978 cited in Hill, 2002). The National Demographic and Health Survey (NDHS Reports, 2008 and 2018) suggest

that the prevalence of Rhesus negative women in Nigeria varies between 5 and 9.5% with higher occurrence of about 44.7 percent in southern Nigeria. The report further revealed that Perinatal Mortality Rates of 72/1000 and 69/1000 live births respectively (NDHS Reports, 2008 and 2018). This drop is insignificant and troubling when compared to lesser outcomes in some countries of the world. Perinatal morbidity such as jaundice, asphyxia etc. arising from incompatible rhesus of spouses accounts for a significant percentage of perinatal mortality. Again, the NDHS report (2018), has implicated demographic factors such as age, birth interval, education, income and place of residence in the onset of perinatal/neonatal mortality. The current emphasis on compatibility of genotypes for couples, as check against the sickle cell disease, seem to have sublimated the need for rhesus consciousness among couples. While statistics show that about 7-9 million babies die annually, of which 98% occur in the tropics and developing countries where perinatal mortality rates are between 57 and 100 per 1000 birth, awareness of this remains low and knowledge still largely influenced by cultural beliefs, for instance the Abiku or Ogbanje (spirit child) syndrome (Ibekwe, Ugboma, Onyire & Muoneke, 2018). Like maternal mortality, perinatal mortality is also preventable, but knowledge of the phenomenon remains a big challenge in many parts of the country, Nigeria.

It has been significantly revealed that the societal norms, values and culture of any country has a substantial effect on its maternal mortality rate (Fagbamigbe, 2015; Kaur, 2018). Some studies have documented the association between religious, social and cultural beliefs and the health risks faced by childbearing women (Mumtaz et al 2014; Choudhary, 2017). For example, Muslim women are said to usually opt for 'faith-based' healthcare services. These services consist, to a large extent, of traditional or spiritual healers without an academic background to support their business (Choudhary, 2017). Similarly, families who are impoverished and have limited access to education are marginalized from accessing biomedical healthcare services. This in turn creates distrust in the healthcare system and strengthens the preference for traditional healers (Mumtaz et al 2014). For that reason, women disregard proper medical attention during their pregnancy, resulting in negative effects on their reproductive health (Evans, 2013). Again, in most developing countries, people with low socioeconomic status continuously follow certain beliefs and cultural rituals, despite there being no scientific evidence available in their favour (Fagbamigbe, 2015). All this is deeply rooted in the role and status of women within the society (Atanasova, Arevalo-Serrano, Alvarado, Larroca, 2018). In societies with strong patriarchal system where men largely dominate household decision-making and finances, women, particularly those living in rural areas and urban slums, are treated as subordinates and have limited or no say in personal and family matters (Naz, and Ahmad, 2022). The disadvantaged status of women and the male domination of society have adverse impacts on women's reproductive health (Khan, Bhutta, Munim S, Bhutta, 2019). Therefore, this study is focused on assessment of the cultural and economic factors affecting rhesus incompatibility among women of reproductive age in southeast, Nigeria.

2. Literature Review

There are couple of factors that hinders the desirable change in terms of rhesus compatibility. One of such barriers is limited awareness and knowledge of the Rh system. According to various studies, many people have limited knowledge and awareness of the Rh system and its significance in transfusion and pregnancy (Urbaniak, and Greiss, 2000). Some studies indicate that the general public and healthcare professionals have insufficient knowledge and awareness of the significance of the Rh factor, particularly its implication in relation to pregnancy (Urbaniak, and Greiss, 2000).

Similarly, the World Health Organization WHO (2016), identified lack of education and training for healthcare professionals. They argued that limited education and training for healthcare professionals regarding the Rh system and its implications is a significant barrier to Rh compatibility awareness. Healthcare professionals who lack knowledge and understanding of the Rh system and its implications may not be able to inform their patients about the risks of Rh incompatibility. As a result, patients may not be aware of the importance of Rh compatibility during pregnancy.

In addition, Gwaram, and Abdullahi (2013) identified cultural and social beliefs as some of the barriers. They were of the opinion that cultural and social beliefs can be a significant barrier to Rh compatibility awareness. In some cultures, and communities, blood transfusion is considered taboo or unacceptable. Consequently, these beliefs affect the willingness of individuals to undergo Rh testing and blood transfusion. Additionally, some individuals may avoid testing and blood transfusion due to stigma and fear of being associated with HIV and other blood-borne infections. Also, important another important barrier is lack of access to Rh Testing (Ayenew, 2021). Another significant barrier to Rh compatibility awareness is a lack of access to Rh testing. Rh testing is not universally available, particularly in developing countries where medical resources may be limited. Essentially, Rh compatibility is a vital factor in both blood transfusion and pregnancy. However, barriers to Rh compatibility

awareness, such as limited knowledge and awareness of the Rh system, lack of education and training for healthcare professionals, cultural and social beliefs, and lack of access to Rh testing, pose significant challenges. There are several socio-economic implications associated with rhesus disease. These include death, economic costs of medication, stigma, etc. Perinatal death resulting from Rhesus incompatibility has social implications that can affect families and communities. Rhesus incompatibility is a preventable condition that can be managed with adequate screening, intervention, and treatment. Roman, (2013) identified the following factors as significant social implications resulting from failure to prevent perinatal death resulting from Rhesus incompatibility such as emotional and psychological impacts on families. Perinatal death resulting from Rhesus incompatibility can have significant emotional and psychological impacts on families. The loss of a newborn can be devastating, and it may lead to grief, depression, and other mental health problems for parents and family members.

Again, economic costs and social stigma have been identified as resultant effects of rhesus incompatibility (Trina, Josée, Geoffrey, Davina, 2020), perinatal death resulting from Rhesus incompatibility can have significant economic costs for families and communities. Families may experience financial strain due to medical expenses, funeral expenses, and time lost from work. Additionally, communities may experience long-term economic losses due to a decreased workforce and increased dependency on social welfare. Similarly, stigma and discrimination are also factors, this is because perinatal death resulting from Rhesus incompatibility can lead to stigmatization and discrimination of women who have previously experienced stillbirth or perinatal death due to Rhesus incompatibility. This stigma and discrimination can affect a woman's future reproductive decisions and impact her relationship with her partner and community

Another social implication of rhesus incompatibility is its public health outcome (MacKenzie, Findlay, for Thompson and Roseman (2006) perinatal death resulting from Rhesus incompatibility highlights the importance of public health education and awareness campaigns. Lack of knowledge and awareness of Rhesus incompatibility can lead to preventable deaths and increased healthcare costs. Improved public health education and awareness campaigns can reduce the incidence of perinatal death and improve maternal and neonatal outcomes. Succinctly, it could be asserted that perinatal death resulting from Rhesus incompatibility has significant social implications that can affect families and communities. Emotional and psychological impacts, economic costs, stigma and discrimination, and public health implications are some of the social implications of perinatal death resulting from Rhesus incompatibility. Prevention of perinatal death resulting from Rhesus incompatibility requires increased awareness, education, and access to healthcare services.

3. Methodology

The study adopted a qualitative research approach involving purposive sampling using unstructured instruments which enabled the conduct of six in-depth interviews (IDI). Using the symbolic Interactionist theory, this paper explores the social factors affecting knowledge of rhesus incompatibility among women of reproductive age in South-east Nigeria. The study participants who were aged 18 years and above were identified using the snowballing technique. The symbolic interactionist theory is one of the major frameworks in Sociological theories. The theory traced its origin to Max Weber but it was George Herbert Mead who elaborated much on it in the 1920s. The symbolic Interactionist theory stresses that the concept of the Rh blood group system and the presence or absence of the Rh antigen (Rh factor) on red blood cells can be understood through the subjective meanings individuals attach to these biological factors. The interviews lasted between 30 and 45 min and continued until we got to the point of saturation (Guest et al., 2006; Baker and Edwards, 2012). The target population for this study are women of reproductive age in South East Nigeria.

Data received from the field for this study were collected in local languages and pidgin English as the case may be. It was recorded in electronic gadgets, transcribed and stored in computers and later compared with those recorded in field notes to ensure no data is lost. This was done first to ensure detailed and accurate perspectives from the source language (local language/pidgin) to the target language (English) with the aid of a translator or an interpreter where necessary. This was followed by thematic analysis. Thematic analysis refers to a process of “identifying, analyzing, and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail (Onyima, 2023). Next, the raw data were imported into the latest version of NVivo to process the data-cleaning process, editing and analysing the emerging codes and themes from the reiterative reading of the manuscripts. This was complemented with the use of manual thematic analysis.

4. Findings

Table 1: Respondents responses on whether perinatal deaths are caused by Spiritual forces

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	229	28.1

Agree	132	16.2
Undecided	44	5.4
Disagree	275	33.7
Strongly Disagree	136	16.7
Total	816	100

Field Survey, 2024

Table 1 shows that a majority of the respondents 275(33.7%) did not agree that perinatal deaths are caused by spiritual forces while 44(5.4%) were undecided. This implies that perinatal deaths are presumably understood not to be caused by unseen forces. The qualitative data seems conflicting...

A respondent stated thus...

Yes, that is exactly what I was saying before now, the level of spiritual interpretation of everything around here is very enormous. Especially among the less educated everything is colored with religious undertone. If it is not this spirit it is the other spirit. Everything is evil spirit either from father's house or mother's lineage (*Student, 24 years of Age, Rural residence*).

Another respondent aligned with the above...

It is actually the real danger, I don't believe in perinatal deaths are caused by spirits but many people in rural areas do believe strongly in such things. They call it village people. So you hear them say her village people is after her life that why her children die (*Self-employed, 29 years of age, Urban resident*)

Probed; can you describe more what they call it... Okay well you hear things like (Ogban jee) a kind of reincarnation.

Another respondent asserted differently

No, there is nothing spiritual about it. Sometimes it is due to too much stress on the mother or biological factors. You know like the Rhesus factor we are discussing I know it causes perinatal deaths. So nothing like spiritual (*Public Servant, 38 years of age, Urban resident*)

The study examined if the prevailing religious belief within the study area accepts the prevalence of Rhesus factor as a health care challenge. The findings are presented in table 13.

Table 2: Respondents response on whether their religious believe accept Rhesus factor.

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	451	55.3
Agree	91	11.2
Disagree	137	16.8
Strongly Disagree	137	16.8
Total	816	100

Field Survey, 2024

Table 2 shows that a majority of the respondents 451(55.3%) strongly agreed that religious belief affects acceptance of Rhesus factor condition while also 91(11.2%) agreed. This implies that religiosity goes a long way to determine the acceptance of Rhesus factor condition or not. It could perhaps be that certain religious organization does not accept the testing nor its results. The response from most people in rural areas affirmed the quantitative data thus... *Well for us in this community we believe in our Rev Father, he is educated I mean he went to school so he knows everything. He has not told us anything about this rhesus you are talking about, so well I believe you but I don't know more (Farmer, 28 years of age, rural residence).*

Another respondent argued differently...

Religion does not determine my healthcare. Those within the religious cycle are not healthcare professional. They have talked about Rhesus in the hospital before so I believe it is real (Self-employed, 29 years of age, urban residence)

Another respondent provided a more nuanced data...

Personally religious believe don't determine my health believe system. I believe what the healthcare professionals say, yes I am educated so I know the difference. I believe Rhesus factor is actually real. But let me also say our society is predominated by different religiosity. So it won't surprise me if some religious organizations don't believe in rhesus related issues (*Public servant, 27 years of age, urban residence*)

The study examined if socio-cultural beliefs constitute a barrier to rhesus incompatibility. The findings are presented in table 14.

Table 3: Respondents responses on if Socio-cultural believes are major berries to rhesus knowledge and awareness

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	185	22.7
Agree	92	11.3
Undecided	181	22.2
Disagree	313	38.4
Strongly Disagree	45	5.5
Total	816	100

Field Survey, 2024

Table 3 shows that a majority of the respondents 313(38.4%) did not agree that socio-cultural beliefs were major barriers to rhesus knowledge and awareness while 45(5.5%) strongly disagreed. This could be perhaps due to Western influence that has reduced the effect of cultural practices within the area of study.

The study probed if Rhesus incompatibility could impose a financial challenge on couples with the factor. The findings are presented in table 15.

Table 4: Respondents response on if rhesus incompatibility imposes financial cost on families.

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	229	28.1
Agree	228	27.9
Undecided	182	22.3
Disagree	133	16.3
Strongly Disagree	44	5.4
Total	816	100

Field Survey, 2024

Table 4 shows that a majority of the respondents 229(28.1%) strongly agreed that rhesus incompatibility issues imposes financial constraints on families while 44(5.4%) strongly disagreed. This implies that the cost of testing and treatment of rhesus related complications could greatly deplete the financial resources of the couple thereby causing them strains. The qualitative data provided divergent views...

A respondent stated thus...

Yes it brings about financial burden on the couple.

Probed; how exactly ... You know in terms of going for test buying drugs... Couples without strong financial base will end up borrowing or selling of their belongings so yes it affects them greatly (*Self-employed, 29 years of age, urban residence*).

Similarly, a respondent affirmed...

You do know things are very difficult and challenging these days. So there is no how it won't cause financial strain. However, it goes beyond just financial troubles. It is also the reason why some men start to cheat. In some stance the family of the man will pressure him to get a second wife, infidelity lack of trust, he might even become violent. All these issues and others will start but people won't know why it is happening (Public Servant, 33 years of age, Urban residence).

In same vain a respondent provided more insights...

The financial challenge is nothing compare to other challenges. If it is bad mother inlaw they will start calling the woman names, they will also stigmatize against her and might even suggest it is as a result of her promiscuous life style before marriage that caused the problems (*Farmer, 19 years of age, rural residence*)

The study examined if women who earn very high income are insulated from the challenges associated with rhesus incompatibility. The findings are presented in table 16.

Table 5: Respondents Response on whether high income earning women are more likely to have Rhesus incompatibility practices.

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	142	17.4
Agree	318	39.0
Undecided	44	5.4
Disagree	268	32.8
Strongly Disagree	44	5.4
Total	816	1000

Field Survey, 2024

Table 5 shows that a majority of the respondents 318(39.0%) did agree that high income earning women are in better position to adopt practices related to Rhesus factor while 44(5.4) were undecided. This implies that financial capacity is a factor that could hinder some women from testing and involving in other practices associated with Rhesus factor health seeking behavior.

The study further investigated if people who experienced perinatal deaths are socially stigmatized in society. The findings are presented in table 17.

Table 6: Respondents responses on if deaths from rhesus incompatibility lead to social stigma and depression

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	187	22.9
Agree	316	38.7
Undecided	44	5.4
Disagree	269	33.0
Total	816	100

Field Survey, 2024

Table 6 shows that a majority of the respondents 316(38.7%) indicated that deaths from rhesus incompatibility leads to social stigma and depression while 44(5.4) were undecided. This implies that prenatal deaths and natal deaths are possibly associated with other factors besides biological reasons thereby attracting social stigma that could depress those affected. The qualitative data corroborated the quantitative findings. A respondent stated thus...

It causes social stigma especially to the women that resides in rural areas where other women when other women began to avoid them in meetings and gossip behind them (*Self-employed, 27 years of age, Urban Residence*)

Another respondent stated thus...

Exactly what I was saying earlier the social stigmatization is too much, some will say the lady is possessed with water spirit, she is married to marine spirit, all manner of things are said if the lady is not strong or the husband is not supportive it will definitely lead to depression (*Farmer, 19 years of age, rural residence*)

The study explored if perinatal deaths causes low self-esteem to the couple. The findings are presented in table 18.

Table 7: Respondents views on if perinatal deaths lead to low self-worth and status depreciation.

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	278	34.1
Agree	223	27.3
Undecided	90	11.0
Disagree	137	16.8
Strongly Disagree	88	10.8
Total	816	100

Field Survey, 2024

Table 7 shows that a majority of the respondents 278(34.1%) strongly agreed that perinatal deaths leads to low self-worth while 88(10.8%) were strongly disagreed. This implies that perinatal deaths affect the psychological well-being of women of reproductive age.

The study examined if the cost of testing for Rhesus factor is a reason why many people do not under take the test. Findings are presented in table 19.

Table 8: Respondents views on whether high cost of testing for rhesus limits couples from assessing rhesus test.

<i>Responses</i>	<i>Frequency</i>	<i>Percentage</i>
Strongly Agree	135	16.5
Agree	408	50.0
Undecided	89	10.9
Disagree	137	16.8
Strongly Disagree	47	5.8
Total	816	100

Field Survey, 2024

Table 8 shows that a majority of the respondents 408(50.0%) agreed that high cost of testing for Rhesus factor inhibits women of reproductive age from undergoing the test while 47(5.8%) strongly disagreed. This implies that the reason why most women are unable to undergo rhesus test is as result of expensive cost of testing. It could be as a result of the low educational status of the respondents that limits their income or perhaps their priorities other financial exigencies over testing for rhesus. The qualitative data did not support the quantitative findings.

A respondent argued thus... the issue is not even finance, although money issues may join but the real problem is lack of aware, many people don't know about it at all (*Public Servant, 39 years of Age, Urban residence*).

Yet a respondent corroborated stating...

Even if you make it free how those who are not aware will go for the test? The problem is not cost rather lack of information and necessary knowledge about it (*Self-employed, 28 years of age, rural residence*).

5 Discussion

The study focused on the extent cultural factors affect knowledge of Rhesus incompatibility among women of reproductive age in Southeast Nigeria. Within the culture area the study is situated, socio-cultural beliefs overshadow other explanations of social phenomenon therefore there is a likelihood that consequent outcomes of rhesus incompatibility for example perinatal death could be attributed to spiritual forces, enemies of the couple and perhaps other non-biological health oriented explanations. As a result of these prevailing believe system, the study investigated if perinatal deaths are seen as a spiritual manifestation. The quantitative data found that a majority of the respondents alluded to spiritual forces, this finding is supported by Gwaram and Abdullahi (2013) who asserted that cultural and social beliefs are some of the barriers against RH. They were of the opinion that cultural and social beliefs can be a significant barrier to Rh compatibility awareness. In some cultures, and communities, blood transfusion is considered taboo or unacceptable. However, the qualitative data from this study revealed a mixed response. Some respondents supported spirituality as the cause of perinatal deaths for instance suggesting that perhaps the women have a spiritual husband that takes away her baby or maybe her enemies don't want her to have a baby. Other respondent agreed that Rhesus factor that is unattended to could be the cause of such deaths. It has to be noted that the second category of respondents are few. The study also found that overwhelming majority of the respondent agreed that their religious believe accepts the existence of Rhesus factor. However, this response is as a result of the increasing influence of Western Christianity that has almost overshadowed traditional worship systems and increasingly changing the religious teaching and believes within the culture area. Other studies on RH such as that by Teitelbaum, Metcalfe, Clarke, Jillian, Wilson, and Johnson (2015) did not base its analysis on direct human participants to understand if socio-cultural factors could influence the outcome of Rhesus factor therefore it will require future research to validate this particular finding.

The study also focused on economic factors affecting knowledge and awareness of Rhesus incompatibility among women of reproductive age in South-east Nigeria. The first item is on if Rhesus incompatibility imposes financial cost on families, the quantitative and qualitative data positively aligned. Some of the qualitative data respondents provided more insights that goes beyond financial burden. They suggested that it also leads to disunity, domestic violence and extramarital affairs among others. The study revealed that the income of a women does not

ameliorate the challenges of Rhesus compatibility. The findings revealed that Rhesus incompatibility leads to social stigmatization such as name calling, public avoidance etc. From the qualitative data it was revealed that sometimes the woman is accused of having leaved a wayward youthful life maybe has had issues that affected her womb and other factors. These findings are in tandem with the study conducted by Cayetano, Marcos, José, Isabel, Francisca, Encarnación, María, and José, (2020) in Spain which found that perinatal death affects family dynamics, and the social environment of the parents is severely affected after perinatal death. The study concluded that PD impacts the family dynamics of the parents and their family, social and work environments. Parents perceive that society trivializes their loss and disallows or delegitimizes their grief.

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