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Research Article

Knowledge and Perception of Rhesus Incompatibility Among Pregnant Women Attending Antenatal Clinic at Nnobi Primary Health Care Center in Anambra State

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Abstract

This work was carried out to determine the knowledge and awareness of Rhesus compatibility among pregnant Women attending antenatal clinic at Nnobi primary health care center, Anambra State. The objectives are to determine the knowledge of Rhesus incompatibility among pregnant women attending Antenatal at Nnobi primary health care center, Anambra State, ascertain the knowledge of effect on pregnancy and to determine the precautionary measures they take to prevent rhesus incompatibility. A cross-sectional design was adopted and a sample size of 110 was used for this study. A research questionnaire was the instrument used for data collection. Analysis was done using frequency and percentage and results were represented in tables. The results of the study revealed that a greater percentage of the respondent 96(87.3%) reported that they had heard about Rhesus incompatibility, 28(25.5%) mothers reported that they knew the various effects of Rhesus incompatibility. (36.4%) of the respondents reported knowing the rhesus group of their husband as one of the precautionary measures to avoid rhesus disease. In conclusion, the study was able to reveal that mother's knowledge and perception of rhesus incompatibility is still poor despite serious negative effect on pregnancy outcomes. There is lack of information and health education on the rhesus incompatibility in pregnancy which is critical to improving knowledge. Mothers could not determine the precautionary measures to be taken to avoid the Rhesus incompatibility. We therefore recommend that the blood group (A, B, O) and RhD factors are determined before marriage and the consequences of the rhesus incompatibility be made known to young people early before marriage and consequent pregnancy. This will help the pregnant woman and her partner to be psychologically and economically ready for effective management of the pregnancy and its outcome.

Keywords: *knowledge, perception, rhesus incompatibility, pregnant women, Nnobi primary health care center.*

INTRODUCTION

Rhesus (Rh) incompatibility remains a significant concern in maternal-fetal medicine globally, with particular implications in regions with limited access to comprehensive prenatal care. Rh incompatibility occurs when a Rh- negative mother carries a Rh-positive fetus, potentially leading to hemolytic disease of the newborn (HDN) if the mother's immune system becomes sensitized to Rh-positive red blood cells [1]. This condition underscores the necessity for pregnant women and healthcare providers to possess comprehensive knowledge and awareness to prevent adverse outcomes. The Rh factor, a protein on red blood cells, is crucial in determining blood compatibility during pregnancy. When a Rh-negative mother is exposed to Rh-positive fetal blood, her immune system may produce antibodies against Rh-positive cells, leading to hemolysis in subsequent Rh-positive pregnancies. This immune response can result in severe anemia, jaundice, and even fetal death if not properly managed. Preventive measures, such as administering Rh immunoglobulin (RhIg), are critical in mitigating these risks [2].

Globally, the prevalence of Rh incompatibility and its consequences vary significantly. In high-income countries, widespread prenatal screening and the use of Rh immunoglobulin (RhIg) have drastically reduced the incidence of HDN

[3] However, in low- and middle-income countries, including many regions in Africa and Asia, the lack of routine prenatal care and awareness contributes to higher rates of Rh sensitization and associated complications [4]. For instance, in India, studies have indicated that a significant proportion of Rh-negative women remain unaware of their Rh status, leading to preventable cases of HDN [5].

Nigeria, with its diverse healthcare landscape, reflects the broader challenges faced by many low-resource settings. Research indicates that many women in rural areas, including those in Anambra State, have limited access to prenatal care and information about Rh incompatibility. This lack of awareness and understanding can result in inadequate management of Rh-negative pregnancies, increasing the risk of HDN and other complications. In a study conducted in Lagos, Nigeria, while some women were aware of their Rh status, a significant proportion lacked detailed understanding of Rh incompatibility and its preventive measures [6].

Anambra State, located in southeastern Nigeria, faces unique challenges in maternal healthcare due to socio-economic and infrastructural constraints. Despite the known risks associated with Rh incompatibility, many pregnant women in rural areas like Nnobi may not have access to sufficient prenatal education and resources [7].This gap in knowledge can lead to inadequate management of Rh-negative pregnancies, increasing the risk of adverse outcomes for both mothers and their babies.

Rh incompatibility is a preventable condition that requires adequate knowledge and perception among pregnant women for effective management. This study aims to fill the existing knowledge gaps and contribute to the overall improvement of maternal healthcare services in the region. By understanding the current state of knowledge and perception, healthcare providers can implement targeted educational programs and policy recommendations to mitigate the risks associated with Rh incompatibility [8].

Rhesus (Rh) incompatibility continues to be a significant challenge in maternal-fetal medicine, particularly in low- resource settings such as Nnobi, Anambra State. Despite the availability of preventive measures, such as Rh immunoglobulin (RhIg), many pregnant women remain unaware of their Rh status and the potential complications associated with Rh incompatibility. This lack of awareness and understanding can lead to inadequate prenatal care and poor pregnancy outcomes, including hemolytic disease of the newborn (HDN) [9]. Nnobi Primary Health Care Centre serves as a crucial healthcare provider in Anambra State, catering to a large population of pregnant women. However, there is a noticeable gap in awareness and understanding of Rh incompatibility and its implications among these women. According to Ezenwa et al (2020), studies have shown that inadequate knowledge about Rh incompatibility can lead to poor adherence to preventive measures, thereby increasing the risk of adverse maternal and neonatal outcomes. Moreover, cultural beliefs and misconceptions about blood groups and Rh factors further complicate the perception of Rh incompatibility. Some women may not understand the necessity of RhIg administration or may fear its side effects due to misinformation. The lack of targeted educational programs and counseling on Rh incompatibility exacerbates this problem, leading to preventable complications during pregnancy and childbirth. Recent research highlights the importance of healthcare education in improving the understanding and management of Rh incompatibility. A study by
[10] for example demonstrated that educational interventions significantly increased knowledge and positive attitudes towards RhIg among pregnant women.

Therefore, addressing the knowledge and perception of Rh incompatibility is crucial to reducing the incidence of HDN and improving maternal and neonatal health outcomes in Nnobi, Anambra State. This study aims to assess the current level of knowledge and perception among pregnant women attending Nnobi Primary Health Care Centre and to identify effective strategies for educational interventions.

Materials and Methods

Research Design

A cross-sectional survey design was used to assess the knowledge and perceived awareness of Rhesus incompatibility among pregnant women attending antenatal clinic at Nnobi primary health care center, Anambra state.

Area of Study

The Area of the study is the Nnobi Primary Health Care Center which is located in Nnobi, a town in Idemili South Local Government Area of Anambra State, Nigeria.

Target Population

The target population of study consists of pregnant women attending antenatal clinic in Nnobi primary health care center, Anambra state. According to their register, the total numbers of pregnant women attending ante natal clinic at the health center as at the time of this study were one thousand three hundred and eighty-six for the last nine months and the average which was used to calculate the sample size was hundred and fifty four (154).

Sample Size and Sample technique

The sample size for the study consists of 110 pregnant women attending antenatal clinic in Nnobi PHC. According to Taro Yamane (1974), in the study of a finite population, the sample size was obtained using the statistical formula. The sampling technique used was stratified proportionate sampling technique.

Inclusion Criteria

Respondents who met the following criteria: Pregnant women who attends antenatal clinic at the time of study and no respondent participated more than once. Respondents who are not pregnant was excluded from the study.

Instrument for data collection

The instrument used for data collection was a structured questionnaire developed by the researcher. It was constructed based on the stated objectives. The questionnaire consists of 16 items, which were arranged in 4 sections. Section A contained 7 items on socio-demographic data, section B contained 4 items on the knowledge of Rhesus Incompatibility, section C contained 2 items on the effects of Rhesus incompatibility on pregnancy outcome and section D contained 2 items on the precautionary measures to avoid Rhesus incompatibility. The questions used in this study is a closed end and their response rate was kept confidential solely for this purpose of study.

Validity of Instrument

Face and content validity was established by the researcher's supervisor who reviewed questionnaire for adequate coverage of the objectives of the study. Necessary corrections were effected before the final draft was made.

Reliability of Instrument

A pilot test that was used to test the reliability of the instrument. It consists of Ten (10) copies of questionnaire that was distributed among other pregnant women in Nnamdi Azikiwe University Teaching hospital which was not part of the study population. The responses from the pilot test were analyzed by a statistician using Cronbach's alpha method, which yields 0.82 indicating that the instrument is reliable.

Method of data collection

An introductory letter was obtained from the Head of Department of Nursing Science, with which access was gained for the purpose of the research. An ethical approval letter was obtained from the Ethical Committee of Nnobi PHC, which allowed me to gain access in the antenatal clinic. Data was collected by administering a self-structured questionnaire. The researcher trained two-research assistant who helped in administering the questionnaire. The researcher assisted the illiterate respondent to fill the questionnaires while the literate ones filled it themselves.

Statistical analysis

Data was analyzed using mean, median and percentage. Descriptive statistics was used, and values were presented in frequencies, tables, and charts.

Results

TABLE 4.1 Demographic characteristics of respondents. **n=110**

Demographic variable	Frequency	Percentage
Marital status		
Married	99	90
Single	8	7.3
Divorced	3	2.7
Educational Level		
No formal	5	4.5
Primary	10	9.1
Secondary	51	46.4
Tertiary	38	34.5
Others	6	5.5
Occupation		
Housewife	22	20
Civil servant	9	8.2
Farm work	3	2.7
Student	2	1.8
Trader	74	67
Parity		
One	9	8.2

Two	33	30
Three	49	44.5
Four and above	19	17.3

Table 4.2a: Knowledge of Rhesus incompatibility **n=110**

Have you heard about rhesus Incompatibility	Frequency	Percentage
Yes	96	87.3
No	14	12.7
Total	110	100.0

Table 4.2b: Knowledge of Rhesus incompatibility among pregnant mothers **n=110**

		Frequency	Percent
What do you think about rhesus incompatibility	It is a condition that develops when a pregnant woman has rhesus negative blood and the baby in her womb has rhesus positive blood	16	14.3
	It is a condition that develops when a pregnant woman has Rhesus positive blood and the baby in her womb has Rhesus negative blood	60	54.3
	It is a condition that develops when a pregnant woman is a sicklier	8	7.3
	It is a condition that develops when a pregnant woman and her baby have the Rhesus factor in their blood.	6	5.5
	A disease that occurs when a pregnant woman has different blood group with the baby in the womb has different blood group with the baby in the womb.	9	8.2
	Having Ogbanje or abiku babies	4	3.0
	All of the above	7	6.4
In which pregnancy does the problem of rhesus incompatibility start	From first pregnancy or miscarriage	63	57.3
	From second pregnancy or miscarriage	18	17.2
	From third pregnancy or miscarriage	21	16.4
	From fourth pregnancy or miscarriage	8	19.1
Which mothers are likely to have risk of rhesus disease	Positive mothers	27	24.5
	Negative mothers	49	44.3
	All mothers	27	24.3
	Mothers with ABO groups	7	6.4

Table 4.2(b) shows the knowledge on Rhesus incompatibility among pregnant mothers, results show that 16 persons (14.5%) have the knowledge on Rhesus incompatibility while a great percentage of 60 (54.5%) lack knowledge on Rhesus incompatibility, 63(57.3%) respondents think the Rhesus disease starts during the first pregnancy while 21(19.1%) respondents think the Rhesus disease starts during the third pregnancy. 27(24.5%) respondents think that positive mothers are at risk of Rhesus disease whereas 27 (24.5%) respondents think all mothers are at risk of Rhesus disease.

Table 4.3; Perception of rhesus incompatibility on pregnancy outcome **n=110**

	Frequency	Percentage
Do you know the effect of rhesus incompatibility in the mother		
Yes	28	25.5
No	82	74.5
Total	110	100
What do you think is/are the effects of rhesus incompatibility on the mothers		
Abortion/Miscarriage	1	3.6
Very big tummy in pregnancy	26	92.8
Not aware of any	1	3.6

Total	28	100
Perceived effects of rhesus incompatibility on the fetus?		
Convulsion/Seizures	3	10.7
Still birth	23	82.1
Not aware of any	2	7.2
Total	28	100

Table 4.3 Perception of the effects of Rhesus incompatibility on the mother, result shows that 28 persons (25.5%) have knowledge of the perceived effects of Rhesus Incompatibility whereas high percentage 82 (74.5%) of the respondents do not have knowledge of the perceived effect of Rhesus incompatibility on mothers. One (3.6%) each of the respondents selected abortion/miscarriage and not aware as the effect of Rhesus Incompatibility on the mothers then 26(92.8%) selected a very big tummy in pregnancy as the effect of Rhesus incompatibility on the mother. The majority of the respondents with 23 (82.1%) said still birth is the perceived effects of Rhesus incompatibility on the fetus, and 2(7.2%) are not aware about it.

4.4: Precautionary measures to be taken in order to avoid rhesus incompatibility **n=110**

		Frequency	Percent
Are you aware of the things that can be done to avoid rhesus incompatibility	YES	15	13.6
	NO	95	86.4
	Total	110	100
Visit to hospitals to health center /hospital to check the compatibility of the blood group/Rhesus factor	YES	68	61.8
	NO	42	38.2
	Total	110	100
Administration of a drug called RhoGAM after delivery of second baby or miscarriage.	YES	36	32.1
	NO	85	7.3
	Total	110	100
Administration of a drug called RhoGAM after miscarriage/abortion/delivery of first baby	YES	43	29.1
	NO	67	60.9
	Total	110	100
Avoid using traditional birth attendants where blood test will not be done	YES	56	50.9
	NO	54	49.1
	Total	110	100
Checking blood for sickle cell carrier disease	YES	30	27.3
	NO	80	72.7
	Total	110	100
Avoid marrying a sickle cell carrier if you are a carrier	YES	40	36.4
	NO	70	63.6
	Total	110	100
Knowing the rhesus group of your husband	YES	40	36.4
	NO	70	63.6
	Total	110	100
Praying to God to have baby with compatible rhesus group	YES	35	1.8
	NO	75	68.2
	Total	110	100
Giving Rhogam 72hrs before delivery/Miscarriage or abortion	YES	26	23.6
	NO	69	62.7
	Total	95	86.4

Discussion

The findings of the study revealed that greater percentage of the respondents (87.3%), reported that they have heard about Rhesus incompatibility while about 60% of the respondents correctly identified the pregnancy in which rhesus incompatibility is manifested. Furthermore, only about 52.1% of the entire respondents were able to state correctly the mothers who are at high risk of Rhesus incompatibility. However, the overall level of knowledge by pregnant women was 69.7 %. The level of knowledge of Rhesus Incompatibility from this study is average. This finding disagrees with the

study conducted by [11, 12] on Assessing Expectant Mother's Knowledge and practices Regarding Blood incompatibility in Ogun state, Nigeria which revealed that the level of knowledge of maternal-fetal blood incompatibility of the expectant mothers was low (with only 39% correct response). This study disagrees with the study conducted by [13] on Assessment of Knowledge, Attitude and practice of female students towards RH Disease, and reported that 23.58% of the respondents had knowledge of Rhesus incompatibility. This study is in an agreement with [14], who reported that 50.5% of the respondents have knowledge of Rhesus incompatibility. This study agrees with the report of [15, 16] who reported that only 5.3% of the respondents in his study had the knowledge of Rhesus incompatibility, and 4.2% did not have knowledge of it. The average knowledge of Rhesus incompatibility obtained from this study is attributed to the education status and age of the respondents, however, there is a strong need in the creation of public knowledge on Rhesus incompatibility. This could be achieved through public Education and policy [17, 18].

The findings of the study revealed that 25.5% of the mothers reported that they knew the various effects of incompatibility, about 3.6% of the respondents correctly noted abortion as part of the health consequences of Rhesus incompatibility. This is worrisome as a southeastern, Nigeria study revealed the prevalence rate of Rhesus D negative women to be 4.5% [19]. On the other hand, “big tummy” in pregnancy was wrong identified as potential consequences of Rhesus incompatibility on mothers. While we are unable to compare this finding with previous studies due to paucity of information, we reasoned that lack of adequate knowledge and information on rhesus incompatibility to women in Nnewi is the principal course of the knowledge gap. Adequate orientation and enlighten on rhesus incompatibility is thus necessary to address this knowledge gap [20, 21].

The findings from this study revealed that 36.4% of the respondents reported knowing the rhesus group of their husband as one of the precautionary measures to avoid rhesus incompatibility. This is in full agreement with the findings of the study conducted by [23, 24] on Rhesus Negative incompatibility, which revealed that majority (94.3%) were not aware what precautions should be taken if a mother's blood group is Rhesus negative. This Finding is in line with the study conducted by [25, 26] to determine the knowledge and attitude of community health workers on the Rhesus incompatibility, its effects and managements. The study revealed that 48(25%) had an understanding of the effect of rhesus incompatibility and only 21(10.9%) are aware of the right management to institute.

Conclusion

The findings of the result revealed that majority of the respondents were aware of rhesus incompatibility but had poor knowledge on the effect of rhesus incompatibility on pregnancy outcomes. Many of the respondents are not aware on the precautionary measures to be taken to avoid rhesus incompatibility. There is a dare need for education on this topic among young people. The topic should be added to the health education curriculum from secondary school education.

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