Assessment of Pregnant Women's Knowledge Regarding Rhesus Incompatibility

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Abstract

Background: Rhesus (Rh) incompatibility is a critical consideration in prenatal care which affect maternal health, particularly for pregnant women who are Rh-negative. Assessing pregnant women's knowledge about Rh incompatibility is paramount in preventing and managing complications associated with this condition. **Aim:** Assess pregnant women's knowledge regarding rhesus incompatibility. **Research design:** Descriptive cross sectional research design was utilized. **Setting:** The study was conducted at antenatal clinic in Women's Health Hospital, Assiut University. **Sample:** convenient sample of 300 pregnant women attending antenatal clinics. **Tool of data collection:** Data were collected by structured interview questionnaire; which consisted of two parts: **Part 1:** personal data, obstetrical history, and Rh factor data. **Part 2:** knowledge about Rh factor and Rh incompatibility. **Results:** The current study findings showed that only 19.7% of the studied women had good knowledge while 58.7% had poor knowledge regarding rhesus factor and Rh incompatibility. There was a high significant relation between total scores of women's knowledge and their residence, educational level and employment status. **Conclusion:** About more than half of the studied pregnant women had poor knowledge regarding Rh factor and Rh incompatibility. **Recommendations:** provide health education supported by drawing pamphlets and brochure about Rh factor and Rh incompatibility for pregnant women. Implementing Rhesus compatibility screening program for intending couples and first time mothers.

Keywords: Assessment, Knowledge, Pregnant Women & Rhesus Incompatibility.

Introduction

The Rhesus (Rh) factor is a collection of antigens that might be present or absent on red blood cells. This protein is located outside red blood cells and is inherited genetically from biological parents. Presence of protein on red cells indicates a person is Rh positive, which is the most common blood type in the Rhesus system. **(Nyakio, et al., 2024).**

Rhesus incompatibility arises in pregnancy when a woman is Rh negative (dd) and carries a fetus with Rh positive blood (DD or Dd), inheriting the D antigen from the father. If the husband is homozygous (DD), all offspring will be Rh positive. However, if he is heterozygous (Dd), each pregnancy has a 50% chance of producing a child with Rh negative. **(Al-Kuran, et al., 2023).**

The likelihood of Rh negative mother developing sensitivity to the Rh antigen increases if significant hemorrhage occurring during delivery, which can lead to isoimmunization. This sensitivity also increases with other events during pregnancy and labor such as exposure to fetal Rh-positive blood, external cephalic version, invasive procedures like chorionic villus sampling or amniocentesis, ectopic or molar pregnancy, miscarriage, antepartum hemorrhage, trauma, and blood transfusions. **(Irinmwinuwa, et al., 2023).**

Rh incompatibility typically doesn't manifest with clinical signs and symptoms in the Rh-negative mother, while it can have significant consequences for the Rh-positive fetus. Some clinical indicators of hemolytic disease of the newborn (HDN) due to Rh incompatibility include scleral icterus, tachycardia, tachypnea, lethargy, pallor, jaundice, and hypotension. Hydrops fetalis is a severe, life-threatening condition characterized by severe hemolytic anemia, presenting with at least two of the following signs; pleural effusions, edema, pericardial effusions, and ascites **(Opara, 2023).**

To avoid sensitization, Rh-negative women should receive a single dose of RhIg, either 300 mcg or 1,500 IU, within 72 hours after birth. The use of RhIg prophylaxis significantly reduces the risk of Rh isoimmunization from 13.2% to 0.2%. **(Maruta, et al., 2023).**

When a pregnant woman who is at risk for Rh incompatibility, obstetrician gives her a series of two Rh immunoglobulin (RhoGAM) injection within 72 hours after delivery, after abortion, and around the 26th to 28th week of pregnancy. Rh immune-globulin acts as a vaccine, preventing the mother's body from producing Rh antibodies that could harm the newborn or future pregnancies. An extra dose may be advised after events that could cause Rh incompatibility. **(Irinmwinuwa, et al., 2023).**

In the absence of adequate awareness about Rh issues, individuals may enter into marriage or even become pregnant without undergoing necessary screenings. Furthermore, there might be a disbelief in the existence of Rh incompatibility. Thus, empowering females with knowledge allows them to recognize and express their health needs, seek medical assistance, and make informed decisions regarding their health. **(Opara, 2023).**

The nurse plays a vital role in enhancing pregnant women's awareness of Rh incompatibility by delivering precise and personalized information about the condition. Nurses' focus must lie in serving, protecting, advocating for, and empowering women. Moreover, they ensure women receive education on newborn care and demonstrate adequate knowledge of the condition's prognosis and its potential effects on their child. **(Kamei & Warrior, 2022).**

Significance of the study:

The incidence of Rh incompatibility in Rh-negative women carrying Rh-positive fetus is about 10% of all Rh-negative pregnancies. Sensitization, however, occurs only in about 5% of these cases, giving an incidence of 6–7/1000 of all the pregnancies and one in 15 Rh-negative pregnancies. **(Opoku, et al., 2024)**

Rh incompatibility has historically been a significant factor contributing to severe hemolytic disease of the newborn (HDN). It is estimated to impact between 3 to 8 out of every 100,000 live births annually. Prior to the introduction of anti-D prophylaxis, Rh incompatibility resulted in fetal loss in approximately 1% of all pregnancies, leading to complications such as hyperbilirubinemia (jaundice), hydrops fetalis, and stillbirths. **(Awojobi & Sotunsa, 2023).**

Despite the introduction of Rhesus immunoglobulin in 1968, hemolytic diseases of the newborn remain a pressing concern. Lack of awareness is exacerbated by insufficient educational programs about this issue. **(Abimbola & Olasubomi, 2021)**

Rhesus disease contributes to 97% of hemolytic disease of the newborn (HDN), that can be prevented through appropriate measures such as preventing fetal-maternal hemorrhage in pregnancies of Rh-negative women, as well as implementing antenatal and postnatal immune prophylaxis with anti-D immunoglobulin. **(Opoku, et al., 2024)**

Sustainable Developmental Goal (third aim) aims to eliminate preventable child mortality by 2030, with specific targets including reducing neonatal deaths to less than 12 per 1000 live births and decreasing deaths of children under 5 years old to below 25 per 1000 live births in every country. **(Paulson, et al., 2021).**

Aim of the study:

Assess pregnant women's knowledge regarding rhesus incompatibility.

Research question:

What is the level of knowledge of pregnant women about rhesus factor and rhesus incompatibility?

Subjects and Methods:

Research design:

Descriptive, cross sectional research design was used to achieve the aim of this study.

Study Setting:

This study was conducted at antenatal clinic in Women's Health Hospital, Assiut University. The antenatal clinic, composed of four rooms as Initial Assessment room, examination room, ultrasonography room, and The women's oncology clinic.

Study Sample:

Current study was conducted on a convenience sample of 300 pregnant women attending antenatal clinic for follow-up at Women's Health Hospital. The sample size was calculated according to the following equation:

$$n = \frac{P(1-P)}{(SE \div t) + [P(1-P) \div N]}$$

N (population) = 4260 Women were registered in antenatal clinic at Women health hospital in last year 2022.

P= The property availability ratio and neutral = 0.50

SE = error rate = 0.05

T= the standard score corresponding to the level of significance= 1.96

n= sample size= 300

Tool of the study

A structured Interview Questionnaire was developed by the researcher after reviewing the related national and international literature, and consulting expertise in this area, it was structured to include the following parts:

Part (I):

(A) Personal data as: Name, age, residence, educational level, employment status, and consanguinity between husband and wife.

(B) Obstetrical history: Number of gravidity, number of parity, number of living children, abortion, and mode of last delivery.

(C) Rh factor data: As family history of Rh negative, type of Rh, if negative, did she take anti- D immunoglobulin injection after pervious labor, if yes when did she take it after labor, and does she know Rh type of her husband.

Part (II):

Included (24) items regarding pregnant women's knowledge about RH factor and Rh incompatibility as what is the Rh factor, what is the most common Rh type, what is Rh incompatibility and What are the potential complications of Rh incompatibility on the fetus.... etc.

Scoring system:

It included (24) items regarding pregnant women's knowledge about RH factor and Rh incompatibility. Each correct answer was given one mark, incorrect and don't know answer was given zero mark. The score of each item summed up and then converted into percent score which be categorized as follows:

- **Poor knowledge** <60% (14 points) of total knowledge score.
- **Fair knowledge** 60-75 % (14-18 points) of total knowledge score.
- **Good knowledge** > 75% (18 points) of total knowledge score.

Validity of the tool:

The tool was tested for the content validity by jury of 3 experts in the field of maternal and newborn health nursing who was reviewed the tool for clarity, relevance, comprehensiveness, understanding and easiness and necessary modifications were done.

Tool Reliability:

Reliability of tool was carried out using the Cronbach alpha test to confirm its consistency. It was found to be (r = 0.948).

Pilot study:

A pilot study was carried out on 30 women (10 %) of the study sample to test the clarity of the study tool, the sample of the pilot study was included in the study. The data obtained from the pilot study were analyzed and no necessary changes were done, so the sample of the pilot study was included in the main study.

Procedures:

- An official permission was obtained from the director of Women's Health Hospital Assiut University to proceed with this study.
- The study was begun by conducting the Arabic translation and linguistic validation of the questionnaire.
- Data collection of the study took about five months started at the beginning of September 2023, and completed by the end of January 2024. The data were collected during three days weekly started from 9.00 am to 12.00 pm until the sample size reached the predetermined number.
- The researcher interviewed, and greeted the woman, then introduced the self. The purpose and nature of the study was explained to take their approval.
- The data were collected at the antenatal clinic in Women Health hospital, Assiut University.
- Women were assured that participation in this study was voluntary and they had the right to withdraw from the study at any time. Also anonymity and confidentiality were assured through coding the data.

- The researcher was interviewed with each pregnant woman (who attend antenatal clinics) individually and collected personal data, obstetrical history, and Rh factor data. Also the researcher was directed questions to the women regarding knowledge about Rh factor and Rh incompatibility, each interview was taken about 10-15 minutes in the waiting area of the clinics or even in the clinic itself.

Ethical considerations:

The research proposal has been approved by the Ethics Committee of the Faculty of Nursing on August 2023, with ID approval (1120240657). Verbal consent has been obtained from the women participating in the study, following an explanation of the purpose and nature of the study. There is no risk to the study subject during the implementation of the study. The study adheres to the accepted ethical principles of clinical research. The confidentiality and anonymity of the participants have been safeguarded. The participant has the right to withdraw from the study at any time without any justification. The privacy of the participant has been taken into consideration during the collection of data.

Statistical analysis:

Data entry and analysis were conducted using the Statistical Package for the Social Sciences (SPSS) version 26. The data were depicted through tables and figures, utilizing numbers, percentages, means, and standard deviations. The Chi-square test was employed to illustrate the relationships between variables, with statistical significance defined as $p < 0.05$.

Results:

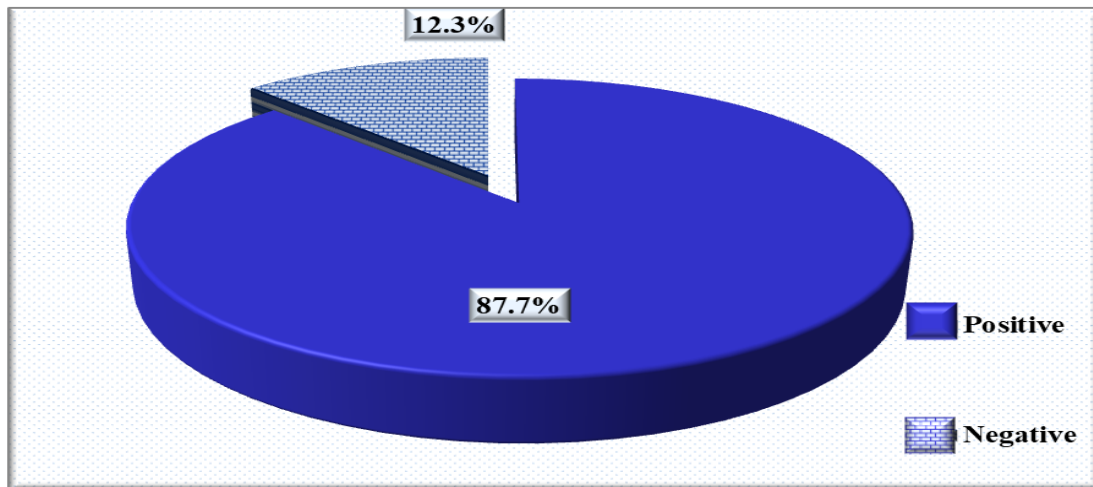**Table (1): Distribution of the studied women according to their personal data (n=300):**

Personal data	N	%
Age group:		
▪ Less than 20 years	6	2.0
▪ 20-35 year	254	**84.7**
▪ More than 35 year	40	13.3
Age (Mean±SD)	**27.29±6.007**	
Residence:		
▪ Urban	40	13.3
▪ Rural	260	**86.7**
Level of education:		
▪ Illiterate	53	17.7
▪ Read and write	23	7.7
▪ Basic education	85	28.3
▪ Secondary school	105	**35.0**
▪ University	34	11.3
Employment status:		
▪ Housewife	285	**95.0**
▪ Employed	15	5.0
Consanguinity between husband and wife:		
▪ Yes	122	40.7
▪ No	178	**59.3**

Table (2): Distribution of the studied women according to their obstetrical history (n=300):

Obstetrical history	N	%
Gravidity:		
▪ Primigravida	64	21.3
▪ From 2-4	144	**48.0**
▪ ≥ 5 gravida	92	30.7
Parity:		
▪ None	72	24.0
▪ Primipara	50	16.7
▪ Multipara	178	**59.3**
History of abortion:		
▪ Primigravida	64	21.3
▪ Yes	97	32.3
▪ No	139	**46.4**
Number of living children:		
▪ Primigravida	64	21.3
▪ One	60	20.0
▪ Two	64	21.3
▪ ≥ Three	112	**37.4**
Mode of last delivery:		
▪ Primigravida	72	24.0
▪ Normal delivery	90	30.0
▪ C. S	138	**46.0**

Table (3): Distribution of the studied women according to their Rh factor data (n=300):

Rh factor data	N	%
Family history of Rh negative:		
▪ Yes	69	23.0
▪ No	231	**77.0**
Rh negative, have received anti- D immunoglobulin injection after pervious labor (n=37)		
▪ Primigravida and negative	9	24.3
▪ Yes	28	**75.7**
If Rh negative, when did receive anti-D immunoglobulin after labor(n=37):		
▪ Primigravida and negative	9	24.3
▪ Within 24 hrs.	22	**59.5**
▪ 24 - 72 hrs.	6	16.2
▪ After 72 hrs.	0	0.0
Rh type of the woman's husband:		
▪ Positive	121	40.3
▪ Negative	13	4.3
▪ Don't know	166	**55.4**

Figure (1): Distribution of the studied women according to their type of Rh of the studied women (n=300)
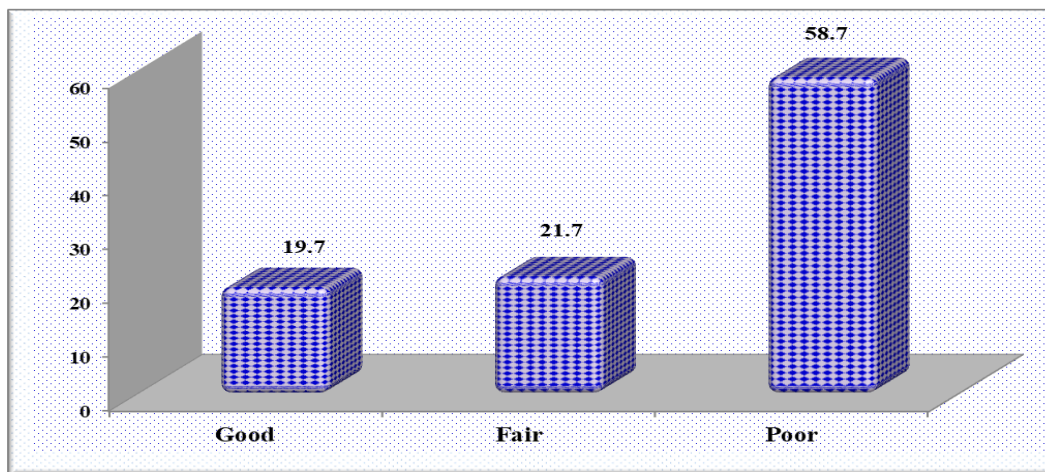
Figure (2): Total knowledge about Rh factor and incompatibility (n=300):
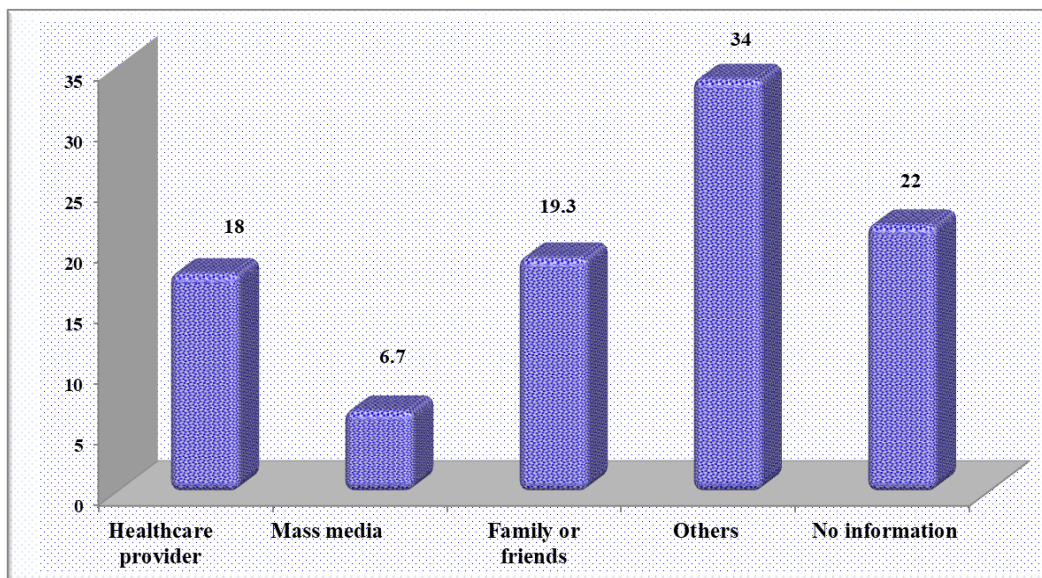
Other (as neighbors, teachers, and study and textbooks)

Figure (3): Distribution of the studied women according to source of their information (n=300)

Table (4): Relation between total knowledge about RH factor and RH incompatibility and the studied women personal data (n=300)

Personal data	Total knowledge about RH factor and RH incompatibility						P- value
	Good (59)		Fair (65)		Poor (176)		
	N	%	N	%	N	%	
Age group:							
< 20 years	0	0.0	3	4.6	3	1.7	
20-35 year	54	91.5	55	84.6	145	82.4	0.188
< 35 year	5	8.5	7	10.8	28	15.9	
Residence:							
Urban	17	28.8	12	18.5	11	6.3	**0.001**[**]
Rural	42	71.2	53	81.5	165	93.8	
Level of education:							
Illiterate	1	1.7	7	10.8	45	25.6	
Read and write	0	0.0	5	7.7	18	10.2	
Basic education	6	10.2	15	23.1	64	36.4	**0.001**[**]
Secondary school	23	39.0	33	50.7	49	27.8	
University	29	49.1	5	7.7	0	0.0	
Employment status:							
Housewife	52	88.1	60	92.3	173	98.3	**0.004**[**]
Employed	7	11.9	5	7.7	3	1.7	
consanguinity between husband and wife							
Yes	23	39.0	26	40.0	73	41.5	0.937
No	36	61.0	39	60.0	103	58.5	

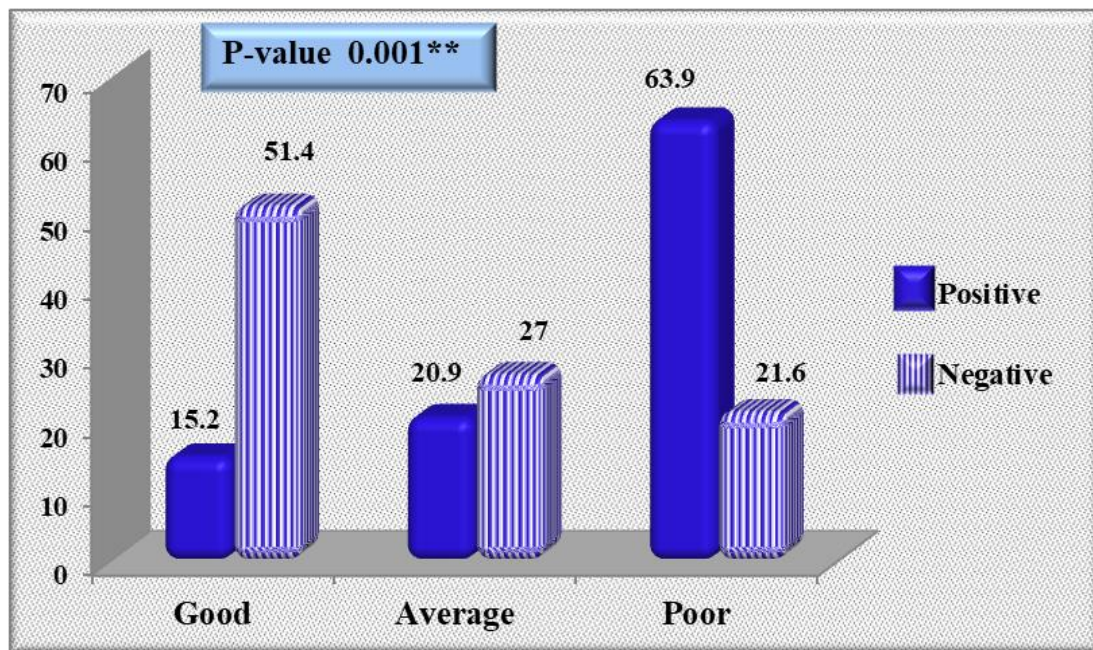*(**) highly statistical significant P-value <0.01   (*) statistical significant P-value <0.05*

Table (5): Relation between total knowledge about RH factor and RH incompatibility and the studied women obstetrical history (n=300)

Obstetrical history	Total knowledge about RH factor and RH incompatibility						P- value
	Good (59)		Fair (65)		Poor (176)		
	N	%	N	%	N	%	
Gravidity: Primigravida From 2-4 ≥ 5 gravida	2 34 23	3.4 57.6 39.0	13 31 21	20.0 47.7 32.3	49 79 48	27.8 44.9 27.3	**0.003**[**]
Parity: None Primipara Multipara	9 13 37	15.3 22.0 62.7	16 4 45	24.6 6.2 69.2	47 33 96	26.7 18.8 54.5	**0.039**[*]
History of abortion: Primigravida Yes No	11 13 35	18.6 22.0 59.4	13 21 31	20.0 32.3 47.7	40 63 73	22.7 35.8 41.5	0.194
Number of living children: Primigravida One Two ≥ Three	11 15 15 18	18.6 25.4 25.4 30.6	13 7 18 27	20.0 10.8 27.7 41.5	40 38 31 67	22.7 21.6 17.6 38.1	0.225
Mode of last delivery: Primigravida Normal delivery C. S	13 21 25	22.0 35.6 42.4	16 17 32	24.6 26.2 49.2	43 52 81	24.5 29.5 46.0	0.847

(**) highly statistical significant P-value <0.01   *(*) statistical significant P-value <0.05*

(**) highly statistical significant P-value <0.01   *(*) statistical significant P-value <0.05*

Figure (4): Relation between total knowledge about Rh factor and Rh incompatibility and type of Rh of the studied women (n=300)

Table (1): Illustrates the studied women's personal data, which reported that 84.7% of them have an age group of 20-35 years with a mean ±SD 27.29±6.007, about 86.7% and 35.0% of them are from rural areas and have a secondary level of education respectively. Regarding occupation 95.0% of them are housewives. Also, 59.3% of them have no consanguineous relationships with their husbands.

Table (2): Presents the obstetrical history of the studied women, and reveals that 48.0%, 59.3%, and 46.4% have a gravidity and parity of 2-4, and have no history of abortion respectively. In terms of the number of living children, 37.4% have ≥ Three children. Regarding mode of last delivery, 46.0% of the studied women underwent cesarean section.

Table (3): Shows that 77.0% of the studied women have a family history of Rh positive. Among Rh-negative women, 75.7% and 59.5% take anti-D immunoglobulin injections after previous labor and receive it within 24 hours after labor respectively. About 55.4% of them don't know their husbands' Rh types.

Figure (1): Reveals that 87.7%, and 12.3% of the studied women have Rh positive and Rh negative respectively.

Figure (2): Indicates that 58.7%, 21.7%, and 19.7% of the studied women have poor, fair, and good overall knowledge scores about Rh factor and incompatibility, respectively.

Figure (3): Reports that 34.0% of the studied women gained their information from other sources, such as neighbors, teachers, textbooks, and support group with other women on Facebook. About 22.0% of them have no information, while 19.3% gained their information from family or friends.

Table (4): Illustrates that there are highly statistical significant relations between the studied women's total knowledge level and residence, educational level and employment status at p-value <0.01.

Table (5): Demonstrates that there is a highly statistical significant relation between the studied women's total knowledge level and both of gravidity and parity at p-value <0.01, and <0.05 respectively.

Figure (4): Shows that there is a highly statistical significant relation between the studied women's total knowledge level and type of Rh at p-value <0.01.

Discussion

Rhesus Incompatibility is a medical condition that affects the pregnant woman (of blood group (A, B, AB, O) and a negative Rhesus) and the fetus (of positive Rhesus). It does not affect the first pregnancy because anti-Rhesus antibodies appear only after the first delivery or after a miscarriage. **(Nyakio, et al., 2024).** Rh incompatibility can lead to the destruction of the red blood cells of the fetus often causing anemia, jaundice, brain damage and in utero death in the fetus and abortion, miscarriage in the mother **(Gantini, et al., 2024),** so This study aimed to assess pregnant women's knowledge regarding Rh incompatibility.

According to total knowledge about Rh factor and incompatibility, the present study revealed that, nearly one fifth of the studied women had good knowledge about Rh factor and incompatibility and about three fifths of them had poor knowledge. This finding consistent with **Opara, (2023),** who applied their study in Nigeria to review issues related to knowledge of Rhesus incompatibility among Nigerians, and who reported that about one fifth of the studied participants had good knowledge about Rh factor and incompatibility about three fifths of them had low level of knowledge about Rh factor and incompatibility. So, this agreement supports the need for providing a continuous counselling of pregnant women regarding rhesus incompatibility.

On the other hand, the previous finding is inconsistent with study conducted by **Geta et al., (2024),** who applied their study in southern Ethiopia to determine what was known about Rh-incompatibility disorders and their associated factors among pregnant women participating in prenatal care, and they reported that more than one third of participants had good knowledge about Rh factor and incompatibility and more than two third had low level of knowledge. From researcher's point of view, this difference could be due to difference in community, culture, educational level, access to antenatal care and differences in the source of their knowledge.

current study stated that there was a highly statistical significant relation between the studied women's total knowledge level and type of Rh, this finding dissimilar with **Pérez-Álamos et al., (2024),** who reported that there was no a significant relation between the studied sample's total knowledge level and type of Rh. In the researcher opinion, the result of the present study may be due to contact with their healthcare providers and other women in the healthcare setting, interesting of women to obtain information about their conditions, and education.

Current study showed that the total knowledge of the studied women was significantly different with their residence, educational level, and employment status. This dissimilar with **Walle et al., (2023)** who applied their study in Addis Ababa, Ethiopia to determine the association between ABO and Rhesus blood groups with type 2 DM, and revealed that there were no significant variations related to participants' residence, educational status, and occupation.

On the other hand, the previous result is in line with **Yahia et al., (2020),** who applied their study in Saudi Arabia to assess the awareness of pregnant women

toward the clinical importance of blood group Rh (D)-negativity and anti-D immunoglobulin and to determine the prevalence of blood group Rh(D)-negativity among them, they showed that there was a huge difference between women's knowledge and their educational level. Also, the result is in agreement with **Pérez-Álamos et al., (2024)** who performed their study in Durango, Mexico to determine association between ABO and Rh blood groups and Toxoplasma gondii infection, and reported a significant relation between total knowledge and participants' residence, and occupation. From the researcher's perspective, this similarity supports the association between women's level of education and their knowledge. Also women who working have the chance to share their experiences with others women, so this supports the association between women's employment status, demographic status and their knowledge.

Concerning relation between total knowledge and obstetrical history, this study reported that there was a significant relation between total knowledge of the studied women and gravidity, and parity. This is consistent with **Abimbola & Olasubomi, (2021)** who carried out their study in Remo Ogun State to assess pregnant women's knowledge and attitude about rhesus incompatibility prevention, and found that gravidity and parity were significantly associated with the total knowledge of the studied sample. From the researcher's opinion, the alignment supports the fact that previous experience with pregnancy and childbirth impacts a woman's overall knowledge, gaining information and experiences from everyday life and interacting with others can be a significant part of acquiring knowledge in general, especially regarding pregnancy and childbirth.

Regarding Rh type, the current finding showed that the majority of the studied women have Rh positive. The study finding supported by the study applied by **Enawgaw et al., (2022)** in Ethiopia to assess distribution of ABO and Rh-D blood group antigens among blood donors, they found that the majority of participants have Rh positive. From the researcher's point of view, this consistency supports the importance of implementing screening programs for Rh compatibility during pregnancy, and raising awareness about the importance of blood type compatibility in healthcare settings.

According to family history of the studied women. The study results revealed that more than three quarters of the studied women had a family history of Rh positive. This finding is consistent with **Shah et al., (2023)** who applied their study in India to examine the demographics, isoimmunization status, usage of prophylactic treatment, and complications associated with Rh-negative pregnancies, they

revealed that more than three quarters of the participants had a family history of Rh positive.

Referral to administration of anti-D immunoglobulin, the study results showed that the majority of studied Rh-negative women took anti-D immunoglobulin injections after previous labor. Also about three fifths of them received it within 24 hours after labor. This finding are aline with **Yahia et al., (2020)** who revealed that majority of the participants received postnatal anti-D immunoprophylaxis treatment. From the researcher's perspective, this agreement may be due to WHO recommendations and guidelines that suggest routine prophylactic RhIg for RhD-negative pregnancies is positive point in medical practices.

Regarding pregnant women's knowledge about their husbands' Rh types, the current study showed that more than half of the studied women didn't know their husbands' Rh types. This finding dissimilar with **Shah et al., (2023)** who reported that the majority of the participants knew their husbands' Rh types that were Rh positive. From the researcher point of view, this difference could be due to healthcare infrastructure, and the emphasis placed on prenatal education and counseling may contribute to variations in pregnant women's knowledge about their husbands' Rh types

Regarding source of the studied women knowledge, the current findings stated that nearly one fifth of the studied women obtained their information from health care provider, also one-fifth received their knowledge from their family or friends. These findings are dissimilar with study conducted by **Ochonogor et al., (2021)** in Nigeria, who investigates how interpersonal communication can be employed in creating awareness about sickle cell disease and Rhesus factor incompatibility, especially among intending couples, and reported that nearly two fifths of them obtain their information from health care providers, and only ten percent of them obtained their information from their family or friends. It seems to the researcher that, this disparity could be due to cultural differences as in some cultures, women might rely more on familial or community networks for health-related information, while in others, they might trust healthcare providers more.

As regard to Consanguinity between husband and wife, this study reported that more than half of the studied women had consanguinity with their husbands. This finding aline with the study conducted by **Ayenew (2021)** who carried out study in Ethiopia to estimate distribution of ABO and Rh (D) blood groups among pregnant women, who showed that consanguinity was positive in half of the participants. The researcher confidently thinks that, the agreement could be attributed to Cultural practices as in African cultures, marrying within the family is encouraged to

strengthen familial bonds and preserve wealth or social status.

Concerning obstetrical history, the present study showed that nearly half of the studied women were multigravida, more than half of them were multiparous, nearly half of them had no history of abortion, nearly two fifths of them had three or more children, and almost half of them underwent cesarean section. These findings compatible with **Nyakio et al., (2024)** who conducted their study in the city of Bukavu to assess the prevalence of Fetomaternal Rhesus incompatibility, they demonstrated that more than half of participants were multigravida, and almost half of them had no history of abortion. This study is in line with study by **Allagoa et al., (2021)** who carried out their study in Nigeria to determine the prevalence of Rhesus negativity and the Fetomaternal outcomes; they found that more than half of the participants were multiparous. Also, these findings similar to **Shah et al., (2023)** who showed that nearly half of participants underwent cesarean section. The agreement regarding obstetrical history parameters such as gravidity, parity, history of abortion, and mode of delivery could be attributed to similarities in prevalence of certain obstetric conditions and methodological similarities such as sampling techniques, and data collection methods.

Regarding personal data, the present study showed that the majority of studied women's age ranged from 20 to 35 years old with a mean age group was 27.29±6.007, highest percentage of the studied women lived in rural area, more than one third of them had secondary level of education, the majority of them were housewives. This study consistent with **Yahia et al., (2020)** who reported that most participants were within the age group of 18 to 35 years, more than one third of them had secondary level of education, and most of them lived in rural area. On the other hand, the current study congruent with **Maruta, et al., (2023)** who applied their study in Ethiopia to determine the prevalence and determinants of Rh alloimmunization in Rh-negative women receiving care at Addis Ababa teaching hospitals, they revealed that half of participants were employed.

Conclusion:

Results of the present study concluded that about three fifths of the studied pregnant women had poor knowledge about Rh factor and incompatibility. A high significant relation between total score of women's knowledge and their residence, employment status and educational level was observed.

Recommendations:

In the light of the current study findings, the following recommendations are suggested:

- Providing health education supported by drawing pamphlets and brochure about Rh factor and Rh incompatibility for pregnant women especially primiparous during their antenatal visits.
- Training the Rural healthcare providers on the issue of Rh computability to enable them advice their patients in the communities and villages appropriately.
- Implementing Rhesus compatibility screening program for intending couples and first time mothers.
- Increasing public awareness by providing instructions regarding Rh factor and incompatibility through social media.

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