

**SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE, ADDIS
ABABA, ETHIOPIA**



**ASSESSMENT OF KNOWLEDGE, ATTITUDE, PRACTICE AND
ASSOCIATED FACTORS TOWARDS RHESUS INCOMPATIBILITY
(SHOTELEY) AMONG MOTHERS ATTENDING ANTENATAL CARE AT
SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE, ADDIS
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**AGUST 30, 2021
BY ADGUARD
ADDIS ABABA, ETHIOPIA**

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**A RESEARCH THESIS SUBMITTED TO THE ST. PAUL'S HOSPITAL
MILLENNIUM MEDICAL COLLEGE, DEPARTMENT OF OBSTETRICS
AND GYNECOLOGY IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE SPECIALTY CERTIFICATE IN
OBSTETRICS AND GYNECOLOGY**

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ABSTRACT

BACKGROUND: Rhesus incompatibility is defined as the production of maternal anti rhesus D antibodies in response to exposure to fetal rhesus antigen. It results in reticulocytosis in the bone marrow, erythroblast release from fetal liver, tissue hypoxia, increased umbilical artery and umbilical vein lactate level and hydrops fetalis. Hydrops fetalis is associated with a high mortality rate despite improved prenatal diagnostic and therapeutic interventions. Kernicterus which is one of the complications of fetal hydrops has around 10% mortality and 70% morbidity.

Objective: To assess knowledge, attitude, practice and associated factors towards Rh incompatibility (SHOTELEY) among mothers attending antenatal care at Saint Paul's Hospital Millennium Medical College (SPHMMC).

Method: A cross-sectional analytical or comparative study was conducted among 299 selected pregnant women who were attending antenatal care at SPHMMC from first of October to November 30, 2020 GC. Sample size was determined by using a single proportion population formula, and eligible participants were selected by systematic random sampling technique. The questionnaire was adapted and modified from previously published studies. Data was collected by interviewer administered structured questionnaire after pre-test was done. Ethical assurance was received from institutional review board of SPHMMC before data collection started. Data quality was controlled by training data collectors and supervisors and checking each data for completeness and consistency during and after actual data collection. Completely filled data was coded and entered into SPSS version 25.0 for analysis. Descriptive statistics were used to see the distribution of study variables. Binary logistic regression analysis was done to see the independent predictors of level of knowledge, attitude and practice and adjusted odds ratio with p value of ≤ 0.05 and 95 % confidence interval was taken as statistically significant.

RESULT: This study result showed that only 39.1% of mothers had good level of knowledge towards Rh incompatibility. More than two third of mothers (66.7%) did not know their husband's blood group and Rh. Only 5.7 percent of mothers knew that Rh incompatibility is because of Rh negative mother carrying Rh positive fetus. If Rh negative mother carry Rh positive fetus, only 38.5% of mothers knew that what measures should be taken to prevent Rh incompatibility. More than 96% of mothers had positive attitude and 87.6% of mothers had good level of practice towards Rh incompatibility (SHOTELEY). Only 13.0% of mothers did check their blood group and Rh before pregnancy. If they had frequent stillbirths or miscarriage because of Rh incompatibility, 78.6% of mothers stated they will go to hospital for help and the remaining 21.4% of mothers responded that they will not go to the hospital (Church or Mosque 9.7%, Herbalist 9.0%, and 2.7% of mothers believed that it is from the God).

Conclusion: Most pregnant mothers attending their ANC at SPHMMC had poor level of knowledge towards Rh incompatibility (SHOTELEY). Only few numbers of mothers knew that Rh incompatibility is because of different Rh negative mother carrying Rh positive fetus. However, most pregnant mothers had positive attitude and good practice towards Rh incompatibility (SHOTELEY).

RECOMMENDATION: Midwives, interns and residents at ANC should counsel and educate pregnant mothers to increase their awareness about Rh incompatibility (SHOTELEY), its cause and complications. The hospital should prepare the campaign for pregnant mothers attending their ANC at SPHMMC to increase their awareness knowledge towards Rh incompatibility (SHOTELEY). **Key-words:** KAP, Rh incompatibility, SHOTELEY

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ABBREVIATIONS

Rh- rhesus

Rh IG – rhesus immunoglobulin

HDFN- Hemolytic disease of fetus and new born

Kampala IU- TH Kampala international university teaching hospital

SPHMMC – Saint Paul hospital millennium medical college

ANC – Antenatal Care

OPD – Out patient department

IM – Intramuscular

IV – Intravenous

Ug – Microgram

FMH – Fetomaternal hemorrhage

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Rhesus incompatibility is defined as the production of maternal anti rhesus D antibodies in response to exposure to fetal rhesus antigen(1). It occurs when a woman with Rh-negative blood type is exposed to fetal Rh-positive blood cells, leading to the development of maternal Rh antibodies(1).

For rhesus allo-immunization to occur, three circumstances should be fulfilled.

1. Rhesus negative mother who has immunogenic capacity to produce antibody against Rh D antigen
2. Rh D positive fetus
3. An adequate amount of Rh D positive red blood cells should enter into the maternal circulation

INCIDENCE

The introduction of postnatal immunoprophylaxis in 1970 reduced the incidence of maternal D alloimmunization from 14% to 1-2% and with antenatal anti D further reduced to 0.1%(2).

Alloimmunization in pregnant women has been found to range from 0.4% to 2.7% worldwide (3).

In developed countries rhesus disease is decreased by coordinated obstetric and neonatal care (4).

But, in many developing countries, Rh D hemolytic disease is still commonly seen and it is likely that inadequate prenatal care due to unawareness or failure to administer Rh IG is responsible for this(5). In sub Saharan African countries, there are poor alloimmunization prevention strategies following sensitizing events in Rh negative women (3).

There are no studies that show the prevalence of Rh incompatibility in Ethiopia.

PERINATAL MORBIDITY AND MORTALITY

Anti D immunoglobulin in utero crosses the placenta to Rh D positive fetus and results in reticulocytosis in the bone marrow, erythroblast release from fetal liver, tissue hypoxia, increased umbilical artery lactate level and umbilical vein lactate level and hydrops fetalis(6).

Hydrops fetalis is abnormal fluid accumulation in two or more fetal compartments which includes pleural effusion, ascites, pericardial effusion, and skin edema. It is associated with high a mortality rate despite improved prenatal diagnostic and therapeutic interventions. It often results in the death of the infant shortly before or after delivery (7).

Neonatal effect of hemolytic disease of fetus and newborn may range from mild, self-limited hemolytic disease, as manifested as hyperbilirubinemia within 24 hours of life to neonatal hydrops fetalis which may present at delivery with shock and require emergent transfusion(6).

Kernicterus which is one of the complications of Rh incompatibility has around 10% mortality and 70% morbidity rate(8). It is incurable, but if it is detected early and effective therapy started soon, kernicterus is preventable(9).

1.2 STATEMENT OF THE PROBLEM

A cross-sectional study done at Kampala IU – TH showed frequent stillbirths/miscarriages due to rhesus incompatibility were attributed to infections in 75% of respondents, witchcrafts in 7.5% of respondents and only 17.5% of female students accepted that rhesus incompatibility can cause this frequent stillbirths/miscarriage. The study also showed that 25% of women seek supernatural powers as a solution (4). A cross-sectional study done at Ambo University main campus under graduate female students showed that the level of knowledge towards Rh disease was only 23.8%, and 7.31% of female students perceive that Rh disease is a punishment from God (13). The utilization rate of Anti D was 14.3% in a study done at Gandhi Memorial Hospital, Addis Ababa, Ethiopia (12). Although rhesus incompatibility is preventable by treating with anti RHD immune globulin during and after each pregnancy or after any other event that allows the mother blood to mix with fetal Rh-positive blood, still awareness of its implication and utilization rate for ant D is low. If it occurs once, it needs management at tertiary centers with sub specialties which is not widely available in our country. Rh D hemolytic disease is still causes significant perinatal morbidity and mortality in many developing countries because of low awareness of its implication. Women affected by rhesus incompatibility who have no adequate information about it may blame themselves or may be blamed from their neighbors because of repeated stillbirths. Therefore, they may seek help from spiritual healers, herbalist, and churches to be prayed for and when all this effort become unsuccessful, they may go into depression. There are no studies done about knowledge, attitude and practice towards Rh incompatibility among pregnant mothers in our country.

1.3 SIGNIFICANCE OF THE STUDY

In our country, there are no studies which show the knowledge, attitude, practice and associated factors of pregnant mothers towards Rh incompatibility. So, this research will assess knowledge, attitude and practice gaps among pregnant mothers and their associated factors towards Rh incompatibility. The findings will be used to guide public health planners and implementers in planning how to reduce perinatal morbidity and mortality because of Rh incompatibility. In addition, it might be used as baseline data for other researchers who are interested in this area

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CHAPTER TWO: LITERATURE REVIEW

KNOWLEDGE

A cross-sectional study done at Pakistan: a total of 350 females were interviewed and checked for blood group and 8.3% were found to be Rh negative. Out of this, only 2% women had knowledge about complications related to negative blood group during and after pregnancy. Majority 94.3% were not aware that what precautions should be taken if a mother's blood group is Rh negative(10).

A cross-sectional study done in Turkey to examine the knowledge, attitude and behaviors of pregnant women on screening tests made during pregnancy, it was detected that 39.3% of the pregnant women didn't know about their own blood groups and 65.8% didn't know about their husbands' blood groups {Avci, 2018 #99}.

A cross-sectional study done at Nigeria showed that the level of knowledge of maternal-fetal blood incompatibility of the expectant mothers was low (with only 39% correct response) and barely average of 56% for positive attitudes(11).

A study done at Kampala IU – TH showed only 17.5% knew what rhesus incompatibility is, 12.5% knew how it occurs, 7.5% weren't sure, and 80% did not know (4).

A cross sectional study done at Ambo university undergraduate female students showed that those who had good knowledge (who answered greater than or equal to four out of six questions which is greater than sixty five percent) were 23.58%. Majority of study participants 76.42% had poor knowledge (11).

PRACTICE

All women in most developed countries have a blood group and antibody screening at first antenatal visit. In the United Kingdom, it is recommended that a minimum of 500 IU anti-D IgG be offered to all non-sensitized Rh D -negative women at 28- and 34-weeks gestation in order to prevent the risk of Rh D sensitization in pregnancy. In France, targeted prophylaxis is applied regardless of the gestational age. In Canada, it is recommended that anti-D immunoglobulin 300 µg IM or IV should be given within 72 hours of delivery to a postpartum non-sensitized Rh-negative woman delivering Rh-positive infant. In these countries, they also recommended to quantify the volume of FMH to avoid administration of a dose of anti-D IgG less than 20 g/mL of fetal RBCs.

In most Sub-Saharan African countries, there are challenges associated with Rh pregnancies. Anti-D remains the most important alloantibody causing HDFN in Sub-Saharan Africa despite the availability of anti-immunoglobulin for prophylaxis. Only in an insignificant number of centers do Rh D-negative women have an antibody screen at booking and repeat antibody screens during the rest of their pregnancy(3).

A cross sectional study done at Kampala IU – TH showed that 25% of women seek supernatural powers as a solution to miscarriages/stillbirths due to rhesus incompatibility, this may be due to some cultural believes about misfortunes, the majority 75% seek help from hospital implying that most respondents were literate and informed about their health(4).

In Ethiopia a cross sectional study done at Gandhi Memorial Hospital, Addis Ababa, the utilization rate of Anti D was 14.3%. There was 4.7% offer of routine antenatal anti D prophylaxis at 28 weeks(12)

ATTITUDE

A cross-sectional study done at Ambo University main campus from the total respondents only 14 % had positive attitude towards Rh disease (SHOTELEY). Out of total respondents, 7.31% female students perceive that the Rh disease were punishment from the God.(13).

A study done at Kampala IU – TH showed 7.5% of women attributed frequent stillbirths/miscarriages due to rhesus incompatibility to withcraft,75% attributed them to infections and only 17.5% of women accepted that rhesus incompatibility can cause them, this could be attributed to lack information about the complications caused by this condition hence attributing them to other factors(4).

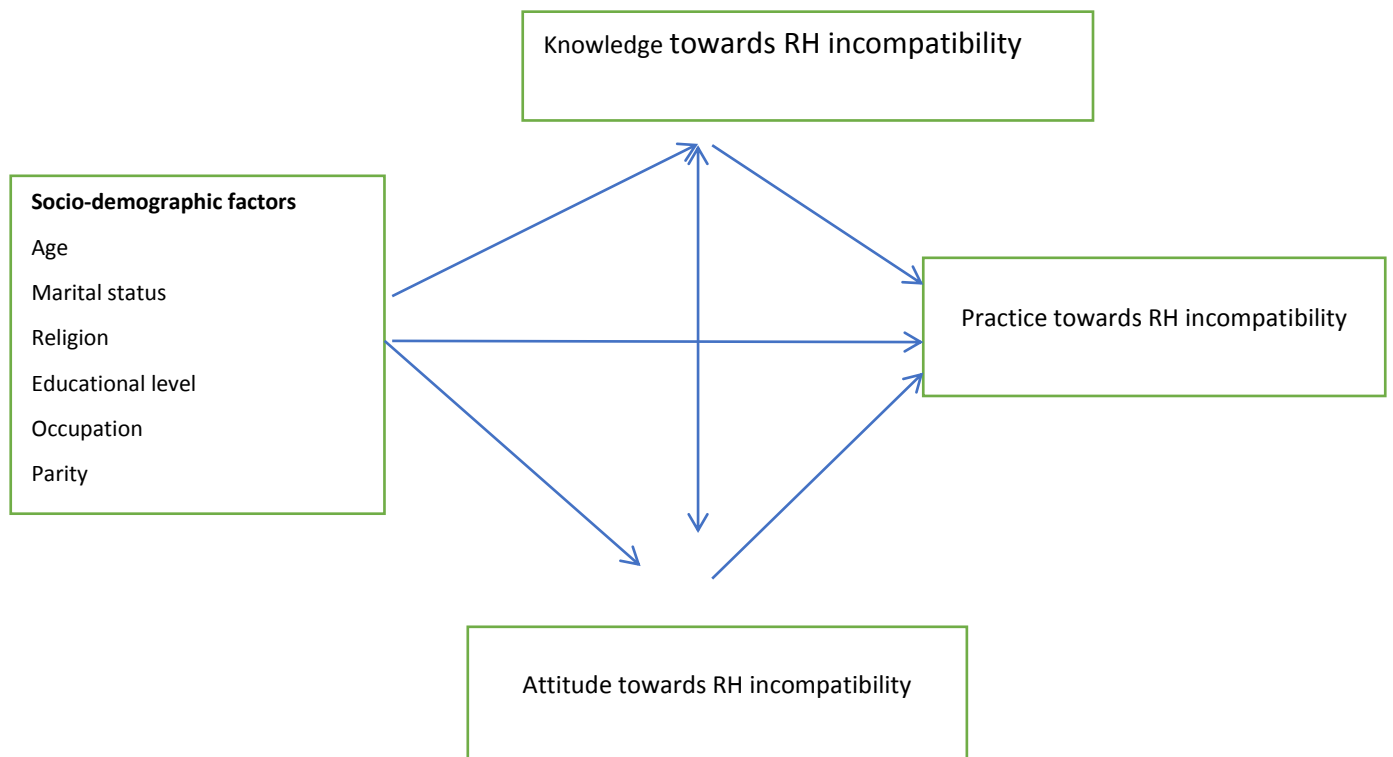


Figure 1: shows conceptual frame work

CHAPTER THREE: OBJECTIVE

3.1 GENERAL OBJECTIVE

To assess knowledge, attitude, practice and associated factors towards Rh incompatibility (SHOTELEY) among mothers attending antenatal care in Saint Paul's Hospital Millennium Medical College

3.2 SPECIFIC OBJECTIVE

3.2.1 To describe knowledge towards Rh incompatibility among mothers attending antenatal care

3.2.2 To describe the attitude towards Rh incompatibility

3.2.3 To find out practices on Rh incompatibility

3.2.4 To identify associated factors of KAP towards Rh incompatibility

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 STUDY AREA

The study was conducted at SPHMMC antenatal care. SPHMMC is located at Gullele Sub city at Swaziland Street, Addis Ababa, Ethiopia. The hospital is one of the biggest referral hospital in the capital under the Federal Ministry of Health. The hospital has 350 beds and gives services for inpatient and outpatient for more than 300, 000 patients annually. The hospital has more than 31 units in it: gynecology/obstetrics, internal medicine, pediatrics, surgery, dentistry, psychiatry, ophthalmology, dermatology. The OBGYN department has ANC, emergency OPD, maternity ward, labor ward, comprehensive abortion care and gynecologic OPD. It is one of the few centers in our country which follows and manages sensitized mothers with determination of serial titer levels, serial Doppler of middle cerebral artery, and intrauterine transfusion.

4.2 STUDY DESIGN

A cross-sectional analytical study was conducted among pregnant mothers who attended their antenatal care at SPHMMC from first of October to November 30, 2020 GC.

4.3 SOURCE POPULATION

All pregnant mothers attended their antenatal care at Saint Paul hospital millennium medical college.

4.4 STUDY POPULATION

All pregnant mothers on antenatal care follow up at Saint Paul hospital millennium medical college during the study period.

4.5 INCLUSION CRITERIA

All pregnant mothers attended their antenatal care at Saint Paul hospital millennium medical college from first October, 2020 to November, 30 2020 GC.

4.6 SAMPLE SIZE DETERMINATION

The sample size for the study was determined using single population proportion formula.

A cross-sectional study done at Ambo university undergraduate female students showed that those who had good knowledge were 23.58%, 14 % had a positive attitude towards Rh disease (SHOTELEY) and had poor practice. The highest of the three p values was used to calculate the sample size.

$$n = \frac{\left(Z \frac{\alpha}{2}\right)^2 p(1-p)}{d^2} = \frac{Z^2 p(1-p)}{d^2}$$

Where: n = required sample size

$Z \alpha/2$ = Critical value=1.96(Standard normal deviation usually set at 1.96 which corresponds to the 95% confidence interval)

p=23% (from local study and taken maximum out of the prevalence's i.e. knowledge prevalence)

d= precision (marginal error) =0.05

Therefore: $n = \frac{(1.96)^2 0.23(1-0.23)}{(0.05)^2} = 272$

Considering 10% non-response rate, the final sample size is 299

4.7 SAMPLING PROCEDURES

A systematic random sampling technique was used. Before one and two months back of the study period (before October and November), an average of 880 pregnant mothers attended their antenatal care per month which was around 1760 pregnant mothers within two months. So, by dividing the sampling frame to the sample size, every sixth mother selected based on their arrival in each day.

The lottery method was employed to identify the first pregnant women.

4.8 STUDY VARIABLES

Dependent variables: Knowledge, attitude and practice

Independent variables: Age, Level of education, Place of residency, Parity, Religion and Marital status

4.9 DATA COLLECTION AND ENTRY

Data was collected by interviewer administered questionnaire and two midwives were trained for one day on data collection tools, study objectives, and ethical issues. Following informed consent, each individual participant was requested to respond to the questionnaire. Daily checking of the collected data was made and questionnaires were checked for completeness and accurateness to determine their validity. Data collection tool adapted from previous literatures, published sources and modified to the local context. It had four components: 1. Demographic data 2. Mothers' knowledge towards Rh incompatibility 3. Mothers' attitude towards Rh incompatibility 4. Practices done by the mother when they are Rh-negative or assumed to be, they are Rh-negative. Data was collected from first October till November 30, 2020 GC. Prior to the actual data collection, a pre-test was done on 5% of the calculated sample size to check the appropriateness of the questionnaire. The data was coded and entered to statistical programme for social sciences (SPSS) version 25.0. Descriptive analytical statistics were used and qualitative data expressed as numbers and percentage.

4.10 OPERATIONAL DEFINITIONS

Good knowledge: Respondents who answered $\geq 65\%$ of the questions asked to assess their knowledge

Poor knowledge: Respondents who answered correctly $< 65\%$ of the questions asked to assess their knowledge

Positive attitude: When respondents answered correctly $\geq 60\%$ percent of attitude questions.

Negative attitude: When respondents answered correctly $< 60\%$ percent of attitude questions.

Good practice: Respondents who will answered correctly $\geq 50\%$ of the questions asked to answer practice questions

Poor practice: Respondents who answered correctly less than 50% of practice questions

These values are taken from previous studies which was done at Ambo university

4.11 ETHICAL CONSIDERATIONS

Ethical clearance was obtained from Institutional Review Board of SPHMMC before data collection. Permission letter was obtained from the Research Directorate. Letter of support was received from Department of OBGYN, SPHMMC. Each study participant was informed adequately about the purpose, method, and anticipated benefits of the study by the data collectors.

Consent was obtained from the mothers. Confidentiality of the data was secured and the data was used only for the intended purpose.

CHAPTER SIX: RESULTS OF THE STUDY

6.1 Socio-demographic characteristics of respondents

Of 299 respondents, the majority 120 (40.1%) were in the age group of 25 to 29 years old, and 179 (59.9%) were Orthodox Christian followers.

Most respondents, 283 (94.6%) were married and 129 (43.1%) were nulliparous. More than half of the respondents 155 (51.8%) were a house wife in terms of their occupation.

Majority of mothers attended primary school 109 (36.5%) and only 50 (16.7%) had Degree. More than 90 percent of respondents came from urban area 278 (93.0%).

Table 6.1: Shows socio-demographic characteristics of mothers (N = 299)

		Number of mothers	Percent
Age group of mothers	13 to 17	1	0.3%
	18 to 24	77	25.8%
	25 to 29	120	40.1%
	30 to 34	69	23.1%
	35 to 39	29	9.7%
	40 and above	3	1.0%
		No	%
Religion of the mothers	Muslim	64	21.4%
	Orthodox	179	59.9%
	Catholic	0	0.0%
	Protestant	55	18.4%
	Others	1	0.3%
Occupation	House wife	155	51.8%
	Employed	72	24.1%
	Private business	68	22.7%
	Others	4	1.3%
Educational level	Illiterate	17	5.7%
	Primary school	109	36.5%
	Secondary school	93	31.1%
	Diploma	30	10.0%
	Degree	50	16.7%
Marital status	Single	12	4.0%
	Married	283	94.6%
	Divorced	3	1.0%
	Widowed	1	0.3%
Parity	Nulliparous	129	43.1%
	Para one	89	29.8%
	Para two and above	81	27.1%
Place of residence	Urban	278	93.0%
	Rural	21	7.0%

6.2 Knowledge of participants towards Rh incompatibility

Among 299 respondents, 182 (60.9%) had poor knowledge and 117 (39.1%) had good knowledge towards Rh incompatibility (SHOTELEY) based on the operational definition stated above.

More than half of the respondents (55.2%) did not know that different blood group and RH of partners may result in miscarriages or stillbirths.

Around two-thirds of respondents 200 (66.9%) also did not know their husband's blood group and Rh. Regarding the precautions that should be taken if a mother's blood group is Rh-negative, 184 (61.5%) of mothers did not know the precautions. Table 6.2 shows the frequency distribution of 299 mothers' answer for each knowledge question towards Rh incompatibility.

Table 6.2: Frequency and percent distribution of mothers' response for each knowledge question towards Rh incompatibility, (N=299).

		Number of respondents	Percent
Do you think starting prenatal care early can prevent RH disease	Yes it can prevent	182	60.9%
	No it cannot prevent	3	1.0%
	I do not know	114	38.1%
Do you know RH incompatibility (SHOTELEY) and rhesus factor?	Yes I know	119	39.8%
	No I do not know	180	60.2%
Do you know your husband blood group and RH	Yes I know	99	33.1%
	No I do not know	200	66.9%
Do you think RH incompatibility has negative consequences on fetus/newborn	Yes it has	144	48.2%
	No it has not	1	0.3%
	I do not know	154	51.5%
Do you think rhesus incompatibility is preventable	Yes it is preventable	157	52.5%
	No it is not preventable	2	0.7%
	I do not know	140	46.8%
Can different blood group and RH of partners result in still birth or miscarriage	Yes it can result	127	42.5%
	No it cannot result	7	2.3%
	I do not know	165	55.2%

6.3: Attitude of mothers towards Rh incompatibility (SHOTELEY)

Regarding the attitude of mothers towards Rh incompatibility (SHOTELEY), 287 (96.0%) of mothers among 299 participants had positive attitude towards Rh incompatibility (because they answered correctly $\geq 60\%$ of attitude question's towards Rh incompatibility which was stated at the operational definition) and only 12 (4%) of respondents have negative attitude towards Rh incompatibility (they answered correctly less than 60% of attitude question's towards Rh incompatibility).

Only less than 10 percent of mothers, 20 (6.7%) consider that maternal fetal incompatibility test as an embarrassing event and the other 20 (6.7%) mothers also afraid to be Rh incompatible with their fetus.

Table 6.3: Frequency distributions of participants' attitude towards Rh incompatibility among mothers attending their ANC at SPHMMC, Addis Ababa, Ethiopia (N=299)

		Number of respondents	Percent
Do you agree that maternal fetal incompatibility test is an embarrassing event	Strongly agree	2	0.7%
	Agree	14	4.7%
	Undecided	4	1.3%
	Disagree	213	71.2%
	Strongly disagree	66	22.1%
Do you agree that maternal fetal incompatibility test result make you feel unpleasant	Strongly agree	6	2.0%
	Agree	8	2.7%
	Undecided	4	1.3%
	Disagree	217	72.6%
	Strongly disagree	64	21.4%
Do you agree that maternal fetal incompatibility test waste time	Strongly agree	3	1.0%
	Agree	8	2.7%
	Undecided	3	1.0%
	Disagree	213	71.2%
	Strongly disagree	72	24.1%
I am reluctant about doing maternal fetal incompatibility test because i am afraid to be incompatible with the fetus	Strongly agree	5	1.7%
	Agree	11	3.7%
	Undecided	4	1.3%
	Disagree	223	74.6%
	Strongly disagree	56	18.7%
If there is incompatibility traditional healer is preferred to get treatment	Strongly agree	4	1.3%
	Agree	7	2.3%
	Undecided	2	0.7%
	Disagree	226	75.6%
	Strongly disagree	60	20.1%
Level of attitude	Negative attitude	12	4.0%
	Positive attitude	287	96.0%

6.4: Practice of mothers towards Rh incompatibility

Out of 299 participant pregnant mothers, 262 (87.6%) had good practice (answered correctly $\geq$ 50% of practice questions) and 37 (12.4%) had poor level of practice (answered correctly $<$ 50% of practice questions).

More than ninety five percent of mothers, 285 (95.3%) did their blood group and Rh. Out of this, 211 (70.6%) checked their blood group and Rh during pregnancy and only 39 (13.0%) of respondents did check their blood group and Rh before pregnancy.

To prevent RH incompatibility, 242 (80.9%) of mothers correctly answered that ant-D should be taken and 235 (78.6%) of mothers stated they will go to hospital for help if they had frequent stillbirths or miscarriage because of Rh incompatibility and others responded that they will go to Church or Mosque 29 (9.7%), Herbalist 27 (9.0%), and 8 (2.7%) said that they did not go to anywhere because it is from the God.

Table 6.4: Frequency distributions of participants' answer for each practice questions towards Rh incompatibility among mothers attending their ANC at SPHMMC, Addis Ababa, Ethiopia (N=299)

Did you ever check your blood group and RH?	Yes I did	285	95.3%
	No I did not	14	4.7%
What do you think RH negative woman should do to prevent incompatibility (SHOTELAY)?	Take ant-D	242	80.9%
	Go to herbalist	25	8.4%
	Go to Holy water	10	3.3%
	I do not know	22	7.4%
Where will you go for help if you had frequent stillbirths or miscarriage because of RH incompatibility?	Church or Mosque	29	9.7%
	Herbalist	27	9.0%
	Hospital	235	78.6%
	I did not go to anywhere because it is from God	8	2.7%

		No	%
Level of practice	Poor practice	37	12.4%
	Good practice	262	87.6%

		No	%
If your answer is yes for the question which says "Did you ever check your blood and Rh?", when did you check your blood group and Rh.	Before pregnancy	39	13.7%
	During pregnancy	211	74.0%
	Both before pregnancy and during pregnancy	35	12.3%

6.5: Factors associated with participants knowledge level towards Rh incompatibility

Occupational category, level of education, parity and place of residence had significant association with the level of knowledge in the bivariate analysis using p value of 0.25 and entered to multivariate logistic regression.

But in multivariate logistic regression analysis, only level of education in which being degree has 23.195 times higher (, $P = 0.00$, 95% CI 4.668, 115.251 AOR = 23.195 ;) and being diploma has 4.6 times higher ($P = 0.05$, 95% CI = 0.959, 22.641; AOR = 4.6) level of knowledge about Rh incompatibility when compared with illiterates and those who were Para ones have 2.36 times ($P = 0.011$, 95% CI 1.215 4.610 ;AOR = 2.36) more level of knowledge towards RH incompatibility than nulliparous.

Occupational category and place of residency have no significant association with the level of knowledge in multivariate regression analysis.

Table 6.5: Bivariate and multivariate logistic regression of factors associated with level of knowledge of participants towards Rh incompatibility

Covariate		Level of knowledge		COR	P value	AOR	P value	95% CI
Occupation		Good	Poor					
	Housewife (ref)	45(29%)	110(71%)					
	Employed	45(62.5%)	27(37.5%)	4	0.000*	1.7	0.15	0.8-3.7
	Private	25(36.8)	43(63.2%)	1.4	0.253	1.3	0.4	0.6-2.5
	Others	2(50%)	2(50%)	2.4	0.38	1.2	0.85	0.1-13
Level of education	Illiterate(ref)	3(17.6%)	14(82.4%)					
	Primary school	21(19.3%)	88(80.7%)	1.1	0.84	1.2	0.7	0.3-4.9
	Secondary school	36(38.7%)	57(61.3%)	2.95	0.1*	3.3	0.09	0.8-13
	Diploma	15(50%)	15(50%)	4.66	0.036*	4.65	0.05**	0.9-22.6
	Degree	42(84%)	8(16%)	24.5	0.000*	23.2	0.000**	4.6-115.2
Parity	Nulliparous(ref)	46(35.7%)	83(64.3%)					
	Para 1	42(47.2%)	47(52.8%)	1.6	0.082*	2.36	0.01**	1.2-4.6
	Para 2 and above	29(35.8%)	52(64.2%)	1.0	0.98	1.6	0.17	0.8-3.1
Place of residence	Urban	112(40.3%)	166(59.7%)	2.2	0.14	1.0	0.9	0.3-3.4
	Rural(ref)	5(23.8%)	16(76.2%)					

Key; ref= reference category, *P≤0.25, **P≤0.05

Abbreviation; COR=crude odds ratio, AOR= adjusted odds ratio, CI: confidence interval

6.6: Factors associated with participants attitude level towards Rh incompatibility
 Only place of residence had significant association with level of attitude in the bivariate analysis.
 Those who came from urban have 5.22 times ($P = 0.032$, 95% CI = 1.157, 23.542; AOR = 5.22) more positive attitude than those who came from rural areas towards Rh incompatibility.

Table 6.6: Bivariate logistic regression of factors associated with level of attitude of participants towards Rh incompatibility

Covariate		Level of attitude		COR	P value	AOR	P Value	95% CI
		Negative	Positive					
Place of residency	Rural(ref)	4(19%)	17(81%)					
	Urban	8(2.9%)	270(97.1%)	7.94	0.002	7.94	0.002	2.1-29

Key; ref: reference category

Abbreviations; COR= crude odds ratio; AOR= adjusted odds ratio; CI = confidence interval

6.7: Factors associated with participants practice level towards Rh incompatibility
Occupational, educational level and place of residence had significant association with level of practice in the bivariate analysis. But in multivariable regression analysis, educational level those who have degree have 8.455 times more ($P = 0.032$; 95% CI, 1.157-23.542; AOR = 8.455) good practice towards Rh incompatibility than illiterates.

Table 6.7: Bivariate and multivariate logistic regression of factors associated with level of practice of participants towards Rh incompatibility

Covariate		Level of practice		P value	COR	P value	AOR	95% CI
Occupation		Poor	Good					
	Housewife (ref)	24(15.5%)	131(84.5%)					
	Employed	5(7%)	67(93%)	0.081*	2.455	0.888	1.089	0.3-3.5
	Private	6(8.8%)	62(91.2%)	0.185*	1.893	0.296	1.672	0.6-4.3
	Others	2(50%)	2(50%)	0.098*	0.183	0.087	0.113	0.009-1.3
Level of education	Illiterate(ref)	5(29.4%)	12(70.6%)					
	Primary school	21(19.3%)	88(80.7%)	0.341	1.746	0.734	1.249	0.7-14.4
	Secondary school	7(7.5%)	86(92.5%)	0.014*	5.119	0.102	3.364	0.5-25.5
	Diploma	2(6.7%)	28(93.3%)	0.051*	5.833	0.189	3.837	1.07-65.8
	Degree	2(4%)	48(96%)	0.010*	10.000	0.043**	8.455	1.17-23.5
Place of residence	Urban	31(11.1%)	247(88.9%)	0.026*	3.187	0.297	1.857	0.5-5.9
	Rural(ref)	6(28.6%)	15(71.4%)					

Key; ref= reference category, * $P \leq 0.25$, ** $P \leq 0.05$

Abbreviation; COR=crude odds ratio, AOR= adjusted odds ratio, CI: confidence interval

CHAPTER SEVEN: DISCUSSION, CONCLUSION AND RECOMMENDATION

7.1 DISCUSSION

This study was done to assess knowledge, attitude, and practice among pregnant mothers attending their ANC at SPHMMC towards Rh incompatibility (locally known as SHOTELY), but this study also tried to analyze factors associated with the level of knowledge, attitude and practice of the mothers. This study result showed that 39.1% of mothers had good level of knowledge, 96% had positive attitude and 87.6% of respondents had good level of practice towards Rh incompatibility (SHOTELEY).

Even though only 39.1 percent of mothers had good knowledge level towards Rh incompatibility in this study, when compared to other studies likes Kampala IU – TH (17.5%) and Ambo University (23.58%) is higher and is comparable with the study done in Nigeria (39%). Specifically, only around 39.8 percent of mothers knew about Rh incompatibility and Rh factor and this is comparable with Kampala IU – TH (37.5%) which was done among mothers attending their ANC in the Kampala IU teaching hospital. More than fifty percent of mothers (51.8%) did not know whether Rh incompatibility can result in miscarriages/stillbirths or not. Regarding the precautions that should be taken if Rh-negative mother carries Rh-positive fetus, only 38.5% of mothers knew what measures should be taken. This is low when compared to Ambo University students which was 61.6% of respondents knew what precautions should be taken. This significant difference may due to the study was at Ambo University students whereas in this study, participants who had diploma and degree were only 26.7% and the other 73.3% had only attended primary and secondary school. Only around one third of respondents (33.3%) knew their husband's blood group and Rh which is almost comparable with Kampala IU – TH in which only 35 percent of mothers knew their husband's blood group and Rh.

Only 5.7 percent of mothers knew that Rh incompatibility is because of Rh-negative mother carrying Rh-positive fetus. This is almost two times lower than the Kampala IU – TH which was (12.5%). Even though both studies were done at capital city of both countries and ANC attending mothers, this significant difference may be due to their educational level in which in this study the majority (36.5%) of respondents was attended only primary school whereas in Kampala IU – TH, only 2.5% of participants attended primary school.

In multivariate logistic regression analysis, level of education in which those who had degree had 23.195 times higher (, $P = 0.00$, 95% CI 4.668, 115.251 AOR = 23.195 ;) and those who had diploma had 4.6 times higher ($P = 0.05$, 95% CI = 0.959, 22.641; AOR = 4.6) level of knowledge towards Rh incompatibility when compared with illiterates. These wide confidence intervals may be due to small sample size (30 diplomas and 50 degree) and it needs to be replicated with larger sample size. Those who were Para ones had 2.36 times more level of knowledge towards RH incompatibility than nulliparous

Out of 299 participants, 96.0% of respondents have positive attitude towards Rh incompatibility. This is far better than Ambo University in which only 13.29% have positive attitude towards Rh incompatibility. The reason for this difference may be due to the population studied. This study was done among pregnant mothers who had ANC follow up at tertiary hospital in which they could be counseled about Rh incompatibility that increases their level of attitude. In multivariate regression analysis, only place of residence has significant association with level of attitude. Those who came from urban have 5.22 times ($P = 0.032$, 95% CI = 1.157, 23.542; AOR = 5.22) more positive attitude than those who came from rural areas towards Rh incompatibility. In this study, most participants (93%) were from urban areas and place of residency being urban has strong association with level of attitude, may be one of the reason of mothers to have this high level of positive attitude towards Rh incompatibility.

Regarding practice of mothers towards Rh incompatibility, 78.6% of mothers stated that they will go to hospital for help, if they had frequent stillbirths or miscarriage because of Rh incompatibility. This is almost comparable with the study done at Kampala IU – TH in which 75% of respondents will seek help from the hospital. But around 21.4% of the respondents will not go to the hospital (Church or Mosque 9.7%, Herbalist 9.0%, and 2.7% believed that it is from the God). This is still significant percent because Rh incompatibility (SHOTELEY) is preventable in more than 90 percent by properly and timely administers ant-D. Therefore, more interventions are needed to decrease this practice. At the same time, this result should be interpreted cautiously because 93 percent of this study participants were from urban area mainly from Addis Ababa and only 5.7 percent were illiterate which may be against most rural parts of Ethiopia and in this study level of education has strong association with level of practice. Therefore, this good level of practice towards Rh incompatibility may not be applicable for other pregnant mothers, especially for those in the rural parts of the Ethiopia.

7.2: CONCLUSION

Most pregnant mothers attending their ANC at SPHMMC had poor level of knowledge towards Rh incompatibility (SHOTELEY). Only few numbers of mothers knew that Rh incompatibility is because of different Rhesus factor of partners. Participant's educational level significantly associated with their level of knowledge towards Rh incompatibility. However, most pregnant mothers had positive attitude and good practice towards Rh incompatibility (SHOTELEY). Place of residence had strongly associated with their level of attitude. The level of practice towards Rh incompatibility was strongly associated with the mother's level of education.

7.3: RECOMMENDATIONS

Midwives, interns and residents at ANC should counsel and educate about Rh incompatibility (SHOTELEY), its cause and complications. The hospital should prepare campaign on awareness creation towards Rh incompatibility (SHOTELEY) among pregnant women on antenatal care follow up. Governmental health officials, Medias and other stakeholders should work to increase awareness of the couples or partners to check their blood group and Rh before pregnancy. Alloimmunization prevention strategies like initiation of early ANC visit, antibody screening and provision of ant-D for those who are unsensitized Rh-negatives should be promoted by health officials.

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