Government of The People's Republic of Bangladesh

Non-Communicable Diseases Control (NCDC)

Directorate General of Health Services

Ministry of Health & Family Welfare

Final Report

FOR

Research on Ensuring healthy outcome of pregnancy with NCD through strengthening PHC system



Submitted By

GRM

Born to build reality from idea..

June,2021



GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Non-Communicable Diseases Control (NCDC)
Directorate General of Health Services
Ministry of Health & Family Welfare

Research on Ensuring Healthy Outcome of Pregnancy with NCD through Strengthening Public Health Care (PHC) System



Global Research and Marketing

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List of Acronyms

ANC - Antenatal Care

BMI - Body Mass Index

BMRC - Bangladesh Medical Research Council

BP - Blood Pressure

CAPI - Computer Assisted Personal Interviews

CDC - Center of Disease Control & Prevention

CHCP - Community Health Care Provider

COVID - Corona Virus Disease

DCI - Data Collection Instrument

DGHS - Directorate General Health Services

FWA - Family Welfare Assistant

FWV - Family Welfare Visitors

GRM - Global Research & Marketing

HP - Health Professional

IDI - In Depth Interview

KII - Key Informant Interview

LBW - Low Birth Weight

LMIC - Lower Middle-Income Countries

MIS - Management Information Service

NCD - Non-Communicable Disease

NCDC - Non-Communicable Disease Control

NGO - Non-Government Organization

PHC - Public Health Care

SPSS - Statistical Packages for Social Sciences

UHC - Upazila Health Complex

WHO - World Health Organization

Executive Summary

Background

The prevalence of chronic non-communicable diseases is increasing worldwide. In the past, it was more prevalent in upper and upper-middle-income countries, but now it is gaining ground in lower-middle-income countries as well. NCDs are responsible for 75-90 percent of premature deaths in people between the ages of 30 and 69. Primary health care is an important component in controlling NCDs. Non-communicable diseases cause 41 million deaths each year, accounting for 61.0 percent of all deaths worldwide. About 31 million deaths in NCDs occur in lower-middle-income countries. In Bangladesh, an estimated 59.0 percent of total deaths – 886,000 deaths a year – occur due to the NCDs. 48.0 percent of men smoke; 20.0 percent of men and 32.0 percent of women have raised blood pressure. There were 7.1 million cases of diabetes in Bangladesh in 2015; a further 3.7 million cases may go undiagnosed. Effective interventions to reduce maternal and neonatal mortality in the age of maternal transformation need to account for and respond to the growing role of NCDs in maternal and child pregnancy outcomes.

Methodology Overview

Mixed Methods research strategy were used to conduct this study in two Upazillas of Narsingdi district to collect quantitative and qualitative information. A desk review was performed to better understand the context and gather secondary information. A total of 1558 pregnant women were interviewed using semi-structured questionnaire to know the NCD situation. Fifty health professionals have been interviewed using a semi-structured questionnaire to know views of the providers regarding NCDs. Qualitative data were collected from 7 health professionals at PHC to get deeper understanding about the service provision on Non-Communicable Diseases (NCD) for pregnant women.

Results

Among the 1558 interviewed pregnant women, a total of 231 pregnant women are suffering from different non-communicable diseases (NCDs) and 348 pregnant women might have NCDs. Results have been presented below by types of NCDs:

Diabetes

Blood sugar of a total of 1558 pregnant women were tested. Out of the 1558 respondents, sugar level of 0.6 percent pregnant women (10 women) was 11.1+. But they never tested their sugar level during their pregnancy time and they do not know that their sugar level is above 11.1. Only 30 respondents were aware that their sugar level is high and they are taking regular measures to manage sugar level. The existing protocol for diabetic is quite good enough to give treatment to the respondents as per the opinion of health professionals. The health professionals face problems in identification of the pregnant women, tracking of the pregnant women, not possible to monitor regularly, no digital data base including mobile number, no system of call services and follow up. Service providers do not get to know about pregnancy at early stage as they do not want to disclose the pregnancy; FWA/FWVs even are not informed. FWA said that there are several reasons not to inform outsiders: shy-ness, may be the pregnancy is not planned or unintended, or maybe scared about sex selection (boy or girl).

Hypertension

Out of total 1558 respondents, 18.2 percent of them might have probability of having high blood pressure. But most of them are not aware. Only 0.03 percent pregnant women confirmed that they have high blood pressure and they receive treatment for hypertension. Out of total 1558 respondents, 12.3 percent of them might have probability of having low pressure blood pressure. But they are not aware about their hypertension. Health professionals said that the existing NCD protocol for hypertension is quite good enough to give treatment to the respondents. From the service providers view point, the problems are- identification of the pregnant women, tracking of the pregnant women, not possible to monitor regularly, no digital data base including mobile number, no system of call services and follow up. Service providers do not get to know about pregnancy at early stage as they do not want to disclose the pregnancy; FWA/FWVs even are not informed. FWA said that there are several reasons not to inform outsiders: shy-ness, may be the pregnancy is not planned or unintended, or maybe scared about sex selection (boy or girl).

Anaemia

According to BMI measurement, 9.0 percent of the total respondents might have probability of having Anaemia. But most of them are not aware. But, according doctor's prescription, 10.8 percent are anaemic and receiving treatment. Out of total 1558 respondents, 25.6 percent of

them might have probability of having overweight and 8.3 percent of them might have probability of having obese, however, they are not aware about that. Health professionals opined that the existing NCD protocol for Anaemia is standard enough to give treatment to the respondents. Service providers informed that the problems are: identification of the pregnant women, tracking of the pregnant women, not possible to monitor Anaemia regularly, no digital data base including mobile number, no system of call services and follow up.

Thyroid Dysfunction

Among the 1558 respondents, 0.64 percent have thyroid dysfunction and are receiving treatment. Health professionals opined that the existing NCD protocol for thyroid dysfunction is standard enough to give treatment to the respondents. Service providers informed that the problems are not following the provided guidelines, not remembering the suggestions, no follow up system, not tracking system

Conclusion

The prevalence of the NCDs varies among the pregnant women by types of NCDs. Most of them are not aware and gone for test. Primary Health Care (PHC) should take urgent initiative as well as effective measures for identification, testing, behavior change communication, and follow-up mechanism for NCDs of all the pregnant women to ensure healthy pregnancy outcome. Existing printed protocol for NCDs is enough for the service providers to provide quality treatment for all people including pregnant women who have NCDs. Effective tracking and follow-up system (message, phone calls etc.) need to be introduce by the PHC for the better management of the NCDs among the pregnant women.

1. Introduction

1.1 Background of the Study

The prevalence of long-term (chronic) non-communicable diseases (NCDs) is increasing globally due to an ageing global population, urbanization, changes in lifestyles, and inequitable access to healthcare. Although previously more common in high- and upper-middle-income countries, lower-middle-income countries (LMICs) are more affected, with NCDs in LMICs currently accounting for 85– 90 percent of premature deaths among 30– 69 years old. NCDs have both high morbidity and mortality and high treatment costs, not only for the diseases themselves but also for their complications. Primary health care (PHC) services are a vital component in the prevention and control of long-term NCDs, particularly in LMICs, where the health infrastructure and hospital services may be under strain (Haque, et al., 2020).

Non-communicable diseases (NCDs) kill 41 million people each year, equivalent to 71% of deaths globally (WHO, 2021). NCDs disproportionately affect people in low- and middle-income countries (LMICs), where more than 31 million NCD deaths occur (almost 80% of the global total). Pregnant women with diabetes, anemia, obesity and hypertensive disorders are at a higher risk of developing adverse childbirth-related complications (CDC, 2021). Diabetes during pregnancy can negatively affect the health of women and their babies. For women having type 1 or type 2 diabetes, high blood sugar around the time of conception increases babies' risk of birth defects, stillbirth, and preterm birth. Additionally, high blood sugar throughout pregnancy increases women's risk of having a cesarean delivery and increases babies' risk of being born too large and developing obesity or type 2 diabetes in the future, among women with any type of diabetes (CDC, 2021). High blood pressure during pregnancy can impact the body in different ways than it normally would. There prevails a higher risk of complications before, during and after the birth if the mothers have high blood pressure during pregnancy. The mother's health as well as the baby's health can be impacted by high blood pressure during pregnancy. High blood pressure during pregnancy can affect the development of the placenta, causing the nutrient and oxygen supply to the baby to be limited. This can lead to an early delivery, low birth weight, placental separation (abruption) and other complications for the baby (CC, 2021). Severe anemia during pregnancy has been associated with major maternal and fetal complications. It increases the risk of preterm delivery, low birth weight, intrauterine fetal death, neonatal death, maternal mortality, and consequently infant mortality (MO, et al., 2020). Hypothyroidism during pregnancy has negative effects on the mother and

baby. Treatment or non-treatment of mothers have had a profound impact on their children's future intellectual development. Hypothyroidism during pregnancy is associated with adverse outcomes for both mother and fetus. Specifically, pregnant women with hypothyroidism and even subclinical types are at increased risk for experiencing complications such as recurrent pregnancy loss, neonatal death, preeclampsia, placental abruption, gestational hypertension, gestational diabetes, low birth weight (LBW), preterm birth, fetal distress, intrauterine fetal demise, and deteriorated intellectual function (Sepasi, et al., 2020).

In Bangladesh, an estimated 59.0 percent of total deaths – 886,000 deaths a year – occur due to the NCDs. 48.0 percent of men smoke; 20.0 percent of men and 32.0 percent of women have raised blood pressure. There were 7.1 million cases of diabetes in Bangladesh in 2015; a further 3.7 million cases may go undiagnosed (icddrb, 2021).

An estimated 129,000 deaths were attributed to diabetes in 2015. Effective interventions to reduce maternal and neonatal mortality in the era of obstetric transition will need to account for and respond to the increasing role of NCDs in the pregnancy outcomes of mothers and their babies. This report is intended to ensure healthy outcome of pregnancy with NCD through strengthening PHC system.

GRM, a Dhaka based research and consultancy firm, has been working in diverse social and development research and consultancy programs since its inception in 2012. GRM is collaborating with different government wings besides various development organizations and contributing in overall development progress in Bangladesh. GRM has highly skilled and qualified consultants as well as researchers who bear sound knowledge about social research methodology as their background is highly relevant with research. Hence, GRM has identified the strategies, limitations, challenges, or shortfall in the project implementation.

1.2 Objectives of the Assignment

General Objective of the assignment

The overall objective of the study is to delineate a picture of NCD risk factors and adverse pregnancy outcomes and assess the effectiveness of study intervention (ensuring service provision and optimal utilization of existing primary health care services in reducing adverse pregnancy outcomes (maternal and neonatal) caused by NCDs or its complications.

Specific objectives of the assignment

Under the general objective, the specific objectives are given below -

1. To estimate the proportion of NCDs (hypertension, diabetes) among the pregnant women attending the primary health care facilities of Bangladesh.
2. To identify the associated NCD risk factors among the pregnant women.
3. To develop a standard protocol for management of NCDs in pregnancy in primary health care centers.
4. To implement the protocol-based management among the pregnant women with NCDs in the primary health care system.
5. To assess the effectiveness of the intervention in terms of healthy pregnancy outcome.

1.3. Study Area

This study was conducted in Belabo and Palas Upazilla of Narsingdi District.

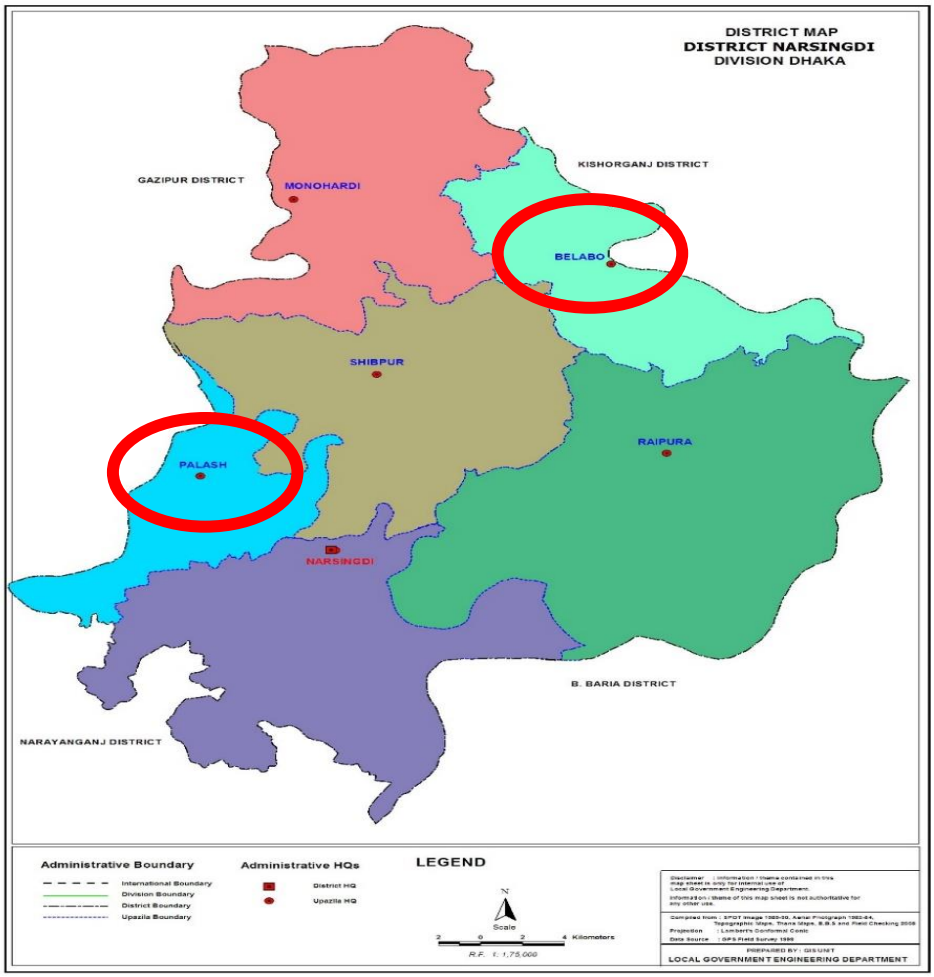


Figure 1: Map of the Study Locations

2. Methodology and Implementation

2.1 Overview of the Study Methodology

A mixed methods research approach has been implemented to achieve the objectives of the study. Both the qualitative and quantitative data have been collected from pregnant women, doctors, nurse, FRAs, FWVs, CHCP. At the first stage, articles/literatures have been read thoroughly and data collection with the help of the data collection instruments (DCI) has been conducted. At the second stage, an initial classification of studies has been organized on the basis of the quantitative analysis of semi-structured data. At the third stage, data have been collected in the form of KII and Service Provider Interview to investigate the study objectives. The following flowchart depicts the steps of this study



Figure 2: Schematic Flow Chart of the Study

2.2 Sampling design

2.2.1 Target Group for the Study

The study team will conduct these surveys among these two Upazills "Belabo and Polash" of Narsingdi district from MIS list. The study will be conducted among pregnant women and service providers to fulfil the objectives of the study, data will be collected from:

1. The pregnant women with NCDs and;
2. The service providers at the facility level (Upazila level to community Level)
3. KII, IDI and observational methods will be conducted among service receivers and service providers.

2.2.2 Quantitative Study

The study team conducted the quantitative survey among Pregnant women and Doctors. To identify the number of Pregnant women the team have taken information from the MIS of DGFP and direct data have been collected from the FWAs/FWVs from Polash and Belabo Upazila. The pregnant women have been interviewed to know/identify the pregnant women having any types of NCDs. Then the face-to-face interviews have been done using a semi-structured interview schedule. The interview schedule was contained information on knowledge on NCDs, practices of NCD protocols, Management of NCD protocols, Utilizations of health services and concerned barriers in utilization of services available at community health services. At the same time, service providers have also been interviewed using a semi-structured interview schedule. The interview schedule was contained questions on the use of NDC corners at health facilities, counselling practices to the pregnant women with NCDs, reasons for non-utilization of the NCD services by the pregnant women at community level and what are the challenges related to the proper utilization of the NCD services at community level.

Qualitative data was collected from the pregnant women to know the same issues in-depth and to get better understanding on these issues. Service providers were interviewed in-depth to know deeper understanding on the non-utilization issues of the NCD services at community level. For the quantitative survey of pregnant women, if necessary, field study team have also visited PHC's and have collected pregnant women database from PHC's/Upazila Health Complex Management Information System (MIS) of selected two Upazila Belabo and Palash. After finding the number and details of pregnant women, the survey team have gone to household and conducted quantitative survey among the pregnant women. Here study team have taken the pregnant women from that list. At the same time, health providers (doctors & gynaecologists) were interviewed about the problem of the non-utilizations of the existing primary health care services, what the problem of the implementation of the standard management protocol of NCDs at PHC is or what the problems from user perspectives are.

2.2.3 Sample Selection Methodology

The samples are the pregnant women of Belabo and Palash Upazila of Narshingdi. The study team have collected the list from Upazila Health Complex/ PSC's Management Information System (MIS) and conducted survey among the pregnant women going to their household. The team have visited the FWAs/FWVs and visited the pregnant women.

2.2.4 Qualitative Study

For the qualitative information, the study team conducted Key Informant Interview (KII), and Observation in the selected Upazilla.

Key Informant Interview (KII): KIIs have been conducted among health care providers and community health care service providers of selected two Upazila.

Observation: The study team has observed the services provided by the providers to pregnant women.

2.2.5 Informed consent Ethical Considerations

Ethical clearance has been taken from BMRC, Bangladesh. After specifying the target respondents, informed consent has been taken from them before commencing the structured interview. During the time of interview, ethical considerations and ethical practices were maintained and followed. The team leader of this study has ensured the privacy and other ethical considerations in conducting this study.

2.2.6 Major Study Indicators by their Expected Outcomes

Objectives	Compendium Indicator	Methodology	Expected Outcome
To estimate the proportion of NCDs (hypertension, diabetes) among the pregnant women attending the primary health care facilities of Bangladesh.	Finding Proportion	Mixed Method s (Secondary sources), Questionnaire Survey, KII, IDI	Proportion of the burden of the proportion of NCDs (hypertension, diabetes) among the pregnant women attending the primary health care facilities of Bangladesh
To identify the associated NCD risk factors among the pregnant women.	Risk factors identification	KII, IDI	Identification of NCD risk factors (tobacco use, alcohol use, physical inactivity, unhealthy diet, obesity) among the pregnant women will be identified.
To develop a standard protocol for management of NCDs in pregnancy in primary health care centres.	Standard protocol	Mixed Methods (Questionnaire Survey, KII, IDI)	Development of a standard protocol management
To develop a standard protocol for management of NCDs in pregnancy in primary health care centres.	Standard protocol	Mixed Methods (KII, IDI)	Development of a standard protocol management
To implement the protocol-based management among the pregnant women with NCDs in the primary health care system.	Management	Mixed Methods (KII, IDI, Observation)	Lessons from project management practices to guide for implementation of protocol-based management
To assess the effectiveness of the intervention in terms of healthy pregnancy outcome.	Eeffectiveness	Mixed Methods (Questionnaire Survey, KII, IDI, Observation)	Impact of the project in terms of healthy pregnancy outcome.

2.3 Quantitative Data Collection, Cleaning, and Data Management

Data have been collected by experienced and skilled Enumerators (data collectors). Each enumerator has been able to interview with 5-6 target respondents through survey questionnaire per day. A total of 20 enumerators and 4 field supervisors/qualitative researchers have been deployed in two study areas to conduct the face-to-face interview sessions. Each study area had a dedicated study team. There had been an equality in the number of male and female enumerators. The field supervisors were assigned for monitoring the progress and quality of survey work. Prior to launching data collection work, a rigorous three-day long training was conducted with the field survey team (i.e., Enumerators, Facilitator, Note taker and Field Supervisors) and other study members. In the training, interviewers were oriented on the content of the structured questionnaire as well as the basic rules and techniques of field data collection involving sensitive target population. Apart from these, demonstration, role play, and dry run sessions regarding data collection were facilitated within the training venue. The quantitative data were analyzed by the senior team members of the study by using SPSS. In consultation with the Team Leader and DGHS, the statistical expert analyzed all the quantitative data obtained from the survey. The data was collected by using CAPI method using the Nebu tool.

2.3.1 Concept, Definitions, and Measurement

The concept, definitions, and measurement include the way the data have been collected for the blood sugar, blood pressure, weight and height.

Concept	Definitions	Measurement	Remarks
Sugar Level	Risk of diabetes is considered for the women who have blood sugar more than 11.1 mmol/L (According to protocol management).	The sugar level is measured by a Glucometer, test strip, and special needle.	Random blood sugar was taken
Blood pressure	High blood pressure was considered to be more than 120 for systolic and more than 80 for diastolic (DGHS, 2013).	The blood pressure was measured through digital BP measuring machine.	
Weight	The weight was measured in kilogram (kg).	The weight is measured by the digital weight machine.	
Height	The height was measured in centimetre (cm).	The height was measured by the measuring tape.	

2.4 Qualitative Data Collection, Data Processing and Analysis

The study consultants have discussed the checklists/guidelines of the KIIs with the facilitators and note takers elaborately. The study team has followed a strict process in processing qualitative data. All qualitative data has been noted on the spot for real time response. For all qualitative techniques, at the end of each session, the facilitator and note-taker met to review the session and ensured that the notes are detailed and accurately reflected the group discussion taken place. If there were any points that seemed to be not well-captured, the notes were built upon at this stage. Such review has taken place immediately following the session so that the discussion was fresh in the minds of the facilitators' team. The Qualitative Team Members were encouraged to capture detailed notes and, where possible, direct quotes (verbatim) that were particularly interesting. Once the notes were completed, the study team prepared and sent soft copies to the Team Leader for checking the reliability, validity, and internal consistency of the data and other local discourses relating to the study objectives. Then the core professional team grouped the reports as well as analysed those according to the thematic areas by using pen and paper method. The quantitative findings were triangulated by the findings of other study tools.

2.5 Quality Control Mechanism

(a) For Quantitative Data

Rigorous training for data collectors/enumerator was the first building block of data quality assurance strategy. The training session covered each tool followed by immediate role-playing and mock interviews in the training room. The key professional team members frequently visited the field. During the fieldwork, accompany check, spot check, and back checks were conducted by the field supervisors and the key professional team members. These checks ensured that any systematic mistakes done by a specific enumerator was corrected quickly in the field.

(b) For Qualitative Data

The quality of qualitative data was ensured by the key professional team members in the study by following steps, such as - (a) the delivery of proper training and guidance to the entire study

team by the Key Professional Team Members, (b) continuous supervision and monitoring of the data collection and reporting process for the qualitative data by the key professional team members, and (c) data validation and error checking by the research manager and field associates. During the field surveys, a communication system was established between the field survey team and the key professional team of the study which ensured that review and reflection on the daily progress were made according to the survey protocols. Sharing meetings on challenges faced by the field survey team members was held to make other field survey team members aware of the situation.

2.6 Covid-19 Pandemic Work Mechanism

GRM maintained the social distancing and other health advices while conducting this study during this pandemic. GRM ensured proper health care facilities available for the entire team members during the field data collection. At the same time, GRM provided mask, hand sanitizer, and other necessary protection equipment to the study team to ensure highest level of health and hygiene during this COVID-19 situation.

3. Findings

- Total 1558 pregnant were interviewed
- Mean age of the respondents were 17.66
- Respondents have an average 8.65 years of education
- Most of them were housewife (95.5 %)
- Average mean age of the women was 21.15 and husband's average age is 31.7 years
- Age at marriage of the women is 17.66 years
- Almost all (99.0%) are currently married
- Ninety four percent are Muslim
- Mean income is TK. 30624, but majority (65.2%) of the respondent's income fall below TK. 20,000
- Almost hundred percent (99.3%) respondents' households have electricity and mobile phone.

Both qualitative and quantitative data were collected and analyzed. This chapter presents the findings of the collected data according to the objectives. Mostly, descriptive statistics were presented. Qualitative data were presented according to the themes and embedded with quantitative findings.

3.1 Socio Economic characteristics of the respondents

Socio-economic, cultural and basic information of the respondents were presented in the section. Variables like age, education, religion, types of households, occupation, family members, and sources of earning, household assets are presented below-

Table 1: Distribution of the Respondent by Education.

Educational Level Education	Educational Level			
	Wife		Husband	
	Frequency	Percentage	Frequency	Percentage
No Education	12	2.1	35	6.0
Primary Incomplete	25	4.3	45	7.8
Primary	65	11.2	85	14.7
SSC Incomplete	218	37.7	166	28.7
SSC	104	18.0	88	15.2
HSC Incomplete	21	3.6	11	1.9
HSC	73	12.6	67	11.6
Bachelor +	61	10.5	82	14.2
Total	**579**	**100.0**	**579**	**100.0**
	Mean education= 8.65		**Mean Education= 8.13**	

Table 1 shows that most of the respondents (37.7) were within the group primary pass but SSC incomplete. Eighteen percent are SSC pass and 12.6 percent completed HSC. Educational attainment of the husband of the respondents are slightly lower.

Table 2: Distribution of Respondent by Occupation.

Occupation	Wife		Husband	
	Frequency	Percentage	Frequency	Percentage
Housewife/Homemaker	550	95.0	-	-
Maid/House helper for others	3	0.5	-	-
Day labor/casual labor	-	-	96	16.5
Full-time employed	14	2.4	198	34.2
Part-time employed	4	0.6	16	2.7
Cash for work (labor work)	-	-	38	6.5
Small business/ Shopkeeper	-	-	144	24.8
Worker (construction/Transport)	2	0.3	32	5.5
Livestock cultivation / Poultry	1	0.1	8	1.3
Worker (agriculture/fisheries)	2	0.3	30	5.1
Vendor	3	0.5	17	2.4
Total	**579**	**100.0**	**579**	**100.0**

Table 2 indicates that 95.0 percent of the respondents are housewife/homemaker and 2.4 percent of the respondents are regular full-time employee. Maximum number (34.2) of husbands of the respondents are regular full-time employee, 24.8 percent are small business/retailer/shopkeeper, and 16.5 percent are day labor/casual labor.

Table 3: Age Distribution of the Respondent.

Age Categories	Present age of Respondents		Present age of Husband		Age at marriage of the Respondents	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
10-14	2	0.3	-	-	73	12.6
15-19	117	20.2	2	0.3	373	64.4
20-24	199	34.3	69	11.9	116	20.0
25-29	165	28.5	164	28.3	15	2.5
30-34	61	10.5	163	28.1	2	0.3
35-39	31	5.3	113	19.5	-	-
40-44	3	0.5	44	7.6	-	-
45-49	1	0.1	18	3.1	-	-
50-55	-	-	6	1.0	-	-
Total	**579**	**100.0**	**579**	**100.0**	**579**	**100.0**
Mean Age	**24.15**		**31.66**		**17.66**	

Present age of most of the respondents (83.0%) were within 15-29 years. Mean age of the present age of the respondents is 24.15 years and 31.66 years for their husband. Mean age at marriage of the wife was 17.66 years (**Table 3**).

Table 4: Respondents by Marital Status and Religion

Marital Status	Frequency	Percentage
Currently married	573	98.9
Separated	6	1.0
Total	**579**	**100.0**
Religion		
Muslim	544	94.0
Hindu	35	6.0
Total	**579**	**100.0**
Average Monthly Income		
<10000	143	24.7
10001-20000	235	40.5
20001-30000	92	15.8
30001-40000	29	5.0
40001-50000	39	6.7
50001-60000	18	3.1
60001+	23	3.9
Total	579	100.0
Mean income = 30,624		

Table 4 shows that almost all (98.9 %) respondents were married and 94.0 percent were Muslim rest (6.0%) of the respondents are Hindu. This table also shows that the household income of highest number of respondents (40.5) are in the range of 10,001 to 20,000. Mean income of the respondents was TK. 30,625.00.

Table 5: Distribution of the respondents by their household appliances.

Household Items	Frequency	Percentage
Electricity	575	99.3
Mobile Phone	574	99.1
Electric fan	566	97.7
Almirah/Wardrobe	474	81.8
Television	407	70.2
Refrigerator	400	69.0
Gas Cylinder for cooking	393	67.8
Water pump	205	35.4
Cow/Buffalo	172	29.7
Bicycle	121	20.9
Motor cycle	84	14.5
Computer/Laptop	49	8.4
Auto rickshaw/Auto bike	39	6.7
IPS/Generator	31	5.3
Solar Panel	28	4.8
Tempu/CNG/Easy bike	18	3.1
Car/Truck/Microbus	10	1.7
Rickshaw/Van/horse driven van	10	1.7
Tractor for agriculture work	9	1.5
DVD/VCD player	8	1.3
Radio	7	1.2
Land phone	7	1.2
Boat/Boat with engine	5	0.8

*Multiple Response

Table 5 represents that 99.3 percent of the respondents have electricity, 99.1 percent of them have mobile phone, 97.7 percent of the respondents have electric fan.

Table 6: Distribution of the respondents by taking Iron Tablets and Multivitamins.

Particulars	Yes	
	Frequency	Percentage
Iron Tablet	369	63.7
Multivitamins	329	56.8

Table 6 shows that 63.7 percent of the respondent intake iron tablets and 56.8 percent of the respondents intake multivitamins.

Table 7: Distribution of the respondents by having NCDs.

NCDs	Yes		Tested and Found Negative		Not Tested	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
ANC Visit	1061	**68.0**	497	32.0		
Diabetes	19	1.0	939	60.0	600	**39.0**
Hypertension	32	2.0	1194	77.0	332	21.0
High Blood Pressure	48	3.0	1307	84.0	203	13.0
Anemia	213	**14.0**	914	59.0	431	28.0
Thyroid Dysfunction	-	-	-	-	1540	**99.0**

Sixty-eight percent of the respondents have had their ANC visit. Only 1.0 percent of the respondents have diabetes. However, 39.0 percent reported that they haven't had their diabetes test. This is reportedly a matter of consideration. Two percent of the respondents said that they have hypertension. However, 3.0 percent reported that they have high blood pressure. Among all of the NCDs, Anemia has maximum prevalence in the study locations. Fourteen percent of the respondents suffer from Anemia which needs to be taken care of (**Table 7**).

3.2 Findings on Diabetes

Major Findings

- Blood sugar of A total of 1558 pregnant women were tested;
- Out of the 1558 respondents, sugar level of 0.6 percent pregnant women (10 women) was 11.1+. But they never tested their sugar level during their pregnancy time and they do not know that their sugar level is above 11.1+;
- Only 30 responds aware that their sugar level is high and they are taking regular measures to manage sugar level;
- Health professionals said that the existing NCD protocol is quite good enough to give treatment to the respondents;
- From the service providers view point the problems are: identification of the pregnant women, tracking of the pregnant women, not possible to monitor regularly, no digital data base including mobile number, no system of call services and follow up;
- Service providers do not get to know about pregnancy at early stage as they do not want to disclose the pregnancy;
- FWA/FWVs even are not informed; FWA said that there are several reasons not to inform outsiders: shy-ness, may be the pregnancy is not planned or unintended, or maybe scared about sex selection (boy or girl);

Table 8: Distribution of Respondent by Sugar Level.

Sugar Level	Frequency	Percentage
3.1 - 4	214	13.7
4.1 - 5	543	34.9
5.1 - 6	437	28.0
6.1 - 7	199	12.8
7.1 - 8	93	6.0
8.1 - 9	31	2.0
9.1 - 10	19	1.2
10.1 - 11	12	0.8
11.1 +	10	0.6
Total	**1558**	**100.0**

Table 8 shows that the random sugar level among the respondents. There are 0.6 percent of the respondents who might suffer from diabetes as their random sugar level is above 11.1.

Table 9: Distribution of the Respondents having Diabetics (n=30).

Diabetes Related Issues	Yes	
	Frequency	Percentage
Tested and confirmed Blood Sugar level	30	14.7
Do you go to Primary Healthcare Centre for checkup Blood Sugar level?	20	66.6
Do you understand when the sugar level increases?	17	56.6
Do you know what happens to babies if diabetics is uncontrolled?	19	63.3
Do you take medicine/ insulin for diabetes?	10	33.3
Do you know there is a corner for diabetes in community clinics?	14	46.6
Do you get medicine for diabetes from community health services?	2	6.6
Will you go to visit a doctor (sugar level 7.0+)?	158	91.3
Will you follow the instructions of the doctor (sugar level 7.0+)?	164	94.8
Condition		
Controlled	18	60.00
Uncontrolled	5	16.67
Medium	7	23.33
Total	**30**	**100**

Table 9 shows that of those who have diabetes, 56.6 percent of the respondents go to the doctor regularly for diabetes to get PHC facilities services. The number of respondents that check diabetes regularly is 66.6 percent. The number of respondents that understand when their sugar level increases is of 56.6 percent. The number of respondents that know what happens to babies if diabetics is uncontrolled is of 63.3 percent. Around 33.3 percent of the respondents take medicine/ insulin for diabetes. Around 28.0 percent of the respondents know that there is a corner for diabetes in community clinics and only 6.6 percent of the respondents get medicine for diabetes from community health services which is a matter of concern. From the respondents that didn't test for diabetes but sugar level is more than 7, 91.3 percent of the respondents will go to see a doctor and among which 94.8 percent of the respondents will follow the instructions of the doctor. According to this table, 60.0 percent of the respondents reported that their diabetes are in control where 16.6 percent of the respondents said that their

diabetes are not in control. However, 23.3 percent of the respondents reported their condition is volatile.

Table 10: Perception of the Respondents having Diabetics.

Perceived Feeling	Frequency	Percentage
Extra sweating	12	40.0
Feel thrust	9	30.0
Feel hungry	11	36.6
Frequency of urine	8	26.6
Body shivering	7	23.3
Feel week	11	36.6
Sleeping Disorder	1	3.3

Table 10 shows that that 40.0 percent of the respondents reported that they suffer from extra sweating while their sugar level increases and 36.6 percent of the respondents said that they feel hungry when their sugar level increases.

Table 11: Respondents Follow the instruction of the health professionals (n=30).

Follow the instruction of the health professionals	Frequency	Percentage
Eat less rice	18	60.0
Walk	26	86.6
Eat vegetables	21	70.0
Eat bread	16	53.3
Take medicine	6	20.0
Take Insulin	7	23.3
Walk regularly	24	80.0
Eat less	22	73.3

Table 11 represents that the respondents said that the health professionals suggested them to walk, 70.0 percent of the respondents said that the health professionals suggested them to eat vegetables, and 60.0 percent of the respondents said that the health professionals suggested them to eat less rice.

Table 12: Knowledge on the complications of high sugar level on Babies (n=30).

Problems	Frequency	Percentage
Excessive birth weight	10	33.3
Create problems of delivery	16	53.3
Premature birth	8	26.6
Breathing problems of babies	4	13.3
Birth defects. Most affect the heart, blood vessels, brain, and spinal cord.	7	23.3
Still birth	3	10.0

Table 12 shows that 53.3 percent of the respondents know that it creates problems of delivery, and 33.3 percent of the respondents know that the child might have excessive birth weight if the diabetes of the pregnant mother is uncontrolled.

Table 13: Respondents sought diabetic care from health services.

Personnel	Frequency	Percentage
Private doctors	14	46.6
Health assistance	8	26.6
Doctor at UHAFW	7	23.3
Pharmacy	5	16.6
Nurse	1	3.3
FWA	1	3.3
Total	30	100.0

Table 13 represents that 46.6 percent of the respondents reported that the private doctors told them about the consequences of diabetes.

Table 14: Distribution of the respondents by how often they test their sugar level.

Checkup frequency	Frequency	Percentage
Once in a month	11	36.6
Only during ANC	7	23.3
Not regularly	6	20.0
Twice in a month	5	16.6
Never	1	3.3
Total	**30**	**100.0**

Table 14 shows that 36.67 percent of the respondents test their sugar level once in a month. However, 20.00 percent respondent said that they don't test their sugar level regularly. This is a matter of concern.

3.2.1 Views of the Health Professionals about Diabetic

Table 15: Issues about Diabetes from Health Professionals

Views of the Health Professionals	Yes	
	Frequency	Percentage
Perception of the Health professionals regarding the Protocol		
Can you follow the protocol to advice diabetic patent?	44	88.0
Do you counsel pregnant women who are suffering from diabetes?	43	86.0
Do you provide medicine?	28	56.0
Do you have sufficient medicine?	24	48.0
Types of Suggestions Health professionals provide		
To eat less rice	38	76.0
To walk	39	78.0
To eat vegetables	36	72.0
To eat bread	27	54.0
To take medicine/ Insulin	18	36.0
Type of Problems Health professionals faces		
They can't follow the provided guidelines	36	72.0
They can't remember the suggestions	31	62.0
Prescribed protocol seems impossible to them to follow	24	48.0
What should be done for betterment of the services for the patient/Tasks		
Establishing follow up system	41	82.0
Establishing tracking system	35	70.0

Table 15 shows that 88.0 of the HPs can follow the management protocol of diabetes to advice diabetic patients; 86.0 percent of the HPs counsel pregnant women who are suffering from diabetes; 56.0 percent of the HPs reported that they provide medicine to the diabetes patients; and only 48.0 percent of the HPs reported that they get sufficient medicine which is a matter of concern and it needs to be improved.

Qualitative information from KII with health professional also provided deeper/similar/additional information regarding the use of the existing diabetic protocol at the health centers. A KII from UHC reported that,

> "We try follow the existing management protocol. But we don't have enough doctors who can follow protocol and provide the services accordingly."

Another KII from UHC informed that,

- "Counseling is very essential but we do not get proper time during services at outdoor".
- This protocol needs huge awareness among the family members in the pregnant women and in the community.
- There are lacking in the awareness in the family members and we, health professionals, do have little time in the outdoor services.

This table also shows that the HPs suggested the diabetes patients to walk (76.0%), to eat less rice (76.0%), and to eat vegetables (72.0%). about 72.0 percent of the HPs faced problem that the patients do not follow the provided guidelines which is a matter of concern in terms of implementing the management protocol for diabetes. Qualitative data also supported the same. HPs as KIIs informed that the patients do not follow the guidelines properly. Again, 70.0 percent of the HPs reported that they faced the challenge of complacence of the pregnant women to the prescription for the management of sugar level. suggestions to diabetic pregnant women because the pregnant women can't follow the advice properly. This table also represents that 82.0 percent of the HPs think that establishing follow up system would help PHC provide appropriate services to pregnant women with diabetic. Sixty two percent of the HPs opined that establishing tracking system for the pregnant women is essential to strengthen the NCD services for the pregnant women with diabetics. One KII participant (HP) suggested about tracking of the pregnant women that,

> "It would be great if we could have a tracking or follow up system to track the condition of the patients."

Development of the standard protocol for management of Diabetes:

Almost all the Health Professionals at PHC said that they try to follow the NCD management protocol properly, and in their opinions, the existing protocol is good enough. But the patients

can’t comply or follow the advices properly which creates hindrance in terms of implementing the existing protocol. Data from both pregnant women and HPs showed that there’s no established follow up system and tracking system which can ensure the proper implementation of the management protocol. Besides that, the lack of human resource has also been creating problems in terms of implementing the management protocol.

3.3 Findings on Hypertension

Major Findings

- Out of total 1558 respondents, 18.2% of them might have probability of having high blood pressure. But most of them are not aware.
- Only 50 pregnant women confirmed that they have high blood pressure. The do receive treatment for hypertension.
- Out of total 1558 respondents, 12.3% of them might have probability of having low pressure blood pressure. But they are not aware.
- Health professionals said that the existing NCD protocol for hypertension is quite good enough to give treatment to the respondents;
- From the service providers view point, the problems are: identification of the pregnant women, tracking of the pregnant women, not possible to monitor regularly, no digital data base including mobile number, no system of call services and follow up;
- Service providers do not get to know about pregnancy at early stage as they do not want to disclose the pregnancy;
- FWA/FWVs even are not informed; FWA said that there are several reasons not to inform outsiders: shy-ness, may be the pregnancy is not planned or unintended, or maybe scared about sex selection (boy or girl);

Table 16: Distribution of Respondent by Blood Pressure

Blood Pressure	Frequency	Percentage
SBP		
70-79	4	0.3
80-89	21	1.3
90-99	171	11.0
100-109	531	34.1
110-119	548	35.2
120+	283	18.2
Total	**1558**	**100.0**
DBP		
Below 60	191	12.3
60-70	553	35.5
70-80	584	37.5
80-90	200	12.8
90 +	30	1.9
Total	**1558**	**100.0**

Table 16 represents that around 18.2 percent of the respondents are at risk of suffering from high blood pressure where 12.3 percent of the respondents are at risk of suffering from low pressure.

Table 17: Distribution of the Respondents having Hypertension (n = 50)

Hypertension related issues	Yes	
	Frequency	Percentage
Tested and confirmed blood pressure level	50	19.3
Do you go to Primary Healthcare Centre for checkup of blood pressure level	29	58.0
Do you understand when hypertension increases?	39	78.0
Do you know what happens to babies if hypertension is uncontrolled?	21	42.0
Do you take medicine for hypertension?	11	22.0
Do you know there is a corner for hypertension in community clinics?	14	28.0
Do you get medicine from community health services for hypertension?	3	6.0
Will you go to see a doctor (who have a blood pressure 120 +)?	186	89.4
Will you follow the instructions of the doctor (who have a blood pressure 120 +)??	197	94.7
Condition		
Controlled	27	54.0
Uncontrolled	12	24.0
Medium	11	22.0
Total	**50**	**100.0**

Table 17 shows that among the respondents who have hypertension, 58.0 percent of the respondents go to the doctor regularly for hypertension to get PHC facilities services. The number of respondents that check hypertension regularly is 56.0 percent. The number of respondents that understand when their hypertension increases is of 78.0 percent. The number of respondents that know what happens to babies if hypertension is uncontrolled is of 42.0 percent. Around 22.0 percent of the respondents take medicine for hypertension. Around 46.6 percent of the respondents know that there is a corner for hypertension in community clinics and only 6.0 percent of the respondents get medicine for hypertension from community health services which is a matter of concern. From the respondents that didn't test for diabetes but

systolic blood pressure is more than 120, 89.4 percent of the respondents will go to see a doctor and among which 94.7 percent of the respondents will follow the instructions of the doctor. This table also shows that, 54.0 percent of the respondents reported that their hypertension is in control where 24.0 percent of the respondents said that their hypertension are not in control. However, 22.0 percent of the respondents reported their condition is volatile.

Table 18: Respondents came to know about their Hypertension.

Months	Frequency	Percentage
<6	29	58.0
7-12	12	24.0
13-24	15	26.0
25+	6	12.0
Total	**50**	**100.0**

Table 18 shows that 58.0 percent respondent came to know about their hypertension only six months before. A total of 38.0 percent respondents bearing hypertension more than one year.

Table 19: Perception of the Respondents having Hypertension.

Perceived Feelings	Frequency	Percentage
Severe headaches	31	62.0
Fatigue or confusion	20	40.0
Vision problems	8	16.0
Chest pain	10	20.0
Difficulty breathing	6	12.0
Irregular heartbeat	3	6.0
Pounding in your chest, neck, or ears	12	24.0
Convulsions (violent shaking)	1	24.0

Table 19 represents that 62.0 percent of the respondents reported that they suffer from severe headaches while their blood pressure increases and 40.0 percent of the respondents said that they feel Fatigue or confusion when their blood pressure increases.

Table 20: Respondents follow the instruction of the health professionals (n = 50).

Suggestions	Frequency	Percentage
Eat a Healthy Diet	40	80.0
Keep Yourself at a Healthy Weight	33	66.0
Be Physically Active	25	50.0
Do Not Smoke	12	24.0
Get Enough Sleep	14	28.0
Tasks what they do to control hypertension		
Eat a Healthy Diet	28	56.0
Become Physically Active	26	52.0
Keep myself at a Healthy Weight	19	38.0
Get Enough Sleep	18	36.0
Do Not Smoke	16	32.0

Table 20 represents that the 80.0 respondents said that the health professionals suggested them to eat a healthy diet, 66.0 percent of the respondents said that the health professionals suggested them to keep themselves at a healthy weight, and 50.0 percent of the respondents said that the health professionals suggested them to be physically active. The table also shows that 56.0 percent of the respondents eat a healthy diet and 52.0 percent of the respondents reported that they become physically active to control hypertension.

Table 21: Respondent's knowledge on the complications of high sugar level on Babies (n = 50)

Problems	Frequency	Percentage
Slow growth while in the womb	13	26.0
Need oxygen in the hours after birth	13	26.0
Create problems of delivery	13	26.0
Others (Please specify)	1	2.0

Table 21 shows that 26.0 percent of the respondents reported that they feel slow growth while in the womb, 26.0 percent of the respondents reported that they need oxygen in the hours after birth and 26.0 percent of the respondents reported that the faced problem of delivery.

Table 22: Respondents by who told them those consequences of hypertension

Personnel	Frequency	Percentage
Private doctors	21	42.0
Pharmacy	13	26.0
Doctor at UHAFW	11	22.0
Health assistance	9	18.0
FWA	4	8.0
Nurse	3	6.0
Others	3	6.0
NGO Workers	1	2.0

Table 22 represents that 42.0 percent of the respondents reported that the private doctors told them about the consequences of hypertension.

Table 23: Distribution of the respondents by how often they test their BP

Checkup Frequency	Frequency	Percentage
Once in a month	15	30.0
Not regularly	15	30.0
Only during ANC	10	20.0
Twice in a month	8	16.0
Never	2	4.0
Total	**50**	**100.0**

Table 23 shows that 30.0 percent of the respondents test their BP once in a month. However, 30.0 percent respondent said that they don't test their BP regularly. This is a matter of concern.

3.3.1 Views of the Health Professionals about Hypertension

Table 24: Issues about Hypertension from Health Professionals (n=50)

Issues from HPs	Yes	
	Frequency	Percentage
Can you follow the protocol to advice hypertension patent?	40	80.0
Do you counsel pregnant women who are suffering from Hypertension?	44	88.0
Do you provide medicine?	27	54.0
Do you have sufficient medicine?	21	42.0
Suggestions		
To keep Yourself at a Healthy Weight	38	76.0
To eat a Healthy Diet	34	68.0
To be Physically Active	31	62.0
Do Not Smoke	29	58.0
To get Enough Sleep	30	44.0
Problems		
They can't remember the suggestions	37	74.0
They can't follow the provided guidelines	35	70.0
Prescribed protocol seems impossible to them to follow	25	50.0
Challenges		
They can't follow the advice properly	38	76.0
There is no follow up system	26	52.0
There is no tracking system	25	50.0
Tasks		
Establishing follow up system	42	84.0
Establishing tracking system	32	64.0

Table 24 shows that 80.0 of the HPs can follow the management protocol of hypertension to advice hypertension patients; 88.0 percent of the HPs counsel pregnant women who are suffering from hypertension; 54.0 percent of the HPs provide medicine to the hypertension patients; and 42.0 percent of the HPs get sufficient medicine which is a matter of concern and it needs to be improved. Qualitative information from KII with health professional also provided similar information regarding the use of the existing hypertension protocol at the health centers. This table also shows that, 76.0 percent of the HPs suggest the hypertension patients to keep themselves at a healthy weight, 68.0 percent of the HPs suggest the hypertension patients to eat a healthy diet, and 62.0 percent of the HPs suggest the hypertension

patients to be physical active. This table also shows that, represents that 74.0 percent of the HPs face the problem that the patients can't remember the suggestions which is a matter of concern in terms of implementing the management protocol for diabetes. The same issues have been raised by the HPs in the KIIs that the patients can't remember the suggestions properly. This table also shows that 76.0 percent of the HPs face the challenge of providing suggestions to hypertension pregnant women because the pregnant women can't follow the advice properly. This table also represents that 84.0 percent of the HPs think that establishing follow up system will help them to provide appropriate services to pregnant women who are suffering from hypertension.

3.4 Findings on Anaemia

Major Findings

- According to BMI measurement, 9.0 percent of the total respondents might have probability of having Anaemia. But most of them are not aware.
- But, according doctor's prescription, 10.8 percent are anaemic and receiving treatment.
- Out of total 1558 respondents, 25.6 percent of them might have probability of having overweight and 8.3 percent of them might have probability of having obese. But they are not aware.
- Health professionals opined that the existing NCD protocol for Anaemia is standard enough to give treatment to the respondents;
- Service providers informed that the problems are: identification of the pregnant women, tracking of the pregnant women, not possible to monitor Anaemia regularly, no digital data base including mobile number, no system of call services and follow up;

Table 25: Distribution of Respondent by BMI.

BMI	Frequency	Percentage
Below 18.5	140	9.0
18.5-24.9	889	57.0
25-29.9	399	25.6
30+	130	8.3
Total	**1558**	**100.0**

Table 25 shows that 9.0 percent of the respondents are underweight, 25.6 percentage are overweight and 8.3 percent of the respondents are obese.

Table 26: Distribution of Respondents having Anemia

Anemia Related issues	Yes	
	Frequency	Percentage
Tested and confirmed for Anemia	168	10.8
Do you go to Primary Healthcare Centre the checkup of anemia?	89	53.0
Do you understand when Anemia increases?	136	80.9
Do you know what happens to babies if anemia is uncontrolled?	58	34.5
Do you take medicine for Anemia?	117	69.6
Do you know there is a corner for Anemia in community clinics?	52	30.9
Do you get medicine from community health services for Anemia?	44	26.1
Condition		
Controlled	57	33.9
Uncontrolled	29	17.2
Medium	82	48.8
Total	**168**	**100.0**

Table 26 shows that among the respondents who have anemia, 53.0 percent of the respondents go to the doctor regularly for anemia to get PHC facilities services. The number of respondents that check anemia regularly is 46.4 percent. The number of respondents that understand when their anemia increases is of 80.9 percent. The number of respondents that know what happens to babies if anemia is uncontrolled is of 34.5 percent. Around 69.6 percent of the respondents take medicine for anemia. Around 30.9 percent of the respondents know that there is a corner for anemia in community clinics and only 26.1 percent of the respondents get medicine for anemia from community health services which is better compared to getting medicine for other NCDs. This table also shows that 48.8 percent of the respondents reported their condition is volatile where 33.9 percent of the respondents reported that their anemia is in control and 17.2 percent of the respondents said that their anemia is not in control.

Table 27: Distribution of the respondents from when they are suffering from Anemia

Months	Frequency	Percentage
<6	105	62.5
7-12	42	25.0
13-24	10	5.9
25+	11	6.6
Total	168	100.0

Table 27 shows that a total of 62.5 percent of the respondents came to know within six months that they were suffering from Anemia. A total of 25.0 percent is suffering from Anemia for 7 to 12 months.

Table 28: Perception of the Respondents having Anemia (n=168)

Perceived Feeling	Frequency	Percentage
Weakness	132	78.5
Dizziness or lightheadedness	95	56.5
Fatigue	70	41.6
Headaches	45	26.7
Cold hands and feet	36	21.4
Shortness of breath	23	13.6
Chest pain	16	9.5
Irregular heartbeats	11	6.5
Pale or yellowish skin	12	7.0

Table 28 represents that 78.5 percent of the respondents suffer from weakness, 56.5 percent of the respondents suffer from dizziness or lightheadedness while their anemia increases, and 41.6 percent of the respondents suffer from fatigue when their anemia increases.

Table 29: Health Services received from different Health Care Providers.

Places	Anemia (n = 168)		Diabetic (n = 30)		Hypertension (n = 50)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Private clinic	69	41.1	9	30.0	18	36.0
Community clinic	33	19.6	5	16.6	7	14.0
Doctor's chamber	27	16.0	7	23.3	7	14.0
Non-govt. hospital	17	10.1	5	16.6	4	8.0
Upazila Health Complex	15	8.9	2	6.6	5	10.0
Union Health and Family Welfare Center	9	5.3	2	6.6	2	4.0
Pharmacy	7	4.1	2	6.6	13	26.0
District hospitals	6	3.5	3	10.0		
Govt. medical college hospitals	5	2.9	3	10.0	6	12.0
Health worker	5	2.9	2	6.6	5	10.0
Unskilled Midwife	2	1.2				
Mother and children welfare center, NGO Clinic, CHCP	3	1.8			2	4.0

Table 29 shows that 41.1 percent of the respondents reported that they go to private clinic for their anemia checkup where 19.6 percent of the respondents said that they go to community clinic for their anemia checkup. This table also represents that 30.0 percent of the respondents go to private clinic for their diabetes checkup where 23.3 percent of the respondents said that they go to doctor's chamber for their diabetes checkup and 36.0 percent of the respondents go to private clinic for their hypertension checkup where 26.0 percent of the respondents said that they go to pharmacy for their hypertension checkup.

Table 30: Distribution of the respondents

Suggestions by health professionals' suggestion.	Frequency	Percentage
Eat plenty of iron-rich foods	155	92.2
Eat and drink vitamin C-rich foods and drinks	134	79.7
Avoid drinking tea or coffee	39	23.2
Get enough vitamin B12 and folic acid in my diet	88	52.4
Tasks by what they do to control anemia		
I eat plenty of iron-rich foods	150	89.3
I eat and drink vitamin C-rich foods and drinks	131	77.9
I avoid drinking tea or coffee	46	27.4
I get enough vitamin B12 and folic acid in my diet	70	41.7

Table 30 represents that the 92.2 percent of the respondents said that the health professionals suggested them to eat plenty of iron-rich foods, 79.7 percent of the respondents said that the health professionals suggested them to eat and drink vitamin C-rich foods and drinks and 47.0 percent of the respondents said that the health professionals suggested them to get enough vitamin B12 and folic acid in their diet. It also shows that 89.3 percent of the respondents reported that they eat plenty of iron-rich foods and 77.9 percent of the respondents reported that they eat and drink vitamin C-rich foods and drinks to control anemia.

Table 31: Respondent's knowledge on the complications causes by Anemia on Pregnancy

Problems	Frequency	Percentage
Have a low-birth-weight baby	45	26.7
Increases your risk of premature birth	32	19.0
Increase risk of infant death immediately before or after birth	22	13.1
Postpartum depression	18	10.7

Table 31 shows that 26.7 percent of the respondents know that have a low-birth-weight baby, and 19.0 percent of the respondents know that it increases your risk of premature birth if the anemia of the pregnant mother is uncontrolled.

Table 32: Sources of Information about the Consequences of Anemia

Personnel	Frequency	Percentage
Doctor at UHFWC	21	12.5
CHCP	2	1.2
Nurse	9	5.3
FWA	17	10.1
Health assistance	18	10.7
Pharmacy	12	7.1
Private doctors	101	60.1
Others	6	3.5

Table 32 represents that 60.1 percent of the respondents reported that the private doctors told them about the consequences of anemia.

Table 33: Distribution of the respondents by testing Blood Iron Level

Checkup frequency	Frequency	Percentage
Only during ANC	68	40.4
Not regularly	55	32.7
Once in a month	33	19.6
Twice in a month	9	5.3
Never	3	1.8
Total	**168**	**100.0**

Table 33 shows that 40.4 percent of the respondents test their iron level only during ANC. However, 32.7 percent respondent said that they don't test their iron level regularly. This is a matter of concern.

3.4.1 Views of the Health Professionals about Anaemia

Table 34: Health Professionals Views, Issues, Challenges about Anemia (n=50)

Issues from HPs	Yes	
	Frequency	Percentage
Do you counsel pregnant women who are suffering from Anemia?	49	98.0
Can you follow the protocol to advice anemia patent?	44	88.0
Do you provide medicine?	44	88.0
Do you have sufficient medicine?	38	76.0
Suggestions		
To eat plenty of iron-rich foods	47	94.0
To eat and drink vitamin C-rich foods and drinks	41	82.0
To get enough vitamin B12 and folic acid in my diet	38	76.0
To avoid drinking tea or coffee	30	60.0
Problems		
They can't remember the suggestions	43	84.0
They can't follow the provided guidelines	41	82.0
Prescribed protocol seems impossible to them to follow	24	28.0
Challenges		
They can't follow the advice properly	42	84.0
There is no tracking system	25	50.0
There is no follow up system	24	48.0
Tasks		
Establishing follow up system	46	92.0
Establishing tracking system	31	62.0

Table 34 shows that 98.0 percent of the HPs counsel pregnant women who are suffering from anemia; 88.0 of the HPs can follow the management protocol of anemia to advice anemia patients; 88.0 percent of the HPs provide medicine to the anemia patients where 76.0 percent of the HPs get sufficient medicine which is a matter of concern and it needs to be improved. Qualitative information from KII with health professional also provided similar information regarding the use of the existing anemia protocol at the health centers. This table also show that 94.0 percent of the HPs suggest the anemia patients to eat plenty of iron-rich foods, 82.0 percent of the HPs suggest the anemia patients to eat and drink vitamin C-rich foods and drinks, and 76.0 percent of the HPs suggest the anemia patients to get enough vitamin B12 and folic acid in my diet. This table also shows that represents that 84.0 percent of the HPs face the

problem that the patients can't remember the suggestions and 82.0 percent of the HPs said that the patients can't follow the provided guidelines which is a matter of concern in terms of implementing the management protocol for diabetes. The same issues have been raised by the HPs in the KIIs that the patients can't remember the suggestions properly and can't follow the provided guidelines. This table also shows that 84.0 percent of the HPs face the challenge of providing suggestions to anemia pregnant women because the pregnant women can't follow the advice properly. This table also represents that 92.0 percent of the HPs think that establishing follow up system will help them to provide appropriate services to pregnant women who are suffering from anemia.

3.5 Findings on Thyroid Dysfunction

Major Findings

- According doctor's prescription, 0.64 percent have thyroid dysfunction and are receiving treatment;
- Health professionals opined that the existing NCD protocol for thyroid dysfunction is standard enough to give treatment to the respondents;
- Service providers informed that the problems are: not following the provided guidelines, not remembering the suggestions, no follow up system, not tracking system

Table 35: Distribution of Respondents having Thyroid Dysfunction (n=10)

Thyroid related issues	Yes	
	Frequency	Percentage
Do you go to Primary Healthcare Centre for the Checkup of thyroid Dysfunction?	6	60.0
Do you understand thyroid fluctuates?	4	40.0
Do you know what happens to babies if thyroid is uncontrolled?	7	70.0
Do you take medicine for thyroid?	7	70.0
Condition		
Controlled	5	50.0
Uncontrolled	2	20.0
Medium	3	30.0
Total	**10**	**100.0**

Table 35 shows that among the respondents who have thyroid dysfunction, 60.0 percent of the respondents go to the doctor regularly for thyroid dysfunction to get PHC facilities services. The number of respondents that check thyroid regularly is 70.0 percent. The number of respondents that understand when their thyroid fluctuates is of 40.0 percent. The number of respondents that know what happens to babies if thyroid dysfunction is uncontrolled is of 70.0 percent. Around 70.0 percent of the respondents take medicine for thyroid dysfunction. This table also shows that 50.0 percent of the respondents reported that their thyroid dysfunction is in control where 20.0 percent of the respondents said that their thyroid dysfunction is not in control. However, 30.0 percent of the respondents reported their condition is volatile.

Table 36: Distribution of the respondents from when they are suffering from thyroid dysfunction

Months	Frequency	Percentage
<6	**3**	**30.0**
7-12	**4**	**40.0**
13+	**3**	**30.0**
Total	**9**	**100**

Table 36 shows that a total of 50.0 percent of the respondents who suffer from thyroid dysfunction are suffering from 8 months or less which indicates that their thyroid dysfunction might be for their pregnancy.

Table 37: Perception of the Respondents having Thyroid Dysfunction.

Feelings	Frequency	Percentage
Fast and irregular heart beat	2	20.0
Shaky hands	2	20.0
Unexplained weight loss	1	10.0
Extreme tiredness	4	40.0
Severe constipation	1	10.0
Problem with memory or concentration	3	30.0
Shortness of breath with activity	2	20.0
Weight gain	1	10.0
Carpal tunnel syndrome (hand tingling or pain)	1	10.0
Muscle cramps, weakness, joint pain	2	20.0

Table 37 represents that 40.0 percent of the respondents reported that they feel extreme tiredness while their thyroid hormone level decreases and 30.0 percent of the respondents said that they face a problem with memory or concentration when their thyroid hormone level decreases.

Table 38: Distribution of the Respondents by where they go for Checkup.

Places	Frequency	Percentage
Community clinic	2	20.0
Doctor's chamber	1	10.0
Govt. medical college hospitals	1	10.0
Non-govt. hospital	1	10.0
Private clinic	3	30.0
Satellite clinic	1	10.0

Table 38 shows that 30.0 percent of the respondents reported that they go to private clinic for their thyroid hormone checkup where 20.0 percent of the respondents said that they go to community clinic for their thyroid hormone checkup.

Table 39: Distribution of the respondents by health professionals' suggestion.

Suggestions	Frequency	Percentage
Avoid Processed Food	6	60.0
Avoid Soy	4	40.0
Stop Smoking	3	30.0
Reduce Stress	6	60.0

Table 39 represents that the 60.0 respondents said that the health professionals suggested them to avoid processed food, 50.0 percent of the respondents said that the health professionals suggested them to reduce stress, and 40.0 percent of the respondents said that the health professionals suggested them to avoid soy.

Table 40: Distribution of the Respondents by what they do to Control Thyroid.

Tasks	Frequency	Percentage
Avoid Processed Food	7	70.0
Avoid Soy	3	30.0
Stop Smoking	3	30.0
Reduce stress	6	60.0
Consequences		
Have lower IQ	4	40.0
Create problems with normal development	7	70.0

Seventy percent of the respondents reported that they avoid processed food and 50.0 percent of the respondents reported that they reduce stress to control thyroid dysfunction (**Table 40**). This table also shows that 70.0 percent of the respondents know that it creates problems with normal development, and 40.0 percent of the respondents know that they have lower IQ if the thyroid dysfunction of the pregnant mother is uncontrolled.

Table 41: Respondents who told them about those Consequences of Thyroid

Personnel	Frequency	Percentage
Doctor at UHAFWC	5	27.7
Health assistance	3	16.6
Private doctors	12	66.6

Table 41 represents that 66.6 percent of the respondents reported that the private doctors told them about the consequences of thyroid dysfunction.

Table 42: Distribution of the respondents by testing their iodine level in their blood

Iodine Level	Frequency	Percentage
Once in a month	2	20.0
Twice in a month	2	20.0
Only during ANC	3	30.0
Not regularly	3	30.0

Table 42 shows that 30.0 percent of the respondents test their iodine level only during ANC. However, 30.0 percent respondent said that they don't test their iodine level regularly. This is a matter of concern.

3.5.1 Views of the Health Professionals about Thyroid dysfunction

Table 43: Issues about Thyroid dysfunction from Health Professionals

Issues from HPs	Yes	
	Frequency	Percentage
Do you counsel pregnant women who are suffering from Thyroid dysfunction?	31	62.0
Can you follow the protocol to advice thyroid dysfunction patent?	28	56.0
Do you provide medicine?	22	44.0
Do you have sufficient medicine?	16	32.0
Suggestions		
To reduce Stress	24	48.0
To avoid Processed Food	21	42.0
To stop Smoking	21	42.0
To avoid Soy	20	40.0
Problems		
They can't follow the provided guidelines	32	64.0
They can't remember the suggestions	29	58.0
Prescribed protocol seems impossible to them to follow	17	34.0
Challenges		
They can't follow the advice properly	32	64.0
There is no follow up system	23	46.0
There is no tracking system	17	34.0
Tasks		
Establishing follow up system	38	76.0
Establishing tracking system	33	66.0

Table 43 shows that 62.0 percent of the HPs counsel pregnant women who are suffering from thyroid dysfunction; 56.0 of the HPs can follow the management protocol of thyroid dysfunction to advice thyroid dysfunction patients; 44.0 percent of the HPs provide medicine to the thyroid dysfunction patients where 32.0 percent of the HPs get sufficient medicine which is a matter of concern and it needs to be improved. Qualitative information from KII with health professional also provided similar information regarding the use of the existing thyroid dysfunction protocol at the health centers. This table also shows that 48.0 percent of the HPs suggest the thyroid patients to reduce stress, 42.0 percent of the HPs suggest the thyroid patients to avoid processed food, and 42.0 percent of the HPs suggest the thyroid patients to stop smoking. This table also shows that represents that 64.0 percent of the HPs face the problem

that the patients can't follow the provided guidelines and 58.0 percent of the HPs said that the patients can't remember the suggestions which is a matter of concern in terms of implementing the management protocol for diabetes. The same issues have been raised by the HPs in the KIIs that the patients can't remember the suggestions properly and can't follow the provided guidelines. This table also shows that 64.0 percent of the HPs face the challenge of providing suggestions to thyroid dysfunction pregnant women because the pregnant women can't follow the advice properly. This table also represents that 76.0 percent of the HPs think that establishing follow up system and 66.0 percent of the HPs think that establishing tracking system will help them to provide appropriate services to pregnant women who are suffering from thyroid dysfunction.

Table 44: Distribution of Respondents by Risk factor Identification.

Risk Factors	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Do you smoke?	5	0.8	574	99.1
Does your husband smoke in front of you?	94	16.2	485	83.7
Do you consume alcohol?	14	2.4	565	97.5
Do you remain active physically?	416	71.8	163	28.1
Do you practice unhealthy diet?	80	13.8	499	86.1
Are you suffering from obesity?	119	20.5	460	79.4

Table 44 shows that 0.8 percent of the respondents do smoke, 16.2 percent of the respondents reported that their husbands smoke in front of them, 2.4 percent of the respondents consume alcohol, 28.1 percent of the respondents don't remain active, 86.1 percent of the respondents practice unhealthy diet. 20.5 percent of the respondents suffer from obesity.

The existing protocol for management of NCDs is quite okay to the health professionals. However, they lack personnel in terms of implementing the protocol properly. According to a health professional.

"The protocol for the management of NCDs is perfect. If we can have enough resource person, we will be able to implement the protocol properly."

As the health professional reported that the protocol for management of NCDs is perfect, hence, the focus should be provided to the implementation of that protocol. The health professional also reported that they try to follow the protocol as much as it's possible. Due to the lack of

human resources and excessive pressure of patients, the protocol sometimes cannot not be followed. So, to implement the protocol-based management among the pregnant women with NCDs, it's needed to increase the test facilities, recruit more staff, skilled midwife, and specialists, increase awareness among the pregnant women about regular checkup.

The intervention is quite good as a guideline. It is good to implement too. But the other factors are affecting the effectiveness, and for that, the effectiveness is getting slowed down. For example, between the two Upazila Health Complex, one doesn't have any gynecologist which is a must if the pregnant women are to be provided the services properly. So, the intervention is not being effective due these other related factors.

4. Conclusion

The number of pregnant women that were surveyed with the survey questionnaire is 1558, among which 231 pregnant women are suffering from non-communicable diseases (NCDs) and 348 pregnant women might have NCDs.

Among the total pregnant women, 958 pregnant women tested for the diabetes where 19 pregnant women tested diabetics and 939 pregnant women tested diabetes and found negative which is a good progress. It is found that 12.2 percent pregnant women have sugar level 7 or more. Among the pregnant women that have diabetes, more than fifty percent of the respondents go to the doctor regularly for diabetes to get PHC facilities services. The number of respondents that check diabetes regularly is 66.6 percent. More than fifty percent of respondents understand when their sugar level increases. The number of respondents that know what happens to babies if diabetics is uncontrolled is of 63.3 percent. Around one-third of the respondents take medicine/ insulin for diabetes. A minimum number of the respondents know that there is a corner for diabetes in community clinics and A very minimum number of the respondents get medicine for diabetes from community health services which is a matter of concern. From the respondents that didn't test for diabetes but sugar level is more than 7, 91.3 percent of the respondents will go to see a doctor and among which 94.8 percent of the respondents will follow the instructions of the doctor. A total of 63.3 percent of the respondents have high chance that they are suffering from diabetes due to their pregnancy. Most of the pregnant women go to private doctor and doctor's chamber for their diabetes checkup. The health professionals suggest to walk regularly and eat less rice in most of the cases. Most of the pregnant women eat less to control their diabetes. More than half of the pregnant women know that there creates delivery problem and one-third pregnant women know that the child might have excessive weight if the diabetes of the pregnant mother is uncontrolled.

The number of women that have hypertension is 32. However, 48 pregnant women have high blood pressure. A total of 1307 pregnant women tested and found negative for the hypertension which seems a good progress. Among the total interviewed pregnant women, 216 women might suffer from pre-hypertension and 67 women might suffer from stage 1 and 2 hypertensions. However, 141 women might suffer from low pressure. Among the pregnant women that have hypertension, more than fifty percent of the respondents go to the doctor regularly for

hypertension to get PHC facilities services. The number of respondents that check hypertension regularly is more than a half. Most of respondents understand when their hypertension increases. The number of respondents that know what happens to babies if diabetics is uncontrolled is of less than fifty percent. Less than one-third of the respondents take medicine for hypertension. A minimum number of the respondents know that there is a corner for hypertension in community clinics and A very minimum number of the respondents get medicine for hypertension from community health services which is a matter of concern. From the respondents that didn't test for diabetes but systolic blood pressure is more than 120, 89.4 percent of the respondents will go to see a doctor and among which 94.7 percent of the respondents will follow the instructions of the doctor. A total of 14.0 percent of the respondents have high chance that they are suffering from hypertension due to their pregnancy. Most of the pregnant women go to private doctor and pharmacy for their hypertension checkup. The health professionals suggest to maintain a healthy diet, healthy weight, and be physically active in most of the cases. Most of the pregnant women maintain a healthy diet and be physically active to control their hypertension. Most of the pregnant women know that there creates delivery problem and slow growth while in the womb if the hypertension of the pregnant mother is uncontrolled.

The number of women that have anemia is 213 which is the major NCD problem among the pregnant women. A total of 914 pregnant women tested and found negative for the anemia which seems a good progress. Among the pregnant women that have anemia, more than fifty percent of the respondents go to the doctor regularly for anemia to get PHC facilities services. The number of respondents that check anemia regularly is less than a half. Most of respondents understand when their anemia increases. The number of respondents that know what happens to babies if diabetics is uncontrolled is of less than fifty percent. Less than one-third of the respondents take medicine for anemia. A minimum number of the respondents know that there is a corner for anemia in community clinics and less than one-third percent of the respondents get medicine for anemia from community health services which is a matter of concern. A total of 72.8 percent of the respondents have high chance that they are suffering from anemia due to their pregnancy. Most of the pregnant women go to private doctor and community clinic for their anemia checkup. The health professionals suggest to eat plenty of iron-rich foods, eat and drink vitamin C-rich foods and drinks, and get enough vitamin B12 and folic acid in their diet in most of the cases. Most of the pregnant women eat plenty of iron-rich foods and eat and

drink vitamin C-rich foods and drinks to control their anemia. Most of the pregnant women know that the children might have a low-birth-weight baby and it increases the risk of premature birth if the anemia of the pregnant mother is uncontrolled.

Thyroid dysfunction is not tested broadly. A total of 1540 pregnant women didn't test for thyroid dysfunction which is a matter of concern. Among the pregnant women who have thyroid dysfunction, more than fifty percent of the respondents go to the doctor regularly for thyroid dysfunction to get PHC facilities services. Most of the pregnant women check thyroid regularly. The number of respondents that understand when their thyroid fluctuates is of 40.0 percent. Most of the respondents know about what happens to babies if thyroid dysfunction is uncontrolled. Most of the respondents take medicine for thyroid dysfunction. A total of 50.0 percent of the respondents have high chance that they are suffering from thyroid dysfunction due to their pregnancy. Most of the pregnant women go to private doctor and community clinic for their thyroid checkup. The health professionals suggest to avoid processed food, reduce stress, and to avoid soy in most of the cases. Most of the pregnant women avoid processed food and reduce stress to control their anemia. Most of the pregnant women know that creates problems with normal development and have lower IQ if the thyroid of the pregnant mother is fluctuated.

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Annexure

Annex – 1: Survey Questionnaire for Pregnant Women

Questionnaire for Pregnant Women

General Instruction

First, start with introductory remarks (self-introduction, interview process, the objective of the study and taking consent). Then ask the following questions one by one and be aware of the skipping rules.
Assalamualaikum / Nomoskar / Good Morning / Afternoon / Evening,
Thank you for joining this interview. I am …… and conducting a study **"**Attention to Research on Ensuring healthy outcome of pregnancy with NCD through strengthening PHC system**"**

CONSENT FORM/ ASSENT FORM
We, Global Research and Marketing (GRM), conducting **"Research on Ensuring healthy outcome of pregnancy with NCD through strengthening PHC".** I would like to welcome you to feel comfortable to express yourself and to share your thoughts and experiences during this discussion. At the same time, I would also like to ask that we all be respectful of one another and that what we share remains in this interview. Of course, if you are not comfortable sharing anything, you do not have to, and that is ok. …… recording is being made of the discussion session and …… will be taking keynotes so we remember what we've discussed today, however, we will not share your individual responses to anyone, only anonymous quotes and the overall results will be included in reports. Your name will not appear anywhere to ensure that your responses cannot be linked to you. Our discussion is likely to take between 25 to 30 minutes. While we hope you can stay throughout the discussion, it is your choice to stay or leave at any point. In addition, it is up to you which questions you do or do not answer. Do you have any questions that you would like to discuss before we begin?"
…….
Name and signature of respondent
Date: ……..... /……. /2021

Proceed to interview now?	• YES (if the answer is YES, continue the interview) • NO (if the answer is NO, stop taking the interview)

Date					2	0	2	1	Start Time					End Time					
Respondent Name:																			
Contact Number:					0	1													
Respondent Status:	**Pregnant Women**																		
District	Upazilla								Union							Ward			

Location (Respondent)											
Interviewer Name:									Signature:		
Supervisor Name:									Signature:		
☐ Accompany			☐ Back check						☐ Telephone Check		

Age, Race, Ethnicity, Gender, Marital Status, Income, Education, and Employment.

Section 1: Screening Questions				
QN	**QUESTIONS**	**CODING CATEGORY**	**RESPONSE CODE**	**SKIP**
101	What is the duration of your pregnancy?	**…….in months**		
102	When did you come to know about your pregnancy?	**……. in months**		
103	Did you go for ANC visit?	1. Yes 2. No 3. Not tested		
104	Do you have diabetes?	1. Yes 2. No 3. Not tested		
105	Do you have hypertension?	1. Yes 2. No 3. Not tested		
106	Do you have high blood pressure?	1. Yes 2. No 3. Not tested		
107	Do you have Anemiea?	1. Yes 2. No 3. Not tested		
108	Have you done thyroid function test ever?	1. Yes 2. No		
Now we'll test Sugar Level, Blood Pressure, Weight, and BMI				
109	Sugar level	**…….**		

110	Blood Pressure	**……**		
111	Weight	**……..**		
112	BMI	**…… Inch**		
If there is no NCDs, then end of the interview with Thanks				

Section 2: Respondent's Demographic and Socio-Economic Information				
QN	**QUESTIONS**	**CODING CATEGORY**	**RESPONSE CODE**	**SKIP**
201	What is your current age?	Age (in completed years)		
202	What is your current marital status?	1. Currently married 2. Separated 3. Widowed 4. Divorced		
203	What was your age at the time of your marriage?	Age (in completed years)		
204	What was your husband's age during your marriage?	Age (in completed years)		
205	What is the highest level of school you attended?	Education in complete years		
206	What is your main occupation (women)?	1. Housewife/Homemaker 2. Maid/House helper for others 3. Day labor/casual labor 4. Regular full-time employment 5. Regular part-time employment 6. Small business/Retailer/ Shopkeeper 7. Worker (construction/Transport		

		8. Livestock cultivation/ Poultry 9. Worker (agriculture/fisheries) 10. Other (Specify: …….)		
207	What is the current age of your husband?	Age (in completed years)…		
208	How many years has your husband studied?	Education in complete years		
209	What is your husband's main occupation?	1. Day labor/casual labor 2. Regular full-time employment 3. Regular part-time employment 4. Cash for work (labor work) 5. Small business/Retailer 6. Construction/Manufacturing/Mining/Transportation 7. Livestock cultivation 8. Sales Worker 9. Worker (agriculture/forest/ fisheries) 10. Shopkeeper 11. Vendor 12. Other (Specify: …….)		
210	What is your religion?	1. Muslim 2. Hindu 3. Buddhist 4. Christian 5. Other (Specify: …….)		
211	Total number of family members who live with you?	1. Male in numbers 2. Female in numbers		

212	How many members of your household involve with income generating activities?	1. Male in numbers 2. Female in numbers		
213	What is the average monthly income of your household (based on last 3 months)?	Amount in Bangladeshi taka		
215	What kind of toilet facility do members of your household usually use?	1. Flush latrine 2. Water sealed/slab 3. Pit latrine 4. Open pit 5. River/canal/filed 6. Hanging latrine/bamboo 7. Other (Specify: …….)		
216	What is the type of your current tenancy?	1. Govt. and non govt. shelter 2. Rent free public places 3. Relatives' house/land, 4. Rented house 5. Own house in own land 6. Own house in rented land 7. Others (Specify: …….)		
217	How many decimals of land do your household own?	1. Homestead land (decimal) 2. Agricultural land (decimal)		

218	Does your present household have the following items?	Code for Q218.1 to 218.23 1. Yes 2. No		

218.1	Electricity	
218.2	Solar Panel	
218.3	IPS/Generator	
218.4	Almirah/Wardrobe	
218.5	Radio	
218.6	Television	
218.7	Mobile Phone	
218.8	Land phone	
218.9	Computer/Laptop	
218.10	Refrigerator	
218.11	DVD/VCD player	
218.12	Electric fan	
218.13	Gas Cylinder for cooking	
218.14	Water pump	
218.15	Car/Truck/Microbus	
218.16	Auto rickshaw/Auto bike	
218.17	Tempu/CNG/Easy bike	
218.18	Rickshaw/Van/horse driven van	
218.19	Bicycle	
218.20	Motor cycle	
218.21	Boat/Boat with engine	
218.22	Cow/Buffalo	
218.23	Tractor for agricultur work	

Section 3: Respondents' Food and Household Related Questions				
QN	**QUESTIONS**	**CODING CATEGORY**	**RESPONSE CODE**	**SKIP**
301	What is the main source of drinking water in your home?	1 Pipe water in the middle of the house? 2 Pipe water in the yard 3 Tubewell **4** Pond/River/Canal/Canal dam **5** Others (Specify)		
302	What is the main source of water for cooking in your home?	1 Pipe water in the middle of the house? 2 Pipe water in the yard 3 Tubewell **4** Pond/River/Canal/Canal dam 5 Others (Specify)		
303	What is the main source of water for household work (such as washing clothes, bathing, washing dishes)?	1 Pipe water in the middle of the house? 2 Pipe water in the yard 3 Tubewell **4** Pond/River/Canal/Canal dam 5 Others (Specify)		
304	What are the main materials of the walls of the house?	1 Brick/Cement/Concrete 2 Tin 3 Wood/Bamboo 4 Polythene 5 Soil 6 Others (Specify)		
305	What is the roof of your house made of?	1 Brick/Cement/Concrete 2 Tin 3 Wood/Bamboo 4 Polythene 5 Soil 6 Others (Specify)		
306	What material is the floor of your living room made of?	1 Brick/Cement/Concrete 2 Wood/Bamboo 3 Soil 4 Others (Specify)		

307	Mainly, what type of toilet used in the room of family members?	1 Flash latrine 2 Water seal/Bath 3 Pete latrine 4 Open pete latrine 5 Canal, River, Open place 6 Hanging/bamboo 7 Others (Specify)		

Section 4: Pregnancy Information				
No	**Questions**	**Coding Categories**	**Coding**	**Skip**
401	What's the number of your current pregnancy?			
402	Do you take Iron Tablet?	1 Yes 2 No		
403	Do you take Multivitamins?	1 Yes 2 No		

Section 5: Information of Pregnant Women who has Diabetes					
No	**Questions**		**Coding Categories**	**Coding**	**Skip**
501	Do you test for diabetes?	1. Yes 2. No			
502	From when you are suffering from diabetes?	…….in months			
503	Do you go to the doctor regularly to Diabetes get PHC (Primary Healthcare Centre) facilities services?	1. Yes 2. No			
504	Do you check diabetes regularly?	1. Yes 2. No			

505	Diabetes in present condition	1. Controlled 2. Uncontrolled 3. Medium			
506	Do you understand when the sugar level increases?	1. Yes 2. No			
507	If yes, what do you feel then?	1 Extra sweating 2 Feel thrust 3 Feel hungry 4 Frequency of urin 5 Body shivering 6 Feel week 7 Others			
508	Where do you go for checkup?	1. Community clinic 2. District hospitals 3. Doctor's chamber 4. Govt. medical college hospitals 5. Health worker 6. Homiopathic doctor 7. Kobiraj 8. Mother and children welfare center 9. NGO clinic 10. Non-govt. hospital 11. Pharmacy 12. Private clinic 13. Satellite clinic 14. Skilled Midwife 15. CHCP 16. Union health and family care center 17. Unskilled Midwife 18. Upazilla health complex 19. Others			
509	What did health professonals suggest?	1. Eat less rice 2. Walk 3. Eat vegatables 4. Eat bread 5. Take medicine 6. Take Insulin 7. Others			

5010	Do you follow the doctors?	1. Yes, I do follow 2. I do follow partially 3. I can not follow 4. I do nothing 5. Others			
5011	What do you do to control diabetes?	1. I do eat less 2. Walk regularly 3. Take medicine 4. Insulin 5. Others			
5012	Do you know what happens to babies if diabetics is uncontrolled?	1. Yes 2. No			
5013	If yes, then what do you know?	1 Excessive birth weight 2 Create problems of delivery 3 Premature birth 4 Breathing problems of babies 5 Birth defects. Most affect the heart, blood vessels, brain, and spinal cord. 6 Still birth 7 Others (Specify)			
5014	Who told you those consequences issues of diabetics?	1. Doctor at UHFWA/C 2. CHCP 3. Nurse 4. FWA 5. Health assistance 6. Pharmacy 7. Private doctors 8. Others			
5015	How often do you test your sugar level?	1. Once in a month 2. Twice in a month 3. Only during ANC 4. Not regularly 5. Never 6. Others			
5016	Do you take medicine/ insulin for diabetes?	1. Yes 2. No			
5017	Do you know there is a corner for	1. Yes 2. No			

	diabetes in community clinics?				
5018	Do you get medicine for diabetes from community health services?	1. Yes 2. No			
5019	Will you go to see a doctor?	1. Yes 2. No			
5020	Will you follow the instructions of the doctor?	1. Yes 2. No			

Section 6: Information of Pregnant Women who has Hypertension				
No	**Questions**	**Coding Categories**	**Coding**	**Skip**
601	Do you test for hypertension?	1. Yes 2. No		
602	From when you are suffering from hypertension?	…….in months		
603	Do you go to the doctor regularly to get PHC (Primary Healthcare Centre) facilities services for hypertension?	1. Yes 2. No		
604	Do you check hypertension regularly?	1. Yes 2. No		
605	Hypertension in present condition	1. Controlled 2. Uncontrolled 3. Medium		
606	Do you understand when hypertension increases?	1. Yes 2. No		
607	If yes, what do you feel then?	1. Severe headaches 2. Nosebleed 3. Fatigue or confusion 4. Vision problems 5. Chest pain 6. Difficulty breathing 7. Irregular heartbeat 8. Blood in the urine 9. Pounding in your chest, neck, or ears 10. Convulsions (violent shaking) 11. Others		
608	Where do you go for checkup?	1 Community clinic		

		2 District hospitals 3 Doctor's chamber 4 Govt. medical college hospitals 5 Health worker 6 Homiopathic doctor 7 Kobiraj 8 Mother and children welfare center 9 NGO clinic 10 Non-govt. hospital 11 Pharmacy 12 Private clinic 13 Satellite clinic 14 Skilled Midwife 15 CHCP 16 Union health and family care center 17 Unskilled Midwife 18 Upazilla health complex 19 Others		
609	What did health professonals suggest?	1. Eat a Healthy Diet 2. Keep Yourself at a Healthy Weight 3. Be Physically Active 4. Do Not Smoke 5. Get Enough Sleep 6. Others		
6010	Do you follow the doctors' suggestion?	1 Yes, I do follow 2 I do follow partially 3 I can not follow 4 I do nothing 5 Others		
6011	What do you do to control hypertension?	1 I eat a Healthy Diet 2 I keep myself at a Healthy Weight 3 I Become Physically Active 4 I Do Not Smoke 5 I Get Enough Sleep 6 Others		
6012	Do you know what happens to babies if hypertension is uncontrolled?	1. Yes 2. No		

6013	If yes, then what do you know?	1. Slow growth while in the womb 2. Need oxygen in the hours after birth 3. Create problems of delivery 4. Others		
6014	Who told you those consequences of hypertension?	1. Doctor at UHAFW 2. CHCP 3. Nurse 4. FWA 5. Health assistance 6. Pharmacy 7. Private doctors 8. NGO Worker 9. Others		
6015	How oftern do you test your BP?	1. Once in a month 2. Twice in a month 3. Only during ANC 4. Not regularly 5. Never 6. Others		
6016	Do you take medicine for hypertension?	1. Yes 2. No		
6017	Do you know there is a corner for hypertension in community clinics?	1. Yes 2. No		
6018	Do you get medicine from community health services for hypertension?	1. Yes 2. No		
6019	Will you go to see a doctor?	1. Yes 2. No		
6020	Will you follow the instructions of the doctor?	1. Yes 2. No		

Section 7: Information of Pregnant Women who has Anemia				
No	**Questions**	**Coding Categories**	**Coding**	**Skip**
701	Do you test for anemia?	1. Yes 2. No		
702	From when you are suffering from anemia?	…….in months		
703	Do you go to the doctor regularly to get PHC (Primary Healthcare Centre) facilities services for anemia?	1. Yes 2. No		
704	Do you check anemia regularly?	1. Yes 2. No		
705	Anemia in present condition	1. Controlled 2. Uncontrolled		

		3. Medium		
706	Do you undertand when anemia increases?	1. Yes 2. No		
707	If yes, what do you feel then?	1. Fatigue 2. Weakness 3. Pale or yellowish skin 4. Irregular heartbeats 5. Shortness of breath 6. Dizziness or lightheadedness 7. Chest pain 8. Cold hands and feet 9. Headaches 10. Others		
708	Where do you go for checkup?	1. Community clinic 2. District hospitals 3. Doctor's chamber 4. Govt. medical college hospitals 5. Health worker 6. Homiopathic doctor 7. Kobiraj 8. Mother and children welfare center 9. NGO clinic 10. Non-govt. hospital 11. Pharmacy 12. Private clinic 13. Satellite clinic 14. Skilled Midwife 15. CHCP 16. Union health and family care center 17. Unskilled Midwife 18. Upazilla health complex 19. Others		
709	What did health professonals suggest?	1 Eat plenty of iron-rich foods		

		2 Eat and drink vitamin C-rich foods and drinks 3 Avoid drinking tea or coffee 4 Get enough vitamin B12 and folic acid in my diet 5 Others		
7010	Do you follow the doctors' suggestions?	1 Yes, I do follow 2 I do follow partially 3 I can not follow 4 I do nothing 5 Others		
7011	What do you do to control anemia?	1 I eat plenty of iron-rich foods 2 I eat and drink vitamin C-rich foods and drinks 3 I avoid drinking tea or coffee 4 I get enough vitamin B12 and folic acid in my diet 5 Others		
7012	Do you know what happens to babies if anemia is uncontrolled?	1. Yes 2. No		
7013	If yes, then what do you know?	1. Increases your risk of premature birth 2. Have a low birth weight baby 3. Postpartum depression 4. Increase risk of infant death immediately before or after birth		
7014	Who told you those consequences of anemia?	1. Doctor at UHAFW 2. CHCP 3. Nurse 4. FWA 5. Health assistance 6. Pharmacy 7. Provate doctors		

		8. Others		
7015	How oftern do you test your iron level in your blood?	1. Once in a month 2. Twice in a month 3. Only during ANC 4. Not regularly 5. Never 6. Others		
7016	Do you take medicine for anemia?	1. Yes 2. No		
7017	Do you know there is a corner for anemia in community clinics?	1. Yes 2. No		
7018	Do you get medicine from community health services for anemia?	1. Yes 2. No		

Section 8: Information of Pregnant Women who has Thyroid				
No	**Questions**	**Coding Categories**	**Coding**	**Skip**
801	From when you are suffering from thyroid dysfunction?	…….in months		
802	Do you go to the doctor regularly to get PHC (Primary Healthcare Centre) facilities services thyroid?	1. Yes 2. No		
803	Do you check thyroid function regularly?	1. Yes 2. No		
804	Thyroid function in present condition	1. Controlled 2. Uncontrolled 3. Medium		
805	Do you understand thyroid fluctuates?	1. Yes 2. No		
806	If yes, what do you feel then?	1. Fast and irregular heart beat 2. Shaky hands 3. Unexplained weight loss 4. Extreme tiredness 5. Trouble dealing with cold / inability to stand cold 6. Severe constipation 7. Problem with memory or concentration 8. Hoarse voice 9. Swelling of face		

		10. Shortness of breath with activity 11. Inability to stand cold temperatures 12. Weight gain 13. Skin and hair changes, including dry skin and loss of eyebrows 14. Brittle nails 15. Carpal tunnel syndrome (hand tingling or pain) 16. Muscle cramps, weakness, joint pain 17. Others		
807	Where do you go for checkup?	1 Community clinic 2 District hospitals 3 Doctor's chamber 4 Govt. medical college hospitals 5 Health worker 6 Homiopathic doctor 7 Kobiraj 8 Mother and children welfare center 9 NGO clinic 10 Non-govt. hospital 11 Pharmacy 12 Private clinic 13 Satellite clinic 14 Skilled Midwife 15 CHCP 16 Union health and family care center 17 Unskilled Midwife 18 Upazilla health complex 19 Others		
808	What did health professonals suggest?	1 Avoid Processed Food 2 Avoid Soy 3 Stop Smoking 4 Reduce Stress 5 Others		
809	Do you follow the doctors?	1 Yes, I do follow 2 I do follow partially 3 I can not follow 4 I do nothing 5 Others		
810	What do you do to control thyroid?	1. I avoid Processed Food 2. I avoid Soy 3. I stop Smoking 4. I reduce stress 5. Others		
811	Do you know what happens to babies if thyroid is uncontrolled?	1. Yes 2. No		

80	If yes, then what do you know?	1. Have lower IQ 2. Create problems with normal development 3. Others		
80	Who told you those consequences of thyroid?	1. Doctor at UHAFW 2. CHCP 3. Nurse 4. FWA 5. Health assistance 6. Pharmacy 7. Provate doctors 8. Others		
80	How often do you test your iodine level in your blood?	1. Once in a month 2. Twice in a month 3. Only during ANC 4. Not regularly 5. Never 6. Others		
80	Do you take medicine for thyroid?	1. Yes 2. No		
80	Do you know there is a corner for thyroid in community clinics?	1. Yes 2. No		
80	Do you get medicine from community health services for thyroid?	1. Yes 2. No		

Section 9: Risk Factor Identification

QN	Questions	Coding Categories	Coding	Skip
90	Do you smoke?	1 Yes 2 No		
90	Does your husband smoke in front of you?	1 Yes 2 No		
90	Do you consume alchohol?	1 Yes 2 No		
90	Do you remain active physically?	1 Yes 2 No		
90	Do you practice unhealthy diet?	1 Yes 2 No		
90	Are you suffering from obesity?	1.Yes 2. No		

Thank you so much for your time.

Annex – 2: Survey Questionnaire for Health Professionals

Questionnaire for Health Professionals

First, start with introductory remarks (self-introduction, interview process, the objective of the study and taking consent). Then ask the following questions one by one and be aware of the skipping rules.
Assalamualaikum / Nomoskar / Good Morning / Afternoon / Evening,
Thank you for joining this interview. I am …… and conducting a study **"Attention to Research on Ensuring healthy outcome of pregnancy with NCD through strengthening PHC system"**

CONSENT FORM/ ASSENT FORM
We, Global Research and Marketing (GRM), are conducting a **"Research on Ensuring healthy outcome of pregnancy with NCD through strengthening PHC"** collaborating with Directorate General of Health Services (DGHS)**.** I would like to welcome you to feel comfortable to express yourself and to share your thoughts and experiences during this discussion. At the same time, I would also like to ask that we all be respectful of one another and that what we share remains in this interview. Of course, if you are not comfortable sharing anything, you do not have to, and that is ok. We will not share your individual responses to anyone, only anonymous quotes and the overall results will be included in reports. Your name will not appear anywhere to ensure that your responses cannot be linked to you. Our discussion is likely to take between 15 minutes. While we hope you can stay throughout the discussion, it is your choice to stay or leave at any point. In addition, it is up to you which questions you do or do not answer. Do you have any questions that you would like to discuss before we begin?

……..

Name of the Respondent

Date: **Contact Number:**

Name of the Union	Name of the institution

Name of the Interviewer:

Section 1: Introductory Questions		
QN	**QUESTIONS**	**CODING CATEGORY**
109	Age	**……in Years**
110	Name of post	
111	Length of services	**……in months**
112	Did you take any training on NCD?	4. Yes

		5. No
113	If yes, then what types of training? **Multiple response possible**	1. Upazilla Level Training 2. District Level Training 3. Training on Protocol 4. Others (Please specify)
114	Do you have any leaflet for NCDs for client?	1. Yes 2. No
115	What are the problems you face providing services? **Multiple response possible**	1. Clients don't come to seek services properly 2. We don't have enough time 3. Clients lack adequate awareness 4. Others (Please specify)
116	What are the challenges do you face in providing advice? **Multiple response possible**	1. They don't follow the advices properly 2. They don't maintain the scheduled timeline 3. It's difficult to make them follow protocol 4. It's difficult for us to follow the protocol 5. Others (Please specify)
117	Do the patient listens and comply with the advice you provide?	1. Yes 2. No
118	Do you have follow-up system?	3. Yes 4. No
119	If yes, then how do you do follow up?	1. You call them to be updated

	Multiple response possible	2. Schedule next meeting 3. You send SMS for their scheduled meeting 4. Others (Please specify)
120	Do you organize training for FWA/ FWV/ CHCP/ nurses paramedics about NCD?	1. Yes 2. No
121	Do you discuss about NCDs in satellite clinics?	1. Yes 2. No

Section 2: Questions on Diabetes		
201	Can you follow the protocol to advice diabetic patent?	1. Yes 2. No
202	Do you counsel pregnant women who are suffering from diabetes?	1. Yes 2. No
203	If yes, then what do you do tell them in case of diabetes? **Multiple response possible**	1. To eat less rice 2. To walk 3. To eat vegetables 4. To eat bread 5. To take medicine/ Insulin 6. Others (Please specify)
204	What are the problems do you face in implementing the prescribed protocol for diabetic? **Multiple response possible**	1. They can't remember the suggestions 2. They can't follow the provided guidelines 3. Prescribed protocol seems impossible to them to follow 4. Others (Please specify)
205	What are the challenges of providing suggestions to diabetic pregnant women? **Multiple response possible**	1. They can't follow the advice properly 2. There is no follow up system

		3. There is no tracking system 4. Others (Please specify)
206	What to do to provide appropriate service to pregnant women who are suffering from diabetes? **Multiple response possible**	1. Establishing follow up system 2. Establishing tracking system 3. Others (Please specify)
207	Do you provide them medicine?	1. Yes 2. No
208	Do you have sufficient medicine?	1. Yes 2. No

Section 3: Questions on Hypertension		
301	Can you follow the protocol to advice patent who are suffering from hypertension?	1. Yes 2. No
302	Do you counsel pregnant women who are suffering from hypertension?	1. Yes 2. No
303	If yes, then what do you do tell them in case of hypertension? **Multiple response possible**	7. To eat a Healthy Diet 8. To keep Yourself at a Healthy Weight 9. To be Physically Active 10. Do Not Smoke 11. To get Enough Sleep 12. Others
304	What are the problems do you face in implementing the prescribed protocol for hypertension? **Multiple response possible**	1. They can't remember the suggestions 2. They can't follow the provided guidelines 3. Prescribed protocol seems impossible to them to follow

		4. Others (Please specify)
305	What are the risks of providing suggestions to pregnant women who are suffering from hypertension? **Multiple response possible**	1. They can't follow the advice properly 2. There is no follow up system 3. There is no tracking system 4. Others (Please specify)
306	What to do to provide appropriate service to pregnant women who are suffering from hypertension? **Multiple response possible**	1. Establishing follow up system 2. Establishing tracking system 3. Others (Please specify)
307	Do you provide them medicine?	1. Yes 2. No
308	Do you have sufficient medicine?	1. Yes 2. No

Section 4: Questions on Anemia		
401	Can you follow the protocol to advice patent who are suffering from anemia?	1. Yes 2. No
402	Do you counsel pregnant women who are suffering from anemia?	1. Yes 2. No
403	If yes, then what do you do tell them in case of anemia? **Multiple response possible**	6 To eat plenty of iron-rich foods 7 To eat and drink vitamin C-rich foods and drinks 8 To avoid drinking tea or coffee 9 To get enough vitamin B12 and folic acid in my diet 10 Others

404	What are the problems do you face in implementing the prescribed protocol for anemia? **Multiple response possible**	1. They can't remember the suggestions 2. They can't follow the provided guidelines 3. Prescribed protocol seems impossible to them to follow 4. Others (Please specify)
405	What are the risks of providing suggestions to pregnant women who are suffering from anemia? **Multiple response possible**	1. They can't follow the advice properly 2. There is no follow up system 3. There is no tracking system 4. Others (Please specify)
406	What to do to provide appropriate service to pregnant women who are suffering from anemia? **Multiple response possible**	1. Establishing follow up system 2. Establishing tracking system 3. Others (Please specify)
407	Do you provide them medicine?	1. Yes 2. No
408	Do you have sufficient medicine?	1. Yes 2. No

Section 5: Questions on Thyroid Disfunction		
501	Can you follow the protocol to advice patent who are suffering from thyroid dysfunction?	1. Yes 2. No
502	Do you counsel pregnant women who are suffering from thyroid dysfunction?	1. Yes 2. No
503	If yes, then what do you do tell them in case of thyroid dysfunction? **Multiple response possible**	6 To avoid Processed Food 7 To avoid Soy 8 To stop Smoking

		9 To reduce Stress 10 Others (Please specify)
504	What are the problems do you face in implementing the prescribed protocol for thyroid dysfunction? **Multiple response possible**	1. They can't remember the suggestions 2. They can't follow the provided guidelines 3. Prescribed protocol seems impossible to them to follow 4. Others (Please specify)
505	What are the risks of providing suggestions to pregnant women who are suffering from thyroid dysfunction? **Multiple response possible**	1. They can't follow the advice properly 2. There is no follow up system 3. There is no tracking system 4. Others (Please specify)
506	What to do to provide appropriate service to pregnant women who are suffering from thyroid dysfunction? **Multiple response possible**	1. Establishing follow up system 2. Establishing tracking system 3. Others (Please specify)
507	Do you provide them medicine?	1. Yes 2. No
508	Do you have sufficient medicine?	1. Yes 2. No

Thank you so much for the time.

Annex – 3: Key Informant Interview (KII) with Service Providers Checklist

Key Informant Interview (KII) with Service Providers Checklist

General Instructions:

- KII sessions should be nearly 1 hour. This may be extended based on the interest of the participants, but not more than 1-hour maximum.
- Participants must agree in advance to take part by signing/consenting in the attendance sheet.
- One consultant/Senior Team member will facilitate the KII session.
- A note taker will be designated and take discussion notes in English/Bangla.
- A short debriefing session for the KII participant will be done by the Facilitator to validate the information given by the participants.

Ethical Instructions:

- In conducting the KII session, social science research protocol and policies should be followed rigorously. Listen to the respondent with respect, maintain privacy and confidentiality by not disclosing KII findings to other groups.
- Photographs can only be taken with the prior permission of the participant.
- Recording can only be done with the prior consent of the participant.
- The consent note will be read out to the participant and all participants will be informed that they can withdraw from the discussion at any point if s/he so wishes.
- Any sensitive issue such as religion, ethnicity, caste, sexual identity, and gender will be discussed carefully.

Consent Form:

I would like to invite you to feel comfortable to express yourself and to share your thoughts and experiences during this discussion. At the same time, I would also like to ask that we all be respectful of one another and that what we share remains in this interview. The topic of the discussion is - **Attention to ensure healthy outcome of pregnancy with NCD through strengthening PHC system**. Of course, if you are not comfortable sharing anything, you do not have to, and that is also OK. Recording is being made of the discussion session and we will be taking key notes, so we remember what we've discussed today, however, we will not share your individual responses to anyone, only anonymous quotes and the overall results will be included in reports.

Your name will not appear anywhere to ensure that your responses cannot be linked to you. Our discussion is likely to take between 20 to 25 minutes. While we hope you can stay throughout the discussion, it is your choice to stay or leave at any point. Also, it is up to you which questions you do or do not answer. Do you have any questions that you would like to discuss before we begin?"

…….

Name and signature of respondent উত্তরদাতার নাম এবং স্বাক্ষর

Date:……../……./2021

KII questions:

- What is the condition about NCDs among pregnant women?
- What are the existing services that you provide for Pregnant women?
- What are the associated NCD Risk Factors among pregnant women?
- What kind of risks NCD (Non-Communicable Disease) affected patients face?
- Is there any standard protocol measurement available for NCDs among pregnant women? If yes, what is it?
- How effective is the existing protocol in responding to the needs of Pregnant Women?
- Is there any standard protocol measurement available for management of diabetes and hypertension?
- What are the lacks that are prevailing in the protocol for management of diabetes and hypertension?
- What are the problems you face while implementing management protocol system?
- How the existing protocol can be improved?
- How the existing services can be improved?










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