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Proportion of Gestational Diabetes Mellitus among the Pregnant Mothers and Their Socio-Demographic Characteristics Attending ANC Corner at Shaheed Ziaur Rahman Medical College Hospital, Bogura

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ABSTRACT

Background: The proportion of Diabetes is becoming more aggregate around the universe, and it is linked to both genetic and environmental causes. Because of the rising prevalence of type 2 diabetes among young people, the number of pregnancies with this problem has increased.

Objectives: The aim of the study was to assess the proportion of Gestational Diabetes Mellitus (GDM) among the pregnant mothers and their socio-demographic characteristics.

Methods: A hospital based cross-sectional study was carried out and sample size was calculated using the formulae of (n= Z2pq/d2). The calculated sample size was 376 and purposive sampling technique was used for data collection. A semi-structured questionnaire containing socio-demographic and obstetrics details were used as a study tool and an interview schedule was used for data collection.

Results: Out of total 369 pregnant 33.33% GDM found within the age group 26-30 years, 24.83% within the age group 16-20 years, 25% within the age group 21-25 years, 10.41% within the age group of 31-35 years, and 10.41% GDM found within the age group more than 35 years. The pregnant women minimum age was 17.00, maximum 40, range 23, mean and SD was 25.69(±5.43) years. Higher rate of GDM present in class (VI – XII) and degree/PG educational qualification and positive family history of diabetes mellitus of pregnant women's was 40.16%. Highest number of pregnant women diagnosed as a GDM came from Urban as well as 64.58% and lowest number of pregnant women came from rural area 35.4%. Highest number of pregnant women 87.5% and 12.5% pregnant women diagnosed as a GDM reason was overweight and Obese Class- I. The proportion of GDM was 12.76%. When the socio-demographic and obstetrics details of mothers were compared among GDM and normal mothers it was found that there was highly statistically relationship was observed between pregnant women's diagnosed as a GDM and Types of family, Monthly family Income, Educational qualification of participants, Occupation of participants, BMI while highly statistically relationship was observed in Family history, Abortion, Meal in 24 hours, feel any Sickness, Physically active, GDM in previous pregnancy and Age at first marriage (p=0.000).

Conclusions: Frequency of GDM seems alarming in Bangladesh. The findings show that socio-demographic and obstetric factors have an impact on the proportion of GDM**.**

KEYWORDS: Proportion, GDM, pregnant mothers, ANC.

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I. INTRODUCTION

Gestational diabetes is a condition in which a woman without diabetes develops high blood sugar levels during pregnancy. Gestational diabetes generally results in few symptoms; however, it does increase the risk of pre-

eclampsia, depression, and requiring a Caesarean section. Babies born to mothers with poorly treated gestational diabetes are at increased risk of being too large, having low blood sugar after birth, and jaundice. If untreated, it can also result in a stillbirth. Long term, children are at higher risk of being overweight and developing type 2 diabetes. [1] Gestational diabetes generally resolves once the baby is born. Based on different studies, the chances of developing GDM in a second pregnancy, if a woman had GDM in her first pregnancy, are between 30 and 84%, depending on ethnic background. A second pregnancy within 1 year of the previous pregnancy has a large likelihood of GDM recurrence. [2]

Gestational diabetes affects 3–9% of pregnancies, depending on the population studied. It is especially common during the last three months of pregnancy. It affects 1% of those under the age of 20 and 13% of those over the age of 44. A number of ethnic groups including Asians, American Indians, Indigenous Australians, and Pacific Islanders are at higher risk. In 90% of cases, gestational diabetes will resolve after the baby is born. Women, however, are at an increased risk of developing type 2 diabetes. [3]

Developing countries like Bangladesh are more prone for GDM. Conflicting studies, it is unclear at the moment whether women with GDM have a higher risk of preeclampsia. In the HAPO study, the risk of preeclampsia was between 13% and 37% higher, although not all possible confounding factors were corrected. Gestational diabetes affects 3–10% of pregnancies, depending on the population studied. [3] This study aim to assess the proportion of gestational diabetes mellitus among the pregnant mothers and their socio-demographic characteristics attending ANC corner at Shaheed Ziaur Rahman Medical College Hospital, Bogura.

Limitations of the study

This descriptive cross sectional study was conducted among pregnant women came in the selected ANC center at Shaheed Ziaur Rahman Medical College Hospital, Bogura with the objective to assess the accessibility challenges of pregnant women to antenatal care at selected Community Clinics. During the study various types of limitations were faced which may influence the external and internal validity of the study. This study results may not coincide with large-scale survey. That's why it may not represent the overall population, hence may not sufficient for generalization.

II. MATERIALS AND METHOD

Study design: Descriptive cross sectional.

Study period: The study was conducted from April 1st, 2020 to 31st August, 2020.

Study place: The study was conducted in purposively at Shaheed Ziaur Rahman
Medical College Hospital, Bogura.

Study population: Pregnant mother who attained to receiving ANC at OPD at ANC corner of Shaheed Ziaur Rahman Medical College Hospital, Bogura.

Selection criteria:

Inclusion criteria:

- Pregnant mother in the study place.
- Pregnant mother who are child bearing age.
- Willing participate.

Exclusion criteria:

- Pregnant mother who are not willing to participate.
- Pregnant mother who are seriously ill.

Sampling method: In the study the respondents were selected by non-probability purposive sampling technique used to collect data.

Sample size: n= (z2pq)/d2 =376

Data collection instrument: A Semi-structure questionnaire was developed according to objective and variables. The questionnaire was based on literature review. The questionnaire was divided into two sections, which includes i) socio-demographic characteristics of the respondents ii) questionnaire related to associated factors of GDM and questionnaire related to the measurement of BMI.

Data collection technique: At first permission was taken from the authority of the study site. Before collection of data the purpose of the study was explained in details to the respondents and data were collected through face-to-face interview from the respondents. One questionnaire was used for each respondent for data collection and ethical issues were considered.

Statistical analysis

Data were collected through interview. Then the master tabulation sheet was prepared after proper checking, verifying and editing as per specific objectives and key variables. Analysis of data was finally done with Statistical Package for Social Science (SPSS) software (version 25) of computer on the basis of difference variables. Then the data presentation was perfectly done by MS Word and MS Excel.

Data Processing

- Data was checked for consistency, relevancy and quality control.
- Data was compiled, coded, cleared, categorized and edited according to objectives and variables.

Data analysis

- Data analyzed by using IBM software that is SPSS version 25.
- Descriptive statistics includes frequency, percentage, mean and standard deviation.
- Inferential statistics.

Measurement: Measurement of proportion by following formula- Proportion= f / n (f=frequency and n= population). Measurement of BMI by following formula- Weight / height m2 and final calculation made by minus the weight that gain for pregnancy.

Ethical implication

- The protocol approved by protocol approval committee of Varendra University of Rajshahi, Bangladesh.
- Ethical clearance for this study obtained from the Institutional Review Board (IRB) of Varendra university of Rajshahi, Bangladesh.
- All participants was treated equally.
- Before data collection informed Written Consent was taken from all participants.
- Confidentiality of the data was maintained strictly.
- No physical or emotional harm was done to the participants.
- No intervention or invasion procedure was performed in this study.
- Privacy and confidentially was maintained during and after data collection.

III. RESULT

Proportion of gestational diabetes mellitus in this study
Total participants = 376 pregnant mothers
Diagnosed as gestational diabetes mellitus = 48

$$\text{Calculation of proportion} = \frac{48}{376} \times 100 = \% = 12.76\ \%$$

So, our study found diagnosed as gestational diabetes mellitus of pregnant mothers proportion was 12.76%.

Table 1. Distribution of the respondents according to Socio demographic characteristics (n=376).

Variable's	Characteristics	Number	Percent
Age	16-20 years	91	24.2
	21-25 years	102	27.1
	26-30 years	113	30.1
	31 - 35 years	54	14.4
	Above 35 years	16	4.3
Religion	Muslim	330	87.8
	Hindu	46	12.2
	Buddhist	00	00
	Christian	00	00
Educational qualification	Illiterate	00	00
	Primary School (Class I- V)	94	25.0
	Class (VI – XII)	223	59.3
	Degree/PG	59	15.7
Husband Educational Level	Illiterate	00	00
	Primary School (Class I- V)	53	14.1
	Class (VI – XII)	173	46.0
	Degree/PG	150	39.9
Occupation of Pregnant Women's	Student	49	13.0
	Housewife	305	81. 1
	Service	6	1.6
	Day labor	10	2.7
	Business	6	1.6
Husband's occupation	Day labour	37	9.8
	Service	131	34.8
	Business	144	38.3
	Farmer	43	11.4
Type of Residence	Rural		51.86
	Arban		48.14
Monthly family income in Taka	Below 5000 Taka	12	3.2
	5001-10,000 Taka	38	10.1
	10001-15,000 Taka	94	25.0
	15001-20,000 Taka	97	25.8

	> 20,000 Taka	135	35.9
Type of Family	Nuclear		76.86
	Joint		23.14
Family members	2.00	41	10.9
	3.00	134	35.6
	4.00	58	15.4
	5.00	127	33.8
	6.00	16	4.3

Table 1 shows the distribution of pregnant women according to Socio demographic characteristics. Out of 376 pregnant women, majority 30.1% were the age group within 26-30 years, 24.2% were the age groups of 16-20 years, 27.1% were the age group of 21-25 years, 14.4% were the age group of 31-35 years, and 4.3% were the age group of more than 30 years. The pregnant women Minimum age was 17.00, Maximum 40, Range 23, Median 25, range 23, mean and SD was 25.69(±5.43) years. Maximum women were 87.8% were Muslim and 12.2% were Hindu. According to educational qualification, more than half 59.9% educational qualification was Class (VI – XII) among them 25% was up to Primary School (Class I-V) and 15.7% educational qualification was Degree/PG. Pregnant women Husband's, 14.1% educational qualification was up to Primary School (Class I- V), maximum pregnant women Husband's 46% educational qualification was up to Class (VI – XII) and rest of them 39.9% educational qualification was up to Degree/PG. Most of the pregnant women 81.1% was housewives, 13% pregnant women was Student, 2.7% pregnant women occupation was Day labor and rest of them 1.6% pregnant women occupation was Service and Business. Most of the pregnant women husband's 38.3% occupation was business, 34.8% pregnant women husband's occupation was Service, 9.8% pregnant women husband's occupation was Day labor, 11.4% pregnant women husband's occupation was Farmer and rest of them 5.6% pregnant women husband's occupation was other. Highest 51.86% pregnant women's residence was Rural and 48.14% pregnant women's residence was Arban. On monthly family income, 35.9% (135) was more than 20,000 Taka, 25.8% (97) pregnant women's monthly family income was 15001-20,000 Taka, 25% (94) pregnant women's monthly family income was 10001-15,000 Taka, 10.1% (38) pregnant women monthly family income was 50001-10,000 Taka and 18 (4.9%) monthly family income was Below 5,000 Taka.. Minimum monthly family income 4000 taka, Maximum 30000 Taka and Range 26000 taka. According to type of family 76.86% was from Nuclear /Single family and rest of them 23.14% was from Joint family. Maximum pregnant women's 35.6% (134) family member was 3, on the other hand 33.8% (127) pregnant women's family member was 5, another 15.4% (58) pregnant women's family member was 4, and pregnant women's 10.9% (41) family member was 2 and 4.3% (16) pregnant women's family member Was 6. The Minimum family member was 2, Maximum 6 and Range 5.

Table 2. Distribution of the Pregnant Women's According to Category of BMI (n=376).

Variable	Number of Trimester	Frequency (n)	Percent (%)
BMI (Body Mass Index)	Severely underweight (15.5 - 16)	5	1.3
	Underweight (16.1 - 18.5)	10	2.7
	Normal weight (18.6 - 24.99)	83	22.1
	Overweight (25 - 29.99)	224	59.6
	Obese Class- I (30 - 34.99)	54	14.4
	Obese Class- II (30 - 34.99)	00	00
	Obese Class- III (30 - 34.99)	00	00
	Total	376	100.0

Table 02 shows the BMI of pregnant women. Here, out of 376 more than half of pregnant women's 59.6% (224) BMI was Overweight, 22.1% (83) pregnant women's BMI was Normal Women's BMI was 2.7% (10) Underweight and 1.3% (5) severely underweight. weight, 14.4% (54) pregnant women's BMI was Obese Class-I, least pregnant

Table 3. Distribution of the Pregnant Women's According to Factors Related to GDM (n=376).

Variable's	Characteristics	Number	Percent
Duration of Marriage	1 – 5 Yrs.'	186	49.5
	6 – 10 Yrs.'	126	33.5
	11 – 15 Yrs.	59	15.7
	Above 15yr	5	1.3
Number of Gravida	One	143	38.0
	Two	135	35.9
	Three	65	17.3
	Four	33	8.8
Timing of First Antenatal Visit	1st	191	50.8
	2nd	111	29.5
	3rd	52	13.8
	4th	22	5.9
History of Abortion / Still Birth	Yes		19.95
	No		80.05
Present Condition of GDM	Controlled	48	12.8
	Uncontrolled	00	00
	Somewhat Controlled	00	00
	No GDM	328	87.2
Time of Diagnosis for GDM	1st trimester	1	0.3
	2nd trimester	22	5.9
	3rd trimester	25	6.6
	4th trimester	00	00
Family History of Diabetes Mellitus	Yes		40.16
	No		59.84
Number of meal in 24 hours	3 -4 times	35	9.3
	4-5 times	110	29.3
	More than 5 times	231	61.4
Physically Active on a Regular Basis During Pregnancy	Yes		63.03
	No		36.97
High Blood Pressure (HTN) in Previous Pregnancy	Yes	72	19.1
	No	142	37.8
GDM in Previous Pregnancy	Yes	6	1.6
	No	157	41.8

Table 03 shows the Factors Related to GDM of pregnant women. Here, out of half of pregnant women's 49.5% Duration of Marriage was 1 – 5 Yrs.', 33.5% pregnant women's Duration of Marriage was 6 – 10 Yrs.', 15.7% pregnant women's Duration of Marriage was 11 – 15 Yrs.', and 1.3% pregnant women's Duration of Marriage was Above 15 Yrs.' Pregnant women's minimum duration of marriage was 1, maximum16 and range 15 years. Maximum pregnant women's 38% Number of Gravida was one, on the other hand 35.9% pregnant women's Number of Gravida was Two, 17.3% was Three and rest of them 8.8% was Four. Highest 50.8% Timing of First Antenatal Visit was 1st trimester, on the other hand 29.5% pregnant women's Timing of First Antenatal Visit was 2nd trimester, 13.8% pregnant women's Timing of First Antenatal Visit was 3rd trimester and rest of them 5.9% pregnant women's Timing of First Antenatal Visit was 4th trimester. Pregnant women 19.95% was told the positive history of Abortion / Still Birth and 80.05% was told the no positive history of Abortion / Still Birth. Pregnant women's 12.8% was diagnosed as a Gestational Diabetes Mellitus (GDM) and their Present Condition of Gestational Diabetes Mellitus (GDM) was controlled. Pregnant women's 6.6% was diagnosed as a GDM in 3rd trimester, 5.9% pregnant women's was diagnosed as a GDM in 2nd trimester and 0.3% pregnant women's was diagnosed as a GDM in 1st trimester. Highest 40.16% was told the positive family history of diabetes mellitus and 59.84% was told the no positive family history of diabetes mellitus. More than half of pregnant women's 61.4% number of meal in 24 hours was More than 5 times, 29.3% pregnant women's number of meal in 24 hours was 4-5 times and 9.3% pregnant women's number of meal in 24 hours was 3 -4 times. Maximum 63.03% told they physically active on a regular basis during pregnancy and 36.97% pregnant women's told

they have not physically active on a regular basis during pregnancy. Highest 37.8% told they had high blood pressure in previous pregnancy and 19.1% pregnant women's told they have not high blood pressure in previous pregnancy. Pregnant women's 1.6% told they had Gestational Diabetes Mellitus in previous pregnancy and 41.8% pregnant women's told they have not Gestational Diabetes Mellitus in previous pregnancy

Table 4. Comparison of Demographic Determinants among GDM Mothers and Normal Antenatal Mothers.

Parameter	Classification	Group		Total	Statistical significance
		GDM	Normal		
		Frequency	Frequency		
Age of pregnant women's	16 - 20 Yrs.	10	81	91	Chi square value 6.052 [a], P=.195
	21 - 25 Yrs.	12	90	102	
	26 - 30 Yrs.	16	97	113	
	31 - 35 Yrs.	5	49	54	
	Above 35 yrs.	5	11	16	
Religion	Muslim	42	288	330	Chi square value .004 [a], P= .952
	Hindu	6	40	46	
Residence	Rural	17	178	195	Chi square value 5.961 [a], P= .015
	Arban	31	150	181	
Educational qualification	Class(I- V)	6	88	94	Chi square value33.292 [a], P=.000
	Class (VI – XII)	21	202	223	
	Degree/PG	21	38	59	
Types of family	Nuclear family	26	263	289	Chi square value15.936[a], P=.000
	Joint family	22	65	87	
Monthly family income	5001-10,000	0	50	50	Chi square value 26.961[a], P=.000
	10001-15,000	11	83	94	
	15001-20,000	5	92	97	
	> 20,000	32	103	135	
BMI	Underweight	0	15	15	Chi square value 21.677[a], P=.000
	Normal weight	0	83	83	
	Overweight	42	182	224	
	Obese Class- I	6	48	54	

Table 04 represent that crosstab Pearson Chi-Square test was performed, there was a significantly difference between pregnant women's diagnosed as a GDM and types of residence (p <.015), as well as religion (p<.952) and age of Of participants, Occupation of participants, BMI. participants (p <.195). While highly statistically relationship was observed between pregnant women's diagnosed as a GDM and Types of family, Monthly family Income, Educational qualification

Table 5. Comparison of Associated Risk Factors among GDM Mothers and Normal Antenatal Mothers.

Parameter	Classification	Group		Total	Statistical significance
		GDM	Normal		
		N	N		
Number of Gravida	One	15	128	143	Chi square value 3.207[a], P=.361
	Two	21	114	135	
	Three	6	59	65	
	Four	6	27	33	
Family history of DM	Yes	12	139	151	Chi square value 5.262[a], P=.022

	No	**36**	**189**	**225**	
Who suffer for DM in family	**Mother**	**6**	**55**	**61**	**Chi square value 3.979[a], P=.264**
	Father	**0**	**29**	**29**	
	Brother/ Sister	**0**	**6**	**6**	
	Others	**6**	**49**	**55**	
Duration of marriage	**1-5 yrs.**	**26**	**160**	**186**	**Chi square value 3.212[a] P= .201**
	6-10 yrs.	**11**	**115**	**126**	
	Above 10 yrs.	**11**	**53**	**64**	
History of abortion	**Yes**	**17**	**58**	**75**	**Chi square value 8.247[a], P=.004**
	No	**31**	**270**	**301**	
number of meal in 24 hours	**3 -4 times.**	**0**	**35**	**35**	**Chi square value7.843[a], P=.020**
	4-5 times	**11**	**95**	**106**	
	>5 times	**37**	**193**	**230**	
feel any types of sickness	**Yes**	**48**	**180**	**228**	**Chi square value34.579[a], P=.000**
	No	**0**	**137**	**137**	
physically active	**Yes**	**17**	**220**	**237**	**Chi square value19.361[a], P=.000**
	No	**31**	**103**	**134**	
GDM in previous pregnancy	**Yes**	**6**	**0**	**6**	**Chi square value30.034[a], P=.000**
	No	**22**	**135**	**157**	
Age at first marriage	**15 -20 yrs**	**28**	**211**	**239**	**Chi square value12.357[a], P=.006**
	21-25yrs.	**15**	**73**	**88**	
	26-30yrs.	**0**	**34**	**34**	
	Above 30 yrs.	**5**	**10**	**15**	

Table 05 represent Chi-Square test, there was a significantly difference between pregnant women's with GDM and number of Gravida (p <.361) as well as duration of marriage (p<.201) and suffer for DM in family (p<.264). While highly statistically relationship was observed in Family history, Abortion, Meal in 24 hours, feel any Sickness, Physically active, GDM in previous pregnancy and Age at first marriage

IV. DISCUSSION

The proportion of gestational diabetes mellitus (GDM) has important health complications for both mother and child and is increasing all over the world. Although proportion estimates for GDM are not new in developed and many developing countries, data are lacking for many low-income countries like Bangladesh. This descriptive cross-sectional quantitative study conducted at Shaheed Ziaur Rahman Medical College Hospital, Bogura, aim to assess the proportion of gestational diabetes mellitus among the pregnant mothers and their socio-demographic characteristics.

Our study found that the proportion of GDM 12.76%. Earlier study found that, in Bangladesh prevalence of GDM was 9.7% according to the WHO criteria and 12.9% according to the ADA criteria in this study population [4]. It is lower than a Middle Eastern study from Qatar (16.3%) and the United Arab Emirates (20.6%), but higher than Iran (4.8%) and Turkmenistan (6.3%). Overall prevalence of GDM varies from 4−6% in USA and 2–6% in European countries. Thus, prevalence of GDM seems greater in developing countries from Asians. However, it is important to note that the prevalence of GDM varies widely according to the specific cut-off points used in the various studies. The variation may be also due to time lag, specific study subject, environmental diversity, dietary habits, and other national or subnational socio-behavioral factors. It is also difficult to compare disease prevalence, particularly for diabetes, with results from older literature because of the rapid epidemiologic and demographic transitions occurring in most developing countries [5].

Our study revealed majority 33.33% GDM found within the age group 26-30 years, 24.83% within the age group 16-20 years, 25% within the age group 21-25 years, 10.41% within the age group of 31-35 years, and 10.41% GDM found within the age group more than 35 years. The pregnant women minimum age was 17.00, maximum 40, range 23, mean and SD was 25.69(±5.43) years. A similar study conducted in Bangladesh [5] they found, the mean age of participants was 23.62 ± 3.42 years (range 18−38). Most of the participants were below 26 years of age and highest number of participants was in the age group 21−25 years. In this age group non-GDM was 160 (94.7%) and GDM 9 (5.3%). In women aged 26−30 years, prevalence rate of non-GDM was 85.1% and GDM was 14.9%. Prevalence of GDM increased with age, with the highest prevalence in the

26−30 years age group (45.5%) compared to women aged 16−20 years (GDM 4%) and 21−25 years (GDM 5.3%). In non GDM group, highest number of subjects was in 21−25 year's age group, but in GDM group highest number of subjects was in 26−30 year's age group.

Our study found that higher rate of GDM present in class (VI – XII) and degree/PG educational qualification of the pregnant women's. A similar study conducted in Bangladesh [5] they found, GDM rate increased with increasing educational qualification of the participants with highest being in women who were graduate or above (non-GDM 59, 84.3% and GDM 11, 15.7%). In illiterate group only one GDM case (6.7%) was found and non-GDM was 14 (93.3%). In women with primary school education we found three GDM cases (8.3%) and 33 non GDM cases (91.7%). In women with secondary level education there were seven GDM cases (3.8%) and 175 non-GDM cases (96.2%)

Our study found that higher positive family history of diabetes mellitus of pregnant women's 40.16%. A similar study conducted in Bangladesh [5] they found, forty five (16.0%) women in non-GDM group had family history of diabetes mellitus whereas 4 (18.2%) in GDM group had positive family history. This association was found significant ($p< 0.05$). Family history of GDM was present only in 5 (1.7%) women. History of GDM in previous pregnancy was present in 4 (1.32%) women only and one of these developed GDM. This association of history of GDM in previous pregnancy with GDM in index pregnancy was found to be significant ($p< 0.005$)

Our study revealed that highest number of pregnant women diagnosed as a GDM came from arban area 64.58% and lowest number of pregnant women came from rural area 35.4%. A similar study conducted in India they found that 1679 pregnant women were detected to have GDM. The prevalence of GDM in the urban, semi urban and rural area was 739 (17.8%), 548 (13.8%) and 392 (9.9%), respectively. The prevalence of GDM was significantly lower in the rural area ($P < 0.0001$) compared to the other areas [6].

V. CONCLUSION & RECOMMENDATIONS

In conclusion, our study observed risk factors for GDM are advanced maternal age, higher educated, obesity, family history of diabetes, urban community, sedentary lifestyle, higher household income, duration of marriage, history of abortion, number of meal in 24 hours, physically inactive, GDM in previous pregnancy and age at first marriage The increase in the proportion of GDM in our study could be attributed to increase BMI, as high maternal weight is associated with a substantially higher risk of GDM. In our study population all these risk factors were observed. Of all the independent risk factors for GDM, BMI emerged as a modifiable risk factor. This study documents the varied proportion of GDM in the urban community. GDM was detected in all trimesters of pregnancy. We also observed BMI as a risk factor for GDM which is modifiable. GDM women have high risk of developing diabetes in the future. They are the ideal group to be targeted for lifestyle modification or pharmacologic intervention in order to delay or postpone the onset of overt diabetes. Hence an important public health priority in the prevention of diabetes is to address maternal health both during ante and post-partum period. We suggest more studies from the rest of the country. Antenatal screening for GDM should be made mandatory for all the pregnant mothers. This study would even alert the physician about the alarming increase in the prevalence of GDM in the areas of Bogura, Bangladesh and would initiate necessary health awareness programs among adult females which would help them in early detection of GDM and prevention of maternal and fetal complications

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