Knowledge Attitude &Practice of Rural Pregnant Women on Gestational Diabetes Mellitus Visiting Community Health Centres in Karnataka

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Abstract: The prevalence of diabetes is increasing in India. This study investigated the nutrition related and Gestational Diabetes mellitus (GDM) Knowledge Attitude and practices (KAP) among the rural pregnant women in Moka and Torangal Community Health Centres in Bellari District. Data regarding the Socio demographic profiles were gathered with a pretested multiple choices Questionnaire from the women visiting the CHC'S for their Antenatal Check up. Body mass index, when analyzed showed a total of 61.4 percent were normal 22.8 percent of subjects were malnourished. The knowledge on Gestational Diabetes Mellitus (GDM) was moderate among 51.2 percent respondents and 22.8 percent of respondents had inadequate knowledge level. The attitude scores were adequate among 44.9 percent of the respondents, the percentage of respondents indulging in high practices was 22.8 percent. However, higher percentage of nuclear family respondents had moderate knowledge level 65.4 percent, which was statistically significant (x^2= 6.74*). Further 62.4 percent of joint family respondents had moderate attitude level as compared to only 26.9 percent in nuclear family respondents. Which was statistically significant at (x^2=10.51*). association between type of family was found to be lower in nuclear family at 53.8 percent where as the practice level in joint family respondents 50.5 percent was moderate (x^2=8.17*). The study shows there is a greater need to create awareness among the rural population. The data provided the evidence that the rural women were less informed about the complications of Gestational diabetes and further increase their exposure to diabetes in later years of life.

INTRODUCTION

Gestational diabetes mellitus (GDM) is a subtype of diabetes mellitus defined as the development, or first recognition, of glucose intolerance during pregnancy. The risk of developing type 2 diabetes mellitus (T2DM) is greater in mothers with GDM compared to the general population. Price, etal.,(2017) GDM affects about 4 million women in India. The prevalence of GDM in the Indian population is high compared with other Asian countries. At any point in time, the GDM prevalence ranges from 6 percent to 9 percent in rural and 12 percent to 21percent in the urban areas Chanda.et al.,(2020). Women with a history of GDM are at increased risk of future diabetes, predominantly type-2 diabetes, as are their children Balaji et.al.,(2014).The purpose of this study was to find out the level of awareness of GDM and its risk factors among pregnant women in rural Community Health Centres (CHC) of Bellari District the centres nearing to Bellari district hospital and Sandur district hospital were shortlisted for the study. Eligible pregnant women from these villages were then mobilised by a village health worker (Accredited Social Health Activist-ASHA) to the CHC.

GDM of any severity will increase the complications for both mother and the child. The mother in the last trimester may have complications of hypertension and may need a caesarean delivery the child may have neonatal hypoglycaemia and jaundice, because of the mothers GDM. Screening for GDM is not a regular part of ANC visits, results of which rural pregnant women are not timely screened and in some cases, leads to misdiagnosis of GDM among suspected pregnant women Chanda.et.,al.(2020). Mothers with GDM are at risk of developing gestational hypertension, preeclampsia and caesarean section. Lee et al. (2018) Gestational Diabetes Mellitus (GDM) has been well documented to be associated with significant mortality and morbidity among both mother and their offspring. Prevalence of GDM in India varies between regions

and has been documented to be on the rise over the last two decades which is a public health concern and reflects an increase in the frequency of type 2 diabetes mellitus in these populations. Rajasekar, Geetha et al.(2019)

Objective: To understand the level of knowledge Attitude and practice (KAP) of rural pregnant women about gestational diabetes mellitus (GDM).

Study design: A field-based cross-sectional research study.

Settings: Rural areas of Bellari District, Karnataka state, India.

Participants: A total of 647 pregnant women in gestational age of 24-28 weeks.

Primary and secondary outcome measures: Presence of gestational diabetes among pregnant women. Assessment of Knowledge Attitude and Practice of the pregnant mothers.

METHODOLOGY

The present study aimed to determine the prevalence of and risk factors for GDM in two Community Health Centres (CHC) under Bellari District hospital and Sandur District Hospital. The antenatal clinic was conducted every Thursday and average attendance in the CHC was around 100 -150. Women who were pregnant with their first child (primi gravida) were included in the study. The subjects were contacted at their first visit and after the confirmation of the pregnancy obtaining their informed consent, a pre tested questionnaire was administered by the investigator for the collection of collection of the data Demographic data Baseline demographic variables such as age, weight, height, BMI, parity, co morbidities, were collected.

Available laboratory data including haemoglobin level and non-fasting OGTT results were also collected. All reported haemoglobin and blood glucose measurements were from venous blood samples.

Inclusion criteria: Records of primigravida pregnant women between 24-28 weeks who underwent an OGTT during the study period.

Exclusion criteria: Women with pre diabetes, and multigravida were excluded

Ethical Clearance: The study was approved by the Nutri-explore Ethics committee of Smt VHD Central Institute of Home Science after review by the members of the ethical committee.

RESULTS AND DISCUSSION

TABLE – 1 Classification of Respondents by Age group, Type of family and Family size

N=127

Characteristics	Category	Respondents	
		Number	Percent
Age group (years)	18-19	43	33.9
	20-21	62	48.8
	22+	22	17.3
Type of family	Nuclear	26	20.5
	Joint	101	79.5
Family size (members)	2-4	54	42.5
	5-6	45	35.4
	7+	28	22.1
Total		127	100.0

The subjects were in the age, type of family and family size established in the Table-1.The results depict that 48.8 percent of the subjects were in the age group of 20-21 years. A higher percentage of the subjects (79.5) predominantly belong to joint families. The family comprising of 2-4 members in the house hold was 42.5 percent and 35.4 percent were 5-6 members in a household. The age group in this research study is less because the subjects selected were primigravida. The prevalence of Gestational Diabetes varies with the population studied. The number of women having access to this screening has to be increased as this may prevent adverse outcome. Similar results were reported by

Sonali sain et.al, (2012) were 94.2 percent belonged to age group of less than 25 years 48.3 percent were teenage mothers. Seshaih et al., (2011) in his study on GDM screening in urban and rural areas reported the average age of rural mothers of 22.5 years while urban and semi urban mothers were of an average age of 23.7and 23.4 years respectively.

TABLE – 2 Classification of Respondents by Age at menarche and Age at marriage

N=127

Characteristics	Category	Respondents	
		Number	Percent
Age at menarche	12 years	34	26.8
	13 years	78	61.4
	14+ years	15	11.8
Age at marriage (years)	18-19	75	59.1
	20-21	52	40.9
Total		127	100.0

The classification of the respondents on the age at menarche and age at marriage is presented in the Table- 2 About 61.4 percent of them attained menarche at the age of 13 years and 26.8 percent of the respondents attained at 12 years. The age at marriage was found to be 59.1 percent in the age group of 18-19 years indicate that the respondents were married in their teenage years in most of the rural households.

TABLE – 3 Response on Age at conceiving and Pre pregnancy weight

N=127

Characteristics	Category	Respondents	
		Number	Percent
Age at conceiving (years)	18-19	43	33.9
	20-21	62	48.8
	22+	22	17.3
Pre pregnancy weight (kgs)	39-42	24	18.9
	43-47	45	35.4
	48-52	39	30.7
	53+	19	15.0
Total		127	100.0

Age at conceiving and pre pregnancy weight of the respondents is presented in the Table- 3 Around 48.8 percent of the subjects conceived at the age of 20-21years, followed by 33.9 percent of the respondents were pregnant at the age of 18-19 years. This gives us an indication that the respondents are pregnant at a very young age. The pre pregnancy weight was measured at the first antenatal visit. It is evident that 18.9 percent of the respondents were in the range of 39-42 kg and 35.4 percent of the respondents were in the range of 43-47 kg and only 15.0 percent of the respondents were above 53+ kg of weight. Overweight/obese women who gained more weight than recommended are at a high risk of developing adverse pregnancy outcomes. Normal and overweight women who gained weight less than recommended have low risk for cesarean section and macrosomia. However, they have a higher (statistically insignificant) risk for low birth weight and preterm birth. This highlights the need for gaining adequate weight during pregnancy. Bhavadharini et al.,(2017).

TABLE – 4 Classification of Respondents by Height and Weight

N=127

Characteristics	Category	Respondents	
		Number	Percent
Height (cms)	140-148	26	20.5
	149-154	55	43.3
	155-164	46	36.2
Weight (kgs)	39-43	44	34.6
	44-49	49	38.6
	50+	34	26.8
Total		127	100.0

Anthropometric profile of the respondents is presented in Table-4 it is evident that the height of 43.3 percent respondents were in the range of 149-154 cm followed by 36.2 percent respondents noticed with height 155-164 cms. The pre pregnancy weight 39-43 kg was observed among 34.6 percent, where as 26.8 percent of respondents found above 50 kg.

TABLE – 5 Association between Body mass index by Type of family

Body mass index (BMI)	Respondents					
	Nuclear		Joint		Combined	
	N	%	N	%	N	%
Malnourished (<18.5)	4	15.4	25	24.7	29	22.8
Normal (18.5-22.9)	13	50.0	65	64.4	78	61.4
Over weight (23.0-24.9)	3	11.5	6	5.9	9	7.1
Pre obese (25.0-29.9)	6	23.1	5	5.0	11	8.7
Total	26	100.0	101	100.0	127	100.0
χ^2 Test	10.25*					

*Significant at 5% level, χ^2 (0.05,3df) = 7.815

The respondents were further classified according to standard cut off values of BMI as given by WHO (2004) for Asians (Table 5) by type of family and body mass index, when analysis showed a total of 61.4 percent were normal and 22.8 percent of subjects were malnourished.It was observed that 64.4 percent of the respondents belonging to joint family were normal and 50 percent of respondents of nuclear family were found with normal BMI. The observation of pre obese category of nuclear and joint family group showed that 23.1percent of respondents from nuclear family and only 5 percent of Joint family respondents were pre obese however, the association between BMI and type of family found to be statistically significant (x^2 =10.25*) The overweight and pre obese respondents were 7.1 and 8.7 percent respectively which is the perceived traditional risk factor for GDM is found to be lower in rural settings which was also reported by Chebrolu et al.,(2021). Hospital based prevalence of GDM was 14 percent (95 % CI: 11.3% to 16.7%) and a significant rise in prevalence levels was noted with age. Women with family history of diabetes mellitus, women with body fat of more than 23% had 2.65 and 2.89 times significantly higher odds of developing GDM. Rajasekar, Geetha et al.(2019).

TABLE-6 Overall Mean Knowledge, Attitude and Practice scores of Respondents on Prevalence of GDM

N=127

No.	Aspects	Statements	Max. Score	Knowledge Scores			
				Mean	SD	Mean(%)	SD(%)
1	Knowledge	15	15	9.64	1.91	64.3	12.8
2	Attitude	26	52	37.66	6.09	72.4	11.7
3	Practice	18	18	11.11	2.50	61.7	13.9
	Correlation between Knowledge & Attitude			+ 0.7893*			
	Correlation between Knowledge & Practice			+ 0.8145*			
	Correlation between Attitude & Practice			+ 0.8736*			

*Significant at 5% level,

The overall mean knowledge, attitude and practice scores depicted in Table-6 the result reveals that the mean knowledge scores were 64.3 percent, attitude scores were 72.4 percent and practice scores were 61.7 percent. There was a positive relationship between knowledge and attitude (+0.7893*), knowledge and practice (+0.8145*) and attitude and practice at (+0.8736*). The finding established statistically significant at 5 percent level between Knowledge, Attitude and Practice on prevalence of GDM. The mean per cent score of all the women regarding their knowledge on GDM was (46.1%.) Amongst rural women, 19.5% of them received the least score of (0%) and only (2.4%) of them received the maximum score between 75% and 99%. In the study by Balaji Bhavadharini et al.,(2017)

TABLE -7 Association between Age group with Knowledge, Attitude and Practice level on Prevalence of GDM

n=127

Aspects	Category	Sample	Age group (years)						χ^2 Value
			18-19		20-21		22+		
			N	%	N	%	N	%	
Knowledge	Inadequate	29	10	23.3	14	22.6	5	22.7	3.27 NS
	Moderate	65	18	41.8	34	54.8	13	59.1	
	Adequate	33	15	34.9	14	22.6	4	18.2	
Attitude	Moderate	70	28	65.1	30	48.4	12	54.5	2.88 NS
	Favorable	57	15	34.9	32	51.6	10	45.5	

Practice	Low	41	14	32.6	24	38.7	3	13.6	4.87 NS
	Moderate	57	20	46.5	25	40.3	12	54.6	
	High	29	9	20.9	13	21.0	7	31.8	
Combined		127	43	100.0	62	100.0	22	100.0	

NS : Non-significant

Table-7 shows association of age with KAP on prevalence of GDM. It is evident that 22.7 percent of respondents belonging to age group 22 years and above had inadequate knowledge level when compared to 34.9 percent belonging to the age group of 18 -19 years who had adequate knowledge level. The attitude scores of the age group 18 to 19 years had a moderate knowledge level of 65.1 percent which was higher when compared to age group 22 years and above which had moderate scores of 54.5 percent. The 22 years and above age group had 54.6 percent had moderate practice level when compared to 18 -19 years age group which had a moderate score of 46.5 percent, indicating that though the younger age group subjects had better knowledge and attitude, the older age group had better practice scores. Further, the association between age group with Knowledge Attitude & Practice found to be statistically non significant (X^2=3.27).

TABLE – 8 Association between Type of Family with Knowledge, Attitude and Practice level on Prevalence of GDM n=127

Aspects	Category	Sample	Type of Family				χ^2 Value
			Nuclear		Joint		
			N	%	N	%	
Knowledge	Inadequate	29	7	26.9	22	21.8	6.74*
	Moderate	65	17	65.4	48	47.5	
	Adequate	33	2	7.7	31	30.7	
Attitude	Moderate	70	7	26.9	63	62.4	10.51*
	Favorable	57	19	73.1	38	37.6	
Practice	Low	41	14	53.8	27	26.7	8.17*
	Moderate	57	6	23.1	51	50.5	
	High	29	6	23.1	23	22.8	
Combined		127	26	100.0	101	100.0	

* Significant at 5% Level,

Association between KAP and type of family of respondents depicted in **Table-7** shows that 30.7 percent of joint family respondents had adequate knowledge level when compared to only 7.7 percent noticed among nuclear family respondents. However, higher percentage of nuclear family respondents had moderate knowledge level 65.4 percent. The association between knowledge level and type of family found statistically significant (x^2= 6.74*). Further 62.4 percent of joint family respondents had moderate attitude level when compared to only 26.9 percent in nuclear family respondents. Which established statistically significant at (x^2=10.51*). The practice level found low among joint family as compared to nuclear family at 53.8 percent, where as the practice level in joint family respondents was moderate with 50.5 percent. Further, significant association observed between practice level and type of family (X^2 =8.17*).

TABLE -9 Association between Family size with Knowledge, Attitude and Practice level on Prevalence of GDM

n=127

Aspects	Category	Sample	Family size (members)						χ^2 Value
			2-4		5-6		7+		
			N	%	N	%	N	%	
Knowledge	Inadequate	29	17	31.5	10	22.2	2	7.2	11.01*
	Moderate	65	27	50.0	25	55.6	13	46.4	
	Adequate	33	10	18.5	10	22.2	13	46.4	
Attitude	Moderate	70	34	63.0	18	40.0	18	64.3	6.45*
	Favorable	57	20	37.0	27	60.0	10	35.7	
Practice	Low	41	22	40.8	14	31.1	5	17.9	11.82*
	Moderate	57	20	37.0	17	37.8	20	71.4	
	High	29	12	22.2	14	31.1	3	10.7	
Combined		127	54	100.0	45	100.0	28	100.0	

* Significant at 5% Level,

Table -9 shows that 46.4 percent of the respondents with more than seven members possess with adequate knowledge level as compared to 55.6 percent of respondents noticed with moderate knowledge level possess with 5-6 family members. However, 31.5 percent of the respondents with 2-4 members noticed with inadequate knowledge level. It is evident that association between family size and respondents knowledge level found to be significant(x^2=11.5=01*). Attitude was moderate in larger family at 64.3 percent and 63.0 percent in families with 2-4 members. Practice Scores was higher in families with More members when compared to middle and small families with 31.1and 40.8 percent respectively which was statistically significant at(x^2=11.82*)

CONCLUSION

Asian women with common risk factors in rural areas are to be educated with regard to Gestational diabetes mellitus (GDM) as the knowledge attitude and Practice is poor in rural areas. More studies are needed to document the locally important factors for the well being of the mother and foetal outcome.

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