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Knowledge, Attitude and Practices among Women Attending Antenatal Clinic towards Gestational Diabetes Mellitus in Mufulira Town, Zambia

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Abstract:

Introduction: Gestational Diabetes Mellitus (GDM) may be defined as hyperglycaemia induced by pregnancy. Previously done researches have shown that little is known about GDM and that correct knowledge, attitudes and practices can lead to improved outcome of pregnancy and improved quality of life for both mother and child. There is little Documentation of this condition in our country Zambia. The aim of this study is to establish the awareness, knowledge levels, attitude and practices of pregnant women attending antenatal clinical care and to inform relevant authorities.

Method: The survey sample comprised 208 pregnant women attending antenatal clinic in Mufulira at Clinic 3, Tang-up Camp Hospital and Kamuchanga District Hospital. A structured questionnaire was administered after obtaining written consent and the data analysed using SPSS 16.0.

Key Results: 64.4 % (134) of participants were not aware of GDM. On average, the level of knowledge, attitude, and practices were 6.54 (out of 15), 15.9 (out of 20), and 2.62 (out of 5), respectively. Level of education was the greatest predictor of awareness of GDM. There was a correlation between knowledge with gravidity and parity. Level of education and knowledge were great predictors of attitude and knowledge score was a good indicator of good practices.

Conclusions: From the surveyed population, low awareness of GDM was observed. And from those aware of GDM, low knowledge levels, positive attitude, and inadequate practices were observed. Lack of educational program on diabetes in pregnancy was the contributing factor. The way forward is setting up a structured educational program on gestational diabetes and its complications to be a component of antenatal and child health clinics to disseminate and improve the knowledge among mothers which eventually will influence attitude and practices.

Keywords: Knowledge, Attitude, practices, Gestational Diabetes Mellitus (GDM), Awareness.

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Introduction

GDM is a global problem. The International Diabetes Federation(IDF) estimates that about 16.8 births are to women with elevated blood glucose levels during conception, 16% of these cases are due to already existing T2DM or T1DM while the preponderance (84%) are due to GDM (Hod *et al.,* 2015). For African and Asian women, advanced maternal age and BMI are the most important risk factors compared to black Caribbean and European whites. About 3-5% of pregnancies are complicated by GDM (Makgoba *et al.,* 2012), with prevalence range of 1.4 to14% depending on the population of study and method of diagnosis being used as of 2004 (Zagar *et al.,* 2004). The highest prevalence is among Africans and Asians (Makgoba *et al.,* 2012).

In a research conducted to characterize the pattern of occurrence of GDM among a wide range of ethnic groups residing in New York City from 1995 to 2003, Zambian women were grouped among women with the risk of 5.6% (Savitzt *et al.,* 2008). Electronic data on prenatal records of 25 public sector facilities in Lusaka from February 2006 to August 2011 showed that 4717 births with macrosomia and 187 117 normal birth weight where macrosomia was defined as birth weight of 4000g (Caroline *et al.,* 2005). The research further stated that macrosomia in new births were at risk of increased caesarean delivery and neonatal intensive care which are consequences of GDM (Butt and Larsen, 2012; Rita, 2012; Black *et al.,* 2013).

Methods and Materials

Study site: The research was conducted in Mufulira which had 26 clinics that offer antenatal care. In 2015, it had an estimated number of pregnancies over 7000 and 6170 deliveries conducted (District health records). The research was done at 3 selected clinics; these were selected on the basis of high antenatal enrolment numbers, namely clinic 3, Tang-up Camp Hospital and Kamuchanga District Hospital.

Target population: The population included all pregnant women of any gestational age attending antenatal clinic at three selected clinics. All pregnant women attending antenatal clinic and were available during the period of data collection and after consent were included. Pregnant women from the medical profession were excluded to avoid biasness.

Sampling: The sample size was determined by pregnant women attending antenatal clinic during the period of data collection and their willingness to participate. Simple convenience sampling was used and 208 expectant mothers were captured in the survey study.

Research design: The study was a cross sectional type and of descriptive in nature, taking the forms of both qualitative and descriptive styles. The study involved collection of primary data from women attending antenatal clinic in Mufulira at three health facilities. The research period was from 15th January 2018 to 11th April 2018. Data collection was done from 7th March to 11th April 2018.

Data collection: A structured questionnaire was administered after obtaining written consent. The pregnant women were guided by me the researcher throughout the questionnaire.

Data analysis: Awareness was assessed on whether respondents had previously encountered GDM or "pregnancy induced diabetes mellitus". Knowledge on GDM was assessed based on the awareness of the disease, its complications and management using scores. Attitude was assessed on whether candidate expressed concern and felt the importance of the condition

using likert scale. Practices were assessed on the knowledge of methods of improving quality of life in patients with the condition. Social status was computed from level of education, monthly income and residential area (low, middle and high cost). Data was analyzed using SPSS 16.0.

Results

Overview

There were 208 women who were captured in the study. As it can be seen in table 1, of these 36.5 % (n=76) were primigravidas, 40.4 % (n=86) nulliparous, 14.4 % (n=30) of low social status and 69.7 % (n=145) of middle social status. 19.7% had acquired tertiary education, 41.3% Secondary Education, 17.3% Junior Secondary Education (basic) and the remainder had none to primary education. Of the entire participants only 35.6 % (n=74) showed awareness of "Gestational Diabetes Mellitus" or pregnancy induced diabetes mellitus and for this reason, the Knowledge Attitudes and practices were only evaluated in these (74) participant while the rest were said to have no knowledge.

Table 1. Population Characteristics

	Frequency (n)	Percentage (%)
Gravidity		
Primigravidas	76	36.5
Multigravida	132	63.5
Parity		
Nulliparous	84	40.4
Parous	124	59.6
Social Status		
Low	30	14.4
Middle	145	66.7
High	33	15.9
Level of Education		
None-Primary	45	21.6
Basic (Juniour Secondary)	36	17.3
Secondary	86	41.3
Tertiary	41	19.7
Awareness of GDM		
Yes	74	35.6
No	134	64.4

However, it is to be noted that 64.9 % (n=135) of the people from the participating population appreciated that obesity is not compatible with good health in pregnancy and have knowledge of the normal birth weight (69.2%; n=144 knew the normal birth weight) and that macrosomia is not a sign of good health (53.8%; n=112 knew it is an indicator of ill health) which are both associated with GDM. 50 %(n=37) attributed their source of awareness to medical practitioners, 36.5 %(n=27) from Television and radio and the rest through other source like, friends, internet, social media and print media as illustrated in Table 2 below.

Table 2. Source of awareness

		Frequency	% of entire participants	% of those aware of GDM	Cumulative Percentage
Heard of GDM	Medical practitioner	37	17.8	50.0	50.0
	TV/Radio	27	13.0	36.5	86.5
	Other	10	4.8	13.5	100.0
	Total	74	35.6	100.0	
	Never heard of GDM	134	64.4		
Total		208	100.0		

Awareness

The study indicated that the level of education was a great predictor of awareness of GDM. GDM awareness and level of education correlated at a p value of less than 0.01 (P value = 0.00000001).

Table 3. Awareness distribution

Aware of GDM			
		Yes	No
		Frequency	Frequency
Level of Education	None/primary	2	43
	Basic	9	27
	Secondary	40	46
	Tertiary	23	18
Social statuses	Low	6	24
	Middle	57	88
	High	11	22
Gravidity	Primigravidas	32	44
	Multigravida	42	90
Paity	Nulliparous	36	48
	Parous	38	86

Knowledge Score

The highest possible knowledge score was 15 and the maximum score was 10, the mean score was 6.54 and standard deviation was ±1.37 with a range was 6. This was categorized into poor, fair, good and very good.

Of the 208 participant 64.4 % (n=134) had no knowledge as they had never encountered the term GDM (pregnancy induced diabetes). And of those that had encountered the term, 18.9 % (n=14) had poor knowledge and the rest had fair to very good knowledge as shown in Table 4 below. Table 5 shows categorical scores by groups.

Multigravida mothers had more knowledge than primigravidas (P value of 0.013) and parous more than nulliparous women (P value=0.01) and social status was not a good predictor of knowledge (P value= 0.193). And there was no significant correlation between knowledge score and level of education (P value =0.12).

Table 4. Overall categorical knowledge score

Aware of GDM					
		Frequency	Percent	Valid Percent	Cumulative Percent
Aware of GDM Social statuses	Poor	14	6.7	18.9	18.9
	Fair	49	23.6	66.2	85.1
	Good	9	4.3	12.2	97.3
	Very good	2	1.0	2.7	100.0
	Total	74	35.6	100.0	
Not aware of GDM	No knowledge	134	64.4		
Total		208	100.0		

Table 5. Categorical Knowledge Score

		Poor	**Fair**	**Good**	**Very good**	**Totals**
		Frequency	Frequency	Frequency	Frequency	Frequency
Level of Educati-on	Tertiary	1	20	0	2	23
	Secondary	10	21	9	0	40
	Basic	3	6	0	0	9
	None-Primary	0	2	0	0	2
Gravidity	Primigra-vidas	9	23	0	0	32
	Multigra-vidas	5	26	9	2	42
Parity	Nulliparou s	11	25	0	0	36
	Parous	3	24	9	2	38
Social Statuses	Low	0	4	2	0	6
	Middle	14	37	4	2	57
	High	0	8	3	0	11

Attitude: Twenty (20) was the highest possible attitude score and the maximum score was 18, the mean score was 15.19 and standard deviation was ±1.48 with a range was 12. Of those that had encountered the term GDM, 6.8% (n=5) had a negative attitude towards GDM. Table 6 below shows the p Values at which attitude correlated with various factors.

Table 6. Categorized Attitude Score and P values with the cofactors

Correlating Factors	(P values)
Categorized Knowledge Score: Sig. (2-tailed)	0.036
Social statuses: Sig. (2-tailed)	0.746
Level of Education: Sig. (2-tailed)	.018
Gravidity: Sig. (2-tailed)	0.882
Parity: Sig. (2-tailed)	0.150

Practices

Five (5) was both the highest possible practice score and the maximum score, the mean score was 2.62 and standard deviation was ±0.84 with a range of 4. The practice score was categorized into poor, fair and good.

Table 7. Overall practice score

		Frequency	Valid Percent
Categorical practice score	Poor	26	35.1
	Fair	42	56.8
	Good	6	8.1
	Total	74	100.0

The study indicated that there was a significant correlation between practice score and knowledge score at a p value of 0.008. However, There was no significant correlation between practice score and attitude (P=0.6220, level of education (P=0.732), social status (P=0.587), gravidity (P=0.892) and parity (P=0.210).

Discussion, Conclusions and Recommendations

It is to be noted that no similar studies have been in the country and as such these findings will save as a baseline for future related studies. This research further will explore how educational level, social status, gravidity and parity influences awareness, knowledge, attitude and practices. The study indicated low awareness levels (no knowledge), inadequate knowledge, good attitude, inadequate practices among those aware of GDM.

From the results it can be seen that only 35.6 % (74) of the 208 participants showed awareness and knowledge concerning GDM. This may suggest that very few mothers from the population have knowledge concerning GDM. The ratios of those that had encountered the term GDM reduced from none/primary to tertiary thus level education as a sole factor that largely influenced awareness of GDM among the population. For example only 2 of those that fell under none-primary (45) level of education had encountered the term GDM making the ratio 2:43. We can see the ratios narrowing as level of education increases in Table 3. In fact more people were aware of GDM than those not aware for those in tertiary. In contrast to Shriraam *et al.,* (2012), who reported that the source of awareness was lesser from medical practitioners, this study shows that the majority attributed their awareness to medical practitioners as shown in Table 2 above of the results section.

As can be seen from Table 4, of the74 who had awareness, 18.9% had poor knowledge, 66.2% had fair knowledge while the rest 14.9 % (12.2% good and 2.7very good) had good to very good scores while in a similar study, 17.5% had good knowledge, 56.7% had fair knowledge and 25.8% had poor knowledge (Shriraam *et al.,* 2012). Knowledge was influenced by the factors gravidity and parity with p values of 0.013 and 0.01 respectively. Social status had no significant influence on level of knowledge. In addition 44.6 % (n= 33) had a knowledge score of below average. Whereas there is urinalysis screening for urine glucose for mothers attending antenatal clinic, none of the 74 mothers appreciated the fact that they had been screened for diabetes with their knowledge. Thus emphasizing the need for glucose urine examination could arouse curiosity among the mothers and eventually could search for more information and encourage knowledge sharing among them.

From those who had knowledge concerning GDM, attitude was good (positive) with only 5 of the 74 showing a lag in attitude. The higher the level of education the better the attitude score similar to that found by Caolan *et al.,* 2010. The better the knowledge score, the better the attitude score. The knowledge score was a good predictor of practice score (P value =0.0003). However, social status, gravidity and parity were not (Table 6).

Under practices, 35 % were observed to have poor practices, 56.8% had fair practices and only 8 %(n=6) had good practices as can be seen from Table 7. There was a positive relationship between practice score and knowledge score. However there was no significant relationship between practices with level of education, gravidity, parity, social status and attitude. There were no studies of note that explored gestational diabetes mellitus and practices among antenatal mothers.

Study limitation

It was difficult to assess women's attitudes and practices without prior awareness of participants of G.D.M. thus for women who admitted to have not heard of the condition were not allowed to proceed beyond questions that explored knowledge, attitude and practices.

Conclusion

Among the people that showed awareness of the condition, the majority attributed they came to the awareness of GDM through a medical practitioner, then trough radio and television and the rest from other sources like print media, social media and over the internet. Low knowledge levels, deficient practices and an overall a positive attitude were noted.

Recommendations

From the results is can be noted that The majority came to the awareness of GDM through a medical practitioner due to the fact that almost all pregnant women come into contact with one during antenatal clinic. Thus I recommend that pregnancy induced diabetes mellitus (GDM) be one of the topics of discussion during antenatal clinic and child health clinic (Shriraam *et al.,* 2012).

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