

Overview of Gestational Diabetes Mellitus (GDM) in Ghana; a Call for Action



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Submission: March 13, 2018; **Published:** March 27, 2018

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Opinion

Gestational diabetes mellitus (GDM), known as glucose intolerance, diagnosed for the first time in pregnancy usually occurs between 24 and 28 weeks of gestation [1,2]. The international diabetes federation (IDF) asserts that, globally, one in 7 births was diagnosed of GDM in 2017 [3]. GDM can result in several pregnancy complications such as increased blood pressure, large birth weight babies and obstructed labor. A systematic review and meta-analysis of published studies on GDM estimated the prevalence of GDM in sub-Saharan Africa to be about 14% in 2015 [4]. Significant risk factors of GDM includes, overweight and or obesity, family history of diabetes, previous birth complications, previous child with large birth weight and pregnant women who are advanced (more than 30 years) in age [4].

There is a significant relationship between GDM and the development of type-2 diabetes [3]. A previous diagnosis of GDM is associated with 60% risk of developing type-2 diabetes [5]. In a 10 year follow up study of women who delivered in 2010 [6] women diagnosed of GDM had 10 times increased risk of developing type-2 diabetes. GDM women with high body mass index, family history of diabetes, non-white ethnicity, advanced maternal age, raised fasting glucose and increased HbA1c have higher risk of type-2 diabetes [7-12].

Gestational diabetes is strongly associated with obesity and type-2 diabetes [13-16]. The prevalence and risk factors of type 2 diabetes is well established among the Ghanaian adult population. A recent systematic review and meta-analysis of primary studies put the prevalence of obesity at 43%, with a higher prevalence found in women [17]. The prevalence of diabetes among adult population was also found to be 3.6% in 2017 [3]. The 2014 Ghana demographic and health survey (GDHS) revealed that four out of ten women were either overweight or obese [18]. A trend analysis shows an increasing

prevalence of overweight and obesity from 25% in 2003 to 40% in 2014 [18]. Despite the increasing prevalence of obesity and T2D among women of reproductive age in Ghana, the national prevalence of GDM is not known. Extrapolated statistics on gestational diabetes indicates a 0.5 % prevalence in 2004 [11] in Ghana. An independent study in 2013 found a 9.3% prevalence of GDM among women attending prenatal care [12] in a tertiary Hospital in Ghana. Knowledge of GDM is also low among pregnant women. This could be partly due to the ineffective policy, monitoring and surveillance of GDM in Ghana [19]. Even though there is a diabetes framework, a policy for diabetes monitoring, surveillance and treatment in Ghana, this framework is designed to focus only on type-2 diabetes [19]. This calls for a proper policy to look at diabetes with a holistic perspective. With the development of a proper and effective national diabetes plan in sight, it is important that GDM and its modifiable risk factors such as obesity, lifestyle and dietary factors are given the needed attention. Due to the inexistence of a defined guideline for GDM screening in Ghana [12], GDM is diagnosed by relying on patient's history of diabetes, or pregnancy related complications or onset of diabetes symptoms. It is imperative to provide at least an oral glucose tolerance test (OGTT) at 24 to 28 weeks of gestation as part of antenatal care in order to identify, treat and manage GDM rather than relying on history of diabetes, onset of diabetes symptoms and pregnancy complication. This will provide data on GDM prevalence as well as help improve intervention efforts.

Ghana will experience adverse health challenges such as increased prevalence of co-morbidities associated with GDM if this current trend continues. Women with GDM are at risk of pre-eclampsia, primary cesarean delivery, preterm delivery for the mother and macrosomia, neonatal hypoglycemia, birth injury, respiratory problems, hyperbilirubinemia, hypocalcemia, intensive care for the child [20,21]. Long term maternal risks

such as GDM recurrence, 5-10 year risk of type-2 diabetes or an increased risk of metabolic syndrome and cardiovascular disease [20,22] are also associated with GDM. Increasing evidence suggest that, one-third of women with recent GDM develop postpartum depression [21]. Postpartum depression may results in decrease in physical activity, paving way for comfort eating, which ultimately increases the risk of weight gain [23,24].

The management of GDM emphasizes on glycemic control. Glycemic control is achieved through lifestyle interventions such as dietary modifications and physical activity. Drug therapy such as insulin injections and other hypoglycemic agents are relied on when these interventions are unsuccessful in achieving glycemic control. In Ghana however, hypoglycemic agents such as insulin and metformin are the focus of GDM treatment [25]. Until recently, metformin was not administered in Ghana [12] Whiles it is certainly okay to administer these hypoglycemic agents, emphasis must be placed on dietary and physical activity interventions. Even though some epidemiological studies have identified the risk factors associated with GDM, experiences of women with GDM and the nutritional status of women with GDM in Ghana [26-29], none of these studies have looked at interventions such as physical activity, nutritional and lifestyle modifications and GDM. In short there is lack of information on GDM in Ghana. There is the need for both epidemiological and intervention researches that will provide evidence on the burden of GDM and management of the risk factors to arrest it's long and short term effects. Nutritional and lifestyle interventions such as decreasing fat intake especially saturated fat, which is a risk factor for both GDM and type-2 diabetes [30] is seen as one of the ways to achieve glycemic control. Recently, a review of literature showed that consumption of diets rich in antioxidants, including Vitamin E and A could reduce the risk of GDM [31]. Increasing physical activity may improve glycemic control and/or limit insulin use in women with GDM. Regular physical activity presents a classical way to sustain pregnancy weight gain [32], stabilize maternal mood, and limit fetal fat mass and physiological stress responses in the offspring. The lack of research evidence on GDM in Ghana will hamper efforts targeted at addressing GDM and its related risks.

Our opinion is strongly stated on the need for a national screening policy and effective management of GDM in Ghana. With this strong opinion we anticipate an incorporation of a GDM policy in the much anticipated national diabetes plan as well as the need to provide funding for intervention research that focuses on the modifiable risk factors of GDM such as obesity, lifestyle and dietary factors. These interventions must be initiated at both the gestational and postpartum periods. These periods are known to be critical to change outcomes for both the mother and the offspring. An effective policy for GDM research and treatment may lead to breakthroughs in modern medical practices and clinical recommendations to manage and prevent gestational diabetes in Ghana.

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DOI: [10.19080/CRDOJ.2018.06.555694](https://doi.org/10.19080/CRDOJ.2018.06.555694)

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