

# *The association between diet and metabolic syndrome, in women who had gestational diabetes 5 years previously in the Western Cape, South Africa - A cross sectional study.*

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**Background:** Several studies have investigated the association between metabolic syndrome (MetS) and unhealthy diets; although very few studies have investigated women with a history of gestational diabetes (GDM) and dietary patterns associated with metabolic syndrome. In this study, we aimed to investigate the association between diet and MetS in women with a previous diagnosis of gestational diabetes in the Western Cape, South Africa

**Methods:** A secondary analysis of data of 131 women managed for GDM 5 years previously was conducted. These women were part of a larger primary cross-sectional study. During the larger study, participants' dietary habits, medical history, anthropometric measurements, and blood glucose were measured using an oral glucose tolerance test (OGTT). In our study, dietary intake was measured as the number of times a food item was consumed using a 2-week food frequency questionnaire and foods were grouped into 11 major food groups. Dietary habit was compared with waist circumference, blood pressure, blood glucose and the use of lipid lowering agents or glucose controlling agents. MetS was defined per the International Diabetes Federation (IDF) definition. Multiple logistic regression was used to identify independent associations as well as adjust for confounders.

**Results:** The proportion of women who had metabolic syndrome was 30% (n=122). The participants had an overall mean age of 36 (SD  $\pm$  5.3) years, mean weight of 92.3 (SD  $\pm$  23.1) kg and median body mass index 35 (IQR 28.9 - 41.1) kg/m<sup>2</sup>. There were no significant differences between those with MetS and those without MetS in age, weight, body mass index, race, education, employment, smoking habit and current drinking habit. After adjustment for possible confounders the consumption of sugar sweetened beverages and alcohol were adversely associated with MetS (OR = 1.004, 95%CI: 1.004 – 1.12, p = 0.018) and (OR = 4.5, 95% CI: 1.20 – 17.2, p = 0.03), respectively, whereas meat consumption was protective (OR = 0.92, 95% CI: 0.88 – 0.98, p = 0.003) and dairy consumption was protective but not statistically significant (OR = 0.97, 95% CI: 0.94 – 1.00, p = 0.079). No association was found between MetS and intake of refined foods, fruits and vegetables, wholegrain, fats, energy dense snacks, seafood, added sugar and potatoes.

**Conclusions:** These findings back up findings that consumption of sugar sweetened beverages and alcohol increases prevalence of MetS while meat offers some protection. These findings require further investigation