

Prevalence and correlates of elevated HbA1c in rural Zambia: A population-based cross-sectional study

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Background:

Diabetes mellitus (DM) poses a serious challenge to the health systems in sub-Saharan Africa. In Zambia, the estimated prevalence of DM among adults was 4.2% in 2016. However, little is known about its magnitude among the rural population. To address this gap, we investigated the prevalence of DM and its correlates among rural residents in Zambia.

Methods:

In 2016, we recruited 690 rural residents aged 25-64 of Mumbwa district by multistage, clustered, household sampling. Questionnaire survey was conducted along with anthropometric and biological measurements including HbA1c. Data analysis was adjusted for complex sampling.

Results:

The prevalence of elevated HbA1c (≥ 5.7) was 41% (Men 34%, Women 48%). DM, defined as HbA1c $\geq 6.5\%$, was present in 2.6% of the participants. Sixteen percent of men and 37% of women were overweight or obese (BMI ≥ 25). In multivariable analysis, high cooking oil intake and obesity (BMI ≥ 30) were associated with higher odds of elevated HbA1c (adjusted odds ratio [AOR]=1.76 and 3.30), but the association was inverse for alcohol intake (AOR \approx 0.55). By gender, obesity was positively associated with an elevated HbA1c in both genders (AOR= men 6.57, women 2.11). Secondary education was inversely (AOR=0.52), and high sugar intake was positively (AOR=1.66) associated with elevated HbA1c in men. Older age and high cooking oil intake were positively associated (AOR=1.89 and 2.14), and alcohol intake (AOR=0.46) was inversely associated with elevated HbA1c in women.

Conclusions:

More than 40% of rural residents in Zambia had elevated HbA1c. The risk factor profile was different between genders. Obesity increased the odds of elevated HbA1c in both genders, but the odds was disproportionately higher in men than in women. The reasons for such gender difference

remain unknown, but we speculate that it might be explained by the early onset of obesity in women. Such gender difference should be addressed in health interventions in this population.

Key messages:

- Over 40% of rural residents in Zambia are at risk of prediabetes or diabetes.
- Health interventions should address the gender difference in the risk of elevated HbA1c.