INTRODUCTION: Despite the well-established link between body mass index (BMI) and diabetes mellitus (DM), it remains unclear whether this association is more pronounced at certain levels of education. This study assessed the heterogeneity of associations between BMI and DM among people with different educational attainments.

METHODS: Applying multilevel regression methods to the World Health Survey data on 160,381 participants from 49 low- and middle-income countries, we investigated the modifying influence of educational attainment (illiterates, primary school, secondary or high school, or college and beyond) on the associations of DM with different BMI levels (underweight, normal, overweight, obese I, or obese II&III). We quantified both the BMI-DM association at each education level and the joint association of BMI and educational attainment with DM in 22 low-income countries (LICs) and 27 middle-income countries (MICs).

RESULTS: Higher BMI was associated with higher odds of DM among people with same education level in both LICs and MICs. In the joint association model, we found increasing odds associated with DM as BMI and education level both increased in LICs. The odds of DM observed were slightly larger than what we would expect from the combined separate impact of BMI and educational attainment in these countries. This increasing joint association is largely driven by the contribution of educational attainment across BMI levels, rather than the contribution of BMI across education levels in LICs. Nonetheless, no clear pattern was seen in MICs, as the education-DM association is less prominent, if at all present, in these countries compared to that in LICs.

CONCLUSIONS: There appears to be some heterogeneity in the associations of BMI and educational attainment with DM in LICs not seen in MICs. Future studies are needed to examine this newly found heterogeneity in LICs versus MICs.