

# Hypertriglyceridemia is a Dose-dependent Risk Factor for Type 2 Diabetes Mellitus: A Systematic Review and Meta-analysis

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## INTRODUCTION and AIM

The prevalence of type 2 diabetes (T2DM) has more than doubled in the past 20 years and most of these T2DM cases are preventable if risk factors are eliminated in time. Hypertriglyceridemia (HTG) may be a potential but modifiable risk factor of T2DM, and it also has a high prevalence.

We aimed to investigate the dose-dependent effect of HTG on the development of T2DM.

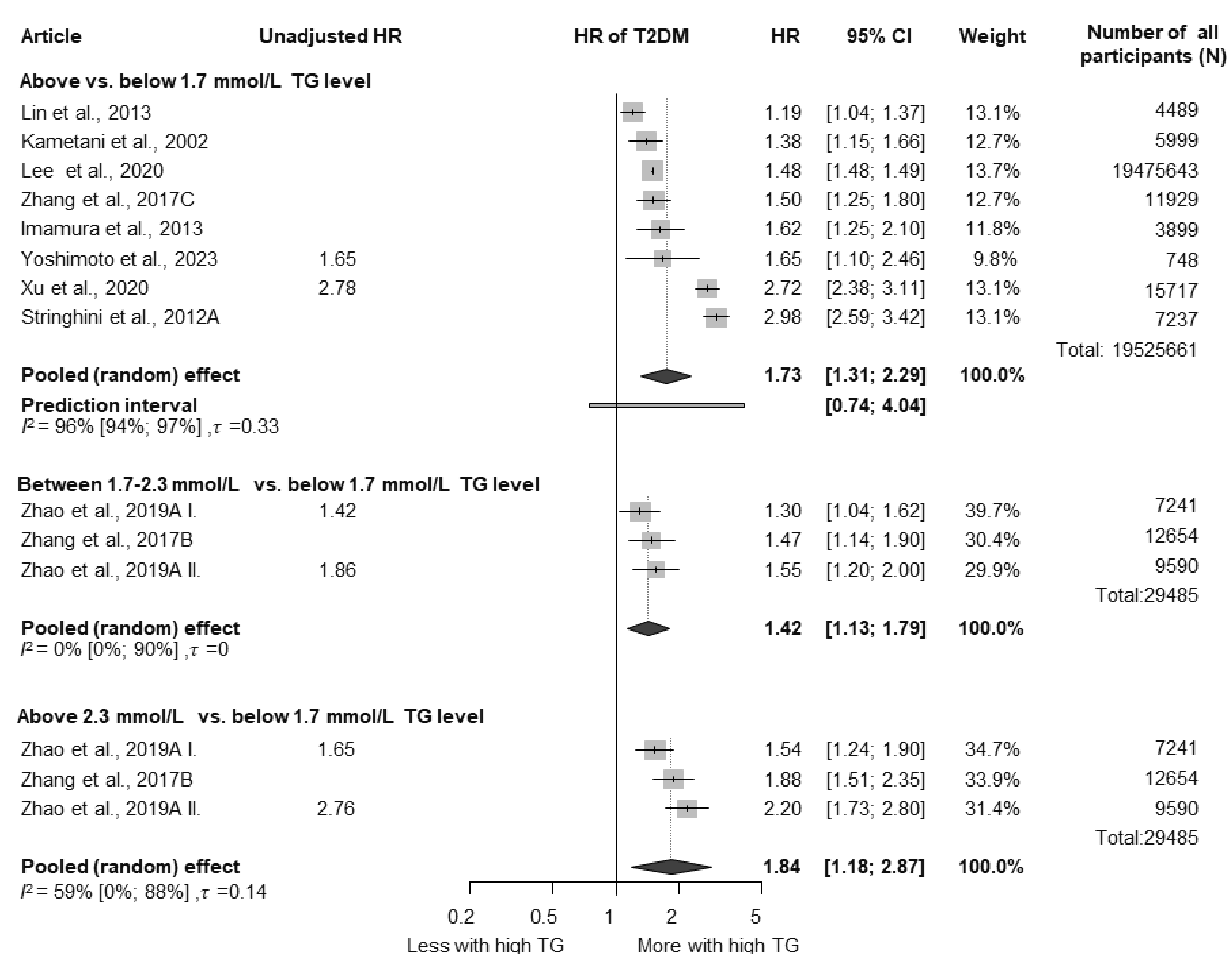
## METHODS

We carried out a systematic search in three databases (MEDLINE, Embase, and CENTRAL) on the 9th of November, 2023. We investigated adult population with different triglyceride levels and triglyceride-related indexes (exposure). The outcome of interest was the development of T2DM. Pooled hazard (HR), odds ratios (OR) and mean differences (MD) with 95% confidence intervals (CI) were calculated using a random-effect model.

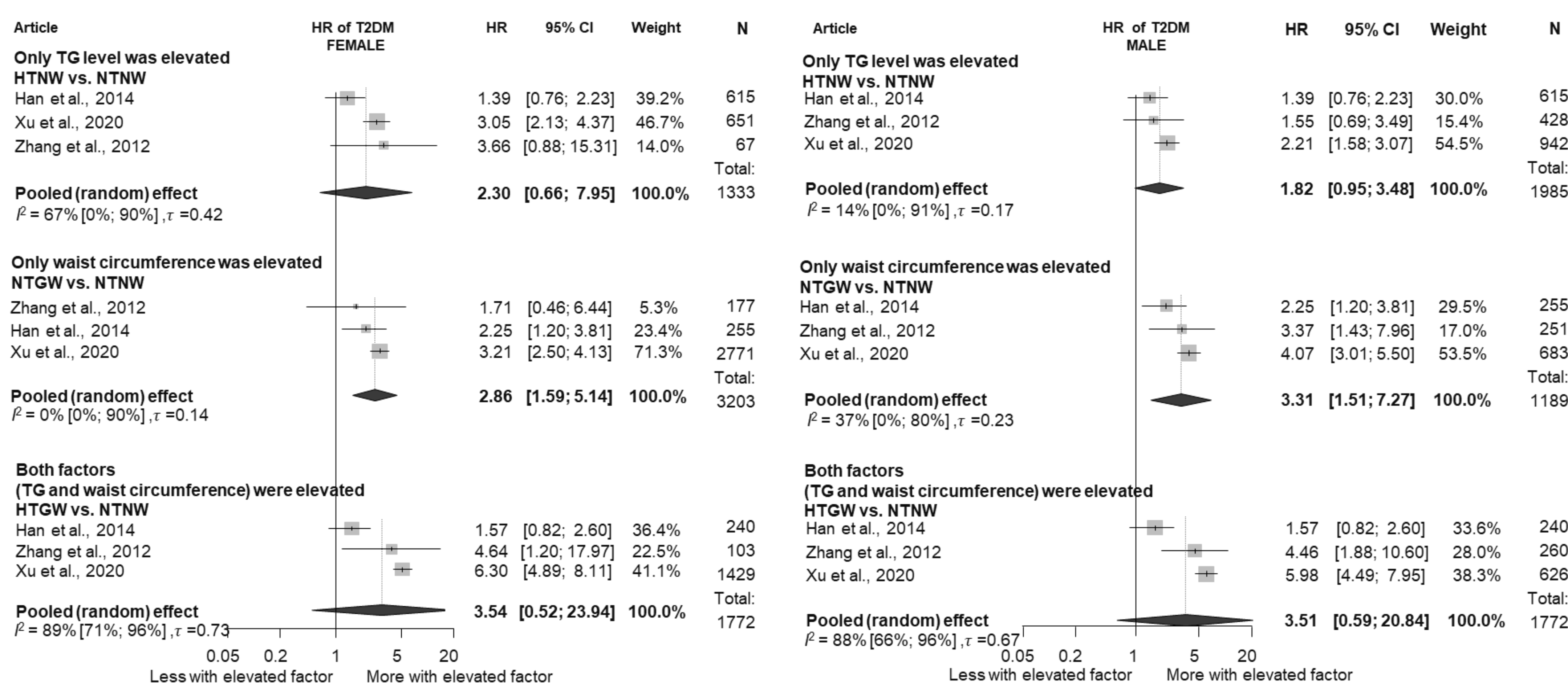
The risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool. The protocol was registered in PROSPERO under the number CRD42023471288.

## RESULTS

**Figure 1. Hazard ratios for incident diabetes comparing groups with different baseline TG levels, results of three separate analyses (HR – hazard ratios)**



**Figure 2. Hazard ratios for incident diabetes in groups with elevated triglyceride or/and waist circumference compared to neither elevated group (within hypertriglyceridemic waist phenotype (HTGW) groups), divided by sex (female/male), results of six separate analyses**



NTNW –Normal triglyceride level and waist circumference, HTNW – Elevated triglyceride level and normal waist circumference, NTGW – Normal triglyceride level and elevated waist circumference, HTGW: Elevated triglyceride level and waist circumference,

## CONCLUSIONS

HTG is a dose-dependent risk factor of T2DM.

Elevated waist circumference may have an even more important role in T2DM development than HTG.