Prevalence of thyroid disorders in Indian patients with type 2 diabetes mellitus - a meta-analysis

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Objective
Prevalence of thyroid disorders is high among Indian patients with type 2 diabetes mellitus (T2DM). However, the reported prevalence rates vary widely. Hence, we have estimated the pooled prevalence of various thyroid disorders among Indian adult T2DM patients.

Methods
MEDLINE, EMBASE, PubMed and Google Scholar were searched. Studies through April 2019 reporting the prevalence of at least one thyroid disorder (hypothyroidism or hyperthyroidism) in adult Indian T2DM were included with full texts available were included.Smaller studies (T2DM participants < 120),studies with high publication bias, studies including selected population (eg.geriatric population), studies reported in grey literature alone and low-quality studies were excluded based on the discretion of the reviewers. Data were extracted independently by two reviewers. Meta-analysis was performed using MedCalcstatistical software version 16.4.3, MedCalc software bvba, Ostend, Belgium. Both random and fixed effects models were used for pooled analysis.

Results
A total of 23, 25, 21 and 22 studies were included for the meta-analyses on the prevalence of thyroid dysfunction, total hypothyroidism, subclinical hypothyroidism and thyrotoxicosis respectively. The pooled prevalence rates of thyroid dysfunction, total hypothyroidism, subclinical hypothyroidism and thyrotoxicosis using random effect model were 23.607% (95% CI: 21.043% to 26.271%), 19.02% (95% CI: 16.691% to 21.463%), 10.155% (95% CI: 8.109% to 12.402%) and 4.115% (CI: 2.935% to 5.485%) respectively. $I^2$was > 70% for analyses of all the disorders suggesting considerable heterogeneity between the studies.

Conclusions
Thyroid dysfunction is common among Indian type 2 diabetes mellitus patients affecting at least one in five.