Hayashi, S; Chandramohan, D; (2018) Risk of active tuberculosis among people with diabetes mellitus: systematic review and meta-analysis. Tropical medicine & international health. ISSN 1360-2276 DOI: https://doi.org/10.1111/tmi.13133

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Records identified through database searching (n = 4859)
EMBASE:2703, MEDLINE: 1147
Global Health: 349, Pubmed:660

Additional records identified through hand-searching bibliographies of identified articles (n = 13)

Records after duplicates removed (n = 3637)

Records excluded based on title and abstract (n = 3561)

Records screened (n = 3637)

Full-text articles assessed for eligibility (n = 71)

Studies included in quantitative synthesis (meta-analysis) (n = 14)
- 8 cohort studies
- 6 case-control studies

Full-text articles excluded, with reasons (n = 57)
- Lack of control 19
- Effect only on TB treatment outcome 4
- DM diagnosis not prior to developing TB 16
- Comparison to general population with no age standardization 4
- Different definition of DM or TB in comparison group 2
- Potential duplicate data that overlapped with other studies 12

Figure 1 Study selection process
Figure 2 Estimates of effect of DM on active TB in each study and pooled relative risk in cohort studies, case-control studies, and high-quality studies

Relative Risk: Rate ratio in cohort studies and odds ratio in case-control studies, 95% CI: 95% confidence interval, P value*: Test of heterogeneity, na: data not available
Figure 3 Stratum-specific association between DM and TB: level of control of DM (a), Age (b), and Sex (c)
Figure 4 Estimated effect of DM on TB stratified by population characteristics and study characteristics

Background TB incidence (per 100,000 person-years): low <15, moderate 15-100, high >100, Study quality: high 8-9, low 7 (the numbers of stars in Newcastle-Ottawa Scale), $I^2$: % variation due to between-study heterogeneity in group computed from Der Simonian-Laird random effect model, P value: test of linear trend (meta-regression), $I^2$ residual: % residual variation due to heterogeneity, Adjusted $R^2$: Proportion of between-study variance, Bivariate meta-regression included only the background TB incidence and study quality in the model.
Figure 5 Funnel plot with pseudo 95% confidence limits of the studies included in meta-analysis
Figure 6 Relationships between factors and the strength of the effect of DM on TB
Figure 7 Funnel plots with pseudo 95% confidence limits of the studies, grouped by quality of study (a), and health expenditure per capita (b)
Figure 8 Association between study quality and estimated effect of DM on TB (a), and association between health expenditure per capita and estimated effect of DM on TB in all studies (b) and in high-quality studies (c)