

Do catastrophic costs due to tuberculosis predict unfavourable tuberculosis treatment outcome? A systematic review and meta-analysis

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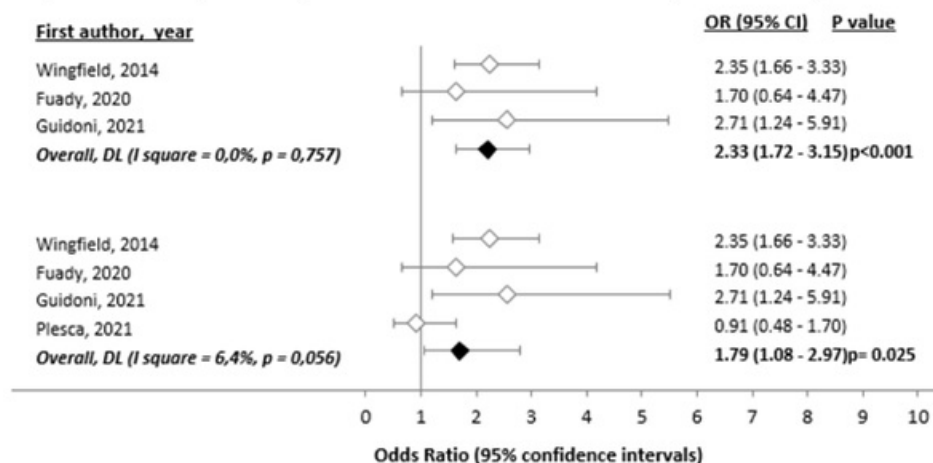
2nd Track: D1: TB epidemiology across the life course

Background: Patients with tuberculosis and their households often experience medical and non-medical out-of-pocket expenditures and lost income. When the total of these costs due to tuberculosis exceed 20% of pre-illness annual household income then they are considered to be catastrophic in case they make completion of tuberculosis treatment unaffordable and consequently unachievable. Eliminating catastrophic costs due to tuberculosis is one of three targets for ending tuberculosis prioritised by the World Health Organisation. We aimed to assess the evidence that catastrophic costs due to tuberculosis predict unfavourable tuberculosis treatment outcomes.

Design/Methods: We did a literature search of PubMed, Scopus and Web of Science electronic databases using Prisma-P guidelines with search terms " (tuberculosis OR TB OR Koch disease) AND (catastrophic costs OR catastrophic household costs)". We then selected and characterised relevant studies and performed a meta-analysis of their findings.

Results: The literature search identified 441 publications including 193 unique studies. Screening their title and abstracts found 120 potentially relevant studies, full-text review of which identified three studies that clearly informed our research aim. Wingfield et al 2014 studied 765 unselected patients whereas Fuady et al (2020) and Guidoni et al (2021) both studied 282 and 310 unselected patients only with drug-susceptible tuberculosis. Meta-analysis of these studies demonstrated that catastrophic costs due to tuberculosis predicted 2.3-times greater odds of unfavourable treatment outcome (95% confidence intervals=1.7-3.1, $P < 0.001$, figure upper panel). A sensitivity analysis including a potentially eligible fourth study Plesca et al (2021) of 287 selected patients only with drug-resistant tuberculosis who had already completed at least two months of therapy also showed that catastrophic costs due to tuberculosis significantly predicted unfavourable treatment outcome (figure lower panel).

Figure 1. Catastrophic costs predictive of unfavorable TB outcomes (20% threshold)



Conclusions: Patients and their households that experience catastrophic costs due to tuberculosis are at increased risk of suffering unfavourable tuberculosis treatment outcomes.

Summary: If costs due to tuberculosis exceed 20% of pre-illness annual household income then they are considered catastrophic in case they make treatment completion unaffordable. Our systematic review and meta-analysis demonstrated that catastrophic costs due to tuberculosis predicted approximately two-fold increased odds of patients suffering unfavourable tuberculosis treatment outcomes.

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