

# Association Between Vitamin D Deficiency and Tuberculosis among HIV-Negative Individuals: A Systematic Review & Meta-Analysis



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## Supplement 1:

The study was registered in the international prospective register of systematic reviews (PROSPERO) under the registration number CRD42024518012 ([Link: https://www.crd.york.ac.uk/prospero/display\\_record.php?RecordID=518012](https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=518012)).

## Supplement 2: Search strategy

### PubMed/Medline = 972 results

((((( (((((((Vitamin D [Title/Abstract]))) OR ("vitamin D deficiency" [MeSH Terms])) OR ("vitamin D deficiency" [Title/Abstract]))) OR (25-hydroxyvitamin D)) OR (1,25-dihydroxyvitamin D)) OR (25(OH)D)) AND (tuberculosis[MeSH Terms])) OR (tuberculosis [Title/Abstract]) AND ((medline [Filter]) AND (fha [Filter]) AND (observationalstudy [Filter]) AND (humans [Filter]) AND (english [Filter] OR french[Filter])) AND ((medline [Filter]) AND (observationalstudy [Filter]) AND (humans [Filter]) AND (english [Filter] OR french [Filter]))

### Scopus = 660

(KEY (vitamin AND d) OR KEY (vitamin AND d AND deficiency) OR KEY (25-hydroxyvitamin AND d) OR KEY (1,25-dihydroxyvitamin AND d) OR KEY (25 (oh) d) AND KEY (tuberculosis) OR KEY (tuberculosis AND patient))

AND (LIMIT-TO (SUBJAREA, "MEDI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (EXACTKEYWORD, "Human")) AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "French"))

### Web of science = 163

"vitamin D serum level" (Abstract) or "vitamin D deficiency" (Title) and "tuberculosis" (Keyword Plus ®) or "tuberculosis patient" (Abstract) and "human" (Keyword Plus ®) and English or French (Languages)

### Sciences direct = 369

"vitamin D deficiency" AND tuberculosis AND human

## Supplement 3: Funnel plot

**Figure S1** Funnel plot of mean differences in vitamin D levels between tuberculosis (TB) patients and control groups:

**Figure S2** Funnel plot of mean differences in vitamin D levels between TB patients and control groups:

**Figure S3** Funnel plot of pooled odds ratios for the association between vitamin D deficiency and tuberculosis (TB), using a random-effects model:

## Supplement 4: Newcastle-Ottawa quality assessment Scale

**Table 1. Bias assessment of cross-sectional studies using the newcastle-ottawa scale.**

Study	Selection				Comparability	Outcome		Score
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	
<b>Wang et al. (2019)</b>	1	1	1	1	1	2	1	<b>8</b>
<b>Workineh et al. (2017)</b>	1	1	1	1	1	2	1	<b>8</b>
<b>Balcells et al. (2017)</b>	1	1	1	1	1	2	1	<b>8</b>
<b>Belyaeva et al. (2017)</b>	1	1	1	1	1	2	1	<b>8</b>

Item 1: Representativeness of the sample; Item 2: Sample size; Item 3: Non-respondents; Item 4: Ascertainment of the exposure (risk factor); Item 5: Comparability of subjects in different outcome groups on the basis of design or analysis; Item 6: Assessment of outcome; Item 7: Statistical test.

**Table 2. Bias assessment of case-control studies using the newcastle-ottawa scale.**

Study	Selection				Compa-Rability	Exposure			Score
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	
<b>Jaimni et al. (2021)</b>	1	1	1	1	2	1	1	1	<b>9</b>
<b>Jongwon et al. (2016)</b>	1	1	1	1	2	1	1	1	<b>9</b>
<b>Junaid et al. (2016)</b>	1	1	1	1	1	1	1	1	<b>8</b>
<b>Hong et al. (2014)</b>	1	1	1	1	2	1	1	1	<b>9</b>

Item 1: Case definition is adequate.; Item 2: Representativeness of the cases; Item3: Selection of Controls; Item 4: Definition of Controls; Item 5: Comparability of cases and controls on the basis of the design or analysis; Item 6: Ascertainment of exposure; Item 7: Same method of ascertainment for cases and controls; Item 8: Non-Response rate.

**Table 3. Bias assessment of cohort studies using the newcastle-ottawa scale.**

Study	Selection				Comparability	Outcome			Score
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	
<b>Arnedo-Pena et al. (2014)</b>	1	1	1	1	1	1	1	1	<b>8</b>

Item 1: Representativeness of the exposed cohort; Item 2: Selection of the non-exposed cohort; Item 3: Ascertainment of exposure; Item 4: Demonstration that outcome of interest was not present at start of study; Item 5: Comparability of cohorts on the basis of the design or analysis; Item 6: Assessment of outcome; Item 7: Was follow-up long enough for outcomes to occur; Item 8: Adequacy of follow up of cohorts.