

[A: We have edited your letter to avoid repetition, enhance readability, reduce length, and achieve consistency with Lancet style.]

Challenges in estimating the prevalence of vitamin D deficiency in Africa

Author's reply

We thank Aiyong Cui and colleagues for their interest in our systematic review of vitamin D deficiency in Africa.¹ [A: Note that the errors described by Cui et al that were later found not to be errors are no longer mentioned in the latest revision of their letter, so I have also removed your reference to them here. I think this is best for keeping things as clear as possible for readers] Cui and colleagues identified three studies in which we mistakenly included the recruited number of participants rather than the number with vitamin D measurements (PMID 24605693, 30822819, and 31159206). Correcting these mistakes did not alter prevalence estimates in the revised meta-analyses. Cui and colleagues also identified data extraction errors for three studies, which ~~did~~ change prevalence estimates. In two studies, we mistakenly misclassified participant subgroups (PMID 30866564 and 26070223) ~~resulting in subgroup differences~~, and in a third study (PMID 30375272), we made an

error in extracting the prevalence of vitamin D deficiency, defined as 25-hydroxyvitamin D (25[OH]D) of less than 50 nmol/L, which resulted in minor changes to overall and subgroup estimates (table). [A: Could we add "In our initial study design..." or similar here to clarify ~~it~~ wasn't part of the correction?] we considered using 25(OH)D concentrations of 30–50 nmol/L, 50–75 nmol/L, and 75–150 nmol/L, as suggested by Cui colleagues, but few studies from Africa included these cutoffs.

We took the opportunity to repeat our searches and analyses and identified an additional study by Laird and colleagues² from the Seychelles, which was not included in our original publication. We have added estimates from that study, in addition to the corrections suggested by Cui and colleagues, to the final corrected manuscript.

After correcting our meta-analyses by addressing the errors highlighted by Cui and colleagues and adding the study by Laird and colleagues, the overall prevalence of vitamin D deficiency, as defined by 25(OH)D levels of less than 50 nmol/L, was revised from 34.22% to 34.18%; the prevalence as defined by 25(OH)D of less than 30 nmol/L

was revised from 18.46% to 17.31%; and the prevalence as defined by 25(OH)D of less than 75 nmol/L was revised from ~~XX to XX~~ [A: OK to add? Please add estimates] (table). Some prevalence estimates by subgroup, and the estimates of mean 25(OH)D concentration overall and in some subgroups, were also revised [A: OK to add? See queries in table, please add these changes for transparency] (table). The conclusions of our study remain unchanged after implementing these corrections.

I declare no competing interests [A: Correct to add?]

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- 1 Mogire RM, Mutua A, Kimita W, et al. Prevalence of vitamin D deficiency in Africa: a systematic review and meta-analysis. *Lancet Glob Health* 2020; **8**: e134–42.
- 2 Laird E, Thurston SW, van Wijngaarden E, et al. Maternal vitamin D status and the relationship with neonatal anthropometric and childhood neurodevelopmental outcomes: results from the Seychelles Child Development Nutrition Study. *Nutrients* 2017; **9**: 1235.

	Overall	Newborn babies	Children	Adults (non-pregnant)	Pregnant women
Prevalence of vitamin D deficiency by 25(OH)D cutoff, % (95% CI)					
<50 nmol/L					
Previous estimate	34.22 (26.22–42.68)	49.07 (24.88–73.49)	22.99 (12.03–36.14)	35.62 (24.56–47.50)	43.91 (15.14–75.07)
Revised estimate	34.18 (26.30–42.51)	49.07 (24.88–73.49)	25.38 (13.71–39.12)	33.96 (23.13–45.69)	43.50 (17.18–71.92)
<30 nmol/L					
Previous estimate	18.46 (10.66–27.78)	63.72 (9.20–100.00)	10.55 (3.25–21.14)	12.59 (4.83–23.16)	52.86 (5.90–96.64)
Revised estimate	17.31 (9.86–26.27)	63.72 (9.20–100.00)	10.55 (3.25–21.14)	12.58 (4.83–23.16)	33.29 (1.66–78.50)
<75 nmol/L					
Previous estimate	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)
Revised estimate	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)
Mean 25(OH)D concentration, nmol/L (95% CI)					
Previous estimate	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)
Revised estimate	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)	XX (XX–XX)
The revised meta-analyses incorporated three revisions to prevalence estimates for the <50 nmol/L 25(OH)D cutoff and one for the <30 nmol/L 25(OH)D cutoff. We found an additional study after repeating our literature search, which we included in the final revised meta-analyses. 25(OH)D=25-hydroxyvitamin D. [A: Note that we have removed the top section and just included the original and corrected data (including both Cui et al changes and the Laird study) for clarity. Please also add the previous and revised estimates for mean 25(OH)D concentration as all changes need to be mentioned]					
Table: Corrections to estimates of prevalence of vitamin D deficiency and mean 25(OH)D concentration					