Challenges in estimating the prevalence of vitamin D deficiency in Africa

We read with great interest the study by Reagan Mogire and colleagues[1] in *The Lancet Global Health* estimating the prevalence of vitamin D deficiency in Africa. Of 119 articles included in the meta-analysis, we are interested in 30 of them and have discovered data extraction errors that greatly affect the reliability of research results in 11 articles.

When estimating the prevalence of vitamin D deficiency with a cutoff of serum 25-hydroxyvitamin D (25[OH]D) less than 50 nmol/L in the subgroup of adults (non-pregnant), the study by Botros and colleagues[2] reported that the total number of women with vitamin D deficiency was 273, of whom 27 were pregnant women. However, the author extracted and used 273 to estimate the vitamin D deficiency in non-pregnant women. Similar errors occurred in other studies. For example, Bodin and colleagues[3] included preschool children as participants, but Mogire and colleagues used those data to estimate vitamin D deficiency in adults (non-pregnant). When estimating the prevalence of vitamin D deficiency with a cutoff of serum 25(OH)D concentration less than 50 nmol/L in the subgroup of children, the study by Poopedi and colleagues[4] reported that the number of people with vitamin D deficiency was 27 with a sample size of 385. However, Mogire and colleagues extracted data for 65 participants with a sample size of 295. The study by White and colleagues[5] had 84 participants, of whom 59 agreed to have their blood analysed for the vitamin D assessment, but Mogire and colleagues used 84 as the sample size to estimate vitamin D deficiency. When estimating the prevalence of vitamin D deficiency with a cutoff of serum 25(OH)D concentration less than 30 nmol/L in the subgroup of adults (non-pregnant), the sample size in the study by Gebreegziabher and colleagues[6] was 196, of which 29 participants were deficient in vitamin D, whereas the sample size extracted by the authors was 202, with 30 having vitamin D deficiency.

We respectfully thank Mogire and colleagues for providing us with this valuable work. Nevertheless, considering the large number of errors in extracting data, further corrections with more accurate data are warranted to elucidate the prevalence of vitamin D deficiency in Africa. Additionally, future meta-analyses to assess vitamin D levels in different ranges will be meaningful to understand vitamin D status (eg, <30 nmol/L, 30–50 nmol/L, >50 nmol/L, 50–75 nmol/L, >75 nmol/L, 75–150 nmol/L, and >150 nmol/L). Furthermore, to perform the meta-analyses more accurately, we should abide by the principle that at least two authors extract the data and check each other's work. In addition, some authors of the original articles should be selected as peer reviewers to find out whether the extracted data are accurate.

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