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Risk factors for vitamin A and vitamin D deficiencies in children younger than 5 years in the occupied Palestinian territory: a cross-sectional study

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Abstract

Background Vitamin A and vitamin D are essential for a child's growth and development. However, research on micronutrients in the occupied Palestinian territory is scarce. The aim of this study was to ascertain the prevalence and risk factors of vitamin A and vitamin D deficiencies in children living in the occupied Palestinian territory.

Methods The Palestinian Micronutrient Survey in 2013 measured concentrations of vitamin A in 1054 children (569 children in the West Bank and 485 children in the Gaza Strip) and vitamin D in 150 children (75 children in the West Bank and 75 children in the Gaza Strip). Risk factors for deficiency were assessed in children aged 6–59 months using χ^2 tests and logistic regression with each of the outcome variables of vitamin A and vitamin D deficiencies. A child was considered deficient if serum concentrations were less than 1.05 $\mu\text{mol/L}$ vitamin A or less than 50 nmol/L vitamin D. Multiple logistic regression models were developed to identify independent risk factors. Ethical approval was obtained from the London School of Hygiene & Tropical Medicine.

Findings 771 (73%) children in the survey had vitamin A deficiency, and 91 (61%) children had vitamin D deficiency. Compared with children living in the West Bank, children living in the Gaza Strip were more likely to be deficient in vitamin A (odds ratio 1.34, 95% CI 0.78–2.31) and vitamin D (1.96, 0.67–5.71). Vitamin A deficiency was 1.5 more likely in children with anaemia than in children who did not have anaemia (95% CI 1.08–2.10; $p=0.047$). Vitamin D deficiency was more common in children older than 1 years than in children aged 1 year or younger, and vitamin D deficiency was 2.72 times more likely in girls than in boys (95% CI 1.21–6.01; $p=0.037$).

Interpretation The study provides an initial assessment of the burden of vitamin A and vitamin D deficiencies in the occupied Palestinian territory. However, due to the small sample size, more robust research is needed. The observed low adherence to the full supplementation regimen warrants further research into methods of effective service delivery by health service providers.

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Contributors

AC completed this secondary analysis as a part of the Masters of Science requirement at the London School of Hygiene & Tropical Medicine, did the literature review, and formulated the main research question with the aid of SH. SH assisted AC with the methods of data analysis that involved data cleaning and manipulation stages, and initial bivariable and multivariable analyses. SH provided feedback on the development of the Abstract. NR and AR were members of the original study team and took part in the creation of the Palestinian Micronutrient Survey and data collection phases. All authors have seen and approved the final version of the Abstract for publication.

Declaration of interests

We declare no competing interests.

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