

Breast milk lead levels in 3 major regions of the West Bank of Palestine

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Abstract :

Background: Lead is a neurotoxic pollutant that is ubiquitously spread in our environment. Breast milk contaminated with lead poses potential risk of exposing recipient infant to lead.

Objectives: The primary aims of this study were to evaluate the breast milk lead levels (BMLLs) in breastfeeding mothers in three major regions of the West Bank of Palestine and to investigate the effects of some sociodemographic variables on the BMLLs.

Methods: Breast milk samples were collected from 89 breastfeeding mothers from Nablus, Ramallah and Jerusalem regions and analyzed for their BMLLs using graphite furnace atomic absorption spectrophotometry. Breastfeeding mothers were interviewed and responded to a sociodemographic questionnaire. Results: The median BMLL was 4.0 µg/L, ranging from 2.0 to 12.0 µg/L. BMLLs in 19.1% of the samples analyzed were higher than the World Health Organization's safety limits of 2.0 to 5.0 µg/L for occupationally unexposed population. BMLLs were significantly higher in breast milk of mothers who lived in cities and refugee camps ($p < 0.01$), had lower monthly household income level ($p < 0.05$), lived close to paint shops ($p < 0.05$), lived in houses with peeling or chipping paint ($p < 0.05$), used eye kohl ($p < 0.01$), and worked in agriculture for a duration longer than 3 years ($p < 0.01$).

Conclusions: BMLLs were higher than the safety limits for occupationally unexposed populations. Authorities need to implement measures to eliminate or reduce lead exposure, especially in refugee camps and cities. Marketed eye kohl preparations should be tested for their lead contents.

Key words: Breast milk; environmental; exposure; lead; Palestine