

An-Najah National University
Faculty of Medicine and Health Sciences



GRADUATION PROJECT

**Assessing Lithium levels in breast milk of Lactating women:
A cross-sectional study in the West Bank of Palestine.**

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Abstract

Background: All organs and tissues contain lithium. Grain and vegetables, as well as animal-derived foods, are the primary dietary sources of lithium. Lithium can be found in drinking water in some areas. Breast milk contaminated with lithium poses a risk of exposing the recipient infant to lithium, which has been linked to significant growth, developmental, and psychopathological issues.

Objectives: The primary goals of this study were to assess the level of lithium in lactating mothers' breast milk in the West Bank of Palestine, as well as the associations between various sociodemographic, occupational, supplementary, medical, and dietary variables of the lactating mothers and lithium levels in their breast milk.

Methods: 160 breast-feeding mothers from various regions of the West Bank donated breast milk samples, which were then tested for lithium levels using graphite furnace atomic absorption spectrophotometry. Breastfeeding mothers agreed to participate after providing informed consent and were then interviewed to complete a questionnaire.

Results: The median breast milk lithium level was 0.006 mEq/L, ranging from 0.0053 to 0.0064 mEq/L. Breast milk lithium levels were associated with a significant increase in breastfeeding women whose nature of husband's job is white collar (p-value = 0.004), consume fish frequently (p-value = 0.005) and consume canned food (p-value = 0.001).

Conclusion: Lithium is a non-essential and potentially toxic metal, so a multidisciplinary actions and policies have to establish measures to eliminate or reduce lithium exposure by measuring water quality and lithium levels in it, reducing water pollution, testing animal's food for a potential contamination with lithium, and educating the public about health risk of canned food and to use vitamin C supplements with caution.

Keywords

Breastfeeding, Breast milk, Environmental, Dietary, Lithium, Water, Palestine.