

Exposure to Heavy Metals among Women, Neonates and Young Children in Bangladesh, Japan, and Pakistan: Food Duplicate Risk Assessment Study (Pakistan Component)

Department: Community Health Sciences

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Summary:

Metals and elements in food are of interest because of their potential for effects on human health. Some are known to be harmful to health. Malnutrition including under and over nutrition is an enormous public health problem worldwide, particularly for developing countries. Malnutrition has several level of determinants from food production and agriculture to availability, cost and access to food, and also most importantly the choice and preparation/cooking of food. All of these factors lead to differential distribution of calorie intake, macro and micronutrient availability in the food. Therefore, it is imperative to know the calorie intake, macronutrients distribution and its proportion in the local cuisine. Food frequency questionnaires (FFQ) are often used to determine the calories, macro and micronutrients in the food, based on recall. However, FFQ is subjective in nature and has its limitation in nutritional assessment. Even if the food types, amount and frequency is reliably recalled, the processing (cooking) of food itself make changes which are beyond assessment by FFQ and food basket surveys. Therefore, it is important to have an objective assessment of calorie intake, especially for breastfeeding women and young children. The information will not only do the objective assessment of intake of calories, among breastfeeding women and children in Pakistan but provide intervention options for improving nutritional status for the most vulnerable and important population subgroup where the burden of malnutrition is the largest. Lead levels in environment and exposure is steadily decreasing in Pakistan. However, it is still very high from the health standards.

Objectives:

1. To determine the total exposure of arsenic and lead among children, newborn and women in urban and rural population of Pakistan.
2. To determine the food groups and daily intake of calories by urban, rural child and breastfeeding mother.
3. To validate the food frequency questionnaire with the food group eaten by urban and rural population.
4. To determine the biomarker of effects