

Dietary intake of breastfeeding Khmer mothers in Cambodia are highly inadequate: novel image- and voice-based dietary assessment.

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Despite recent economic improvements, Cambodian women of reproductive age carry the triple burden of malnutrition. Both underweight (14%) and overweight (18%) coexist with anaemia (44%), and other micronutrient deficiencies such as folic acid (19%),⁽¹⁾ with differences in nutritional status thought to be worse with rural versus urban Cambodian population samples.⁽¹⁾ Only three studies have collected individual-level, whole diet intakes from Khmer women living in Cambodia, and none have compared rural and urban localities or assessed diets of breastfeeding mothers.⁽²⁾ The current study aimed to determine the nutritional adequacy of dietary intakes of Cambodian mothers, by breastfeeding status in rural, semi-rural and urban localities. Dietary assessment was conducted using image-voice two x three-day food records (up to 6 non-consecutive days total) captured on a smartphone application. Participants were mothers recruited from rural, semi-rural and urban locations in Siem Reap province, Cambodia in 2019–2020. Demographic and anthropometric data were collected, then mothers were trained to use the app to collect intake. Data were analysed by Dietitians using a semi-automated process in a web platform using a tailored food composition database of Cambodian foods and mixed dishes. Adequate intake was determined by proportion of participants over the Estimated Average Requirement.⁽³⁾ Data were analysed for 119 participants, of whom 58% were breastfeeding. for each nutrient. Protein, carbohydrate, vitamin B12, iron, phosphorus and sodium were adequate for over 65% of mothers. Less than 10% of mothers were consuming adequate vitamin A, vitamin C, thiamine, calcium, zinc and potassium. Median intakes for energy (1510 kcal and 1117 kcal respectively, $p = 0.009$) and all nutrients except fat and vitamin C were significantly higher for breastfeeding compared to non-breastfeeding mothers, but higher requirements meant that a lower proportion of breastfeeding mothers had adequate intakes of protein, carbohydrate, vitamin A, thiamine and zinc. Differences between rural, semi-rural and urban localities included higher intake of carbohydrate, dietary fibre and calcium by rural mothers and a lower proportion of urban mothers with adequate folate intakes. The very low percentage of breastfeeding mothers with adequate intakes of vitamin A, thiamine, calcium and zinc is inconsistent with low deficiency rates that have been reported for Cambodian women. Conversely, the 84% of breastfeeding women reporting adequate iron intakes contrasts with high anaemia prevalence of 55% for breastfeeding women in Cambodia.⁽¹⁾ These findings support recent Cambodian research suggesting that anaemia is multifactorial.⁽⁴⁾ Data from this novel image-voice dietary assessment suggest that the dietary intake of Cambodian mothers is nutritionally inadequate, which is consistent with previous research. Validation of this method may facilitate improved dietary assessment to inform appropriate nutritional interventions and policies in Cambodia to improve health outcomes.

References

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