

Micronutrient Deficiency in Children Under Five in Laos And Lesson Learned from a Clinical Case-Control Study

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Introduction

- Micronutrient deficiency is the leading cause of preventable illness in children; an underlying cause for nearly one-fourth of global child mortality associated with measles, diarrhea, and malaria.
- Vitamin A deficiency causes visual impairments, and iron deficiency causes anemia in children.
- With limited literature available in Laos, we aim to develop a tool to determine the factors associated with micronutrient deficiency among children under five years in Lao PDR.
- Specifically, this study examines feeding and maternal factors associated with micronutrient deficiency, using case-control design in clinical setting.

Methods

Matched Case-Control Design

- Cases: Child (6-59 months) with a sign of vit-A deficiency, such as corneal-scar/ulcer, Bitot's spot &/or night blindness.
- And/or suspected Iron deficiency based on Hb < 11g/dL & Mentzer index of > 13 (MCV/RBC)
- Control selection: Child without such signs
- Matching: Sex and Age of child (± 3 months)
- Respondents: Mothers of children
- Key independent variables: Mothers' practice on diverse feeding, knowledge, food literacy and father support in child feeding.
- Study site: 1 provincial and two central hospitals
- IRB approved by UHS Research Ethics Committee, N-. 379/REC
- Data collection: Jan 15-ongoing, 2023

Tool Validation

- Content expert validation
- Pretest: 27 cases vs 27 controls
- Retest: 18 cases vs 18 controls

Results

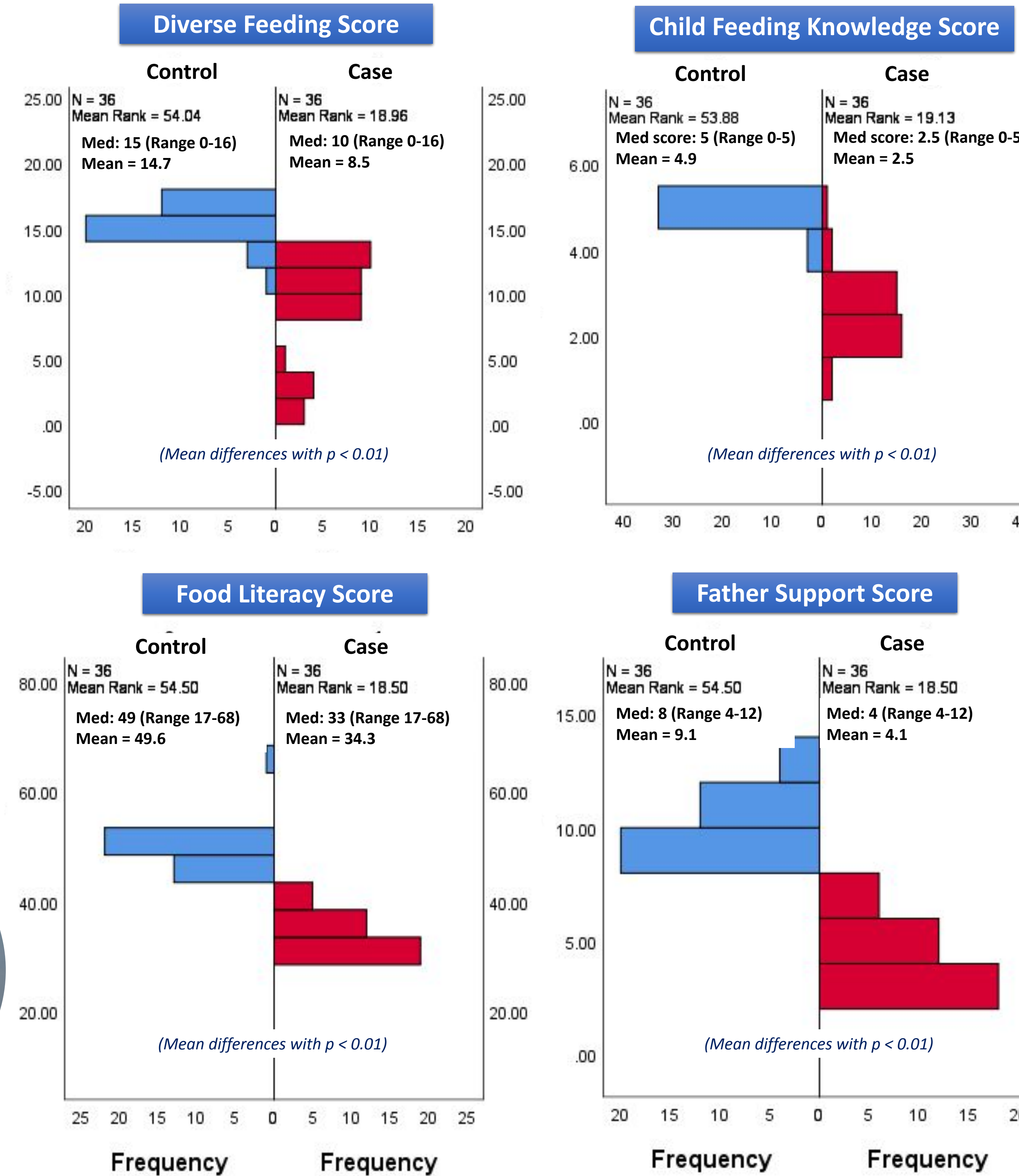
Tool Validation Results

Tested variables	Pretesting result	Retesting result
Child feeding practice within one week before illness (16 items)	Response bias (Likert scales)	Alpha: 0.836 (adapted to Yes/No question)
Knowledge on child feeding (Yes/No questions)	Alpha: 0.646 (13 items)	Alpha: 0.519 (5 items)
Food Literacy (Likert scale)	Alpha: 0.971 (25 items)	Alpha: 0.956 (17 items)
Child eating habits**	Incomplete	(cut-off)

** Healthy and unhealthy food that mothers observed what their children like to eat in ordinary day.



Preliminary Results (36 cases; 36 controls)



Lesson Learned

- Diverse food feeding, maternal knowledge and food literacy on child feeding, and father support are critical drivers for better health of children to be free of micronutrient deficiency.
- All cases in the current study were in the criteria of suspected iron deficiency anemia.
- Cases of sub-clinical signs of vitamin A deficiency were scarce.
- Data collection of such a study in a clinical setting requires a more extended period of time than in the community as to find the case and its matched control.
- Recruiting fathers seemed complex, future studies in the *community* might need to recruit.
- Finding cases was difficult, but finding their matched controls was even more difficult.

The mean scores of diverse food on child feeding, mothers' food literacy, child feeding knowledge and father support on child feeding were found to be significantly higher among mothers of the control group than mothers of case group.

Conclusion

The questionnaire of the current study was well developed and adequately used to measure the diverse food feeding, maternal knowledge and food literacy on child feeding, and father support.

Future intervention should focus on enhancing the diverse food feeding, maternal knowledge and food literacy on child feeding, and father support on food sourcing, preparing, and feeding for children.

Study sites should be extended for more sufficient and wider samples with different characteristics; as the current study sites might tend to represent the in-town-population service facility.

What to do next !

Acknowledgements

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References

A study by SRG-ANRCB entitled "Micronutrient deficiency among children under five years in Vientiane, Lao PDR: A Case-Control Study" by the UHS research team of Viengnakhone Vongxay, Phonevilay Santisouk, Vilamon Chanthaleuxay and Kokasia Nengmongvang. Supervisor: Dr. Vanphanom Sychareun; Mentor: Ramya Abikapathi