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Maternal dietary intake of omega-3 polyunsaturated fatty acids and risk of infant maltreatment: Results from the Japan Environment and Children's Study

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1. Conclusions

- **Higher maternal intake of omega-3 PUFAs during pregnancy was associated with fewer cases of hitting, violent shaking, and leaving the baby alone at home, implying a lower risk of infant abuse or neglect.**
- **The finding suggests the potential applicability of omega-3 PUFAs in reducing child maltreatment.**

2. Introduction

- Over 300 million young children worldwide are regularly subjected to maltreatment (i.e., abuse and neglect) by their caregivers.
- Meta-analyses and literature reviews have shown that omega-3 PUFA intake is effective for reducing violent and aggressive behaviors.
- However, no large-scale studies to date have examined these favorable effects of PUFAs in the context of child maltreatment.
- Therefore, we used data obtained from the Japan Environment and Children's Study (JECS), an ongoing nationwide epidemiological study, to examine the association between maternal intake of omega-3 PUFAs during pregnancy and the risk of infant maltreatment.

3. Methods

Participants

- A total of 92,191 mother–infant pairs enrolled in the JECS.

Exposure

- Omega-3 PUFA intake during pregnancy, which was measured using the Food Frequency Questionnaire, which includes over 170 food and beverage items.

Outcomes

- **Mother's answers to the following questions**
  - "Hitting the baby" (at 1 month postpartum)
  - "Shaking the baby very hard when they cry" (at 6 months postpartum)
  - "Leaving the baby alone at home" (at 1 month postpartum)

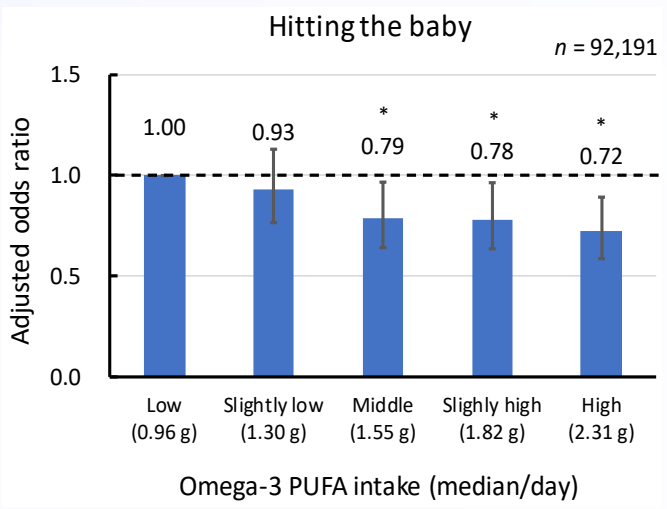
Covariates

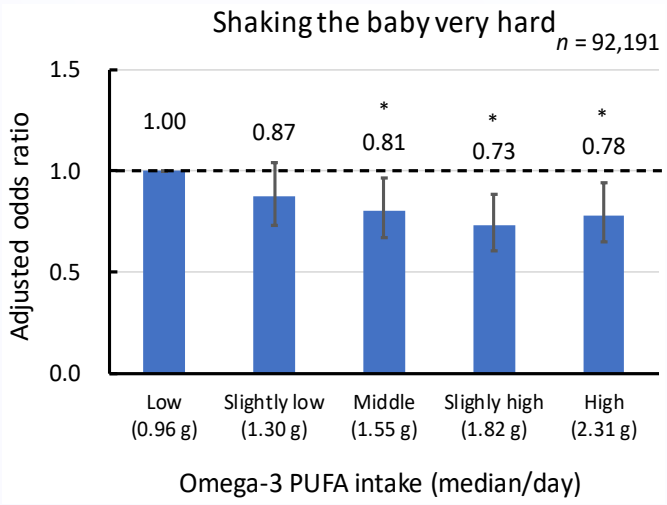
- A total of 16 of carefully selected, pre-determined potential confounders.

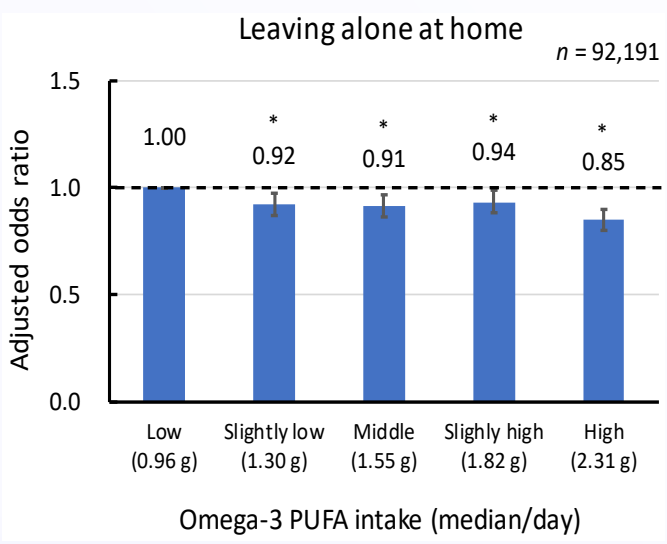
Analysis

- Calculation of adjusted odds ratios using a combination of inverse probability weighting and marginal structural models with the lowest quintile of intake as reference.
- Multiple imputation for missing values, inverse probability of censoring weighting for loss to follow-up.

4. Results







*Adjusted for maternal age, pre-pregnancy body mass index, highest education level, full-time work, annual household income, smoking status, alcohol intake, parity, marital status, living with mother's parents, living with partner's parents, stressful events, intimate partner violence, negative attitude toward pregnancy, history of depression, anxiety disorder, dysautonomia, or schizophrenia, and psychological distress.

5. References

- Matsumura, Hamazaki, Tsuchida, Inadera, the JECS Group. 2023, ***Psychological Medicine***, 53(3), 995–1004. https://doi.org/10.1017/S0033291721002427

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