

A systematic review of parents' knowledge of, and compliance with, recommendations for vitamin D supplementation in young Irish children

Omid Eslami PhD Student, Dr Áine O'Connor Lead Supervisor & Dr Geraldine Cuskelly Co-supervisor

The SHE Research Group, Department of Sport & Health Sciences



<https://orcid.org/0000-0001-5859-2326>

Introduction

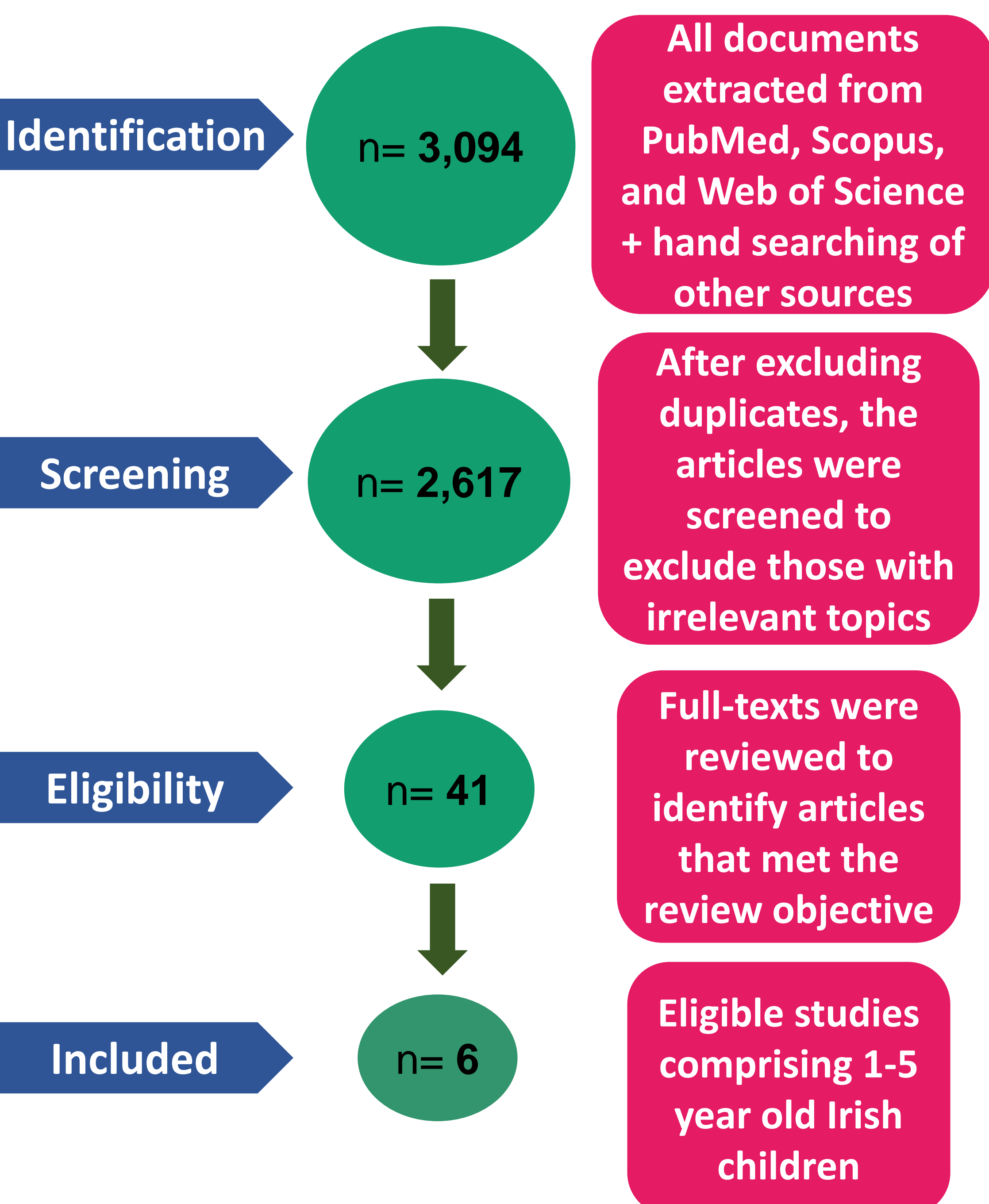
- Almost 5 % to 13 % of young children aged 1-5-year-old have vitamin D deficiency.^[1,2]
- Vitamin D deficiency in young children is associated with impaired bone growth, and the skeletal disorder rickets in severe vitamin D deficiency.^[3]
- The US Institute of Medicine (IOM) recommends at least 10 µg/day vitamin D from food sources and supplements ^[4]
- The Food Safety Authority of Ireland (FSAI) recommends vitamin D-only supplements: ^[5,6]
 - **0-12 month-old:** 5 µg/day for breastfed infants and those consuming formula < 300 mL/day.
 - **1-5 year-old:** 5 µg/day from Halloween to St Patrick's Day during the extended winter months.

Objective

- To summarise current evidence on parents' knowledge of, and compliance with, vitamin D supplementation recommendations for young children aged 1-to-5-year-old in Ireland.

Methodology

Fig 1. PRISMA flow diagram for literature search and selection



Results

1 Parents' knowledge

- Approximately 40 % of parents are aware of the FSAI 1-5 year old supplementation recommendations ^[7]

2 Parents' compliance with the FSAI supplementation recommendations

- 23 % - 34 % of parents comply with the FSAI supplementation recommendations for children under 5 years of age ^[7-9]
- By one year of age, over 70 % of parents do not fully comply with the recommendation **(Fig 2)** ^[8,9]

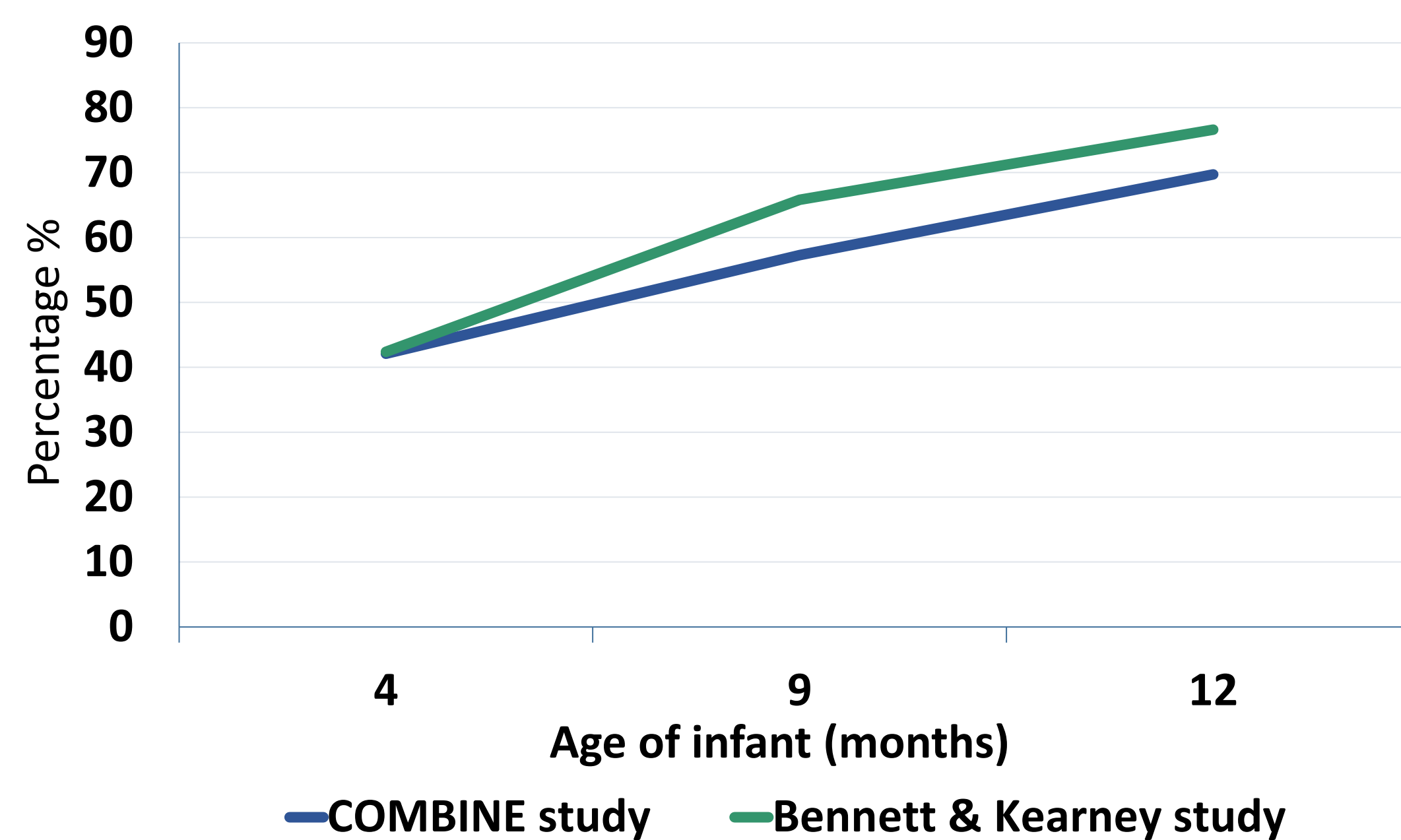


Fig 2. The proportion of infants not receiving a daily 5 µg of vitamin D during the first year of life ^[8,9]

3 Parents' compliance with the IOM recommendation

- Over 90 % of young children have an inadequate vitamin D intake from both foods and supplements (< 10 µg/day) **(Fig 3)** ^[1,2,10]

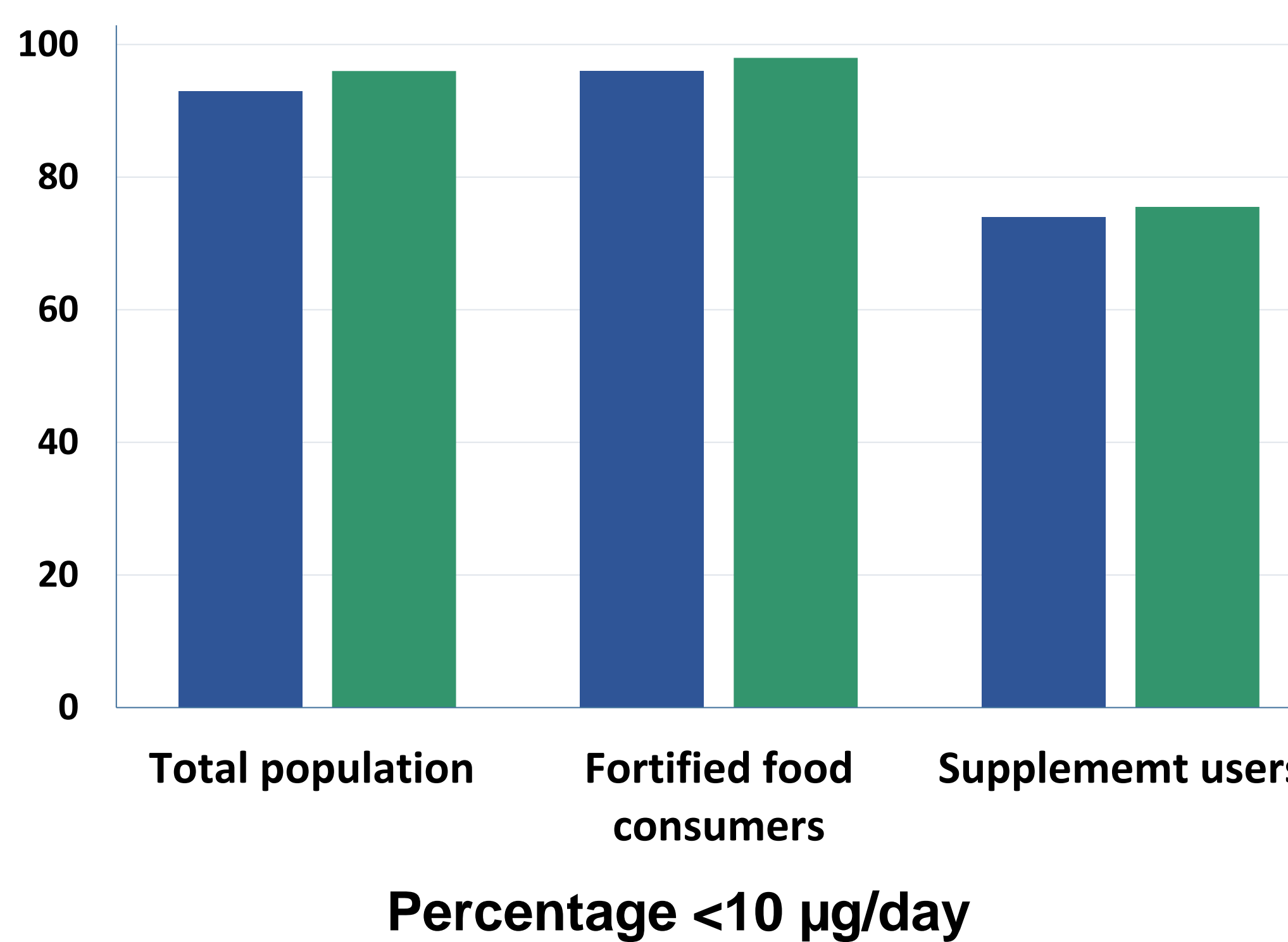


Fig 3. The proportion of young children with inadequate vitamin D intake in **■** The National Preschool Nutrition Survey ^[10] and **■** The Cork BASELINE Birth Cohort ^[1]

Discussion

- A decreasing trend in the supplement adherence rate by the beginning of toddlerhood may be attributed to the changes in parents' attitudes towards supplementation.
- A high prevalence of inadequate vitamin D intake among fortified food and supplement users may reflect poor parents' knowledge of the recommendations.
- There is a lack of evidence on the parents' knowledge of, and adherence to the supplementation in Irish preschoolers (aged 4-5-years)

Conclusion

- Overall, Irish parents have a low awareness of, and poor compliance with, vitamin D supplementation.
- Current eating patterns do not preclude the need for supplementation in this cohort.

Future Direction

- The second phase of the project will explore parents' knowledge, attitude and practices of vitamin D and current recommendation guidelines, using a mixed-methods design, to better understand factors which help adherence to vitamin D supplementation policy.

Acknowledgments

This work was funded by the TUS: Midlands Midwest President's Doctoral Scholarship 2021

References

- [1] Ní Chaoimh C, et al. (2018) Eur J Nutr. 57(2):783-94.
- [2] McVey MK, et al. (2019) J Steroid Biochem Mol Biol. 188:111-16.
- [3] Taylor SN. (2020) Ann Nutr Metab. 76:30-41.
- [4] Institute of Medicine (US) Committee to Review Dietary Reference Intakes for Vitamin D and Calcium. (2011) Available from: www.ncbi.nlm.nih.gov/books/NBK56056
- [5] FSAI report (2020), Available from: www.fsai.ie/Recommendations_Update_VitaminD
- [6] FSAI report (2020) Available from: www.fsai.ie/Dietary_Recommendations_1-5_Year_Olds
- [7] Haydon L, et al. (2021). Proc Nutr Soc. 80(OCE3), E117.
- [8] Hemmingway A, et al (2021). Eur J Nutr. 60(3):1337-45.
- [9] Bennett, A.E., & Kearney, J.M. (2018). Journal of Public Health, 26(5): 577-83
- [10] Hennessy Á, et al. (2017) Eur J Nutr. 56(3):1219-31.

