Diet quality and parental concern about diet adequacy in children with cerebral palsy at school entry age

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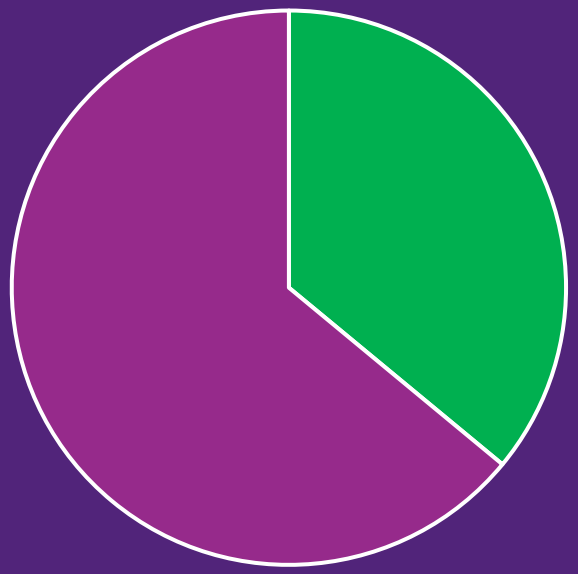
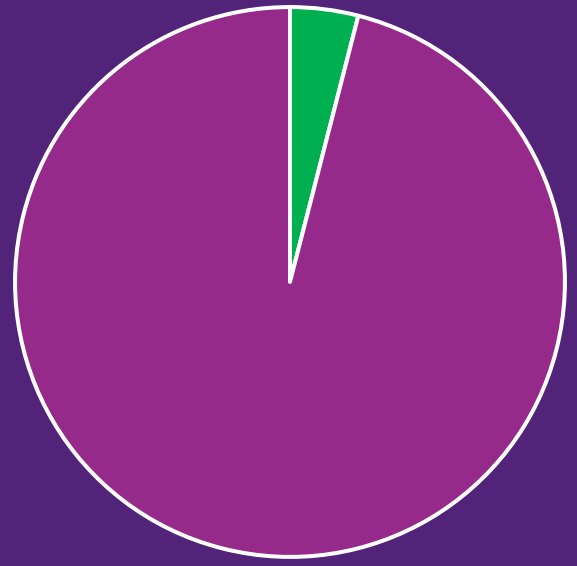
Australian children's diet quality

Fruit



- Enough fruit
- Not enough fruit

Vegetables



- Enough vegetables
- Not enough vegetables

Methods

Children who were identified as high risk of CP in infancy and participated early intervention were assessed between 4 and 6 years:

- Diagnosis:
  - Cerebral palsy or not (No-CP)
- Classification:
  - Gross Motor Function Classification Measure System (GMFCS)
  - Eating and Drinking Ability Classification System (EDACS)
- Diet quality:
  - Validated parent-reported Australian Recommended Food Score (ARFS)
- Analysis:
  - Parent concern: "How frequently do you worry that your child isn't eating enough to support growth?" → "Almost never"/ "A little bit"/ "Often-to-almost always"
  - Gross motor function: No CP diagnosis vs. GMFCS I-II or GMFCS III-V
  - Eating/ drinking ability: No CP diagnosis vs. EDACS I-II or III-IV
    (EDACS V: tube fed, excluded from analyses

Eating and Drinking Ability Classification System (EDACS)

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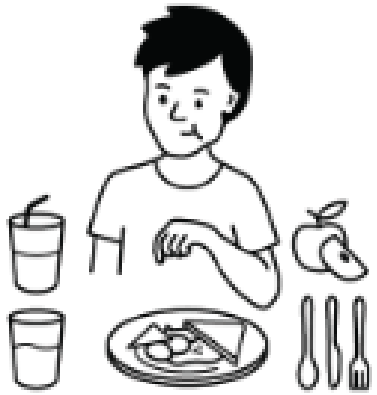
Eating and Drinking Ability Classification System from 3 years: descriptors and illustrations

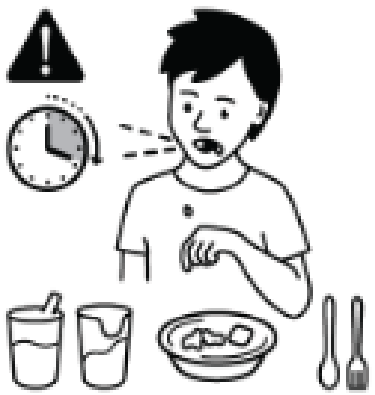


Level I

Eats and drinks safely and efficiently.

Level II

Eats and drinks safely but with some limitations to efficiency.



Level III

Eats and drinks with some limitations to safety; there may be limitations to efficiency.

Level IV

Eats and drinks with significant limitations to safety.

Level V

Unable to eat or drink safely – tube feeding may be considered to provide nutrition.

Sellers, D., Mandy, A., Pennington, L., Hankins, M. and Morris, C. (2014), Development and reliability of a system to classify the eating and drinking ability of people with cerebral palsy. Dev Med Child Neurol, 56: 245-251. https://doi.org/10.1111/dmcn.12352

Australian Recommended Food Score (ARFS)

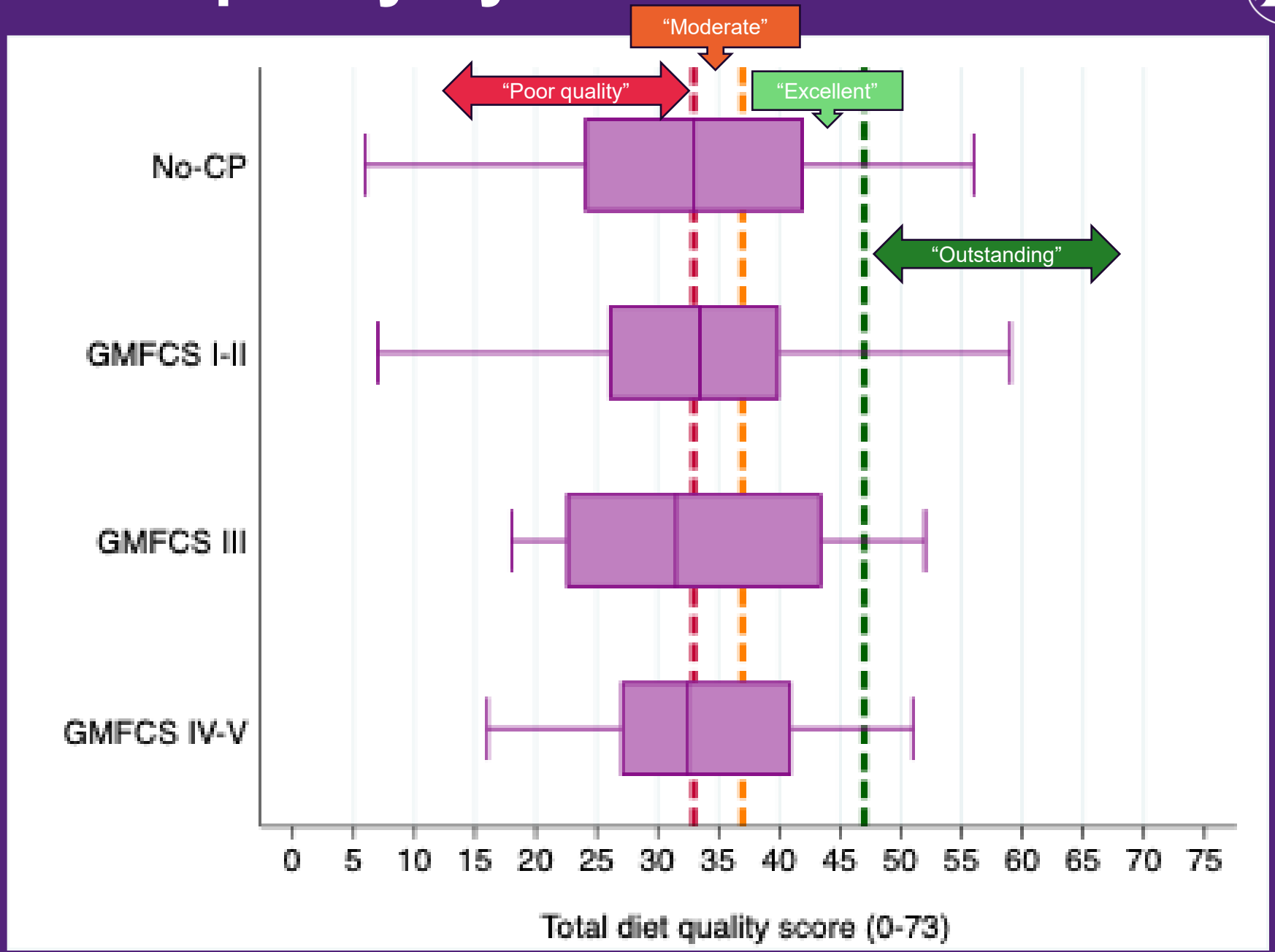
A measure of the ***frequency*** and ***variety*** consumed of core food groups:

- Vegetables (19 types)
- Fruits (10 types)
- Grains (10 types)
- Animal proteins (6 types)
- Vegetarian protein sources (5 types)
- Dairy/ vegan alternatives (8 types)
- Water

Participant characteristics

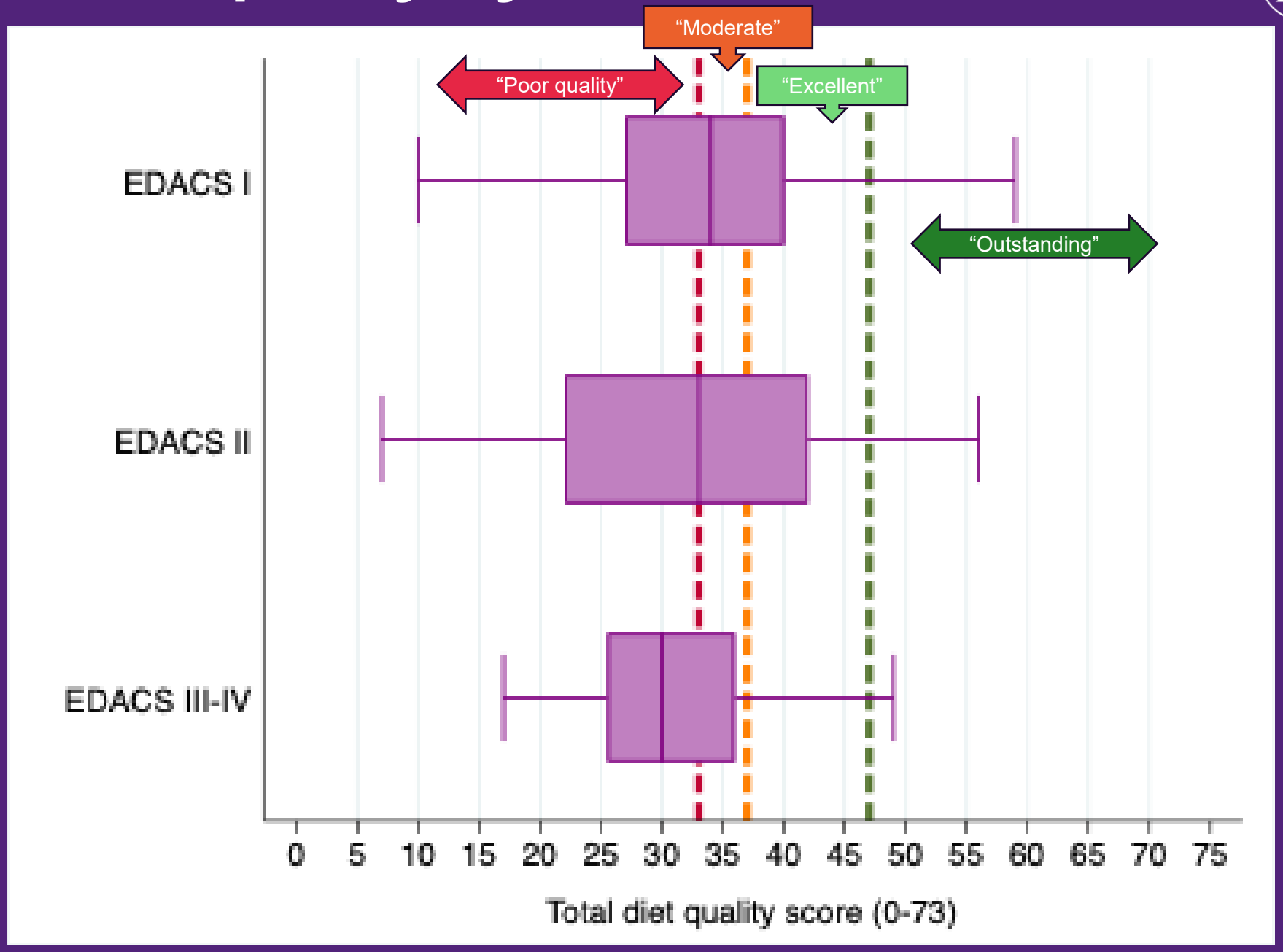
	Total, n=148
Age, years, mean (SD)	4.9 (0.5)
Sex, girls, n (%)	73 (49%)
No CP diagnosis, n (%)	41 (28%)
Gross Motor Function Classification System	
GMFCS I-II	88 (82)
GMFCS III	8 (7)
GMFCS IV-V	12 (11)
Eating and Drinking Ability Classification System (missing, n=11, 7%)	
EDACS I	79 (53)
EDACS II	46 (31)
EDACS III-IV	13 (8)

Diet quality by GMFCS



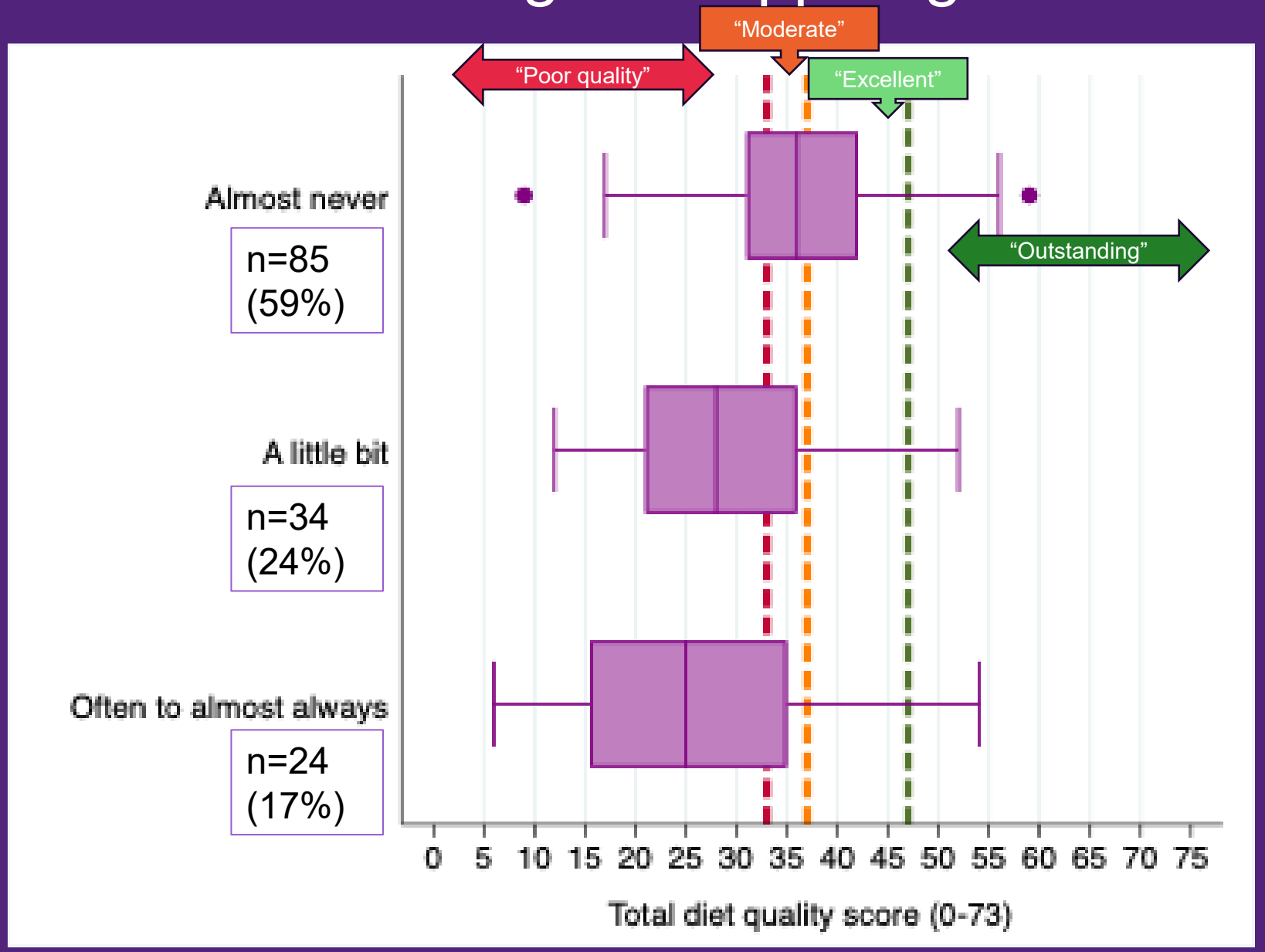
No significant difference in scores between groups (Kruskal Wallis test, $p>0.05$).

Diet quality by EDACS



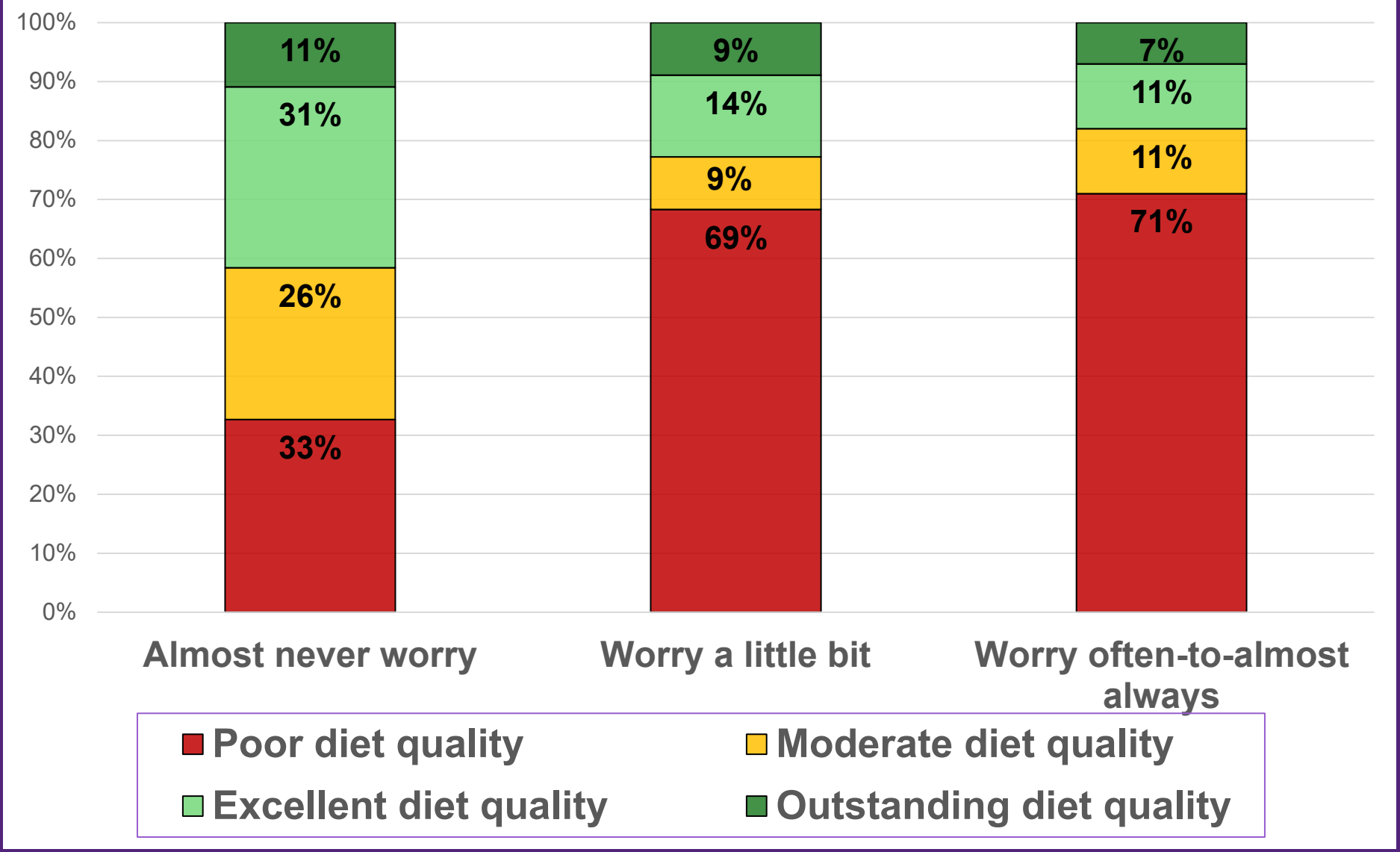
No significant difference in scores between groups (Kruskal Wallis test, $p>0.05$).

“How often do you worry that your child doesn’t eat enough to support growth?”



Significant difference in scores between groups (Kruskal Wallis test, $p<0.05$).

Diet quality classification



Significant difference in diet quality categorization between groups (Chi square test, $p<0.05$).

Summary

Overall, our sample of children had a similar diet quality to children with typical development of similar age (4-6 years).

~ 30% had excellent-to-outstanding diet quality

~ 50% had poor diet quality

~ 40% of parents worried at least “a little bit” about the adequacy of their child’s diet

Discussion

- Significant scope for improving diet quality in preschool aged children

- Very limited evidence of ANY effective approaches to increase diet quality in preschool aged children (>80 trials included in Cochrane review)[1]

- Early intervention may be key:
  - Food preferences and eating habits
  - Diet quality tracks:
    early childhood → adolescence → adulthood

[1] Hodder et al (2020) Interventions for increasing fruit and vegetable consumption in children 5 years and under, Cochrane Database Systematic Review, 5 (5)

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