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Does self-perceived oral health status have an impact on nutrient intake amongst adults at a high risk of cardiovascular disease in Northern Ireland?

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Data from the randomised controlled trial PREDIMED observed a significant reduction in the incidence of T2DM and CVD, the leading causes of death worldwide, in response to adoption of a Mediterranean style diet (MD)[1,2]. Oral health status has been shown to impact dietary choice and nutritional status; older adults who wear dentures or have fewer natural teeth present tend to consume poor quality diets which are low in fibre and protein, and high in complex carbohydrates and calories[3]. The aim of this preliminary analysis is to analyse baseline data from a 12-month pilot cluster randomised study evaluating a peer support MD intervention in Northern Ireland (NI), to investigate whether self-perceived oral health status has an impact on nutrient intake.

Participants in NI were eligible to participate if they were within a community group, were aged ≥40 years, had a Mediterranean Diet Score ≤5 and had at least one cardiovascular disease risk factor, which included having Type 2 Diabetes Mellitus and not being on any medication, being a current smoker and having hypertension (high BP) systolic BP > = 140 or diastolic >= 90mmHg. Dietary data from 4-day food diaries collected from these participants (n = 31, female n = 22 (71%), mean age 59·5y) were entered into Nutritics and analysed using SPSS v22. Mean intake of energy and macro- and micronutrients were calculated, and ANOVAs were conducted to investigate whether mean daily intake of the nutrients differed between individuals with different self-perceived oral health status, assessed via questionnaire, at baseline.

Significant differences in mean intake of total fat (g/day), energy (kcal/day) and MUFA (g/day) were observed (p values from ANOVA p = 0·04, p = 0·03 and p = 0·03 respectively) between the three self-perceived oral health groups (excellent or very good n = 12, good n = 8, fair or poor n = 11); with post-hoc analysis demonstrating that the intake of total fat, energy and MUFA of those with fair or poor oral health were significantly higher than those with good oral health (p values from Bonferroni analysis p = 0·03, p = 0·04, p = 0·02 respectively). No significant differences were observed between those individuals with excellent or very good oral health and those with either good or fair or poor oral health (p values from Bonferroni analysis p > 0·05).

| | Self-reported Oral Health Status | | | | | | |
| | Excellent or Very Good (n = 12) | | Good (n = 8) | | Fair or Poor (n = 11) | | |
Mean Daily Energy and Nutrient Intakes	Mean	SD	Mean	SD	Mean	SD	p value
Energy (kcal)	1731·67	578·65	1504·36[a]	443·70	2181·34	562·86	0·03
Carbohydrate (g)	195·61	66·46	182·05	46·51	229·74	60·46	0·21
Fat (g)	73·26	31·36	54·07[a]	24·01	90·03	27·95	0·04
Protein (g)	67·04	15·51	62·32	16·78	81·29	21·41	0·07
MUFA (g)	25·05	9·62	18·50[a]	8·59	31·57	10·59	0·03
EPA (g)	1·42	1·84	3·65	3·82	4·18	3·57	0·40
DHA (g)	1·80	2·16	3·33	3·07	2·97	2·70	0·96
Carotene (ug)	1842·95	1277·37	2643·24	1812·51	2462·77	2685·23	0·64
Vitamin C (mg)	55·20	39·61	86·63	44·54	66·92	51·54	0·33

P value obtained from One-way Analysis of Variance, [a] p < 0·05 analysed using One-way analysis of variance with Bonferroni correction for comparison of the good oral health status with the fair or poor oral health status groups.

These results highlight differences in nutrient intake according to oral health status. The next stage of this research is to explore oral health status as a predictor of response to the MD intervention. This information can then be used to effectively develop and tailor future dietary interventions, whilst taking account of oral health status, amongst this population group.

1. World Health Organisation, (WHO) (2007).
2. Estruch R *et al.* (2013) *NEJM* **368**, 1279–90.
3. Moynihan PJ *et al.* (2007) *J. Hum. Nutr. Diet* **20**, 446–458.