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Characterising UK adolescents' dietary intake by taste: links to dietary patterns and diet quality

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The taste of foods is a key factor in adolescents' food choices and intake[(1)] Adolescents' diets are often reported to be high in sugar, salt and fat[(2)] which are widely used to enrich the taste of foods[(3)]. Whilst studies on specific aspects of taste have been conducted, evaluation of how tastes contribute to overall diet is limited. Thus, the aim of this work is to (i) characterise and generate UK adolescents' taste patterns and (ii) examine the association between taste patterns and overall diet quality. The National Diet and Nutrition Survey 2016/17 (NDNS) was used for the present analysis, with more than 1700 different foods were grouped into a list of 184 foods. The list was included in an online survey circulated to 209 adults aged +18 to characterise the food tastes. Results were entered into Hierarchical Cluster Analysis (HCA) which grouped foods into six taste clusters (sweet, salty, sour, bitter, savoury and neutral) that allocated to all the foods consumed by 284 adolescents (10–19 years old) in the NDNS. To generate informative taste patterns, foods under each taste were grouped into sub-taste foods groups. For example, foods under salty taste were grouped as cheese, bread, snacks, and processed meats. Then, the weight of foods was entered into Principal Components Analysis (PCA) to generate dietary taste patterns. Finally, to calculate the diet quality score, Diet Quality Index for Adolescents (DQI-A) [(6)] was used. The online survey demonstrated that the majority of foods in the NDNS are considered sweet tasting (40%), followed by neutral (27%), savoury (20%), salty (7%), bitter (4%), and sour (2%). The PCA identified five dietary taste patterns labelled: 'Salad- bar' which is a combination of savoury-sour-salty-bitter foods, 'Side-dish' consisting of mainly neutral- tasting foods, 'Takeaway-meal' is a combination of savoury-sweet foods, 'Sweet-snack' consisting of mainly sweet-tasting foods and 'Beverages' consists of a combination of sweet-bitter beverages. The overall diet quality score was 19.4% (95%CI 17.4, 21.4). 'Side-dish' taste pattern was positively associated with the diet quality 2.0% (95%CI 1.0, 3.1) while the 'Sweet-snack' taste pattern was negatively associated with the diet quality -4.4% (95%CI -5.6, -3.1). Adolescents' dietary intakes could be driven by their taste preferences affecting the quality of their diet. The taste patterns identified reflect adolescents' eating habits. Taste pattern that is relatively low in sugar, salt and fat showed better diet quality. Understanding the dietary taste patterns of this age group could help design interventions teaching them to make healthier food choices that satisfy their taste preferences.

References

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