

Dietary salt monitor – a novel nutrition education intervention for reducing salt intake in Type 2 Diabetes

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The risk of cardiovascular morbidity and mortality increases markedly in type 2 diabetes, owing to the higher prevalence rates of hypertension^(1,2). The role of dietary salt intake has been well established in the prevention as well as management of high blood pressure⁽³⁾. However, there is paucity of interventions and education programmes aimed at lowering dietary salt intake in population with type 2 diabetes. This research study was aimed at the development, validation, and implementation of a novel dietary salt monitor. A 24h dietary recall using multiple pass recall method was obtained from the participants with type 2 diabetes and concomitant hypertension (n = 50), attending outpatient diabetic foot clinic at NHS hospital in Basildon, Essex. This dietary information was further analysed for development of a short food frequency questionnaire, namely dietary salt monitor. This novel dietary tool was validated against the gold standard - 24h urinary sodium excretion method since dietary assessment methods are subjected to measurement errors related to recall bias, misreporting and lack of updated food composition databases⁽⁴⁾. The study design included collection of 24h urine samples for two days from university students. The effectiveness of dietary salt monitor was pilot tested in an online nutrition education intervention, where type 2 diabetes participants (n = 22) were recruited from various online platforms including the Diabetes UK website. The top ten contributors of salt were identified as bread and rolls, processed meats, added salt, ready meals, meat dishes, spreading fats, canned beans, soups, cheese, and sandwiches. A total of 23 food categories were shortlisted for the food frequency questionnaire component of the dietary salt monitor, and these categories were finalised based on the factors as salt density, contribution of salt to the diet, non-achievement of Public Health England's 2017 salt targets, food categories unrecognized as high in salt by consumers, sustainability, change in cooking practices during COVID-19 and overall nutritional composition of the food category. The Bland and Altman method for agreement between dietary salt monitor and urinary sodium excretion method suggested a bias of 1.5g/d (upper LOA 7.68 and lower LOA -4.72, n = 9). This dietary salt monitor was further integrated in a web form and supported by a short educational video highlighting the salt content of the food categories and key strategies as 4'R's - Reducing portion, Reducing frequent intake, Reduced salt food, Read nutrition label, for lowering salt intake. This short-term intervention study (6 weeks) resulted in a statistically significant reduction in median salt intake for the group, with baseline of 7.9 g/d shifting to 5.2 g/d post the intervention (p = 0.001, effect size = 0.6). This study marked the development of UK's first dietary salt monitor for use in type 2 diabetes and was effective in reducing dietary salt intake.

References

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