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Original Research

Effect of cooking classes for housewives on salt reduction in family members: a cluster randomized controlled trial

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ABSTRACT

Objectives: Sodium reduction is very important in preventing cardiovascular diseases, especially in regions with high salt intake such as Japan. One strategy for salt reduction is to raise consumer awareness of the need to reduce daily salt intake. We investigated whether cooking classes given to housewives focussing on salt reduction would influence not only their own consumption behaviour but also that of their family members.
Study design: Single-blinded, cluster randomized trial.
Methods: We randomly assigned housewives to participate in cooking classes focussing on salt reduction (intervention group) or lectures about a healthy lifestyle (control group). The main outcome measure was the difference in estimated daily salt intake by spot urine sampling of housewives and their family members 2 months after intervention between the groups.
Results: A total of 35 housewives and 33 family members were randomized. The mean daily salt intake was 10.00 (standard deviation [SD] 1.75) g/day in the control group (17 housewives and 15 family members) and 9.57 (SD 2.45) g/day in the intervention group (18 housewives and 18 family members) at baseline. Two months after the intervention, the

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mean salt intake was 10.30 (SD 1.78) g/day in the control group and 8.95 (SD 2.45) g/day in the intervention group. The mean difference was −1.19 g/day (95% confidence interval −2.29, −0.09; $P = 0.034$). A similar tendency was observed in the subgroups of housewives and family members.

Conclusions: Our trial suggested that the effects of cooking classes focussing on salt reduction for housewives could be transferred to family members (UMIN-CTR: 000018870).

Introduction

Hypertension is one of the biggest issues in the prevention of non-communicable diseases, affecting 1 billion people worldwide. It is considered to be a leading cause of death, stroke, myocardial infarction, congestive heart failure, and chronic renal impairment.[1,2] Sodium intake is the main risk factor for hypertension, and has been reported to be a modifiable determinant.[3] The World Health Organization (WHO) has recommended salt reduction as one of the top three priority actions for the prevention of non-communicable diseases.[4] Recently, the Member States of the WHO Noncommunicable Diseases Action Plan 2013–2020 agreed on a voluntary global target of a 30% relative reduction in mean population salt intake, with the aim of achieving a target of less than 5 g/day by 2025.[5] The INTERSALT and INTERMAP studies have reported that sodium intake is higher in East Asian countries including Japan.[6,7] Thus, a reduction in dietary salt intake is of great importance for improving the health of the Japanese population. In Japan, the average salt intake among middle-aged men decreased from 30 g/day in the 1950s to 14 g/day in the 1980s. However, a large improvement in public health still remains possible through the reduction of dietary salt intake.[3]

One strategy employed in salt reduction is to improve consumer awareness and empower the public, through social marketing and mobilization, of the need to reduce salt intake.[8] Several effective strategies have been reported; e.g. counselling, cooking demonstrations, workshops, and lectures.[9–11] Salt reduction programs often target housewives who cook meals for their families. It is expected that awareness of the need for salt reduction raised in housewives through intervention will be transferred to their families. However, it is unclear whether intervention can effectively reduce salt intake in both the housewives as well as their family members who did not participate directly in the class. The aim of the current study was to investigate the effect of cooking classes focussing on salt reduction on the salt intake of housewives and their families.

Methods

The study protocol has been registered with the University hospital Medical Information Network Clinical Trial Registry (UMIN-CTR: 000018870). We followed the CONSORT 2010 statement: extension to cluster randomized trials.[12]

Study design and participants

The study was a single-blinded, family-based, cluster randomized controlled trial. It was conducted in collaboration with the health longevity project of the Japan Agricultural Cooperative Shirakawa branch. However, we did not limit our participants to their members. We recruited housewives and family members living with them for evaluation of the estimated daily salt intake by spot urine sampling. We recruited housewives aged 40 years and older, because the Japanese government conducts an annual health checkup for all citizens aged 40 years and older. We also only included adult family members aged 20 years and older because of the requirement for informed consent. While the family members did not participate directly in the program, the housewives in the intervention group were free to deliver the salt reduction message to their family members. There was no restriction on the number of family members per housewife. The advertisement for recruitment was placed in the serial publication of the Japan Agricultural Cooperative Shirakawa branch.

Randomization

Families (clusters) were randomly assigned (1:1) to either the intervention or the control group. Randomization was stratified by the number of family members who agreed to urinalysis for evaluation of the estimated daily salt intake in order to equalize group sizes.

Blinding

Participants were not blinded because the trial compared non-pharmacological interventions that could not be masked. However, the estimated daily salt intake by spot urine was measured by blinded laboratory technicians.

Intervention

In the intervention group, cooking classes were held twice, in September and October 2015. The class content was produced by registered dietitians (MI, MU, YM and SY), a general physician (TT) and a nephrologist (SS), and it consisted of a practical course for evaluating the amount of salt in a meal and instruction on salt-reduced cooking. Evaluation of the amount of salt in a meal was intended to illustrate the amount of salt consumed in a daily meal and the optimal amount of salt intake. Meanwhile, the salt-reduced cooking included technical tips for effective salt reduction; e.g. applying flavours