



Effects of Implementing Reshaped Soft Meal at the Elderly Home Facility in Hong Kong

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Background: Modified texture meals are given to those elderlies with chewing and swallowing difficulties. A survey, conducted by The Hong Kong Council of Social Service in 2019, found that 47.9% of the elderly nursing facility residents consuming modified texture meals, such as minced and pureed meals. Those food choices are less palatable and its appearance is unattractive to most consumers. The purpose of providing a reshaped soft meal is to improve consumer's nutritional intakes.

Methods: Care and Attention Elderly Home residents, who were consuming food texture classified as Level 5 under the International Dysphagia Diet Standardisation Initiative (IDDSI) framework, were selected to participate in this study. Conventional and reshaped soft meals of the same dish were provided to those residents. Each meal provided 400 kcal of calories and 15g of protein respectively. Body height and weight Body Mass Index (BMI) and the Montreal Cognitive Assessment (MOCA) scores were obtained to examine possible relationships with soft meal consumption.

Results: No significant differences were found between conventional and reshaped soft meals. No significant relationship was found between reshaped soft meal consumption and BMI, weight changes, and MOCA.

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Conclusion: Routine review of soft meal usage should be performed by the nurse, speech therapist, and dietitian to monitor participants' oral intake and swallowing ability. Soft meal production and recipes, such as ingredients and portion size, should be routinely reviewed by dietitians to ensure proper nutrition contents.

Keywords: *Elderly's nutrition; geriatric nutrition; soft meals; diet; pureed meal; IDDSI; swallowing; food for elderly; minced meal; reshaped soft meals.*

1. INTRODUCTION

Modified texture meals are given to those elderlies with chewing and swallowing difficulties. A survey, conducted by The Hong Kong Council of Social Service in 2019, found that 47.9% of the elderly nursing facility residents consuming modified texture meals, such as minced and pureed meals [1]. The IDDSI developed a standardized guideline to the community, which classified liquid and food from level one to seven along with proper food size and texture requirements. However, studies have shown that elderlies who are eating modified texture tend to consume less calories, protein, and other micronutrients [2]. Those food choices are less palatable and its appearance is unattractive to most consumers. Poor oral intake leads to sarcopenia and is affecting 9.9 to 40.4% of the elderly population [3]. Oral nutritional supplement has proven to be effective for reducing hospitalization [4]. Other than oral supplementation, enhancing overall food quality, such as taste and appearance, is a new prospect to improve elderly's nutrient consumption. Several overseas studies have found that serving reshaped pureed meals in hospital settings could improve overall oral intake [5]. Nutrition status and reshaped soft meals for elderlies have not been studied at any elderly home facilities in Hong Kong. In this cross sectional study, calories and protein intakes of texture modified diet and reshaped soft meals for those residents who are living in the Care and Attention Home in Hong Kong were studied.

2. MATERIALS AND METHODS

Care and Attention Elderly Home residents, who were consuming food texture classified as Level 5 under the IDDSI framework, were selected to participate in this study. Conventional diets and reshaped soft meals of the same dish were provided to those residents. Each meal provided 400 kcal of calories and 15 g of protein respectively.

Food was weighed prior to meal time and food wastage was recorded to determine food

consumption of each resident. Reshaped soft meals were also given every dinner for a month. Premixed soft meal powder, which contains amylase and soluble fibre, was added to make reshaped soft meals. Body height and weight and MOCA scores were also obtained. BMI was calculated. Microsoft Excel Data Analysis was carried out to perform t-test and linear regression. USDA Food Data Central was used to determine individuals' calories and protein intakes.

3. RESULTS

Thirty residents (21 females and 9 males) from a Care and Attention Elderly home were originally selected to participate in this study. Five residents (4 females and 1 male) were withdrawn due to changes of meal textures consumption and frequent hospital admission. Twenty five participants (17 females and 8 males), aged between 67 and 102 years old (Average 86.60, Standard Deviation 1.52) were successfully traced until the end of this study. Those residents were consuming food texture classified as Level 5 under the IDDSI framework. Targeted calorie and protein in each meal were 400 kcal and 15g for conventional and reshaped soft meals. The average BMI and MOCA were 19.8 (SD = 0.52) and 6.67 (SD = 1.17). The average calories consumption of conventional and reshaped soft meals were 377.4 and 337.0 kcal. No significant differences were found between two meal choices ($p = 0.37$). The average body weight pretest and after a month of soft meal consumption were 44.4kg and 44.2 kg, which found no significant differences ($p = 0.92$).

MOCA score of individuals and calories consumed of reshaped soft meals has found no significant relationship ($r = 2.16$, $p = 0.67$). Body weight has found no significant association with reshaped soft meals. ($r = 5.41$, $p = 0.15$).

4. DISCUSSION

4.1 Oral Intake

This study demonstrated no significant association between conventional and reshaped

soft meals. Participants' reshaped soft meal consumption are varied. This result suggested their food consumption should be routinely monitored by nurse, speech therapist and dietitian. It gives resourceful information to the Hong Kong health care providers to refine and reconstruct their catering and soft meal services. Modified texture diet has shown less nutrients in comparison with regular diet [5]. Oral intake of such texture diets are statistically lower. Possibility of these findings may include poor taste and texture and lack of cost and effort on developing modified texture menus. Moulded or reshaped soft meal related studies are limited globally. One study showed no statistical association between regular and moulded puree oral intake in a hospital setting [2]. Calories and protein consumption are lower for those older patients who were consuming a texture modified diet in the hospital [6]. Other study has shown food choices are limited for the texture modified diet consumer in the long term care facility and their energy intakes are significantly lower [7].

Poor nutrients may lead to initiating nutrition support, such as oral supplement and enteral feeding, and frequent hospital admission. Another study regarding long term care facility residents has found a negative correlation between energy intake and age, texture modified diet, feeding assistance.

4.2 Body Weight

Body weight is a major outcome of nutrition status. No significant difference of participants' body weight was reached after a month of providing reshaped soft meals regularly. A longer duration and traceable studies should be conducted to investigate possible relationships with body weight, numbers of hospital admission, handgrip muscle strength, and oral supplement consumption. Poor oral intake leads to decrease muscle mass and strength and increase fall risks for all population [8].

4.3 Cognitive Level

Level of cognitive ability is also a factor to reflect a positive association with energy and protein intake [9]. MOCA scores of participants are positively related to reshaped soft meal intake in our study, but data did not conclude as statistical significance. A study has found that elderlies with Alzheimer's disease decreased independence of initiating feeding behavior [10]. Future studies may consider measuring meal consumption

duration and the needs of feeding assistance by staff when consuming reshaped soft meals.

5. CONCLUSION

The interest in soft meal is growing rapidly in the community and is an encouraging prospect to enhance nutritional levels for those who are suffering from swallowing difficulties. Ready-to-eat soft meal related products are growing as well. Numerous organizations spent a lot of effort and resources to promote reshaped soft meals to the community. However, no study has been conducted to support a positive outcome of consuming reshaped soft meals. Larger study is needed to prove its benefits and show which groups, such as age and cognitive levels, are the most beneficial from the reshaped soft meals. Routine review of soft meal usage should be performed by nurse, speech therapist, and dietitian to monitor participants' oral intake and swallowing ability. Soft meal production and recipes, such as ingredients and portion size, should be reviewed by dietitians to ensure proper nutrition contents.

Eating motivation should be studied in future research. Feeding by the staff is routinely required to those elderly home residents, who are lack of motivation and feeding skills. Future study may focus on resident's eating motivation in comparison between regular and reshaped soft meals by measuring eating time and the needs of feeding by the nursing staff.

Current reshaped soft meals productions are most likely focused on its appearance and taste. Calories and protein contents of such commercial ready-to-eat and home-made reshaped soft meals are questionable. Nutritional needs are varied for individuals who require specific meals, such as diabetic and renal diet. Nutrition guidelines for cooking soft meals are needed to the catering manufactures and the general public for proper portion size and nutritional requirements to maintain individuals' sufficient nutrient intake.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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