

The Process of Reducing Sodium Intake among Older Adults: A Participatory Action Research Study



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Abstract

Background: Population-wide interventions for salt reduction are very cost-effective. Little is known about the awareness of sodium consumption and the ability and willingness of older adults to reduce their sodium intake in Thailand.

Objectives: The objective of this study was to identify older adults' opinions regarding low sodium diet awareness to guide healthy aging, and to facilitate the empowerment of the participants through the taking of action that leads to a change in the amount of their sodium consumption.

Methodology: The participatory action research approach involved groups of older adults and their caregivers, health care volunteers and health care providers in a village of Thailand. Six meetings were held with over a 6- month period to work through a process of planning, acting, observing and reflecting on the consequences. The two researchers had separate roles and participated in each of the PAR groups.

Results: The majority of participants thought involvement in the participatory action research process was beneficial. There was evidence that the practice evoked change. The participatory action research process resulted in raising older adults' low sodium diet awareness, satisfying their palates with the creation of new southern Thai dishes with low salt as well as involving of older adults in the low sodium diet cooking activities.

Conclusion and recommendation: Based on the findings, the researchers are confident that working collaboratively between older adults, their families and health care providers is the way to maintain a low sodium diet and promote healthy aging for community-dwelling older people.

Keywords: Community; Health care provider; Older adults; Participatory Action Research; Process; Salt; Sodium; Thai

Introduction

Healthy aging is emerging as a vital key concept since the most important challenge related to the rapidly increasing aging population is to consider how to increase the quality and years of healthy life of older people [1]. This concept focuses on the preservation of health and is often actualized through life style choices. Despite the well known benefits of having a lifestyle that includes exercise, a low sodium diet, maintaining a healthy weight, and not smoking, only a small proportion of older adults follow this healthy lifestyle pattern. Part of the rationale for failing to adopt beneficial behaviors may be the belief that adopting such behaviors later in life will not be very beneficial in the context of several preceding decades of less than ideal health conscious behavior [2].

Based on the robust findings, many countries have set out to promote reductions in sodium intake at the population level to reduce the incidence of cardiovascular disease [3] and cognitive impairment [4]. Findings from several surveys show an increasing prevalence of hypertension in developing countries, possibly caused by the aging population, changes to dietary habits, and social stress. The health system in many developing countries is inadequate because of low funds, poor infrastructure, and inexperience [5]. Population-wide interventions for salt reduction are very cost-effective. Reducing the intake of sodium through such initiatives might be one of the best buys in public health [6].

In addition, sodium reduction is particularly effective in older people because of the physiological changes from aging process and willingness of older adults. Arterial compliance decreases with age and any change in intravascular volume related to sodium intake should result in a greater blood pressure change in older adults than in younger people. In addition, with the decline in kidney function associated with aging, older individuals may retain sodium to a greater extent than younger people. Moreover, the older adult may be more willing and able to reduce their sodium intake than younger individuals who have yet to experience the adverse health consequences of elevated blood pressure [7-9]. Reducing salt intake to 6 grams/day in populations equates to approximately 2.5 million preventable deaths globally every year [10]. However, active involvement of older persons in planning and decision making process for reducing salt intake is limited.

Population aging in Thailand is happening faster than in Western developed countries. The Thai population aged 60 and older comprised 10.94% of the whole population in 2005, and will represent 15.28% by 2020 [11]. Moreover, the proportion of remaining life expectancy spent disabled increases in both Thai men and women. The prevalence of prehypertension and hypertension is rising rapidly, and is spread relatively evenly across regions of Thailand. Levels of awareness of hypertension were low across the country. A challenging task remains in improving screening, treatment and control of hypertension, while at the same time, as promoting healthier lifestyles [12]. In addition, programs to reduce salt intake are few, yet the necessary actions are simple and include provision of a scoop or spoon to measure salt for cooking.

Little is known about the knowledge, awareness, and behavior related to sodium consumption among older adults [13]. Also, little is known about the ability and willingness of older adults to reduce their sodium intake. Participatory Action Research (PAR) could be an empowering process that is particularly relevant for engaging older adults in reflection for behavioral change. In Thailand, the facilitation of reducing sodium intake is until now a rarely discussed subject. This lack of attention may reflect doubts about the usefulness and effectiveness of planning for later life [14]. In the light of demographical changes and healthy behavior becomes more important for older adults as they are required to take more responsibility for their lives. From this perspective, it may be useful for people to prepare for their old age in the sense that how to reduce sodium intake and how they can attain their healthy goals.

Planning and behaviors that promote healthy life styles might be an essential management strategy in the context not only aging but also the whole life course. The purpose of this study was to identify Thai older adults' opinions regarding low sodium diet awareness to guide healthy aging, and to facilitate the empowerment of the participants through the taking of action that leads to a change in their amount of sodium

consumption. Initially, this paper describes the methodology of the PAR process aiming at raised low sodium diet awareness, as well as reduced amount of sodium consumption.

Methods

Design

The researcher used the participatory action research (PAR) approach aimed at reducing sodium intake among older adults. The process of PAR including.

- I. Identification of Thai older adults' opinions regarding low sodium diet awareness to guide healthy aging and planning for changes.
- II. Acting by facilitating the empowerment of the participants through the taking of action that leads to change on their amount of sodium consumption.
- III. Observing the actions in practice.
- IV. Reflecting and evaluating the outcomes.

The first meeting began with introductions and allowed the participants to become familiar with each other and the two researchers. Next, the goals, consent and methods for the study were discussed and questions were answered. Participants were interviewed about their opinions regarding low sodium diet awareness to guide healthy aging. Additionally, the second meeting was conducted to brainstorming issues relevant to participants' sodium consumption. The groups selected the research question 'How can we reduce sodium in the cooking process and raise awareness about eating a low sodium diet?' to address concerns previously expressed by almost of participants. The researcher encouraged participants to tell their own story and opinions regarding the low sodium diet, and develop an action plan to help them achieved their goals. All of the action plans had the potential to influence the ability of older adults to meet their needs:

- a. To record as much as detail as possible all food consumed over a 7 day period.
- b. To estimate of sodium intake (mg/day) from the modified 7 day food diary.
- c. To create of new southern Thai dishes with low salt.
- d. To involve older adults in the low sodium diet cooking activities.

Participants

Participants were older adults who aged over of 60 years old and living in Photong sub district, Tasala district, Nakhon Si Thammarat province, Thailand. Recruitment was conducted at a village that included a one-day visit with 8 hours of health care service. At the conclusion of each older adult's visit she/he was asked if she/he would like to participate in a study of how to promote healthy aging. If the older adult agreed, she/he was

orally asked the inclusion criteria which includes: are you able to speak and read Thai? and will you be living in this community during the six months of the study period? Twenty community-dwelling older adults agreed to take part in the study. The group comprised of twenty older adults, their caregivers, two health care volunteers, and a nurse. Participants were retained by the offer of continued health care. Also participants had a sincere interest in improving their own health and wellness. The researcher offered free transportation and food. The PAR groups were to be in charge of its own agenda and participant voices were to be privileged in subsequent feedback cycles.

Retention of participants

During the baseline measurement, participants are asked to provide the name and contact information for their caregivers or individuals who live with them and would be able to provide contact information in the event that the older adult loses contact. In addition, we assigned a health care volunteer for each village.

Researcher roles

The groups were facilitated by the researchers, who graduated with doctoral degrees in nursing and independent of the residential village. The two researchers had separate roles in the PAR group: (i) group facilitator, and (ii) observer of group dynamics and a management coordinator. Both researchers trust the PAR process and let participants decide the direction of the dialogue. The researchers contributed to the group discussions when invited only.

Ethical approval

The necessary written approval was obtained from the Ethical Review Board of Walailak University prior to this study. The study was explained and the researchers obtained permission and informed written consent from each participant during the first meeting. This was done according to the guidelines presented in the Declaration of Helsinki.

Measure

Sodium intake (mg/day) was estimated from the modified 7 day food diary. The participants were asked to record, in as much as detail as possible all food consumed over a 7 day period. The modified 7 day food diary was based on Thai Southern food items, each with three different portion sizes. Calculation of sodium intake was based on publish Thai food composition tables.

Data collection and analysis

Participants were interviewed about their low sodium diet awareness and sodium consumption behavior at the beginning and at the end of the PAR. Data collection and feedback were obtained through focus groups and observations. The PAR group data evolved from six PAR meetings held over 6 months. At these monthly meetings, the participants discussed the feedback they

had received. Field notes were taken after each meeting to record the researcher's thoughts and feelings about the process as well as to document the process of creating an audit trail. The focus groups were audio taped and then transcribed verbatim and returned to participants the following week. Summaries were written immediately after each focus group and were reviewed in the next meeting with the participants for validation.

Results

The majority of older participants thought involvement in the participatory action research process was beneficial. The participatory action research process resulted in raising older adults' low sodium diet awareness, satisfying their palates with the creation of new southern Thai dishes with low salt as well as involving of older adults in the low sodium diet cooking activities.

Raising older adults low sodium diet awareness

In the first meeting, the researcher encouraged participants to tell their own story and opinions regarding the low sodium diet. These stories helped others to reflect on how sodium in their diet affects their lives, make connections between a high sodium diet and chronic diseases such as hypertension and chronic renal failure, and develop an action plan to help them achieved their goals. It is evidenced by the following quote from one of the interviews:

To think about my favorite diet...is a kind of horror. I had a concern that my lack of knowledge and awareness on sodium consumption made me and my husband sick from hypertension. I need to change my eating behavior and cooking. But I was not sure how much sodium I have to reduce in my meals (Case 3).

Forty-six percent of participants were aware that they consumed too much sodium at the beginning of PAR. After the focus groups concluded, they knew the amount of sodium from their 7 day food record. All participants were aware that they consumed too much sodium and that they could calculate the approximate amount of sodium they ate.

I am glad that the record of my seven days food helped me realized the amount of sodium. I took sodium more than twice of the recommended. It is great that I know early since I can prevent myself from chronic disease (Case 5).

Creation of new southern Thai dishes with low salt

At the beginning, participants reported adding salt in the preparation of food and adding fish sauce in cooked dishes almost every day. While half of participants (50%) knew the processed foods were the largest source of sodium in their diet. Monosodium glutamate (MSG) was a source of high sodium that was often overlooked by older adults and caregivers because this additive may not taste salty. Among ingredients that are high in sodium, the following were consumed an average of six to seven times per week by older participants: fish sauce, shrimp paste,

oyster sauce, and salt. Additionally, the following foods were consumed an average of four to five times per week: hot and sour soup, curry chicken in coconut milk, and red curry with meat or pork. There also were other popular Southern Thai dishes.

In the process of PAR, the participants created a number of popular southern Thai dishes with low salt, which aimed approximately one teaspoon of table salt per day (1840 mg/day). Their satisfaction was evidenced by the following quote from one of the interviews:

I love to eat these foods. (She pointed at the food: hot and sour soup, curry chicken in coconut milk, and red curry with meat or pork) I suggested we have to create new dishes with low salt from these our favorite foods (Case 3).

The participants created the new dish of the hot and sour soup. It reduced the amount of sodium approximately from 4,835 to 2,200 mg per 4-5 servings (Table 1).

Table 1: Comparison amount of sodium between the old and new of hot and sour soup.

The Old dish of the hot and sour soup	The New dish of the hot and sour soup
Ingredients:	Ingredients:
1. Shrimp paste 2 tablespoon (2,980 mgs)	1. Shrimp paste 1 tablespoon (1,500 mgs)
2. Salt 1/4 tablespoon (1,800 mgs)	2. Salt 1/6 tablespoon (700 mgs)
3. Monosodium glutamate 1/6 tablespoon (55 mgs)	
Total of sodium 4,835 mgs	Total of sodium 2,200 mgs

Involvement of older adults in the low sodium diet cooking activities

The idea of involving older adults and caregivers in low sodium diet cooking activities arose in the context of identifying ways to ensure older participants and caregivers learn how to cook the new dish of the hot and sour soup and gain satisfaction from the taste. It was also regarded by the health care providers as a way of providing an opportunity for older adults and caregivers to provide feedback and to encourage their participation. The researcher assisted the health care providers to establish and run activities. An outdoor luncheon and cooking contest was organized with health care providers and caregivers agreeing to obtain older adults' feedback about the events. Feedback collected from the participants indicated that they felt involvement in the action research process was beneficial. Almost all of the participants agreed that "the meetings were important and valuable because they could share and discuss different ideas and techniques, especially how to cook a low sodium diet". The possibility of holding regular older adults meetings to allow for the same level of discussion and sharing of ideas and techniques as a result of their experience in this study was strongly recommended by the older participants. Examples

of positive and negative comments about involvement in the study are (Tables 2 & 3).

Table 2: Positive comments made by older participants on the value of being involved in this research study.

Positive Comments
"I now chat about our good health behaviors more than I did"
"The meeting monthly emphasized the importance of low sodium diet and how to keep healthy"
"I have become more aware of how much sodium in my favorite diets"
"I want to carry on low sodium consuming after the study since my blood pressure decreases"
"It made me more aware of cooking, eating and activities"

Table 3: Negative comments made by older participants on the value of being involved in this research study.

Negative Comments
"As you know it hard to change the eating and cooking behaviors then just monthly meeting wasn't enough for me. I want to meet every 1-2 weeks"
"Disappointed not to see my primary caregiver at the meetings. If she came, she would be more aware of cooking low sodium diet"
"you didn't tell me anything I know already"
"the meetings were interesting but too often to join"

Discussion

The main body of the paper discusses the usefulness of the PAR process. This discussion sheds light on the questions how to raise older adults' low sodium diet awareness and involving of older adults in the low sodium diet cooking activities. There are strong evidences for the harmful effects of a high salt intake and the beneficial effects of reducing salt consumption [15]. The consumption of salt is the major factor increasing BP and thereby coronary heart disease. Furthermore, a high salt diet may have direct harmful effects independent of its effect on BP, for example, increasing the risk of stroke, left ventricular hypertrophy and renal disease [15].

A reduction in salt intake can be achieved by a gradual and sustained reduction in the amount of salt added to food from salt added during cooking or from sauces. The average total daily sodium intake per individual in developed countries is 4-5 g of Na, which is up to 25 times greater than the minimum adult requirement [16]. A reduction in salt from the current intake of 9-12 g/day to the recommended level of 5-6 g/day will have a major effect on BP and CVD, and may have other beneficial effects on health, a public health campaign is needed to encourage consumers to use less salt [15].

The PAR was chosen as the appropriate methodology because of its emphasis on participation and partnership. Furthermore, this study demonstrated how the participatory action research process empowered nurses and health care providers to make behavior changes in community-dwelling older adults.

Although participatory action research is increasingly viewed as an important compliment to traditional investigator-driven research, relatively little participatory action research has taken place in which older adults have been prominent partners [17]. In keeping with the principles of PAR learning, the research was directed by the talented participants themselves. The PAR empowers individuals by recognizing they have the ability to identify their own needs, and to generate practical long lasting solutions. The PAR suggested that research occurs as a direct participation in the events of life and was sponsored by the participants themselves. This type of research produces a long lasting impact on the life learning. The PAR further suggests that informal learning is the way most participants learn. Building the older adults capacity to change was well supported by the use of this methodology [17].

The findings of this study also indicated that the working groups to accept that any members of group may have suggestions and solutions to improve practice. This acceptance implies encouraging work practices that are inclusive and empowering of all participants. Providing participants with the opportunity to be “listened to” helped to break down barriers and misconceptions about the skills and abilities of the participants at different levels and backgrounds, especially older adults [18]. This highlighted the benefits of involving participants from different backgrounds represented in appropriate decision making so that ideas and information could be drawn from the range of available skills and experiences [18].

In addition, raising older adults’ low sodium diet awareness and belief in the harm of high sodium intake were associated with healthy eating behavior [19]. It is important to encourage older adults taking responsibility for themselves, moving forward to interact with their community, and believe that healthy aging is a cumulative process of performing positive health behaviors for later in life [20].

Conclusion

The participatory action research process resulted in improved health care outcomes for the older adults including improvements in reducing the amount of sodium as well as increased satisfaction with the creation of new southern Thai dishes with low salt. The majority of older participants thought involvement in the action research process was beneficial. Based on the findings, there is incentive to trial this participative process in other communities. If so much is achieved in just 6 months, we are encouraged about what can be achieved in 1-2 years. Even though the research team cannot predict what action the participatory action research groups will take but we are confident that working collaboratively between older adults, their families and health care providers is the way to bring evidence to reduce sodium intake for community-dwelling older people. In addition, further research is needed to determine whether these changes can be sustained and to understand factors and barriers to salt reduction.

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