



## Does social participation improve self-rated health in the older population?

### A quasi-experimental intervention study

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#### ABSTRACT

Social participation has been linked to healthy aging and the maintenance of functional independence in older individuals. However, causality remains tenuous because of the strong possibility of reverse causation (healthy individuals selectively participate in social activities). We describe a quasi-experimental intervention in one municipality of Japan designed to boost social participation as a way of preventing long-term disability in senior citizens through the creation of 'salons' (or community centers). In this quasi-experimental intervention study, we compared 158 participants with 1391 non-participants in salon programs, and examined the effect of participation in the salon programs on self-rated health. We conducted surveys of community residents both before (in 2006) and after (in 2008) the opening of the salons. Even with a pre/post survey design, our study could be subject to reverse causation and confounding bias. We therefore utilized an instrumental variable estimation strategy, using the inverse of the distance between each resident's dwelling and the nearest salon as the instrument. After controlling for self-rated health, age, sex, equivalized income in 2006, and reverse causation, we observed significant correlations between participation in the salon programs and self-rated health in 2008. Our analyses suggest that participation in the newly-opened community salon was associated with a significant improvement in self-rated health over time. The odds ratio of participation in the salon programs for reporting excellent or good self-rated health in 2008 was 2.52 (95% CI 2.27–2.79). Our study provides novel empirical support for the notion that investing in community infrastructure to boost the social participation of communities may help promote healthy aging.

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#### Introduction

Among OECD countries, Japan is currently experiencing the most rapid pace of population aging. Faced with a growing crisis in the provision of elder care, the Japanese government reformed the long-term care insurance system, and introduced a new strategy in 2006 aimed at the prevention of functional disability requiring long-term care. The new strategy was intended to reduce economic incentives for institutionalization, dampen provider-induced

demand, and prevent seniors from becoming dependent by intervening while their need levels are still low (Tsutsui & Muramatsu, 2007). However, so far the policy has not succeeded in reducing the burden of long-term care (Kondo, 2012).

Two reasons have been put forward for the failure of the new policy. First, the policy is based upon screening individuals who are at high risk of developing functional disability. In other words, the policy is predicated on what Geoffrey Rose (1985) called the 'high risk strategy' of prevention, or targeting prevention efforts toward the high risk 'tail' of the distribution of risk factors for long-term care dependency. The list of risk factors that have been used to screen and identify individuals at risk of long-term care dependency include activities of daily living, depression, physical

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activity, nutritional condition, oral condition, housebound status, and cognitive function (Ministry-of-Health-Labour-and-Welfare, 2009). However, according to a preceding study, this strategy identifies only a minority of individuals who subsequently develop disability requiring nursing care, and over half of individuals whose functional status declined (thereby necessitating nursing care) reported no 'risk factors' in the year previous to the onset of disability (Kondo, 2005). Moreover, in a systematic review, it has also been suggested that the effect of multifactorial assessment and targeted intervention is limited (Gates, Fisher, Cooke, Carter, & Lamb, 2008).

A second reason for the failure of the new policy is that the highest risk people also tend to be the hardest to reach, and therefore do not end up reaching the attention of the formal care system. In short, a new approach to long-term care prevention needs to be devised that is based on a population-based strategy that emphasizes primary prevention, rather than the current high-risk approach based upon medical screening.

The purpose of the present study is to describe an intervention that has been adopted in one municipality of Japan to boost social participation by older individuals as a way of preventing long-term disability. Social participation – as well as the broader concept of "social capital" – has been promoted in the past as a way of maintaining functional independence and healthy aging. Our specific intervention focuses on the town of Taketoyo on the Chita Peninsula (south of Nagoya, Japan), which attempted to provide a venue for social participation via the creation of "salons" (or community centers) where older residents could congregate and engage in a variety of social activities. As it is too soon to examine the impact of the intervention on the prevention of functional disability in the present study, we examined the effects of participation in the salon programs on self-rated health. In Japan, salons (akin to community health centers in North America) have long existed, especially in rural areas, and they have played an important role in both social life as well as the provision of mutual social support. However, to date no interventions have been carried out to examine the impact of creating salons within communities. In the next section of the paper we (1) point out the need for causal inference in studies on social participation, (2) describe our intervention strategy, and (3) explain the usefulness of instrumental variable estimation strategy.

Although previous longitudinal epidemiological studies and a meta-analytic review have suggested that social participation is associated with improved functional status in the elderly (Bygren, Konlaan, & Johansson, 1996; Glass, de Leon, Marottoli, & Berkman, 1999; Kiely, Simon, Jones, & Morris, 2000; Ramsay et al., 2008; Rodriguez-Laso, Zunzunegui, & Otero, 2007; Sampson, Bulpitt, &

Fletcher, 2009), causal inference remains a challenge in these studies, due to problems concerning selection and endogeneity. For example, fit and healthy people have a greater tendency to participate in social activities, and there may be unobserved third variables (such as sub-clinical depression), which confound the association between social participation and maintenance of functional status.

In the ideal case, the solution to overcome this problem is to conduct a randomized trial, assigning individuals to participation in social activities based on the toss of a coin. However, such a trial would be expensive, time-consuming, and difficult to launch, and to our knowledge, no randomized trials have ever been conducted on the effect of social participation on health. The next best solution is to identify natural experiments, in which the investigator can get closer to causal inference by observing a change in the outcome (e.g. improvement in health) following a quasi-experimental disturbance in exposure (opening of a salon in the community). In the present analysis, we conducted exactly this kind of natural experiment.

Our study is a part of the Aichi Gerontological Evaluation Study (AGES) project based in the Nihon Fukushi University (Murata, Kondo, Hirai, Ichida, & Ojima, 2008; Nishi, Kondo, Hirai, & Kawachi, 2011). The aim of the AGES project is to identify factors related to functional or cognitive decline among the non-institutionalized elderly. Concerning this study, it is suggested that high social capital was associated with better self-rated health and better dental status (Aida et al., 2009; Ichida et al., 2009). In the present study, we took advantage of the longitudinal follow-up information collected on the participants in the AGES project in the municipality where the salon intervention took place. Our study protocol and informed consent procedure were approved by the Ethics Committee in Research of Human Subjects at Nihon Fukushi University.

## Methods

### Study design

In a quasi-experimental intervention study, we compared 158 participants with 1391 non-participants in the salon programs, and tested the effect of participation in the salon programs on self-rated health. We carried out baseline surveys in July 2006, and a post-evaluation panel survey in February 2008 as shown in Fig. 1. The survey conducted in 2006 targeted all 5759 non-institutionalized elderly in Taketoyo and received 2795 responses (48.5%). The survey in 2008 targeted all 6552 non-

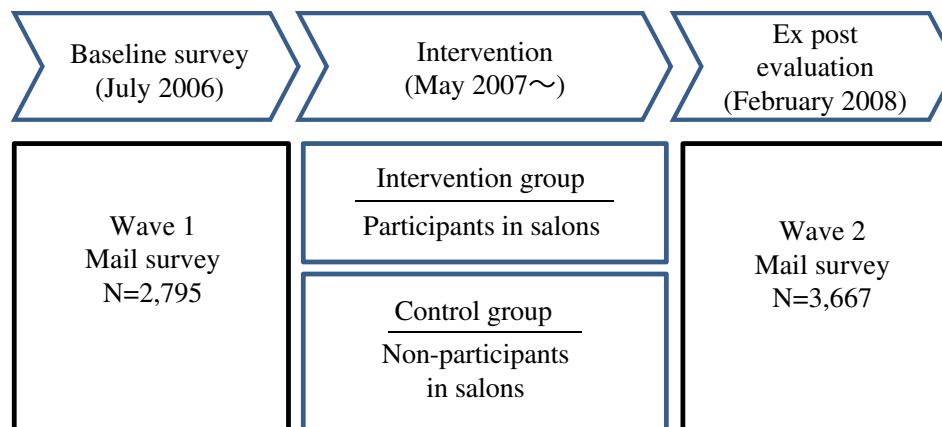


Fig. 1. The intervention and evaluation process.

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