



Church-based social marketing to motivate older adults to take balance classes for fall prevention: Cluster randomized controlled trial[☆]



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ABSTRACT

Objective. Determine whether a church-based social marketing program increases older adults' participation in balance classes for fall prevention.

Methods. In 2009–10, 51 churches (7101 total members aged ≥ 60) in Colorado, U.S.A. were randomized to receive no intervention or a social marketing program. The program highlighted benefits of class participation (staying independent, building relationships), reduced potential barriers (providing convenient, subsidized classes), and communicated marketing messages through church leaders, trained "messengers," printed materials and church-based communication channels. Between-group differences in balance class enrollment and marketing message recall among congregants were compared using Wilcoxon Two-Sample Test and regression models.

Results. Compared to 25 control churches, 26 churches receiving the social marketing program had a higher median proportion (9.8% vs. 0.3%; $p < 0.001$) and mean number (7.0 vs. 0.5; IRR = 11.2 [95%CI: 7.5, 16.8]) of older adult congregants who joined balance classes. Intervention church members were also more likely to recall information about preventing falls with balance classes (AOR = 6.2; 95% CI: 2.6, 14.8) and availability of classes locally (AOR = 7.7; 95% CI: 2.6, 22.9).

Conclusions. Church-based social marketing effectively disseminated messages about preventing falls through balance classes and, by emphasizing benefits and reducing barriers and costs of participation, successfully motivated older adults to enroll in the classes.

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Introduction

Falls are the leading cause of injury-related emergency visits, hospitalizations, and deaths in older adults (National Center for Injury Prevention and Control, 2014a). Each year about one-third of persons aged ≥ 65 years fall (Hausdorff et al., 2001; Hornbrook et al., 1994); 20–30% of falls cause serious injuries that reduce mobility and independence, increasing the risk of institutionalization and premature death (Alexander et al., 1992; Magaziner et al., 2000; National Center for Injury Prevention and Control, 2014b; Sterling et al., 2001).

Balance and strength training reduces fall and fall injury risk in older adults (El-Khoury et al., 2013; Gillespie et al., 2012; Sherrington et al., 2011). However, few older adults participate (Hughes et al., 2005), due to fear of falling (Scheffer et al., 2008), fatalism about functional loss with age, or inexperience with organized exercise classes (Muse, 2005). In addition, few recreational facilities offer exercise programs for seniors due to perceived lack of interest (Hughes et al., 2005). Unless exercise programs are implemented and promoted in a manner appealing to older adults, participation is unlikely even if lack of availability and other barriers are addressed (Stevens, 2005; Stevens et al., 2010). New approaches are needed to motivate participation in balance and strength training.

Social marketing, which promotes voluntary behavior change by increasing perceived advantages and reducing perceived and actual barriers (Kotler and Roberto, 1989; Maibach et al., 2002), has been shown to increase immunizations, cancer screening and exercise in older adults (Lipkus et al., 2003; McCaul et al., 2002; Reger et al., 2002; Van Harrison

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et al., 2003). After social marketing approaches were used to promote exercise classes for fall prevention, many community-dwelling older adults joined the classes (Li et al., 2008a, 2008b; York et al., 2011). A social marketing campaign to increase physical activity for fall prevention was followed by small increases in self-reported physical activity among older adults (John-Leader et al., 2008). However, the use of social marketing to promote balance classes has not been tested in controlled studies.

Church-based programs have proven effective for increasing physical activity among middle-aged women (Peterson et al., 2005) and African American adults (Resnicow et al., 2005), and for increasing other health behaviors (DeHaven et al., 2004). Churches are potentially valuable settings for reaching older adults. In the U.S., 84% of adults aged ≥ 60 are affiliated with Christian denominations (Pew Forum on Religion and Public Life, 2008a); most older Christians attend church services at least weekly (Pew Forum on Religion and Public Life, 2008b).

Given proven benefits of balance and strength training, church-based social marketing holds promise for reducing falls and related injuries if it can be shown to motivate older adults' enrollment in classes. We hypothesized that older adults exposed to a targeted social marketing program at church would be more likely to join fall-prevention balance classes than older adults attending control churches.

Methods

Social marketing intervention

The social marketing process incorporates key aspects of behavioral change theory (Janz et al., 2002) to understand why people behave as they do and what might be required to change their behavior (Maibach et al., 2002). A social marketing program was developed based on extensive formative research (Clark et al., 2013) to ensure a favorable response from the target audience (Aaker et al., 2000). It aimed to make balance classes more attractive to older adult church members by addressing *product*, *price*, *place* and *promotion* (Maibach et al., 2002).

To address desired benefits (*product*), the program emphasized 'gain-framed' messages (O'Keefe and Jensen, 2007) of staying independent and building social relationships. Monetary, emotional, psychological and time costs (*price*) were addressed by emphasizing a safe, comfortable atmosphere in marketing materials; demonstrating classes through videos; offering frequent classes at preferred schedules, coordinated through the marketing program; and, through provider contracts, subsidizing most of the course fee. A \$20 fee was maintained to increase perceived value (Grier and Bryant, 2005) and long-term program sustainability. *Place*, i.e., where the product is offered to the target audience, was addressed by providing classes at local recreation facilities and churches. In contrast to health promotion programs, where *place* is primarily a setting for target audience engagement, *place* in social marketing is "an essential element of the marketing mix ... i.e. where and when the target audience will perform the desired behavior (Griffiths et al., 2008)." The marketing program therefore set up classes at churches, ensuring both convenience and accessibility. Recreation facilities were chosen for their availability and were equally near intervention and control churches. Each class, wherever it was held, was marketed to multiple local intervention churches. *Place* was also addressed by positioning messages at intervention churches, and involving church leaders, staff, and 'messengers' (trained church members) in message distribution. Marketing messages were communicated through posters, brochures, flyers, coupons, church newsletters and bulletins, pulpit announcements, and person-to-person marketing (*promotion*), guided by a week-by-week marketing plan implemented during four weeks preceding each scheduled class (marketing 'wave'). Classes at recreation department facilities were listed in their own course catalogs, flyers and websites, consistent with their standard procedures for disseminating information about class availability.

The program marketed N'Balance™, which incorporates the key programmatic elements and lesson plans of FallProof!™ (Rose, 2010; Rose et al., 1999, 2001), adapted as a biweekly community-based class limited to 10 participants for individualized attention, delivered over 8 weeks by trained exercise instructors. N'Balance™ addresses balance, gait, flexibility, and strength, with moderate to high progressive challenge to balance, as recommended (Gillespie et al., 2012; Sherrington et al., 2011). N'Balance™ was selected because trained

instructors (and new-instructor training) were available locally and local recreation departments were willing to offer N'Balance™.

The social marketing program was implemented by health department staff, assisted by church messengers, from January 2010 through September 2011. All N'Balance™ classes, whether offered at church or recreation facilities, were available to the entire community, including people attending control or non-study churches or no church, and were subsidized for all participants. The recreation departments registered participants for most classes, whether offered in recreation or church facilities; study staff registered participants for the rest.

Study design and methods

Randomization

Churches were the units of randomization, social marketing program implementation and evaluation. A clustered design was chosen because the marketing program was delivered to both churches and individual congregants. An intra-cluster correlation coefficient (ICC) of 0.04 was used to estimate sample size, conservatively inflating the ICC from another church-based study (Voorhees et al., 1996). Enrollment of 56 churches (estimated mean 84 older adult members/church) was planned, to provide 80% power, two-sided $\alpha = 0.05$, to detect an increase in class participation from 0.9% (estimated baseline) to 3.5% of older adult church members. A researcher blinded to church enrollment randomly allocated churches to study groups in a 1:1 ratio using minimization (Schulz and Grimes, 2002) with Minim v1.5 software (Evans et al., 1990) to ensure similar distributions of denomination, congregation size, percentage of congregants aged ≥ 60 , location, Spanish language services, and church leader's willingness to assist marketing. Data analysts were blinded to study group allocation. The Colorado Multiple IRB approved the trial and consent forms.

Participants

The two study counties comprised several small- to medium-sized cities ('urban' locations) (U.S. Census Bureau, 2009a) and the remaining towns and unincorporated areas ('rural' locations), totaling 37,532 residents aged ≥ 60 years, of whom 92.3% are white non-Hispanic (U.S. Census Bureau, 2009b). All study county churches were assessed for eligibility (i.e., ≥ 15 older adult members, for cost efficiency) by telephone. Study staff recruited church leaders by mail and telephone from May 2009 to July 2010. Participating church leaders gave written consent prior to randomization and received \$55 gift cards. At enrollment (pre-randomization), each church leader was surveyed about church and personal demographic characteristics, including minimization data (see Randomization section), and their perceptions of the importance of falls in older adults, fall preventability, and potential benefits from balance classes (Janz et al., 2002), using a 5-point Likert scale (Table 1). Class participants aged ≥ 60 gave written consent to release attendance records and received \$5 gift cards. Church congregants implied consent by returning completed post-intervention mail surveys.

Outcomes

Because participation in balance and strength training classes has been proven to reduce falls and fall injuries (El-Khoury et al., 2013; Gillespie et al., 2012; Sherrington et al., 2011), measures of class participation were chosen as primary outcomes. Primary outcomes included the proportions and numbers of church congregants aged ≥ 60 enrolled in any N'Balance™ class during the marketing implementation period.

Secondary outcomes included class attendance among older adult class participants; church leaders' perceptions post-intervention about importance of injury from falls in older adults, fall preventability, and benefits from balance classes for reducing risk; and self-reported awareness and recall of marketing messages among older adult congregants. We also assessed program implementation.

Data collection

To assess class participation, everyone enrolled in any N'Balance™ class held in either county during the study period was administered a 1-page anonymous form indicating age group, name of church (if any), and if this was their first N'Balance™ class since the study period start date. Instructors recorded class attendance. Denominators, i.e., numbers of congregants aged ≥ 60 in each church, were obtained from church databases or estimated by church leaders prior to randomization.

Secondary outcome data were collected from post-intervention surveys of church leaders and older adult congregants. Surveys were administered a

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