

*Applied Research Brief: Older Adults, Behavior Change*

# Evaluation of a Community-based Health Promotion Program for the Elderly: Lessons from Seniors CAN

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## Abstract

**Purpose:** To evaluate the effects of a community-based educational program designed to promote health by enhancing older adults' mastery while decreasing loneliness and stress.

**Methods:** Between 1999 and 2004, 339 older adults who participated in Seniors CAN completed standardized assessments of mastery, loneliness, and stress, prior to and upon completion of the 4-month intervention. Participants' scores were compared using paired *t*-tests to measure changes from preintervention to postintervention. Change scores were then subjected to three-way ANOVA to assess the relative effectiveness based upon participants' sociodemographic characteristics.

**Results:** Participants demonstrated significant improvements from preintervention to postintervention for mastery, loneliness, and stress. Additional analysis revealed that improvement in loneliness was significantly greater among low-income ethnic minorities and minorities with a high level of formal education,  $p < .05$ .

**Conclusion:** The 16-week intervention resulted in significant improvements in constructs associated with better health and a higher quality of life for independent-living older adults. These findings suggest that a community-based educational intervention can be an effective strategy to reduce risk and promote the health and independence of older adults. (*Am J Health Promot* 2006; 21[1]:45-48.)

**Key Words:** Aging Wellness, Health Promotion-Aging, Community-Based Education, Mastery, Loneliness, Elderly, Prevention Research. Manuscript format: research, Research purpose: intervention testing/program evaluation, Study design: nonexperimental, Outcome measure: behavioral, Setting: local community, Health focus: social health, Strategy: skill building/behavior change, Target population: seniors, Target population circumstances: education/income level, geographic location, and race/ethnicity

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## PURPOSE

A substantial amount of evidence has accumulated regarding the relationships between the psychosocial construct of mastery and health outcomes. Mastery, also described in the literature as self-efficacy and autono-

my, is an individual's belief that his or her choices and actions determine outcomes in his or her life. Mastery is an important construct because it is positively related to self-evaluations of health and negatively related to functional impairment, illness, and mortality, particularly for older adults.<sup>1</sup> Mas-

tery is also related to fewer depressive symptoms<sup>2</sup> and may have a greater impact on health than social support.<sup>3</sup>

Loneliness has been shown to have a negative impact on health outcomes, including increased mortality, diminished recovery from illness,<sup>4</sup> and greater health service utilization, such as nursing home admission.<sup>5</sup> The ability to cope effectively with stress is seen in older adults with strong social support systems more than in their lonelier peers.<sup>6</sup> Stress, or the degree to which participants perceive their recent daily life to be uncontrollable or unpredictable, would be a negative indicator of mastery.<sup>7</sup>

Educational strategies to promote behavior change and enhance social support can address psychosocial risk factors underlying older adults' health because these behaviors are amenable to change with health promotion interventions.<sup>8</sup> Among older adults, education is positively related to one's feelings of mastery<sup>9</sup> and to several other predictors of successful aging, including social support, physical activity, moderate drinking, and less smoking.<sup>3</sup> Lifelong learning may also prevent declines in cognitive function that are often associated with aging by providing mental stimulation.<sup>10</sup>

The *Seniors CAN* Program was developed as a 16-week educational health promotion intervention. The program's goal is to improve older adults' quality of life by enhancing their sense of mastery related to issues of health and wellness while decreasing loneliness and stress through peer interaction. The purpose of this study was to evaluate the effectiveness of the

Seniors CAN educational intervention among 339 older adults.

## METHODS

### Design

This study used a pre-experimental, one-group, pretest-posttest design. The data presented here were derived from 36 Seniors CAN 4-month sessions conducted at 20 sites in rural and urban communities of Clark County, Nevada, between 1999 and 2004.

### Sample

Program delivery sites were primarily senior centers and senior housing developments in Las Vegas, Nevada, and rural Clark County. After identifying a meeting site, participants were recruited through newsletters and promotional flyers.

Participants ( $n = 339$ ) ranged between the ages of 52 and 93 years (mean = 73.20,  $SD = 8.64$ ). A majority was female (80%) and white (68%). The ethnic affiliations of other participants included Latino (14%), African-American (10%), Asian American (6%), and Native American (2%). Ten percent of the participants were taught in Spanish.

Seventy percent of participants reported a household income less than \$19,999 per year, with 35% under \$9,999. Twenty percent reported an income between \$20,000 and \$39,999 per year, and 9% had incomes that exceed \$40,000 per year. With respect to formal education, 18% had not completed high school; 32% had only a high school diploma; 28% reported some college; and 21% had a baccalaureate degree or greater.

The attrition rate was less than 5%. The most common reasons were illness of the participant or of a spouse or family member.

### Measures

To assess the effectiveness of the Seniors CAN program, participants completed three self-rating scales with baseline measured at the first class and postintervention 4 months later at the last class session: the Mastery Scale,<sup>11</sup> Revised UCLA Loneliness Scale,<sup>12</sup> and Perceived Stress Scale (PSS-10).<sup>7</sup>

The seven-item Mastery Scale developed by Pearlin and Schooler<sup>11</sup> assesses participants' sense of control

over their lives. The scale has been widely used, including among older adults, and a recent study provided evidence of the scale's construct validity and internal consistency reliability using a sample of women (mean age = 61 yrs; Cronbach's  $\alpha = .72$ ).<sup>13</sup>

The UCLA Loneliness Scale was developed in 1978 to assess subjective feelings of loneliness or social isolation. In 1980, a four-item scale was developed by identifying a subset of items that best predicted scores of the entire index.<sup>12</sup> Four-item versions of the Revised Loneliness Scale have been used with the elderly, including in a large study of nursing home admissions (Cronbach's  $\alpha = .60$ ).<sup>14</sup>

The degree to which participants perceived their daily lives during the past month as uncontrollable or unpredictable was assessed using the 10-item Perceived Stress Scale.<sup>7</sup> This version has been used in studies involving older adults with adequate internal consistency (Cronbach's  $\alpha = .91$ ).<sup>15</sup>

### Intervention

Seniors CAN Program goals are to: (1) educate to promote health and quality of life by enhancing mastery, and (2) create social support networks built around learning to decrease loneliness and stress. The curriculum is taught using an interactive style that promotes participation. It includes 15 lessons on topics including nutrition and food; personal safety, such as reducing accidents in the home; financial strategies to manage limited resources; general wellness, such as immunization and hand washing; and productive aging.

During the first class, participants were given further details about the program, informed consent was obtained, and the pretest was administered. The program classes were taught weekly over a 4-month period by cooperative extension paraprofessionals, volunteer peer educators, and on-site staff, resulting in an average of 32 hours of instruction for each participant. Most important, learning was not restricted to the classroom. Instructors emphasized how information could be readily applied, encouraging participants to integrate one new idea or skill from each lesson. This experiential process was designed to enhance participants' mastery. Allowing participants to share

their experiences created opportunities for modeling and peer education to decrease loneliness and stress.

### Analysis

After the internal consistency reliability of the summated-rating scales had been assessed, participants' scores on mastery, loneliness and stress from pretest and posttest were compared using paired *t*-tests. To assess the relative effectiveness according to participants' sociodemographic characteristics, score differences from pretest to posttest (i.e., improvement scores) were then computed and group means were examined using a three-way ANOVA ( $2 \times 3 \times 4$ ). In order to conduct this analysis, ethnicity was collapsed to two levels (Caucasian and ethnic minorities), income to three levels (\$0–\$9,999; \$10,000–\$19,999; and \$20,000 or more), and education to four levels (not completed high school; high school graduate; some college/college degree; and graduate work/graduate degree). Because the sample was predominantly female (80%), gender was not included in these procedures. These collapsed categories allowed us to test the main effects of ethnicity, education, and income, and also for interactions among these factors on the dependent variables of mastery, loneliness, and stress. Analyses were conducted using SPSS.

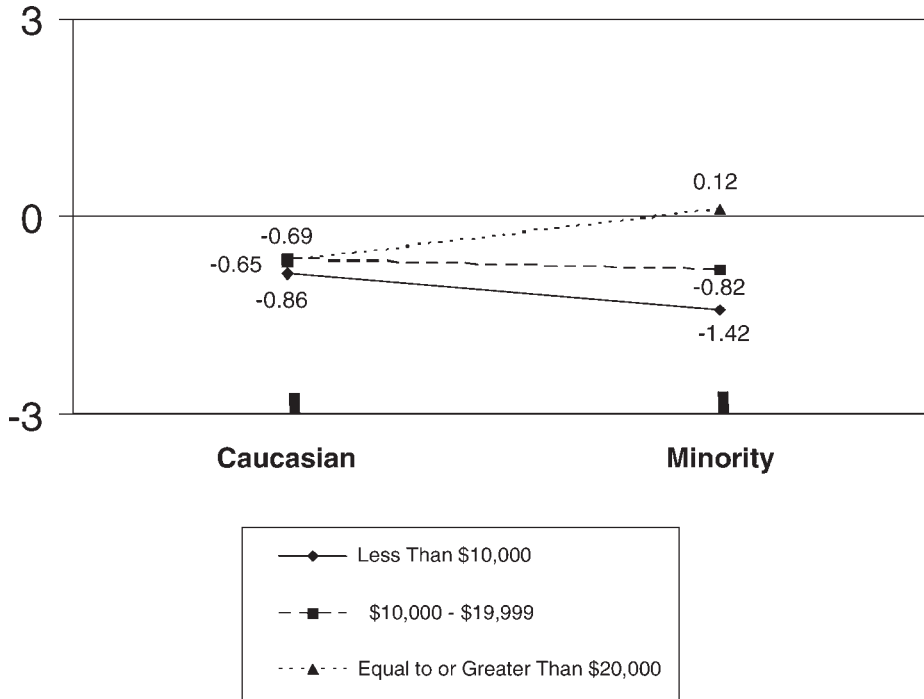
## RESULTS

Estimates of internal consistency of the three summated rating scales were computed for both the pretest and posttest using Cronbach's  $\alpha$ . The four-item Loneliness Scale performed poorly on both administrations (pretest  $\alpha = .42$ ; posttest  $\alpha = .44$ ). The Mastery Scale was adequate (pretest  $\alpha = .75$ ; posttest  $\alpha = .76$ ), as was the Perceived Stress Scale (pretest  $\alpha = .85$ ; posttest  $\alpha = .86$ ).

Pretest to posttest comparisons showed significant improvements on all three outcome measures. Mastery increased from a mean score of  $24.96 \pm .28$  to  $27.01 \pm .25$  ( $t = 12.08$ ,  $df = 323$ ,  $p < .001$ ). Loneliness decreased from a mean score of  $8.64 \pm .10$  to  $7.86 \pm .09$  ( $t = -9.20$ ,  $df = 329$ ,  $p < .001$ ). Stress decreased from a mean score of

**Figure 1**

**Interaction Between Ethnicity and Income on Participants' Loneliness Scores**



16.22 ± .34 to 13.48 ± .32 ( $t = -13.51$ ,  $df = 319$ ,  $p < .001$ ).

Next, participants' improvement scores were computed for these three variables and group means were compared to see whether program effectiveness varied according to participants' sociodemographic characteristics. Significant two-way interactions were found for improvement scores on loneliness. As shown in Figures 1 and 2, these interactions included ethnicity by income ( $F = 6.09$ ,  $df = 297$ ,  $p = .003$ ), and ethnicity by education ( $F = 3.84$ ,  $df = 297$ ,  $p = .01$ ).

Post hoc comparisons of loneliness improvement scores for income and education were then conducted within each of the ethnicity groups using the least significant difference  $t$ -test. The findings showed that the greatest reduction in loneliness occurred among ethnic minorities. Minority participants in the lowest income group reported significantly less loneliness compared to those with the highest income ( $p = .002$ ). When loneliness improvement scores were compared using the four educational levels, we found that minority participants with the highest formal education (graduate school or graduate degree) had significantly greater improvement compared to the second and third educational levels, but were not significantly different from those at the lowest educational level ( $p < .05$ ).

## DISCUSSION

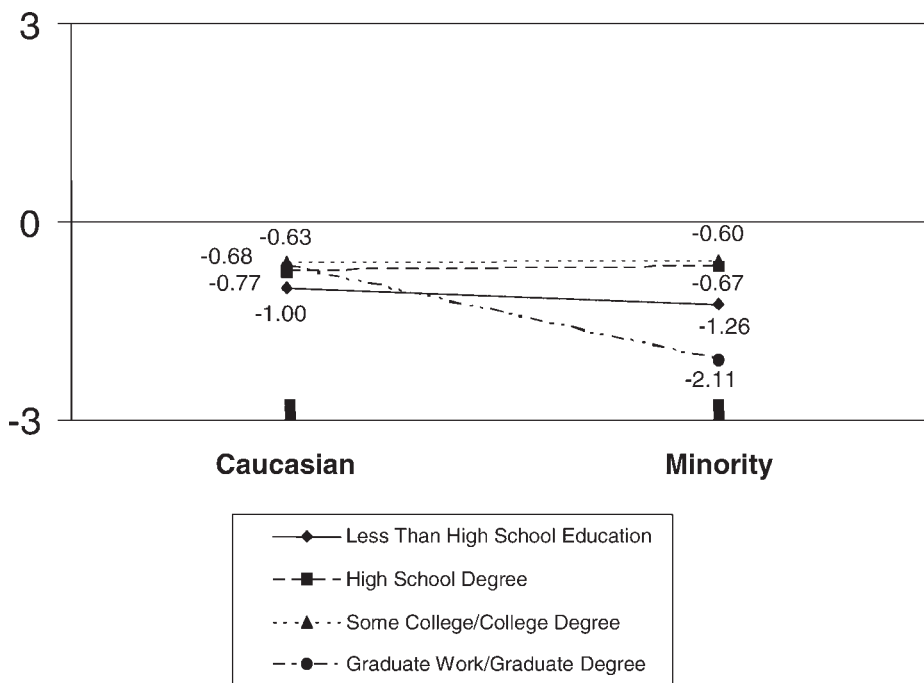
### Summary

Significant improvements in constructs associated with better health and a higher quality of life for independent-living older adults resulted from the 16-week intervention. Short-term improvement in mastery while reducing loneliness and stress in participants are important components of healthy aging. These preliminary findings suggest that a community-based educational intervention can be an effective strategy to reduce health risks for older adults.

Psychosocial risk factors underlying older adults' health behaviors are amenable to change with interventions that promote behavior change and enhance social support.<sup>8</sup> Participants' improved sense of personal

**Figure 2**

**Interaction Between Ethnicity and Education on Participants' Loneliness Scores**



control during the 16-week program provides support for the relationship between life skills education and mastery.

Qualitative participant feedback suggests that the crux of the project's success is that the participants' incorporate lesson-related information into their lives on an everyday basis—converting abstract concepts into practical application. The interactive educational process appears to become a part of healthier aging by rewarding continued learning with practical daily accomplishments that increase mastery.

An important finding of this study is that whereas participants showed statistically significant improvements in mastery, loneliness, and stress measures, minority participants with low incomes and those with higher formal educational levels showed the greatest reduction in loneliness. This suggests that the program may have the greatest impact on those at higher risk of health problems. Such findings raise questions regarding how this occurs and whether such impacts last over time, warranting further investigation into such issues.

### Limitations

The sample population was self-selected and included only those who completed both the pretest and the posttest. Therefore, it is not representative of all older adults. In addition, the evaluation design lacked a control group, assessed only short-term improvements, and did not account for the potential effect of the pretest itself

as a confounding factor. The data were self-reported and may be limited by the participants' desire to represent themselves in a manner they deem to be more socially desirable. Finally, the low level of internal consistency reliability for loneliness is cause for concern.

### Significance

These preliminary findings add to the body of research that suggests that factors related to improved health and higher quality of life for older adults can be enhanced by education. By improving the desired positive factor of mastery and decreasing the negative factors of loneliness and perceived stress, this intervention demonstrated statistically significant enrichment in factors related to better health outcomes for the aging population. Findings of this study seem to support a positive role for wellness education that relates instruction to practice. In general, the study also supports and builds upon theories advanced elsewhere related to the changeability of psychosocial risk factors with health promotion<sup>8</sup> and the positive relationship of education to mastery.<sup>9</sup>

### Acknowledgment

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