University of Rhode Island

Project Name ...

The SENIOR Project

Principal Investigator ...

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Background / Significance of Problem ...

The aging of the U.S. population poses unprecedented public health challenges to our society, particularly in the field of health promotion. The projected impact of the large cohort of baby boomers on health care services and costs is anticipated to be great. The success of public health interventions in postponing the onset of chronic illness and in providing effective management of existing disease and disability promises to have a positive impact on the quality of life of this rapidly expanding population group and potentially also on reducing Medicare costs in the future. In particular, recent attention has been focused on the importance of both increased exercise levels and improved diet for enhanced quality of life in older adults. In addition, calls have recently been made for the development of interventions that combine the reach of a public health model with the personalization of an individualized assessment and intervention-individualization combined with large-scale reach. Research examining multiple behavior interventions is especially important to assess potential interactions between the interventions (e.g., overburdening, enhancement, and additivity) that deal with questions of effectiveness and efficiency.

Research Question ...

The primary purpose of the SENIOR project is to investigate the relative effectiveness of a Transtheoretical Model (TTM)-based multiple behavior intervention (exercise and nutrition) compared to single-behavior interventions. This study is a 2x2 experimental design with the following groups: 1) exercise intervention only; 2) nutrition intervention focusing on fruits and vegetables (F&V) only; 3) combined exercise and nutrition; and 4) a control group receiving fall prevention materials. The secondary purposes are: 1) to investigate the interventions' effects on both functional ability and general health outcomes; and 2) to investigate how older adults move along a continuum of changing their health-related behaviors.

Findings To-Date ...

[•] Data collection points for the SENIOR Project were scheduled for baseline, 12, and 24 months. Baseline and 12-month data only have been partially analyzed. At baseline the average age of SENIOR Project participants (N=1,277) was 75.7 years. Data were analyzed to examine the relationships among the stage of change for exercise and F&V consumption

with regard to participant stages of readiness to change and the characteristics of participants at different levels of readiness to change their exercise and/or nutritional behaviors. The two stage of change measures were significantly associated, i.e., individuals in action/maintenance for one behavior were more likely to also be in action/maintenance for the other behavior; however, the association was small. Overall, stage of change for fruit and vegetable consumption was associated with the dietary measures and energy expenditure, but not with the activity summary score or the Up-and-Go time; and stage of change for exercise was associated with the three physical activity measures and servings of fruit per day, but not with servings of vegetables/day or estimated percent of daily calories of fat.

[•] These analyses suggest that individual older adults' readiness to change is behavior-specific. A total of about 950 project participants provided data for the 12-month assessment. The proportion of the sample in the action and maintenance stages at baseline did not differ on either behavior. At 12 months, the group receiving the exercise only intervention had a significantly higher proportion in action/maintenance than any of the other groups, and only this group showed a significant increase over baseline. For diet, all groups increased compared to baseline and none of the groups differed significantly at 12 months, except that the exercise only group resulted in significantly less action/maintenance for F&V consumption.

Implications ...

[for multibehavioral and multi-theoretical approaches to behavior change]

[•] Baseline data analyses suggest that individual older adults' readiness to change is behavior-specific. At 12 months, results appear to suggest that although the exercise intervention did increase physical activity, it may also have decreased fruit and vegetable consumption. While these results are quite preliminary, this finding would represent the first time that a stage-tailored intervention for one behavior has had a negative impact on another behavior.

[•] Since we have not seen this result with other samples receiving multiple behavior interventions, our present working hypothesis is that this may be a sample-based result. However, this interpretation is not entirely clear, because a comparison of groups that received the diet intervention, against those that did not, shows a marginal increase in fruit and vegetable consumption for the combined diet groups. Since TTM-tailored interventions have invariably shown increases in the proportion in action/maintenance even 12 to 24 months after the end of interventions, we feel it is important to interpret these results as very tentative at best.

Future Research Directions ...

The SENIOR Project has applied for the RFA OB-03-003 on "Maintenance of Long Term Behavioral Change," to allow us to follow the project sample for four more years, for a total of seven years from the initial baseline assessment, focusing on factors related to the maintenance of exercise and dietary behaviors. We will continue to seek funding to enable us to refine the intervention in terms of effectiveness and cost, and to improve its reach to a larger, community-based sample in Rhode Island.