



## Changing behavior in senior housing residents: Testing of phase I of the PRAISEDD-2 intervention



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### ABSTRACT

**Purpose:** Programs focused on health related behaviors implemented in senior centers, senior housing or churches have not been strongly successful in showing significant improvement in cardiovascular disease (CVD) prevention behaviors or important clinical outcomes such as decreasing blood pressure. The purpose of this study was to consider the feasibility and preliminary efficacy of phase I of the PRAISEDD-2 intervention. PRAISEDD-2 was implemented to increase physical activity, adherence to heart healthy diets and antihypertensive and/or lipid lowering medications.

**Method:** This was a single site pre post intervention trial. The 12 week phase I activities included education, motivational interventions and exercise classes two times per week implemented by a lay trainer and nurse. **Results:** A total of 29 residents were recruited from a single senior housing facility. The majority was Black or African American, female and had at least a high school education. The average age of participants was 74 years of age. At the end of phase I, participants had stronger outcome expectations for exercise, decreased fat and salt intake and decreased pain. There was a non-significant improvement in time spent in physical activity and distance walked in 6 minutes.

**Conclusion:** Phase I of the PRAISEDD-2 intervention was feasible based on adherence to study design, training of the interventionists, delivery and receipt, and there was some support for efficacy across some study outcomes.

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Educational interventions have produced improvements in cardiovascular disease (CVD) risk reduction behaviors, including adherence to heart healthy diets, regular physical activity, and prescribed antihypertensive and lipid lowering medications (Campinha-Bacote, 2009; Gross, Anderson, Busby, Frith, & Panco, 2013). Even though African American (AA) and low income older adults are at greater risk for CVD disease and its consequences (Go, Mozaffarian, & Roger, 2013), they are less likely than their counterparts to receive this type of education and consequently less likely to engage in CVD prevention behaviors (Bosworth et al., 2006; Rose et al., 2008).

Along with lack of exposure to information about CVD and associated risk factors, there are many other reasons for lack of adherence to heart healthy behaviors among AA and low income older adults. These include health care providers not recommending specific health promotion behaviors (Goldstein et al., 2006); lack of belief in the benefits associated with these behaviors (Hekler et al., 2008); intrapersonal factors such as motivation, resilience and ability to overcome barriers to engaging in CVD prevention behaviors (Belza et al., 2004); cultural factors (e.g., dietary preferences) and beliefs that

home remedies will work better than diet, exercise and medication use (Campinha-Bacote, 2009; Gross et al., 2013); inconsistent support/encouragement from family and community members (Campinha-Bacote, 2009; Gross et al., 2013); lack of recreational facilities, healthy food options or medical resources (Gross et al., 2013); and unpleasant sensations associated with adherence to healthy behaviors and medications (Gross et al., 2013).

Approaches, in addition to education, that facilitate adherence to CVD prevention behaviors have been established. These focus on access, aspects of programs and external motivation. With regard to accessibility, it is important to assure that individuals have programs that are available to them within their living or working environments and that there are no barriers to participation such as requiring high cost screening prior to participation (Hekler et al., 2008; Resnick et al., 2009). Programs provided should be simple to follow, enjoyable and include goal setting and behavior oriented counseling (Mishra, Gioia, Chilaress, Barnet, & Webster, 2011; Pepper, Carpenter, & DeVellis, 2012). In addition, programs should include more than a single one-time exposure (Lin, O'Connor, Whitlock, & Beil, 2010). Motivational interventions are also needed to facilitate initiation of behavior change as well as long term adherence (Mishra et al., 2011; Pepper et al., 2012). Effective motivational interventions are self-efficacy

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based and include verbal encouragement, positive reinforcement, use of social supports (e.g., an exercise partner) and elimination of the unpleasant sensations associated with healthy behavior (e.g., pain associated with exercise; hunger associated with dieting).

### 1. Theoretical models for behavior change interventions

Previously tested interventions to increase adherence to CVD prevention health behaviors using social cognitive theory (Bandura, 1997) and/or social ecological models (Gregson et al., 2003) have not been completely effective in changing health behaviors among low income and AA older adults (Lin et al., 2010). Social cognitive theory suggests that the stronger one's self-efficacy (belief in ability to initiate and complete a course of action) and outcome expectations (belief in the benefit of performing the behavior), the more likely it is that the behavior will occur (Bandura, 1997). Social ecological models consider intrapersonal factors (e.g., age, gender), interpersonal factors (interactions with others), environmental factors and manipulation of the environment (e.g., increasing accessibility to parks and safe walking areas) or policy and media based approaches (e.g., campaigns promoting healthy food options) that influence health behaviors. To optimize behavior change among AA and low income older adults the addition of diffusion of innovation theory (DOI) is recommended (Glasgow, 2010; Rogers, 2003) to augment the guidance provided by social cognitive theory and the social ecological model.

DOI states that implementation of a program or innovation is influenced by the following four key components: (1) the program, which incorporates five attributes: (a) relative advantage, or the degree to which the innovation is perceived as being better than the activity/behavior previously occurring; (b) compatibility, or the degree to which an innovation fits with existing values, experiences, and needs of adopters; (c) complexity, which is the degree to which an innovation is perceived as difficult to understand and use; (d) trialability, or the ability to experiment with an intervention on a limited basis; and (e) observability, which is evidence of positive outcomes associated with the intervention; (2) communication through certain channels (e.g., interpersonal, mass media); (3) timing of individual and site based adoption of the intervention (e.g., the process associated with early and late adoption); and (4) the structure and impact of the social system including the influence of change agents (e.g., physical activity leaders), opinion leaders, and champions.

Comprehensive behavior change interventions that are accessible, incorporate effective motivational approaches and DOI approaches and are provided in multiple sessions over a period of time are needed to stimulate the interest and willingness of individuals living in these settings to change their health behaviors (Bandura, 1997; Folta et al., 2009; Green, Gottlieb, & Parcel, 1991; Gross et al., 2013; McConnell, Santamore, Larson, & Homko, 2010). Therefore, building from theory and prior research we revised a previously tested intervention, People Reducing Risk And Improving Strength through Physical Activity, Diet, and Drug Adherence (PRAISEDD) for low income and African American older adults in senior housing facilities (Resnick et al., 2009) which we refer to as PRAISEDD-2. Like our original PRAISEDD intervention, PRAISEDD-2 used a social ecological model and social cognitive theory to inform the interventions. Specifically we considered individual characteristics and goals, the environment and policies within the setting and used self-efficacy based approaches to motivate residents to participate in the PRAISEDD-2 activities offered (e.g., education about CVD prevention, providing participants with feedback including such things as blood pressure readings, and providing an exercise class twice weekly incorporating music and dance). In addition, PRAISEDD-2 was guided by DOI and included housing facility staff and residents in the development and implementation of the program so as to assure that the program was compatible with the philosophy and customs within the setting, that

it was relatively simple to implement in the setting, and that we were working together towards goals that the staff and residents wanted to achieve (e.g., stroke prevention). In addition, we identified staff and residents within the facility that were willing to be champions and help encourage other residents to participate initially and to keep attending classes. The purpose of this study was to test the feasibility and preliminary efficacy of phase I, the education and initiation phase of the PRAISEDD-2 intervention, among a group of low income and AA older adults living in senior housing. Feasibility was evaluated through comprehensive assessment of treatment fidelity, which included evaluation of treatment design, training of interventionists, delivery and receipt of the intervention.

### 2. Methods

#### 2.1. Design, sample and setting

This was a single site quasi-experimental study using a pre and post test design with outcomes evaluated at baseline and 3 months post initiation of the intervention. The study was done in a low income senior housing facility in an urban setting with occupancy for 200 residents. Residents were eligible to participate if they currently live in the housing site, were 55 years of age and older, could read and write English and could recall 2/3 words as per the Mini-Cog (Borson, Scanlan, Chen, & Ganguli, 2003). Residents were excluded if they did not pass the Evaluation to Sign Consent (Resnick et al., 2007) or the EASY Screening Tool (Resnick, King, et al., 2008; Resnick, Ory, et al., 2008).

Recruitment was done during a single "meet and greet" session coordinated with the facility activities director and senior housing site manager. Flyers were posted in the setting to invite individuals to come learn about PRAISEDD-2. Out of the 200 residents living in the setting, 54 (27% of the 200 residents) attended the meet and greet session. Of these 54 individuals, 42 were approached and 32 consented (76% of the 42 approached). The remaining 10 individuals who were approached refused to participate. One consented individual was noted to be ineligible, and 2 of the consented individuals withdrew consent after baseline assessment. Therefore, there were a total of 29 (out of the originally consented 32) individuals who participated in the study.

The full PRAISEDD-2 intervention (Table 1) includes two phases: phase I is the education and initiation phase and phase II is the motivation and dissemination phase. Phase I incorporates education, provides exercise classes to increase physical activity among participants and uses self-efficacy based interventions to motivate the residents to participate in the classes. As described in Table 1, the first week of class involves education only and is taught by a nurse with expertise in behavioral interventions and prevention of CVD. The educational material is provided in an interactive lecture format with handouts (available from the first author) and incorporates self-efficacy based motivational interventions (Table 2). For example, verbal encouragement was used, and we had discussions about ways to eliminate unpleasant sensations and focus on positive outcomes (e.g., a decrease in blood pressure) when exercising. During weeks 2 through 12 of phase I, brief health tips were provided to reinforce the educational material given during the first week of the intervention. Examples of health tips included such things as ways to substitute high salt and high fat foods with healthy food choices; and reviewing the amount of activity needed to get cardiovascular benefits. The exercise class activities (available from the first author) followed the same format each class with variation only in the dance/aerobic component. We utilized holidays, such as Valentine's Day, and participant preferences for music and type of dance for each class. The same lay trainer led the exercise component of each class, and the nurse was also present during all classes to take blood pressures at the beginning of each class and to provide the health tip.

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