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Intergenerational physical activity programming for rural-residing older adults

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Intergenerational physical activity programming for rural-residing older adults

by

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A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Diet and Exercise

Program of Study Committee:
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Ames, Iowa

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ABSTRACT

The Living (well through) Intergenerational Fitness and Exercise (LIFE) Program is a group-based exergaming program designed for community-delivery through Extension. Extension serves every Iowa county and has the potential to reach a larger population of older adults (OA). This study evaluated the LIFE Program's impact on OA physical activity (PA) and self-efficacy as well as to test the efficacy of it as an Extension-delivered program.

The LIFE Program was implemented in 31 rural Iowa counties with 265 OA. The LIFE Program includes an onsite program (8-weeks) and newsletter phase (16-weeks). Questionnaires were completed at weeks 1 (PRE, in person), 8 (POST, in person) and 25 (FOLLOW-UP, by mail). The questionnaires included general demographic information, self-reported health status, PA stages of change and self-efficacy measures. The LIFE Program delivery-efficacy through Extension was evaluated with a two-hour focus group (n= 5 managers) or an online questionnaire comprised of the focus group questions (n= 7 managers).

There was a significant increase in those who self-identified as "not-active" at PRE who moved to "active" at POST (p=.008). PRE PA level significantly influenced self-efficacy change from PRE to POST for 35-minutes (p=.011) and 40-minutes (p=.035) of continuous PA. PRE self-reported health status was also a significant influencer for 40-minutes (p<.001) of continuous PA and self-efficacy for overcoming barriers change (p<.001) while the interaction between PRE self-reported health status and PRE PA level significantly influenced self-efficacy change for 35-minutes of continuous PA (p=.009).

Program managers reported offered the LIFE Program because it was a way to provide programming for rural-residing OA. The "best-liked" programming features included the ready-to-go curriculum, training workshops, monthly conference calls, and the intergenerational and rural focus. The LIFE Program implementation success was dependent on community support, including support from local Extension offices, high schools and the community. Implementation challenges included recruitment of trainers and OA, obtaining a host site location and questionnaires.

These data suggest that the LIFE Program leads to increased PA participation among those who were not active previously and improved PA self-efficacy among rural-residing OA. Additionally, the LIFE Program design is well-received and useful for Extension-delivery.

CHAPTER I: INTRODUCTION

Background

The older population in America is on the rise, with 13.7% of the total United States population being older adults ages 65 and over (Administration on Aging & the Department of Health and Human Services, 2013). Increasing age raises the risk for chronic diseases, with approximately 80% of older adults reporting one or more chronic disease conditions which constitute about 75% of all healthcare spending (Chi et al., 2011). Physical activity is one way to decrease the risk of chronic diseases and potentially reduce healthcare spending. Individuals who participate in 90 minutes of physical activity per week save approximately \$2,200 in healthcare savings per year (Center for Disease Control [CDC], 2003).

Older adults who are physically active have a reduced risk for and severity of many chronic diseases and may have an increased likelihood of maintaining or improving cognitive and physical function (Davis et al., 2011). Age-related physical activity decline is likely due to alter to body composition, reduced volume and intensity (American College of Sports Medicine [ACSM], 2009). Of particular concern are rural-residing older adults who report having decreased health status and a higher incidence of chronic disease conditions than their urban-residing peers (Baernholdt et al., 2012). Furthermore, rural-residing older adults have reduced opportunity for socialization (Baernholdt et al., 2012) and are further from fitness and healthcare resources (NRHA, 2014). Compared to their urban counterparts, rural-residing older adults were found to be half as physically active (Shores, West, Theriault & Davison, 2009).

Older adults often report barriers toward physical activity including lack of time, lack of discipline, inadequate motivation, boredom and intimidation (Costello, Kafchinski, Vrazel & Sullivan, 2001). Instead they prefer programs that are accessible, safe, free, knowledgeable staff, convenient, fun and social (Costello, Kafchinski, Vrazel & Sullivan, 2001). Offering free and convenient options for rural-residing older adults in their community could improve physical activity participation.

One means of promoting physical activity for rural-residing older adults is exergaming. Exergaming is the combination of video games with physical activity (Chao, Scherer, Wu, Lucke & Montgomery, 2013). Exergaming has been shown to increase adherence to physical activity programs (Maillot et al., 2011), increase physical activity participation (Strand, Francis, Margrett, Franke & Petersen, 2014) and has increased in popularity among older adults (Maillot et al., 2012; Strand, Francis, Margrett, Franke, & Peterson, 2014). A free exergaming-based physical activity program for rural-residing older adults may increase physical activity participation, increase independence and decrease or prevent the risk for many chronic diseases. Additionally, a physical activity program may increase socialization and increase adherence to physical activity.

Goals and Objectives

The overall objective of this study was to evaluate the Living (well through) Intergenerational Fitness and Exercise (LIFE) Program in rural Iowa counties. This entailed assessing the feasibility of the LIFE Program as an Extension-delivered program and assessing the LIFE Program's impact on physical activity participation and physical activity related self-efficacy. The central hypothesis was that with the refined LIFE Program, would be conducive for successful delivery through Extension and would positively influence physical activity participation and self-efficacy.

The long-term goal of the LIFE Program is to increase and sustain physical activity participation in rural-residing older adults. To test this hypothesis I will answer these research questions:

1. To what extent is a theory-based, Extension-delivered eight-week exergaming physical activity program capable of improving physical activity stages of change and physical activity-related self-efficacy among rural-residing older adults?
2. To what extent is the LIFE Program feasible as an Extension-delivered Physical activity program for rural-residing older adults?

Thesis Organization

This thesis will begin with a review of literature focusing on older adults, health status, physical activity, exergaming, theory-based health program models and evidence-based programming. Following the review of literature, the methods section will describe

the LIFE Program followed by two complete manuscripts. Conclusions, references and appendices and will be at the end of this thesis.

CHAPTER II: REVIEW OF LITERATURE

Background

The growing older adult population provides many opportunities for community-based physical activity interventions. Older adults (65 years and older) make up nearly 13.7% of the total population in the United States (US; Administration on Aging & the Department of Health and Human Services, 2013). Although older adults could benefit by attending physical activity programs many are not physically active (Stewart et al., 2007). Older adults who are not physically active put themselves at risk for obesity and functional limitations which are related to a lower quality of life (Mullen, McAuley, Satariano, Kealey & Prochaska, 2012). These functional limitations, along with mental or physical impairments may lead to disability (Mullen, McAuley, Satariano, Kealey & Prochaska, 2012). Costello and others (2001) found that barriers toward older adult physical activity participation include a lack of interest, shortness of breath, fear of doing it alone, safety and/or embarrassment of joining in on a group activity.

One form of physical activity that may be appealing to older adults is exergaming, which combines video games with physical activity. Preliminary research indicates exergaming is an enjoyable form of physical activity that motivates older adults to participate (Chao, Schere, Wu, Lucke, & Montgomery, 2013; Maillot & Perrot, 2012; Graves et al., 2010). Group-based exergaming training sessions may be beneficial for providing a group environment for the attendees to socialize and meet new people.

Demographics

Older adults are a diverse group. Given the differences in the older adult population it is usually divided into three subgroups: the “young-old” (65 to 74 years), “middle-old” (73-84 years) and “old-old” (85+ years) (Shores, West, Theriault & Davison, 2009). Currently, older adults (age 60+) make up 20.4% of Iowa’s population which is higher than the national level (14.9%); ranking it as 6th in older adult population (United States Census Bureau, 2010).

Health Status

Chronic diseases are a major cause of disability and death among older adults. There is an age-associated increase in chronic conditions which are more disabling and more costly (National Academy on an Aging Society [NAAS], 1999). Older adults who are over the age of 65 years are at an increased risk for chronic conditions with nearly 80% reporting one or more chronic health conditions (Chi et al., 2011). Regular physical activity can decrease the risk of and severity of chronic disease in older adulthood (American College of Sports Medicine [ACSM], 2009). Common chronic diseases afflicting older adults include arthritis, hypertension, heart disease, diabetes, Parkinson's disease and fibromyalgia (NAAS, 1999). All of which may be benefited by physical activity.

The increased age-associated health conditions will have a negative economic impact if interventions are not developed to lower the risk and severity of these conditions. It is anticipated that out-of-pocket expenses will increase to 29% by 2040 with about 60% of older adults paying nearly a quarter of their income towards health care (Johnson, 2010). The difference in healthcare costs for chronic diseases is astonishing. Approximately 75% of healthcare spending is used to pay for chronic condition treatment (Chi et al., 2011). Those without chronic disease pay \$211 per year compared to older adults with just one chronic disease (\$1,154), two chronic diseases (\$2,394), three chronic disease (\$4,701), and four chronic diseases (\$13,973) on average per year (Chi et al., 2011).

Physical activity decreases the risk and severity of many chronic diseases and lowers chronic disease-related healthcare expenditure. Participating in 90 minutes of physical activity per week could produce approximately \$2,200 in health care savings per year (Center for Disease Control [CDC], 2003). Many diseases are caused by a sedentary lifestyle and providing a way for older adults to become physically and socially active is a need for the aging population.

Rurality and Health

Older adults living in rural areas represent approximately 20% of the older adult population (National Rural Health Association [NRHA], 2011). Rural areas typically are

farther away from urban areas with less access to health care resources such as hospitals, doctors' offices, and gyms. (NRHA, 2015). Rural-residing older adults are adversely impacted by the limited access to many of these resources. Those who need assistance with transportation will not have as many options as those living in urban areas and may depend on friends and family members (NRHA, 2013).

Rural-residing older adults often report a lower quality of life (i.e., social functioning, physical and mental health, and emotional well-being) due to not wanting to leave their home and the scenic landscape (Baernholdt et al., 2012). However, socialization can be worse for rural-residing older adults possibly due to the lower population in that area and limited ability and/or opportunity to travel to urban areas (Baernholdt et al., 2012). Consequently, physical health for rural-residing older adults is less than those in urban areas with rural-residing older adults reporting more chronic health conditions than those in urban areas and a lower health related quality of life (Baernholdt et al., 2012).

Physical Activity

As stated previously, being physically active at an older age decreases the risk and severity for chronic disease (e.g., cardiovascular disease, hypertension, type 2 diabetes) and increases cognitive and physical function (Davis et al., 2011). Also, those who are more physically active tend to have more independence and a higher level of well-being than those who are less physically active (Davis et al., 2011). Other physical activity benefits include improving strength and the ability to move around more easily without falling (CDC, 1995). Physical activity can also aid in weight maintenance (Schmidt, 2012), sarcopenia (International Osteoporosis Foundation, 2015), thereby improving the health of older adults resulting in reduced healthcare costs (CDC, 2000). These benefits contribute toward enhancing quality of life of older adults.

Physical Activity and Older Adults

Physical activity participation often declines in older adulthood due to physiologic changes that occur with aging and alters body composition and reduces an

older adults' ability to exercise to the same extent (ACSM, 2009). Increasing age may also reduce exercise intensity and volume (ACSM, 2009). Physical activity has numerous benefits including decreased risk of dying from cardiovascular disease, reducing the incidence of depression and anxiety, management of chronic diseases (Belza et al. 2004), maintaining mobility, independent living, (van Stralen, de Vries, Mudde, Bolman, Lechner, 2009) increasing strength, bone density, flexibility and reducing the incidence of falls in older adults (Costello, Kafchinski, Vrazel, & Sullivan, 2001; van Stralen, de Vries, Mudde, Bolman, Lechner, 2009). Aerobic and resistance exercise training in older adults can increase aerobic capacity and muscular strength by 20-30% (ACSM, 2009) allowing for older adults to maintain independence and continue activities of daily living. Physical activity does not only provide physical and health benefits but also psychological benefits and overall well-being. Aerobic exercise decreases the risk of clinical depression or anxiety by increasing self-esteem and self-efficacy. (ACSM, 2009; Blazer, 2002)

Despite the numerous benefits associated with regular physical activity, older adults are the least physically active age group (BRFSS, 2013; Carlson et al., 2012) and less than one-third of older adults are meeting the recommended physical activity guidelines (NCOA, 2014). This rate of physical inactivity is more prevalent in rural areas where rural-residing older adults are half as likely to be physically active as urban-residing adults (Shores, West, Theriault & Davison, 2009).

Physical Activity Recommendations

The current physical activity guidelines for Americans (i.e., younger and older adults with no limiting health concerns) recommends 150 minutes of moderate or 75 minutes of vigorous exercise per week including two days of whole body resistance training (U.S. Department of Health and Human Services, 2008). Chronic diseases may prevent older adults from participating in physical activity and ACSM recommends that older adults be as physically active as they can, since any amount of physical activity will provide health benefits for older adults (ACSM, 2009).

Motivators of Physical Activity

Physical activity participation is dependent on many factors including self-efficacy, environment, social aspects and location. Rural-residing “old-old” adults are less likely to be physically active than “old” or “young-old” adults (Shores, West, Theriault & Davison, 2009). Shore and others (2009) reported that older adults were more likely to participate in physical activity programs if they had someone to be active with, access to safe facilities, could walk to parks and was close to their residence. Other physical activity motivators include encouragement to be active by a physician, peer support, class setting, and an organized program (Carlson et al., 2012), collectively known as “social support”, may encourage and be beneficial for rural-residing older adults physical activity participation (Shores, West, Theriault & Davison, 2009). Carlson and others (2012) found that health concerns were the most common motivator behind physical activity participation (e.g., high blood pressure). Age could potentially be another indicator of participation; those enrolled in the study between the ages of 65-80 years were more likely to be active than those 80+ (Shores, West, Theriault & Davison, 2009).

Barriers to Physical Activity

Meeting physical activity guidelines is challenging for older adults and for numerous reasons. Barriers for physical activity include lack of time, injury risk, lack of discipline, inadequate motivation, boredom and intimidation (Costello, Kafchinski, Vrazel, & Sullivan, 2001). Older adults prefer programs that are accessible, safe, free, have a knowledgeable staff, convenient, fun, and social (Costello, Kafchinski, Vrazel, & Sullivan, 2001; Carlson et al., 2012). Other barriers to physical activity are centered on physiological, behavioral and psychological variables (Costello, Kafchinski, Vrazel, & Sullivan, 2001).

Other determinants of physical activity participation are enjoyment, weather, social aspects and the type of activity (Costello, Kafchinski, Vrazel, & Sullivan, 2001). Research has found that “low” to “moderate” intensity activities were more likely to adhere to by older adults than “high” intensity and if they had someone to be active with they would stick to it for a longer period of time (Carlson et al., 2012; Shores, West,

Theriault & Davison, 2009). Rural-residing older adults commonly have decreased access to healthcare options and may not participate in physical activity due to limited social support (Shores, West, Theriault & Davison, 2009), access and convenience (Costello, Kafchinski, Vrazel, & Sullivan, 2001). Weather is another factor in physical activity participation, especially in rural areas. Those who were exercising outside participating in activities such as jogging, biking, walking and swimming would be less likely to do this in the middle of cold weather; decreasing overall physical activity. Additionally, rural areas are further away from urban areas and often do not have fitness centers that are accessible to the entire population (NRHA, 2013).

With these physical activity participation barriers in mind it is important that physical activity programs specifically for rural-residing older adults be developed. Offering free and convenient options for rural-residing older adults in their community could improve physical activity participation.

Self-efficacy and exercise

The most common barrier toward regular physical activity is lack of time (CDC, 1995). Participation in exercise is strongly linked to self-efficacy, which is an individual's confidence to do a certain behavior and can be associated with their perceived ability to be physically active (Orsega-Smith, Payne, Mowen, et al., 2007). Higher self-efficacy increases the likelihood of changing or maintaining a certain behavior (Orsega-Smith, Payne, Mowen, et al., 2007). Conversely, lower self-efficacy decreases the likelihood of achieving or maintaining a desired health behavior. Self-efficacy is one predictor of older adult physical activity participation (Orsega-Smith, Payne, Mowen, et al., 2007). Those who meet the physical activity guidelines tend to have higher levels of self-efficacy compared to those who do not (Orsega-Smith, Payne, Mowen, et al., 2007). Older adults who exercise more frequently and had more social support throughout an exercise routine or program had increased levels of self-efficacy and maintained exercise levels after the program was completed (McAuley, Jerome, Elavsky, et al., 2003).

Enhancing self-efficacy for physical activity may be an effective way to increase physical activity participation and increase maintenance of that activity among rural-

residing older adults. There is a strong connection between self-efficacy and physical activity participation (Ayotte, Margrett & Hicks-Patrick, 2010; French, Olander, Chisholm, McSharry, 2014) and physical activity adherence (Brassington, Atienza, Perczek, DiLorenzo & King, 2002). Social and family supports are associated with increased self-efficacy and physical activity participation (Anderson, Wojick, Winett & Williams, 2006). Therefore physical activity programs for older adults may positively impact self-efficacy if they are a welcoming, group-based program.

Exergaming

Recently, the use of technology-based programs have been investigated as a means to increase adherence to a regular physical activity routine and physical activity participation by those who are not capable in exercising at the gym due to functional limitations or do not like traditional forms of exercise. Exergaming is a technology-based approach toward physical activity that incorporates physical activity with interactive gaming systems (i.e., Wii[®], Xbox Kinect[™]; Chao, Scherer, Wu, Lucke, & Montgomery, 2013). These gaming systems allow individuals to interact with a virtual environment to become more active. It works by tracking movements from the player and shows them on the screen by using remotes as seen in Wii[®] gaming systems and a camera sensor in Xbox Kinect[™] systems. (O’Leary et al., 2011). Exergaming has gained popularity in recent years and is popular among older adults (Maillot et al., 2012; Strand, Francis, Margrett, Franke, & Peterson, 2014). Adherence to physical activity can be challenging when working with older adults but exergaming could increase adherence to a physical activity program (Maillot et al., 2011).

Exergaming Benefits

A structured, group-based, exergaming-based physical activity program has been shown to increase physical activity participation in older adults (Strand, Francis, Margrett, Franke & Peterson, 2013), balance, mobility improvements (Chao et al., 2013), decreased depression symptoms (Dionigi, 2007; Rosenberg et al., 2010) and functional fitness (Francis et al., under review).

Boredom with exercise is a common barrier to exercise in older adults and is often difficult to encourage them to do so (Chao et al., 2013). Exergaming systems (i.e., Xbox Kinect™ and Wii®) can be an effective way to increase exercise enjoyment particularly in older adults. Chao and others (2013) found that the older adults in their study found Wii® exergaming to be enjoyable and wished to continue exercise.

Living (well through) Intergenerational Fitness and Exercise (LIFE) Program

An example of a group-based exergaming-based physical activity program for older adults is the LIFE Program. The LIFE Program is a 24-week physical activity program for rural-residing older adults ages 60+. The 24-week program consists of an 8-week onsite, trainer-led, physical activity program and a 16-week newsletter intervention. The 8-week physical activity program utilizes exergaming technology (i.e., XBOX Kinect Sports™). The LIFE Program pilot study showed an increase in physical activity participation among those who were not physically active at baselines and was viewed as an enjoyable form of physical activity for older adults (Strand, Francis, Margrett, Franke, & Peterson, 2014). Most successful programs were small cohesive groups of less than 10, trainers who were comfortable around older adults and in areas that did not have other facilities nearby that offered physical activity programs (Strand, Francis, Margrett, Franke, & Peterson, 2014). The LIFE Program was developed to be implemented through Iowa State University Extension and Outreach. Delivery through Extension and Outreach allows the LIFE Program to be delivered across the state since there is an extension office that serves each of Iowa's 99-counties.

Physical Activity Intervention Strategies

Theory-Based Programming

Whole Person Wellness Model

The LIFE Program was developed using two behavior and intervention theories: Whole Person Wellness Model (WPWM) and Transtheoretical Model (TTM). Whole person wellness is important in making lifestyle changes of any kind. The WPWM incorporates six main dimensions of health: physical, emotional, spiritual, intellectual, occupational/vocational, and social wellness (Edelman & Montague, 2006; Kang and

Russ, 2009; Montague, Piazza, Peters, Eippert & Poggiali, 2002). This approach suggests focusing on all dimensions of wellness at the same time to get increased benefits.

Physical wellness consists of the desire and need for physical activity, nutrition, and the decrease of drugs and alcohol. By decreasing bad habits (i.e., physical activity and nutrition) and increasing good habits (i.e., physical activity and nutrition) can contribute to overall wellness. Emotional wellness encompasses forming healthy relationships with others built on trust and respect. Healthy relationships contribute to wellness and success in an individual's life. Spiritual wellness is the search of purpose and meaning of a person's life. It can be the path to what their morals and beliefs are on issues. Intellectual wellness is the increase of knowledge in creativity and scholarly. Vocational wellness is the satisfaction felt while at work and how happy they are with what they do on a daily basis. The last dimension, social wellness, is the interaction between an individual and their environment and community. These six dimensions are important in achieving overall wellness and can help an individual have an increased sense of wellbeing and increase confidence (Kang & Russ, 2009). The WPWM components included in the LIFE Program are described in Table 1.

Table 1. The WPWM components in the LIFE Program

LIFE Program Component	WPWM Component
Onsite Program (Weeks 1-8) <ul style="list-style-type: none"> • Twice weekly sessions • 30 minute Kinect (Weeks 1-8) • 30 minutes/day interactive games (Weeks 1-2)^a 	Physical Social Emotional Intellectual Vocational
Newsletter Phase (Weeks 9-24) <ul style="list-style-type: none"> • Wellness newsletter mailed every other week (Week 1 Nutrition and Physical Activity; Week 3 Social and Cognitive wellness) 	Physical Emotional Intellectual Vocational

Note: ^a Interactive games may be continued through the duration of the program

Transtheoretical Model

The TTM or stages of change is a model to categorize individuals based on their stage of change (Table 2). This is important for physical activity programs since

individuals electing to participate in physical activity programs are likely at different stages of readiness to change their physical activity or lifestyle.

Table 2. TTM Stages (Prochaska et al., 2007)

TTM Stage	Persons Reaction	Example
Pre-contemplation	No awareness or interest	Individual tunes out conversation about the topic
Contemplation	Thinks about the behavior change, seeks further information	Individual watches other exercise
Preparation	Rehearses doing it	Actively thinks about using the treadmill
Action	Doing it	Person decides to join the exercise class
Maintenance	Does the behavior for a long time period	Believes it is a part of their daily routine
Relapse	Slips back to contemplation	Lack of time excuse for not performing the activity

The TTM suggests people move along a continuum to make a behavior change (Prochaska et al., 2007). The first stage, pre-contemplation, is the lack of awareness towards the behavior change or simply a lack of interest; contemplation, is the start of awareness and interest (6 months from making change); preparation, is preparing to make the behavior change (30 days until making change); action, is the act of completing the activity; and maintenance, is making the desired behavior change a part of their daily life (maintains for six consecutive months) (Prochaska et al., 2007). Individuals may not all progress through these stages in this order (Marcus et al., 1992). They may skip straight from pre-contemplation to action or go from action to preparation. There is no set way to go through this model but this is the suggested path most individuals take.

The movement through stages may depend on what stage the individual is in when they first start the program or working towards a behavior change. There is also a relapse stage; this is the act of moving out of a higher stage (i.e., maintenance) and slipping back into a lower change. A common reason for this is a lack of time for the new behavior change due to a busy lifestyle or new commitments. (Marcus et al., 1992)

Evidence-based programs

One of the long-term goals is to establish the LIFE Program as an evidenced-based program. Evidence-based programming plays a vital role in whether a program is sustainable beyond the research stage. Evidence-based programs use the application of scientific reasoning, systematic uses of data and behavioral science theory and program planning models through all stages of a program (i.e., development, implementation, and evaluation phases; Healthy People, 2020). The National Institute on Aging (NIA, 2015) has been inviting more researchers to focus on evidence-based programming to improve older adult health in the last few years. Evidence-based program development is comprised of five steps and requires significant time to be established (Figure 1).



Figure 1. Evidence Based Programming Model (Brownson et al., 2003)

Programs must be extensively evaluated before they can be classified as evidence-based (Cooney et al., 2007). Evidence-based programs result in expected positive results, which are related directly to the program and not extraneous factors; are peer-reviewed by other specialists in the field, and are endorsed by a federal agency (Cooney et al., 2007). Evidence-based programming for older adults must be shown to be effective and sustainable, which ensures the program will continue (NCOA, 2015). Sustainability is most likely to occur if it is planned for from the beginning of the program development. This can be done by developing the program to be able to be implemented in a community setting without extensive training on how to run the program (NCOA, 2015). Manuals can be helpful when implementing these kinds of programs due to the specific protocols that should be followed when others beside the researchers are implementing the program.

Utilizing evidence-based programming strategies has many advantages while developing and implementing a community-based program. It can increase the chance that the program will have the same positive results as the programs before if implemented in the same way and it has been proven previously that the approach has worked. Evidence-based programming may also increase the amount of participants that are recruited and increase the retention of the program (Cooney et al., 2007). Programs that have been proven to be successful may increase recruitment because older adults seek programs that have been shown to be effective (NCOA, 2015). Additionally, using evidence-based programming can help researchers make decisions based on scientific evidence and assist in knowing what does and what does not work when implementing community-based programs (Public health info and data tutorial, 2015). By using scientific evidence to develop a program it can assure that the best available information is being utilized to develop a sustainable and effective program (Public health info and data tutorial, 2015). Evidence-based programming can assist in making older adults targeted physical activity programs more sustainable and increase the recruitment and retention of adults age of 60 years and older.

The LIFE Program offers promise as a low-cost, theory-based, community-based physical activity program for rural-residing older adults. It has an established curriculum intended for ease of delivery, has been tested in a research environment with reported

positive outcomes, includes sustainable components. The next step is to evaluate its effectiveness in a community setting.

CHAPTER III: METHODOLOGY

Program Design

Theoretical Models

As stated previously, the LIFE Program is based on two theoretical models, Transtheoretical Model (TTM) and Whole Person Wellness Model (WPWM). The TTM suggests that individuals move through five distinct phases (pre-contemplation, contemplation, preparation, action, and maintenance) to achieve a behavior change (Prochaska et al. 1997). The WPWM incorporates six main dimensions of wellness: physical, emotional, spiritual, intellectual, occupational/vocational, and social wellness (Kang and Russ, 2009).

Program Description

LIFE Locations and Leadership

The LIFE Program was implemented in rural Iowa counties (ERS, 2008) through Iowa State University Human Sciences Extension and Outreach; 78 counties qualified and 31 elected to participate. The study protocol was approved by the University Institutional Review Board. The LIFE Program was offered at a variety of community locales including churches, retirement communities, assisted living facilities, community centers, wellness centers/gyms and extension offices. Program managers (n=13) oversaw the delivery of the LIFE Program in their county(ies).

Program Managers.

Program managers attended at least one of two workshops (six to eight hours each); four managers attended both. The training workshop included hands-on experience with the Xbox Kinect™ including: (1) set-up, (2) activity selection and (3) and take down. The information sessions discussed (1) program purpose, (2) program design, (3) recruitment (i.e., participants, trainers and sites), (4) program evaluation and (5) budget. Program managers also participated in monthly conference calls with the research team to

monitor their progress, identify challenges and solutions, and to receive support from other managers throughout the study duration.

Each program manager was provided with a LIFE Program kit to get them started. The kit was comprised of trainer workshop materials, an interactive game kit, weekly guides for Kinect™ workouts, LIFE Program materials (e.g. CD-ROM) and general LIFE Program tips and information. They were also provided with “how-to” DVD’s (e.g., how to play each Kinect sports game, how to facilitate the interactive games, set up of Xbox Kinect™). A website, <http://www.extension.iastate.edu/life/> was also created as a guide to implementing the program.

LIFE Program Description

Participants.

Older adults (hence-forth referred to as participants; n=265) were recruited through direct (i.e., in person, presentations, and word of mouth) and indirect (e.g. flyers and press releases) methods. Participants had to be 60+ years and willing to take part in a physical activity program and complete questionnaires at three time points (Weeks 1, 8 and 25). A physical activity readiness questionnaire (PAR-Q; Canadian Society for Exercise Physiology, 2002; Appendix A) was provided to participants as a guide to self-determine whether or not they should participate in the LIFE Program. Although not required, participants were encouraged to seek medical advice as to whether they should participate in the LIFE Program if they answered ‘yes’ to any of the questions (Canadian Society for Exercise Physiology, 2002). All participants provided informed consent (Appendix B) prior to beginning the LIFE Program.

Trainers.

Younger adults (ages 14-28 years) were recruited to serve as trainers. Trainers were recruited with in-person presentations to student groups (e.g., high school honor program, 4-H), email invitations (e.g., local colleges and universities with physical education, nutrition, or gerontology departments), word of mouth and flyers/posters. Trainers had to be age 16 or older, be able to participate twice-weekly for 8 weeks, complete a one-day training workshop, able to travel to and from the site, and complete

questionnaires at two time points (Weeks 1 and 8). Trainers younger than age 18 years were required to return a parental consent form. Two trainers did not meet the minimum age requirements but had parental consent. Those two trainers were recruited because they were perceived as responsible and mature; trainers less than 16 years of age are not recommended. Trainers completed five self-study training LIFE Program modules addressing older adults in general, older adult physical activity, interactive games, and evaluations prior to attending the training workshop. Trainers also attended a four-hour workshop focused on how to: (1) lead the LIFE Program, (2) effectively interact with older adults, (3) using the Xbox Kinect™, playing and leading interactive games and (4) safety concerns with older adults. Trainers facilitated the onsite program (eight weeks) and trained onsite leaders. Trainer data are not presented here.

Onsite Leaders

A sustainable aspect of the LIFE Program is the use of onsite leaders. Onsite leaders were recruited during the eight-week onsite program and led the program after the onsite program was completed. Trainers and/or program managers recruited one or two interested participants during Weeks one through four. During the duration of the onsite program, trainers would instruct onsite leaders on how to set-up the Xbox Kinect™, play the games, and how to lead the program effectively. During Weeks six through eight, onsite leaders were encouraged to either come early or stay late to learn how to set-up, take down, and operate the Xbox Kinect™. Onsite leaders were expected to lead the LIFE Program during the newsletter intervention (Weeks 9-24).

Onsite Program (8 weeks)

The onsite program met twice weekly for eight weeks. The physical activity sessions lasted 30 minutes (Weeks 1-8) while the interactive game sessions lasted 30 minutes (Weeks 1-2). Participants were encouraged to attend all LIFE Program sessions. Sessions were led by at least two trainers who demonstrated each activity and motivated participants to participate. Weeks 1 and 2 included 30-minutes exergaming twice weekly followed by 30-minutes of interactive games (e.g., crossword, story-telling, etc.). Interactive games were included as a way for the trainers and participants to get to know

each other better. After Week two participants could continue the interactive games if desired, but it was not required.

The LIFE Program used the Microsoft Kinect™ exergaming unit and Kinect Sports™ game. The Kinect™ system detects the participant's motion through a sensor that uses the detected motion to complete the task on screen. This was chosen because it is hands-free and more user-friendly than the previously tested Wii® (Strand, Francis, Margrett, Franke, & Peterson, 2014). The sports included activities such as soccer, volleyball, bowling, track and field, boxing and table tennis. Although the Xbox Kinect™ system allows four players to serve as the avatar simultaneously, due to limited space in most LIFE Program locations it was suggested only two participants serve in this role at a time. The other participants performed the same activities without their motions being detected. Xbox Kinect™ activities were selected that targeted both the upper and the lower body. The workouts alternated between a lower and an upper body activity. Participants were encouraged to alternate legs and arms during these activities to promote evenly distributed workloads on each side of the body.

The workouts (Appendix D) were designed by an exercise physiologist and were selected specifically for older adults with most capable of being modified for those with mobility limitations or injuries. For “jumping” activities it was encouraged that participants avoid jumping but rather raise their heels off the ground or use small hops. Chairs were made available for participants to sit as needed and provide stability during more challenging activities (e.g., jumping). Those who chose to sit throughout the session were not able to serve as an avatar due to technical challenges with the Xbox Kinect™ sensor. The activities were designed for beginner exercisers and slowly increased in intensity throughout the onsite program based on difficulty level (i.e., beginner, amateur, and professional). The activities also transitioned from less challenging (e.g., bowling) to more challenging sports (e.g., soccer). The workouts began with a two to five minute warm-up with the shorter and more arcade version of the full-length games. Following the warm-up, full-length games were played for approximately 25-minutes to complete the workout.

Newsletter Intervention (16 Weeks).

Following the onsite program participants began the 16-week newsletter intervention (Weeks 9-24). Participants received eight bi-monthly wellness newsletters. The newsletters were mailed every two weeks; four focused on nutrition and fitness and four targeted emotional and intellectual wellness. Participants were encouraged to stay active and continue the LIFE Program workouts with the onsite leader.

Research Question 1: To what extent was the LIFE Program capable of improving physical activity participation and self-efficacy?

Program Evaluation

PRE (Week 1, Day 1), POST (Week 8, Day 2) and FOLLOW-UP (Week 25) questionnaires (Appendix C) were administered onsite (PRE and POST) and via mail (FOLLOW-UP). The FOLLOW-UP questionnaire included a self-addressed, pre-paid envelope that was sent back to the on-campus researchers. General program evaluations were also completed at Weeks 8 and 25 inquiring about participants' experiences with the LIFE Program.

The questionnaires took approximately 30-60 minutes to complete. Program managers and trainers were available to assist participants as needed during the completion of the PRE and POST questionnaires. Questionnaires included general sociodemographic (i.e., age, gender, ethnicity, living situation, marital status, interaction with youth and self-perceived health status) information and validated tools to assess changes in physical activity readiness to change scale and exercise self-efficacy.

Physical Wellness Assessment

Self-reported physical activity

Changes in physical activity participation were measured using the Cancer Prevention Research Center exercise: Stages of change—short form (Cancer Prevention Research Center, 2010) which measured the stage the participant was at during each time-point (e.g. PRE, POST and FOLLOW-UP). Regular physical activity was defined as, “must be done for 30 minutes at a time (or more) per day and be done at least 5 days

per week. The intensity of activity does not have to be vigorous but should be enough to increase your heart rate and/or breathing level somewhat....” Participants were then prompted to answer if they exercised regularly according to the definition provided. This was used to determine if and how physically active participants were at each time point. For these analyses those identified as pre-contemplation, contemplation or preparation were categorized as “inactive” while those in action or maintenance were categorized as “active.”

Self-Efficacy for Exercise

Self-efficacy for exercise was measured using the self-efficacy for exercise scale ($\alpha = 0.92$, $\beta = 0.30$; Resnick & Jenkins, 2000). This tool is comprised of nine questions based on participants’ ability to exercise 20-minutes, 3 times weekly under various conditions (i.e., weather, boredom, pain, exercising alone, enjoyment level, business, tiredness, stress level and depression). Participants rated their ability to participate in physical activity during these conditions on a 10-point Likert scale (1=not very confident, 10=very confident). Participants’ exercise self-efficacy was reported as an average score (total points divided by 10, max score is 10).

Self-efficacy for exercise was also assessed using a confidence scale (Bray & Cowan, 2004). Participants rated how confident (i.e., 0% to 100%) they were in their ability to exercise for a specified amount of time from 5-minutes to 45-minutes, in 5-minute increments. Confidence percentiles were then averaged for an average self-efficacy for exercise percentile. For analysis only 5-minute increments of 30-minutes and above were looked at because the physical activity recommendations for Americans recommends at least 30 minutes of physical activity per day (American Heart Association, 2014).

General Program Evaluation

Participants also completed a general program evaluation inquiring about their LIFE Program experience at Weeks 8 and 25. Questions asked about why they chose to enroll in the LIFE Program, any lifestyle changes made as a result of participating, program design feedback, and preferred and disliked programming attributes. Onsite

leaders completed an additional evaluation pertaining to why they decided to serve as the onsite leader, if they received adequate training and if the LIFE program continued during the newsletter phase.

Data Analysis. Data were analyzed using Statistical Package for Social Sciences for Windows (SPSS for Windows, version 21.0). Demographic and qualitative data were analyzed using descriptive statistics and frequencies. Those classified as “completers” had completed both PRE and POST questionnaires while those classified as “non-completers” only had completed the PRE questionnaire. One-way analysis of variance (ANOVA) was used to determine if there were any statistical differences for any variable between the two groups. A significant difference was detected between the two groups for age therefore, an analysis of covariance (ANCOVA) was used to control for age for subsequent analyses. An ANOVA was used to determine if PRE self-reported health and physical activity participation influenced physical level. PRE health status and PRE physical activity level were found to be significant influencers and an ANCOVA was used to control for them as well.

Chi-square analysis was used to determine differences between physical activity level (“active” vs. “non-active”) from PRE to POST. An ANCOVA was used to determine the effect PRE self-reported health and PRE physical activity participation had on self-efficacy and physical activity barriers at POST. Self-efficacy was analyzed as a total score and found no significance so it was further divided into 5-minute increments at 30-minutes to 45-minutes and PRE to POST self-efficacy change was analyzed using a paired samples t-test. This timeframe was used because activity bouts of these amounts would be more likely to meet the physical activity guidelines for Americans. Statistical differences was detected if $p < 0.05$.

Research Question 2: To what extent is the LIFE Program feasible as an Extension-delivered physical activity program for rural-residing older adults?

Extension Delivery Model Efficacy

Extension Program Evaluation.

The efficacy of the LIFE Program as an Extension-led program was evaluated with qualitative evaluations including a two-hour focus group (n= 5 managers) or an online survey with the open-ended focus group questions (n= 7 managers) depending on the program manager's availability. The focus group session was led by a graduate student not directly involved with the LIFE Program. Focus group responses were audiotaped and transcribed. Program managers (n= 12) provided informed consent (Appendix E) prior to participating. Descriptive data (i.e., years worked in Extension, Extension programming area, weekly hours worked for Extension, new programming opportunities, likelihood of recommending the LIFE Program to others, comfort level with technology and overall satisfaction with the LIFE Program; Appendix F) were also assessed. Program managers were asked a series of open-ended questions pertaining to: program delivery, efficacy of the LIFE Program as an Extension-led program, and recommended LIFE Program modifications (Appendix G).

Data Analysis

The focus group recording was transcribed and analyzed for themes (Krueger & Casey, 2009). Similarly the survey responses were tabulated and assessed for themes. Sociodemographic data from both the focus group and online surveys were analyzed for frequencies and general descriptive data.

**CHAPTER IV: EFFICACY OF LIVING (WELL THROUGH)
INTERGENERATIONAL FITNESS AND EXERCISE (LIFE) PROGRAM
THROUGH COUNTY-BASED EXTENSION**

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Abstract

Physical activity reduces chronic disease risk among rural-residing older adults. Extension can play a key role in delivering physical activity programming to rural-residing older adults. The Living (well through) Intergenerational Fitness and Exercise (LIFE) Program is a 24-week physical activity program for rural-residing older adults. Qualitative evaluation was conducted to assess the LIFE Program's efficacy as an Extension-delivered program. LIFE Program managers (n=12) provided feedback about the LIFE program through a focus group (n=5) or online survey comprised of the focus group questions (n=7). Nearly all were satisfied with the program and were likely to recommend it others. Best-liked program features were the ready-to-use curriculum, training and regular communication with campus staff. Best-liked program attributes were the intergenerational and rural focus. These results suggest the LIFE Program is viewed as appropriate for Extension-delivery.

Introduction

Rural-residing older adults constitute approximately 20% of the U.S. older adult population (National Rural Health Association [NRHA], 2011). Rurality presents many challenges to older adults including limited: 1) health care access, 2) transportation, 3) socialization opportunities and 4) physical activity opportunities (NRHA, 2011; Baernholdt et al., 2012). Rural-residing older adults report having more chronic conditions than those in urban areas and a lower health-related quality of life (Baernholdt

et al., 2012). Cleveland and others (2012) reported that rural-residing older adults are less physically active than their urban counterparts. Although older adults could benefit by attending physical activity programs, many are not physically active (Stewart et al., 2007). If rural-residing older adults are not provided with low-cost opportunities to engage in regular physical activity, the social and financial impacts will be tremendous.

Extension, with its nationwide presence, is in an excellent position to reach a larger number of older adults and provide them with low-cost, effective research- and evidence-based physical activity programs.

One such approach is the Living (well through) Intergenerational Fitness and Exercise (LIFE) Program (Table 1; Strand, Francis, Margrett, Franke & Peterson, 2014; Francis, Margrett, Hoerr, Petersen, & Franke, submitted for publication). This is a group-based exergaming program specifically designed for older adults (60+ years) who are beginner exercisers. Group-based exergaming training sessions are beneficial for providing an environment for participants to socialize and meet new people while becoming physically active (Belza, Walwick, Schwartz, LoGerfo, Shiu-Thornton & Taylor, 2004). Exergaming combines video games with physical activity and has been found to be well-received by older adults (Chao et al., 2013; Maillot et al., 2012; Strand, Francis, Margrett, Franke & Peterson, 2014). The LIFE Program (24 weeks) consisted of onsite sessions (8 weeks) led by younger adults followed by a 16-week newsletter intervention (Strand, Francis, Margrett, Franke & Peterson, 2014). During the newsletter intervention, a trained onsite leader who is a former participant is encouraged to continue the onsite sessions.

Table 1. LIFE Program Overview

Program Component	Activities
<p>Onsite Program (8 weeks)</p> <ul style="list-style-type: none"> • Xbox Kinect™ Exergaming Technology using Kinect Sports™ • 30-60 minutes of physical activity^a twice weekly • Gradual increase in difficulty level from weeks 1 to 8 <ul style="list-style-type: none"> • Led by younger adult trainers <ul style="list-style-type: none"> ▪ High school and college aged students (16-26 years) who led the onsite physical activity sessions ▪ Provided intergenerational component 	<p>Weeks 1-2</p> <ul style="list-style-type: none"> • 30 minutes exergaming activity twice weekly • 30 minutes interactive games (e.g., crossword, have you ever, etc.) twice weekly • Difficulty level: beginner <p>Weeks 3-4</p> <ul style="list-style-type: none"> • 30 minutes exergaming activity twice weekly • Start onsite leader recruitment and training^b • Difficulty level: amateur <p>Weeks 5-8</p> <ul style="list-style-type: none"> • 30 minutes exergaming activity twice per week • Difficulty level: professional
<p>Newsletter Phase (16 weeks)</p> <ul style="list-style-type: none"> • Bi-monthly newsletters (8 total) mailed to participants • Onsite leader-led LIFE Program encouraged to continue 	<p>Nutrition and Fitness (4 Total)</p> <ul style="list-style-type: none"> • Included exercise tips and healthy recipes <p>Emotional and intellectual wellness (4 total)</p> <ul style="list-style-type: none"> • Included mental and emotional wellness tips, etc.

Note: ^aActivities included volleyball, bowling, soccer, table tennis, track and field and boxing; ^bOnsite leaders are recruited from current participants to continue leading the program after the completion of the onsite component

The LIFE Program was developed by a transdisciplinary team comprised of specialists in the area of youth development, exercise physiology, nutrition Extension and life span psychology and pilot-tested in seven rural midwestern communities. Preliminary results suggest that the LIFE Program significantly improves functional fitness and physical activity participation in older adults (Strand, Francis, Margrett, Franke & Peterson, 2014; Francis, Hoerr, Margrett, Franke & Peterson, submitted for publication).

Although these pilot study results are encouraging, implementation and testing was accomplished with extensive oversight by a research team and not through Extension as it was originally intended. For this study, the LIFE Program was implemented in 31 rural midwest counties through county Extension and supervised by 13 program managers. The counties in which the LIFE program was implemented were identified as “rural” by the United States Department of Agriculture (USDA) Economic Research Service (Economic Research Service [ERS], 2008). The purpose of this study was to determine the effectiveness and ease of delivery of the LIFE Program through county-based Extension personnel.

Methods

Evaluation

Efficacy of the LIFE Program as an Extension-led program was evaluated with one of two qualitative evaluations depending on the program manager’s availability: (1) a two-hour focus group (n= 5 managers) or (2) an online survey with the open-ended focus group questions (n= 7 managers). All program managers provided informed consent. The study protocol was approved by the University Institutional Review Board.

The focus group session was led by a graduate student not directly involved with the LIFE Program. Focus group responses were audiotaped and transcribed. Online survey participants answered the same questions as the focus group. All participants completed a general demographic questionnaire regarding Extension experience.

Descriptive data collected include the program manager’s:

- Extension programming area and weekly hours worked
- Availability of opportunity to provide new programming
- Likelihood of recommending the LIFE Program to others (i.e., colleagues, older adults and younger adults)
- Comfort level with technology
- Overall satisfaction with the LIFE Program.

The LIFE Program questions inquired about the program manager's view of: (1) the LIFE Program delivery method, (2) efficacy of the LIFE Program as an Extension-delivered program and (3) suggestions for program modifications.

Data Analysis

The focus group recording was transcribed. Both the transcripts and open-ended survey responses were assessed for themes (Krueger & Casey, 2009). Sociodemographic and Extension experience data were analyzed for frequencies and general descriptive data.

Results

Focus group participants were primarily full-time Human Sciences Extension and Outreach Specialists in Nutrition and Wellness with less than 10 years of Extension work experience (Table 2). Most (n=7) reported that they are only occasionally approached with new programming opportunities.

Nearly all (91.7%) were satisfied with the LIFE Program and most were "very likely" to recommend the LIFE Program to a colleague (75%) and an older adult (83.3%) and "somewhat likely" to recommend it to the younger adults (75%) on a Likert scale (1="very unlikely" to 5="very likely"). Most (83.3%) reported being "somewhat comfortable" with new technology, a key component of the LIFE Program on a Likert scale from "not comfortable" to "very comfortable."

Table 2. Characteristics of LIFE Program Managers (n=12)

Characteristic	Number	Percent (%)
Extension programming area		
Family Life	1	8.3
Nutrition and Wellness	6	50
Other	5	41.7
Years worked in Extension		
<10 years	8	66.6
>20 years	4	33.3
Weekly hours worked for Extension		
10-20 hours	2	16.7
31-40 hours	3	25
>40 hours	7	58.3
Availability of new programming opportunities		
Often	5	41.7
Occasionally	7	58.3
Overall satisfaction with the LIFE Program		
Very satisfied	6	50.0
Somewhat Satisfied	5	41.7
Neither Satisfied or dissatisfied	1	8.3
Likelihood to recommend LIFE Program to...		
Colleague		
Very Likely	9	75.0
Somewhat Likely	3	25.0
Younger Adults		
Very Likely	3	25.0
Somewhat Likely	9	75.0
Older Adults		
Very Likely	10	83.3
Somewhat Likely	2	16.7
Comfort level with technology		
Very Comfortable	2	16.7
Somewhat Comfortable	10	83.3

Reasons for volunteering to be a LIFE Program manager

Extension Specialists emphasized that they became a LIFE Program Manager to bring older adult programming to rural communities, *“Our county has a high population of aging residents and we had several sites express interest. We are trying to do more outreach to underserved audiences and the older youth (non-4H) and [older adults] both fit into that category.”* It was frequently stated that without the LIFE Program, rural-residing older adults may not have other resources for physical activity,

Best-liked LIFE Program delivery attributes

The best-liked LIFE Program features by Program Managers were:

- Ready-to-go-curriculum that included:
 - Program start-up materials
 - Program manuals that provided detailed information needed to deliver the LIFE Program
- Training workshop (6-8 hours) that provided an opportunity for them to learn the new technology (Kinect™) and become more comfortable with delivering the LIFE Program
- Monthly conference calls that provided an opportunity for the managers to obtain input from peers about programming issues (i.e., recruitment, site locations, etc.)

Best-like LIFE Program characteristics

Some of the best-liked LIFE Program attributes included the intergenerational and rural focus. Program managers enjoyed bringing together two different age groups that do not interact with one another and may have false impressions about the other, as conveyed by one who stated, “...*I think the value of having the [young] people involved...[were that] some of them didn't have much contact with older people. I think all of my trainers benefited and I had trainers that repeated...*”

Bringing programming options to rural communities was also a motivating factor for program managers. Many found it beneficial to incorporate this program into rural communities with fewer resources, “*I think for me it was the value of bringing this program to rural counties. I have really rural real poor counties that don't have much resource[s]. So it was something ... that Extension is doing for the older [adults] in most of my counties, it turned out really well.*”

LIFE Program implementation supports

Support for the LIFE Program, whether it was at the county Extension office, local high school or the general community, was identified as essential for successful Extension-delivery of the LIFE Program. Program managers identified that the county

Extension office was often helpful in identifying younger adults, site locations and potential participants. “[For] most of [my counties], I had good [support] from the county Extension offices for identifying the ... trainersPeople from the office started [to attend] and of course it snowballs....” Participant support was also critical, “Well I think if you have a champion who is really behind it and to convince others that this is a great thing that is always helpful.”

LIFE Program implementation challenges

Program Recruitment

One of the most reported implementation challenges was recruitment (i.e., site, trainers and participants); “Finding locations, explaining to host sites, students, residents, ...is a long-term commitment for people to make and fit into their schedule, but it needs to be [completed] in order for them to try it and make a change.” This challenge was mentioned regularly during the monthly conference calls as well. Another common recruitment challenge was scheduling, particularly trying to get the participants’ and trainers’ schedules to match (Table 3).

Identification and Recruitment of Host Sites

Locating a place to host the physical activity sessions was another perceived barrier to implementing the LIFE Program (Table 3). Host sites that were more likely to hold LIFE Programs were those that were easily accessible for older adults and the room was separated from other areas of the building. Program managers emphasized that privacy was an issue and participants did not want other non-LIFE members watching them while they were being physically active. Other positive host site location characteristics included an easy-to-see screen or big TV, open space, easy set-up space (i.e., did not have to move chairs or tables) and site support for the program. The preferred host site locations were:

- Senior apartments or communities
- Churches
- Assisted living facilities
- Extension offices

- Physical therapy offices
- Community centers

Senior apartment communities and assisted living facilities were ideal due to high accessibility and ability of participants to walk down the hall to attend the program. “*We were very lucky and supported with our program at a senior housing apartments. [The] staff [was] very helpful in recruiting, reminding, adding [LIFE to the] schedule [in] their newsletter, moving furniture and setting up equipment for each session.*” Additionally, many of these host sites have large spaces and have older adult residents that would benefit from physical activity.

Table 3. Recruitment Barriers

Participant	<ul style="list-style-type: none"> • Older adults did not want to participate in a research study • Completing questionnaires three times • Accessibility to host site location
Trainer	<ul style="list-style-type: none"> • Allowing trainers to miss school (i.e., high school or college) • Aligning trainers’ schedules with participants’ schedules • Working with schools to allow for service learning credit opportunities
Host Site	<ul style="list-style-type: none"> • Accessibility for older adults • Privacy • Space availability

Preferred marketing strategies

The marketing strategies (i.e., flyers, commercials, radio public service announcements, etc.) used throughout the study followed university research protocol. Program managers wanted to see more “commercial” marketing tools that are better tailored to the LIFE Program. Midway through the study, the recruitment materials were revised to include testimonials but still followed University research protocol. Despite this change, program managers still requested more visually appealing flyers, including the use of program pictures.

Suggested LIFE Program modifications

Program managers provided several suggestions in which Extension-delivery of the LIFE Program could be enhanced including:

- More delivery flexibility (i.e., allow for the onsite program to meet three times weekly, provide more interactive games)
- Lower the trainer age requirement

As stated previously, the onsite program was designed as a twice weekly eight-week program. Program managers expressed that participants wanted to extend the LIFE Program for an additional day making it a thrice weekly program. They believed doing so would enhance programming flexibility.

Another suggested modification involved making the interactive games optional. Some host sites had wanted to continue them throughout while other host sites did not. Program managers recommended that the interactive games should be optional. It was also suggested that the minimal age for trainers be reduced to 14 or 15 years of age as a means to help increase recruitment opportunities for high school students.

Discussion

Program managers emphasized wanting to bring older adult-focused programming to rural communities where there are limited programming opportunities. Extension delivery of physical activity programs for rural-residing older adults could have a substantial impact on the number of older adults participating in regular physical activity. Sequential physical activity programs for rural-residing older adults are effective in increasing physical activity participation (Strand, Francis, Margrett, Franke & Peterson, 2014; Sequin, Eldridge, Lynch & Paul, 2013), satisfaction and enjoyment for physical activity (Sequin, Eldridge, Lynch & Paul, 2013) and functional fitness (Francis, Margrett, Hoerr, Peterson & Franke, submitted for publication).

Program design can greatly influence the delivery of an Extension program. The LIFE Program provided a ready-to-go curriculum, training workshops and monthly conference calls. These allowed for continued success throughout implementation and provided support when programming challenges arose. The monthly conference calls opened the line of communication between program managers and the research team and

other program managers who could assist in finding solutions to common issues in delivering the program.

The intergenerational focus was one of the best-liked features of the LIFE Program. This was enhanced through the interactive games. Interactive games were designed to include a cognitive component in the program and as a way for participants to establish rapport with each other and the trainers. The interactive games were originally incorporated based on work by Kang and Russ (2009) who similarly used mind-stimulating games (i.e., puzzles, cards) aimed at creating relationships between older adults. Ageism and stereotypes between younger and older adults are a common problem, with approximately 84% of older adults experiencing ageism (Ory, Hoffman, Hawkins, Sanner & Mockenhaupt, 2003). Incorporating meaningful intergenerational interactions helps decrease ageism in younger adults (Ory, Hoffman, Hawkins, Sanner & Mockenhaupt, 2003; Francis, Margrett, Hoerr, Peterson, Scott & Franke, 2014). Additionally, other intergenerational physical activity programs have found that including an intergenerational component has the potential to increase older adult physical activity participation (Tan, Xue, Li, Carlson & Fried, 2006).

Recruitment was a commonly reported challenge throughout the LIFE Program. A particular challenge (although a positive programming attribute) was recruiting two generations of attendees. A respected peer can decide for the majority of the group if the program will succeed or not. Getting those individuals to adhere to the program and have an interest in it can increase success of that program because people are highly influenced by their peers.

In the first year of the program, recruitment was low; in response to program manager feedback, marketing strategies were altered. Flyers and posters were re-designed using bright colors, large font and quotes from past participants. Radio announcements and video advertisements and a website were developed and made available after year one. Each Extension Specialist was given a DVD with the video advertisements to use during recruitment presentations.

Host site recruitment was another barrier and the most preferred site was senior community centers or apartments, which is recommended by the National Council on Aging (NCOA; 2006) to help increase recruitment. There is increased access to these

sites and many older adults may be able to walk to the program location (NCOA, 2006). The LIFE Program aimed at choosing sites with large open spaces that were accessible for the greatest amount and held most programs at senior community centers or apartments to overcome the “access barrier.”

Another strategy to increase recruitment is through partnerships (NCOA, 2006). Partnerships created during the LIFE program were vital for the increased success in this community based program. Community support for the LIFE Program helped with recruitment of participants, trainers and host sites. If the community was behind it more residents were willing to support and participate in the LIFE Program. Other key support systems included county Extension offices; they can be a source of information and may have participants that have been active in other Extension programs and would be willing to do another program. The NCOA recommends creating partnerships to assist with recruitment of participants and program site locations (NCOA, 2006).

Additional recommended modifications to the LIFE Program included increasing program flexibility by increasing the amount of times per week they could exercise. Throughout the duration of the program, participants were allowed to utilize the XBOX Kinect™ outside of the arranged meeting times as long as they did not use it alone. Also, program managers mentioned the possibility of lowering the minimum trainer age from 16 to 14 or 15 years of age. This change is not encouraged due to safety, maturity and transportation concerns. The age of 16 years and older was chosen because trainers are most likely able to drive themselves and likely have a higher sense of responsibility and maturity than a 14 year old would have.

Limitations

Limitations of this study include some program managers completing the focus group questions online. Completing the focus group questions online did not allow for the focus group leader to ask for further clarification on what they meant if needed.

Additionally, completing the questions online did not allow the program managers an opportunity to interact with one another or to expand on what was stated. Despite these limitations, the information collected provides insight on LIFE Program’s acceptability as an Extension Program.

Conclusions

These results suggest the LIFE Program is a well-received Extension program by Extension personnel and it fills a void in Extension programming. It brings an easy-to-implement intergenerational physical activity programming for older adults to rural communities. For successful Extension-delivery of the LIFE Program, Extension facilitators should:

1. Seek leadership and support prior to program implementation
2. Identify interest within a community and obtain support from county Extension offices and local schools.
3. Generate community interest
4. Identify local advocates
5. Identify sites that are accessible, private, open space, large enough screen, and available parking if a commute is necessary.

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**CHAPTER V: ACTIVITY LEVEL AND SELF-REPORTED HEALTH STATUS
ARE SIGNIFICANT INFLUENCERS ON PHYSICAL ACTIVITY SELF-
EFFICACY CHANGES IN RURAL COMMUNITY-RESIDING OLDER ADULTS
60+**

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Abstract

Rural-residing older adults are not physically active despite its numerous health wellness benefits. Low self-efficacy related to physical activity, is one potential reason that many older adults are not physically active. The purpose of this study was to determine to what extent the Living (well through) Intergenerational Fitness and Exercise (LIFE) Program (8 weeks) was capable of improving physical activity participation and self-efficacy among rural-residing older adults (n=265) in a “real-life” setting. Participants completed validated physical activity readiness to change and self-efficacy for physical activity questionnaires at Weeks 1 (PRE) and 8 (POST). Those who were more likely to complete the program were those who were “young-old” and “middle-old” (p=.016). The number of participants self-identifying as “physically active” increased from PRE (n=97) to POST (n=111). Of the 57 participants who self-identified as “not physically active” at PRE, 34 (59.6%) self-identified as “physically active” at POST (p=.008). There was a significant change in self-efficacy from PRE to POST for 35- ($\bar{x}=5.87 \pm 32.60$; p=.035) and 40-minutes ($\bar{x}=7.01 \pm 31.91$; p=.011) of continuous physical activity. Self-efficacy change for participating in 35 minutes of continuous physical activity was significantly predicted by PRE physical activity level and the interaction between PRE physical activity level and PRE self-reported health status (p=.005 and p=.009 respectively). PRE self-reported health status and physical activity level were significant predictors of self-efficacy change for participating in 40 minutes of

continuous physical activity ($p=.010$ and $p=.024$ respectively). Self-efficacy change for overcoming barriers to physical activity (e.g., weather, boredom) was also predicted by PRE self-reported health status ($p<.001$). These results suggest that the LIFE Program is effective in increasing physical activity participation and self-efficacy for physical activity in rural-residing older adults. Additionally, recruitment efforts should focus on those in the “young-old” and “middle-old” age categories due to their likeliness of completing the onsite LIFE Program.

Introduction

Health and physical activity participation is declining among the older adult population. Older adults (65 years and older) have increased to approximately 13.3% of the total United States population as of 2011 (Administration on Aging & the Department of Health and Human Services, 2012). Many of these older adults are not participating in physical activity and could benefit from physical activity programming (Stewart et al., 2007). Rural-residing older adults make up approximately 20% of the total United States older adult population (National Rural Health Association [NRHA], 2011). Older adults are the least likely of all age groups to participate in regular physical activity (BRFSS, 2012); rural-residing older adults, when compared to their urban counterparts are half as likely to be physically active (Shores, West, Theriault & Davison, 2009). Rural-residing older adults also have worse physical health, decreased socialization and a lower health related quality of life than their urban-residing counterparts (Baernholdt et al. 2012; Hawton et al., 2010)

Older adults often face barriers in meeting the physical activity guidelines for Americans, (150-minutes of moderate-intensity or 75-minutes of vigorous-intensity physical activity weekly, including at least two days of whole body resistance training; U.S. Department of Health and Human Services, 2008). Common physical activity participation barriers include lack of time, risk of injury, lack of discipline, decreased motivation, boredom and intimidation (Costello, Kafchinski, Vrazel, & Sullivan, 2001). Motivators toward physical activity participation include enjoyment and socialization (CDC, 1995; Shores, West, Theriault & Davison, 2009; Carlson et al., 2012). Older adults prefer physical activity programs that are accessible safe, free, knowledgeable

staff, convenient, fun and have a social component (Costello, Kafchinski, Vrazel, & Sullivan, 2001; Carlson et al., 2012).

Another determinant to meeting the physical activity guidelines in older adulthood is self-efficacy, which is a predictor of older adult physical activity participation (Orsega-Smith, Payne, Mowen, et al., 2007). Having higher self-efficacy increases the likelihood of changing or maintaining a certain behavior while a lower self-efficacy decreases the likelihood of changing a behavior (Orsega-Smith, Payne, Mowen, et al., 2007). Older adults who exercise more frequently and who have social support throughout an exercise routine or program are reported to have increased levels of self-efficacy (McAuley, Jerome, Elavsky, et al., 2003). Therefore physical activity programs for older adults may positively affect self-efficacy if they are welcoming and group-based.

The Living (well through) Intergenerational Fitness and Exercise (LIFE) Program is one such group-based physical activity program for rural-residing older adults 60+. The LIFE Program is a 24-week program including twice weekly group-based exergaming physical activity for 8-weeks followed by a 16-week newsletter-based intervention (Strand, Francis, Margrett, Franke & Peterson, 2014; Sowle, Francis, Margrett, Franke, in preparation). Exergaming is the combination of exercise with a video game (i.e., Wii® and XBOX Kinect™; Chao, Scherer, Wu, Lucke & Montgomery, 2013; O'Leary et al., 2011; Maillot et al., 2012).

To our knowledge, there has been limited research conducted on physical activity related self-efficacy and self-perceived physical activity level changes in rural-residing older adults when participating in an exergaming physical activity program. This study examined the impact of the LIFE Program on physical activity readiness-to-change and self-efficacy (confidence and barriers).

Methods

Program Design

The LIFE Program was developed using two theoretical models, Transtheoretical Model (TTM) and Whole Person Wellness Model (WPWM; Strand, Francis, Margrett, Franke & Peterson, 2014). The TTM suggests that individuals move through five distinct

phases (pre-contemplation, contemplation, preparation, action, and maintenance) to achieve a behavior change (Prochaska & Velicer, 1997). The WPWM incorporates six main wellness dimensions: physical, emotional, spiritual, intellectual, vocational, and social (Kang & Russ, 2009). The WPWM components included in the LIFE Program are shown in Table 1.

Table 1. The WPWM components in the LIFE Program

LIFE Program Component	WPWM Component
Onsite Program (Weeks 1-8) <ul style="list-style-type: none"> • Twice weekly sessions • 30 minute Kinect (Weeks 1-8) • 30 minutes/day interactive games (Weeks 1-2)^a 	Physical Social Emotional Intellectual Vocational
Newsletter Phase (Weeks 9-24) <ul style="list-style-type: none"> • Wellness newsletter mailed every other week (Week 1 Nutrition and Physical Activity; Week 3 Social and Cognitive wellness) 	Physical Emotional Intellectual Vocational

Note: ^a Interactive games may be continued through the duration of the program

The LIFE Program was implemented in 31 rural midwestern counties (ERS, 2008). Host site locations included churches, retirement communities, assisted living facilities, community centers, wellness centers/gyms and extension offices. All participants provided informed consent prior to beginning the LIFE Program. The study protocol was approved by the University Institutional Review Board.

Onsite Program. The eight-week onsite physical activity program utilized exergaming technology (i.e., Xbox Kinect™ Sports). The program met twice a week for 30 minutes and began at a low intensity, throughout the program, it slowly increased intensity (i.e., beginner, amateur, professional). Workouts varied from week to week and alternated between the major muscle groups (i.e., lower and upper body). Trainers (at least two), described later, led the onsite physical activity sessions. Programs had continuous enrollment and were held at various times throughout the year.

Recruitment

Older Adults. Older adults (n=265; hence forth referred to as participants) were recruited through direct (i.e., in person, presentations, and word of mouth) and indirect (i.e., flyers and press releases) methods. Participants had to be 60+ years, able to participate in a physical activity program and willing to complete questionnaires at three time points (Weeks 1, 8 and 25). A physical activity readiness questionnaire (PARQ; Canadian Society for Exercise Physiology, 2002) was provided to participants as a guide to self-determine whether or not they should participate in the LIFE Program. Although not required, participants were encouraged that if they answered ‘yes’ to any of the questions to seek medical advice as to whether they should participate in the LIFE Program per PARQ instructions (Canadian Society for Exercise Physiology, 2002). Only those with both PRE and POST data were included.

Trainers. Younger adults (n=79; 2-4 per site) served as trainers for the onsite LIFE Program. Trainers were to be at least 16 years. Those under the age of 18 years needed to return a parental consent form prior to serving as a LIFE Program trainer. Trainer data are not reported here.

Measures

Data were collected throughout the program at PRE (Week 1, Day 1), POST (Week 8, Day 2) and FOLLOW-UP (Week 25 via mail) using questionnaires (14 total pages). Measurements included general sociodemographic questions (i.e., age, gender, ethnicity, self-reported health status, living arrangements, marital status and contact with younger adults), self-reported physical activity level, self-efficacy to overcome perceived barriers to physical activity and physical activity self-efficacy.

Completers versus Non-Completers. Participants who completed PRE and POST questionnaires were categorized as “completers” of the eight-week onsite physical activity program. Those without a POST questionnaire were categorized as “non-completers” of the onsite program.

Self-reported Activity Level. Physical activity level was measured using the Cancer Prevention Research Center Exercise: Stages of Change—Short Form (Cancer Prevention Research Center, 2010). Participants self-reported physical activity level at

PRE, POST and FOLLOW-UP. Those who self-identified as being in the stages of “pre-contemplation”, “contemplation” or “preparation” were categorized as “non-active” while those who self-identified as the “action” or “maintenance” stages were categorized as “active.”

Physical Activity Self-Efficacy. The Self-Efficacy for Exercise Scale was used to measure self-efficacy change ($\alpha = 0.92$, $\beta = 0.30$; Resnick & Jenkins, 2000). Participants rated their ability and confidence to exercise 20 minutes, 3 times weekly during commonly identified barriers (e.g., weather, boredom, pain, etc.) using a 10-point Likert scale (1=not very confident, 10=very confident) and was reported as an average score (total score divided by 10, maximum score=10). A confidence for exercise scale was also used to assess self-efficacy related to physical activity (Bray & Cowan, 2004). Participants rated their confidence to participate in physical activity (0% to 100% confident) for a specified amount of time in 5-minute increments ranging from 5-minutes to 45-minutes. Percentiles were averaged for a total score (maximum score=100%).

Data Analysis

Data were analyzed using Statistical Package for Social Sciences for Windows (SPSS for Windows, version 21.0). Descriptive data and frequencies were used to analyze demographic and qualitative data. Only participants with both PRE and POST responses were used for analysis of physical activity level (n=154) and self-efficacy (n=134). All participants (n=265) were used for analyzing characteristic differences between completers and non-completers.

Calculated completion rates include those who completed a questionnaire at PRE, POST and FOLLOW-UP. FOLLOW-UP data were not included due to a low completion rate (n=90, 34%) from PRE to FOLLOW-UP; most likely due to mail-in questionnaire protocol utilized at FOLLOW-UP. Therefore, only PRE and POST data are presented here. Significance was determined at $p < .05$.

Age and gender differences between “completers” and “non-completers” were analyzed using independent t-tests and one-way analysis of variance (ANOVA). An analysis of covariance (ANCOVA) was completed to further analyze baseline characteristic differences between “completers” and “non-completers” controlling for

age. Change in self-reported physical activity levels from PRE to POST were analyzed using Pearson Chi-Square. Self-efficacy influencers from PRE to POST were analyzed using ANCOVA controlling for age, PRE self-reported health status and PRE physical activity level. Perceived physical activity barriers were analyzed as an average total using ANCOVA controlling for age, PRE health status and PRE physical activity level. Change in total self-efficacy (confidence levels) and self-efficacy level for 30, 35, 40, and 45 minutes of continuous physical activity was analyzed using a paired samples t-test.

Results

Demographics

Participants were mostly community-residing unmarried, white females, ages 70-89 years, who were physically active and in “good” health (Table 2).

Table 2. Description of LIFE Program Participants (n=265)

Characteristic	Number (n)	Percent (%)
Age	Young-old (65-74 years)	100 37.7
	Middle-old (73-84 years)	96 36.2
	Old-old (85+ years)	69 26.0
Gender	Female	221 83.4
	Male	39 14.7
	Not Reported	5 1.9
Ethnicity	White	245 92.5
	Other	7 2.6
	Not Reported	13 4.9
Marital Status	Married	106 40.0
	Not Married	154 58.1
	Not Reported	5 1.9
Living Arrangement	Community-Residing	175 66.0
	Independent and/or Assisted Living	69 26.0
	Other	18 6.8
	Not reported	3 1.1

Table 2. Description of LIFE Program Participants (n=265) Continued

Self-Reported General Health at Baseline			
	Poor/Average	113	42.7
	Good	149	56.2
	Not reported	3	1.1
Stages of Change at Baseline			
	Non-Active	94	35.5
	Active	170	64.2
	Not Reported	1	9.6

Completers versus Non-completers of the Onsite LIFE Program. The LIFE Program had a 58.1% completion rate (n=154 out of 265) from PRE to POST. When comparing baseline characteristics of “completers” and “non-completers,” only age (p=.016) was a significant predictor of completing the LIFE Program with the “youngest-old” and “middle-old” being more likely to finish the onsite portion (Figure 1).

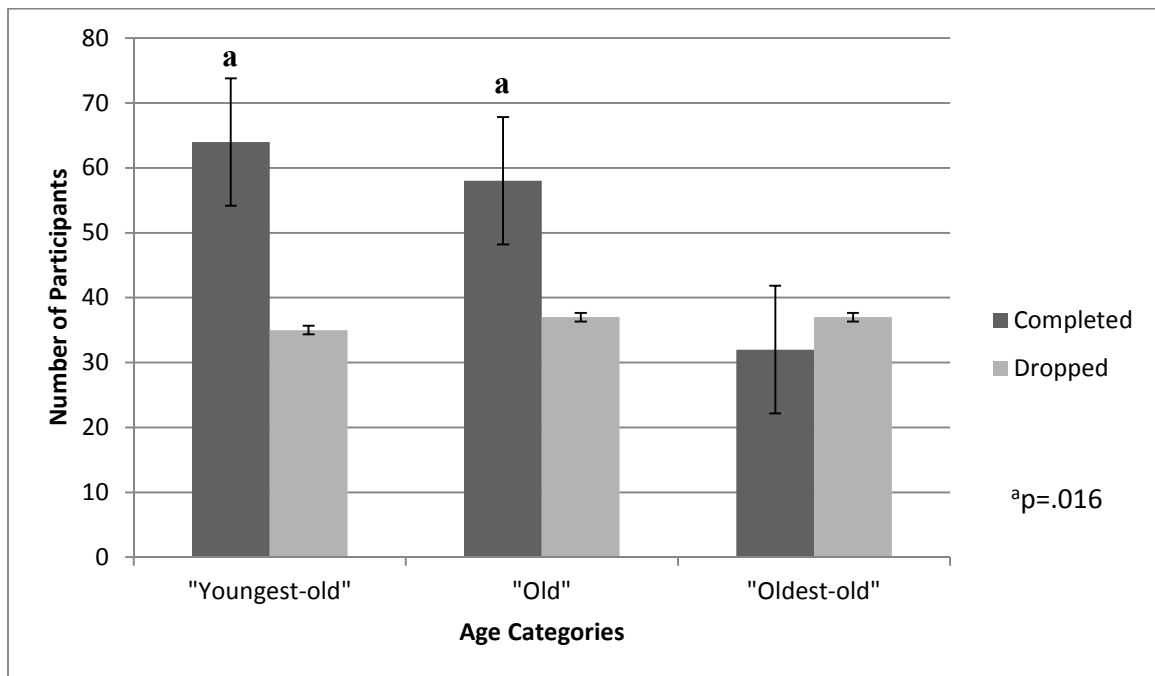


Figure 1. “Completers” vs. “Non-completers” by Age Group

Physical Activity Level. There was a significant increase in the number of participants identifying themselves as “active” from PRE to POST. At PRE 97 self-identified as “active” while 111 (72.1%) self-identified as “active” at POST; 77 (79.4%)

self-identified as “active” at both PRE and POST. At PRE, 57 participants self-identified as “non-active;” 34 (59.6%) of these participants self-identified as “active” at POST ($p=.008$).

Overall Physical Activity Self-efficacy. No changes in overall self-efficacy were found; however, significant increases were detected for self-efficacy in ability to complete 35 minutes ($\bar{x}=7.01 \pm 31.91$; $p=.011$) and 40 minutes ($\bar{x}=5.87 \pm 32.60$; $p=.035$) of continuous physical activity ($n=139$; Table 3).

Table 3. Self-Efficacy Change for Confidence in Completing Continuous Physical Activity for a Set Duration

	PRE (% Confident)	POST (% Confident)	Mean	Standard Deviation	P-Value
30-minutes^a	61.1	66.1	5.06	34.23	.081
35-minutes^b	50.8	57.8	7.01	31.91	.011
40-minutes^c	45.1	50.9	5.88	32.60	.035
45-minutes^d	41.8	45.9	4.12	31.83	.132

^a $n=141$ ^b $n=136$ ^c $n=138$ ^d $n=137$

PRE self-reported health and PRE physical activity level were controlled for when assessing physical activity level change. Physical activity level at PRE influenced self-efficacy change for 35 minutes ($p=.005$). Additionally, the interaction between PRE physical activity level and Pre self-reported general health status significantly influenced self-efficacy change for 35-minutes ($p=.009$) of continuous physical activity.

Furthermore, after controlling for PRE physical activity and PRE self-reported health-status, self-efficacy for ability to be physically active for 40-minutes was significantly influenced by self-reported health-status ($p=.010$) and physical activity ($p=.024$) independently.

Table 4. Predictors of Self-Efficacy Change

	df	F	Parital Eta Squared	Sig.
Self-Efficacy for 35 Minutes^a				
<i>Baseline Activity</i>	1	8.307	0.060	.005
<i>Baseline Activity * Health Status</i>	1	6.954	0.051	.009
Self-Efficacy for 40 Minutes^b				
<i>Health Status</i>	1	6.897	0.050	.010
<i>Baseline Activity</i>	1	5.184	0.038	.024
Self-Efficacy for Physical Activity Barriers^c				
<i>Health Status</i>	1	4.453	0.117	<.001

^aAdjusted R²=0.389; ^bAdjusted R²= 0.355; ^cAdjusted R²= 0.366

Self-efficacy for overcoming physical activity barriers. There was a significant change in self-efficacy for overcoming physical activity barriers ($p < .001$) by activity level when controlling for PRE self-reported health status and PRE physical activity level.

Limitations

Generalizability is limited due to the non-diverse sample. Additionally, the tools used may not have been sensitive enough to detect changes throughout the study for highly-functioning community-residing older adults. Another limitation was the low completion rate from PRE to FOLLOW-UP which limits the understanding of long-term changes after the onsite program was concluded. The LIFE Program did not include a control group because it was offered in a real-life setting. It is unsure if the results found were solely based on the LIFE Program. All data was self-report and future research should include easy-to-implement objective physical activity measures (e.g., 30-second chair sit test, 8-foot up-and-go test).

Discussion

These results suggest the 8-week onsite LIFE program for rural-residing older adults is effective in increasing physical activity participation, self-efficacy in participant's perceived ability to exercise at 35 and 40 minutes of continuous physical activity and overcoming barriers to physical activity. Those who were classified as "young-old" and "middle-old" were more likely to complete the LIFE Program. This is

consistent with Shores and others (2009) who reported that “old-old” were less likely to be physically active than “young-old” or “middle-old”. The LIFE Program had a completion rate of 58.1% meaning that over half of the participants who enrolled in the onsite physical activity program completed the program and filled out questionnaires at PRE and POST. This completion rate is slightly higher than the lower end of the average physical activity program completion rates ranging anywhere from 50-75% (Linke, Gallo & Norman, 2011).

The number of participants self-identifying as “active” increased during this eight-week period. This supports findings from the LIFE Program pilot study in which Strand and others (2014) found an increase in which those classifying themselves as “active” following the eight-week onsite program and at follow-up (25 weeks). The changes detected with the LIFE Program from PRE to POST are likely attributable to its inclusion of a group design and exergaming. Increased social support was shown to be directly linked to higher self-efficacy in older adults (Ayotte, Margrett & Hicks-Patrick, 2010). This is shown in the LIFE Program through the socialization component, which is a best-liked feature of the program (Strand, Francis, Margrett, Franke & Peterson, 2014). Also, exergaming is an effective way to increase physical activity adherence (Maillot et al., 2011) and is popular among older adults (Maillot et al., 2011; Strand, Francis, Margrett, Franke & Peterson, 2014). However, in the present study there was a slight regression in those who classified themselves “active” at baseline to those who classified themselves the same at post may be attributable to increased knowledge of what “active” is and becoming more aware of the definition.

Self-efficacy is closely related to physical activity participation (Orsega-Smith, Payne, Mowen, et al., 2007; French, Olander, Chisholm, McSharry, 2014; Ayotte, Margrett & Hicks-Patrick, 2010). There was an increased self-efficacy change for completing 35 and 40 minutes of continuous physical activity from PRE to POST. This increase is positive in that research suggests self-efficacy is closely related with maintaining physical activity six months beyond a program’s end (Brassington, Atienza, Perczek, DiLorenzo & King, 2002).

In addition, those confident in their ability to be physically active for 35 and 40-minutes consecutively are more likely to meet the physical activity recommendations of

30 minutes of physical activity per day or 150 minutes of moderate-intensity activity per week (U.S. Department of Health and Human Services, 2008). Wilcox and others (2003) reported that those with higher levels of self-efficacy had higher levels of physical activity participation. This supports our findings that physical activity participation increased from PRE to POST.

Barriers to physical activity may prevent older adults from being physically active. In the present study PRE health status was a significant predictor of self-efficacy for physical activity barriers change. Health status is commonly cited as one of the largest barriers for older adults to overcome when trying to be physically active (Ayotte, Margrett & Hicks-Patrick, 2010; American College of Sports Medicine, 2009). However, health status or concerns may also motivate older adults to be physically active (Costello, Kafchinski, Vrazel, & Sullivan, 2001). Self-efficacy is another barrier toward physical activity participation and may limit physical activity participation among older adults (Dionigi, 2007). Physical activity programs that increase self-efficacy will potentially lead to increased physical activity participation (French, Olander, Chisholm, Mc Sharry, 2014; Ayotte, Margrett & Hicks-Patrick, 2010). Regular physical activity participation decreases the risk and severity of many chronic diseases commonly afflicting older adults as well as reduces health-care costs (ACSM, 2009; CDC, 2003). On average, participating in 90 minutes of physical activity weekly could produce \$2,200 in annual health care costs per individual (approximately \$42/week; CDC, 2003). For this study, 111 participants were “active” at POST resulting in \$37,296 potential health care savings (\$42 x 8 weeks x 111 participants).

Based on these findings, the LIFE Program is effective in promoting physical activity participation and physical activity self-efficacy change among rural-residing older adults in a real-life setting. Results also indicate that recruitment efforts focus on those in the “young-old” and “middle-old” categories due to their higher completion rate.

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CONCLUSIONS

The LIFE Program is a well-received, low-cost, physical activity program for rural-residing older adults that is appropriate for delivery through Extension. Results suggest that the LIFE Program is effective in increasing physical activity participation over an eight week time period. There was an increase number of participants who identified themselves as “active” from pre to post. We were unable to see if there was maintenance of physical activity participation at follow-up due to a low completion rate (34.1%) from pre to follow-up. There was also a change in self-efficacy from pre to post noted for completing 35 and 40 minutes of consecutive physical activity. This has the potential for older adults to meet the physical activity guidelines of 150-minutes per week. Self-efficacy change for this group was influenced by baseline self-reported health status and physical activity level.

A long-term goal of the LIFE Program is to make it a sustainable physical activity program that can be implemented in the community through Extension. The LIFE Program was viewed as a ready-to-go, low-cost physical activity program that Extension personnel enjoyed bringing to rural-residing older adults. The key to successful implementation is community partnerships. Providing a physical activity program for rural-residing older adults provides the opportunity for physical activity and socialization where there otherwise are little opportunities for them. Group physical activity has the potential to increase physical activity participation and self-efficacy. Programs like the LIFE Program can help reduce the health care costs, incidence of chronic disease and disability and increase independence.

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APPENDIX A: PHYSICAL ACTIVITY READINESS QUESTIONNAIRE (PAR-Q)

LIFE Program Screening Tool Physical Activity Readiness Questionnaire

Regular physical activity is fun and healthy and is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active. If you are planning to become much more physically active than you are now, start by answering the seven questions in the table below. These questions will help you determine if you should check with your doctor before you start the LIFE Program.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly.

YES	NO	
		Has your doctor ever said you have a heart condition and that you should only do physical activity recommended by a doctor?
		Do you feel pain in your chest when you do physical activity?
		In the past month, have you had chest pain when you were not doing physical activity?
		Do you lose your balance because of dizziness or do you ever lose consciousness?
		Do you have a bone or joint problem that could be made worse by a change in your physical activity?
		Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
		Do you know of any other reason why you should not do physical activity?

If you answered YES to one or more questions you may want to talk to your doctor about the kinds of activities you wish to participate in and follow his/her advice before starting the LIFE Program.

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can start becoming much more physically active—begin slowly and build up gradually.

APPENDIX B: INFORMED CONSENT

Consent Form for:

“Evaluation of an Extension-delivered community-based intergenerational exergaming (physical activity) program” PARTICIPANTS

This form describes a community-based program evaluation project that is being conducted by Iowa State University (ISU) Extension and Outreach. It has information to help you decide whether or not you wish to participate. Your participation is completely voluntary. Please discuss any questions you have about the study or about this form with the project staff before deciding to participate.

Program Description

The program is based on the Living (well through) Intergenerational Fitness and Exercise (LIFE) program that was pilot tested with 46 older adults in 2010 by an ISU research team. It was revised based on participant and trainer feedback. The revised project is the one you are invited to be part of. For this project, trained Extension and Outreach personnel are implementing and evaluating the LIFE Program in different rural counties around the state.

The LIFE Program is a physical activity program that uses low-impact, moderate activities guided by the exergaming tool, Kinect®. It has two main parts: **on-site physical activity (for 8 weeks) and follow-up newsletters (for 16 weeks)**. The on-site component is held twice weekly for eight weeks for a total of 60 weekly minutes of physical activity (30 minutes exergaming using Kinect daily). For the first two weeks of the on-site program participants will also take part in 30 minutes of interactive group games led by a younger adult trainer. The 30-minute group activity has been included to help participants and the younger adult trainers get to know one another. **Thus, for Classes 1-5 the time will be one hour per class; for Classes 6-16 it will be 30 minutes per class.** Kinect® is the primary means for physical activity promotion during the LIFE Program. The selected Kinect® activities will focus on endurance, strength, flexibility and balance. The newsletter program provides participants with eight bi-monthly wellness newsletters. During the newsletter program, the younger adult trainer-led program will not be conducted but the Kinect® will remain on-site. Participants will be encouraged to serve as on-site leaders so that the on-site program can continue the program during the newsletter intervention (16 weeks) and beyond.

***** NOTE: DO NOT COMPLETE IF THE FOLLOWING APPLY TO YOU *****

1. **YOU ARE YOUNGER THAN AGE 60 (If you will be 60 within three months, you are eligible).** *If you will not be age 60 by the end of this program, you are not eligible to participate at this time.*
2. **THE PHYSICAL ACTIVITY READINESS QUESTIONNAIRE** you reviewed advised you to seek medical advice before becoming physically active.

Who is conducting this program?

ISU Extension and Outreach is implementing and evaluating the LIFE program in rural communities. Drs. Sarah L. Francis, Jennifer Margrett, and Warren Franke will oversee how the program is implemented and how the questionnaires and evaluations are analyzed.

Why am I invited to participate in this program?

You are being asked to take part because you are:

- 1) 60 years of age or older,
- 2) able to participate in a physical activity program as determined by the Physical Activity Readiness Questionnaire,
- 3) willing to complete an eight-week on-site physical activity program followed by a 16-week newsletter intervention, and
- 4) willing to complete questionnaires

What is the purpose of this program?

The purpose of this program is to evaluate the community-based implementation of the LIFE Program through county Extension offices in rural Iowa counties.

What will I be asked to do?

If you agree to participate, you will be asked to:

1. Complete both the on-site physical activity and newsletter intervention of the LIFE Program as previously described.
2. Complete a comprehensive questionnaire at three different times during the study. This questionnaire may take up to 40 minutes to complete. The questionnaire will ask information about daily activities, feelings, physical activity habits. For the first questionnaire, you will be asked to provide general descriptive information. For the other two questionnaires, you will be asked to provide feedback about the LIFE Program.

If you agree to serve as an **ON-SITE LEADER**, in addition to the tasks asked of you as a LIFE Program participant, you will also be asked to:

1. Complete a training program of your choice. You can choose from either of the following:
 - a. *Comprehensive*: This is the same training as the younger adult trainers and occurs before the LIFE Program starts. It involves completing a self-study training module using a computer and completing a three hour training workshop.
 - b. *Integrated*: The total training time will be about 4.5 hours. You will be asked to participate in a series of weekly trainings (starting Week 4) before or after the on-site program. During these 15-20 minute twice weekly sessions you will work with the Trainer to learn how to set up the exergaming equipment and lead the LIFE Program.

2. Co-lead the on-site program during Week 6 with the younger adult trainer and lead it Week 7 (the younger adult trainer will be there if assistance is needed) prior to the newsletter intervention. You will be expected to continue the on-site program during the newsletter intervention (16 weeks).
3. Complete an on-site leader program evaluation (about 10 minutes to complete). The program evaluation asks about what you liked and did not like about serving as a LIFE Program on-site leader.

What are the possible risks and benefits of my participation?

Risks — While participating in the LIFE Program, the risk to you is minimal. However, this is a physical activity program. There may be some risks including, but not limited to muscle soreness, fainting, disorders of heart beat, abnormal blood pressure and in very rare instances heart attack. You may also find answering pre-, post- and follow-up questionnaires inconvenient. In addition, if you serve as an **on-site leader**, depending on the type of training you choose, you may be uncomfortable being trained by a younger adult and instructing your peers.

Benefits — If you decide to participate in the LIFE Program, there may be direct benefits to you including improved fitness, subjective well-being and physical activity participation.

How will the information I provide be used?

It is hoped that the information gained from this evaluation program will benefit society in that we will have created a physical activity program that is easy to implement in a rural community and that improves health and encourages meaningful interaction between generations.

What measures will be taken to ensure the confidentiality of the data or to protect my privacy?

Records identifying all LIFE Program members will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies including the National Institute of Food and Agriculture (the funding agency), auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken:

Each participant will create their own user code that will be associated with their pre-, post- and follow-up questionnaires. The Extension staff person who is leading the LIFE Program in your area will mail the de-identified, coded questionnaires he/she collects to Dr. Sarah Francis at ISU. Forms that identify you (registration forms, coding sheets) will be mailed separately from the questionnaires to Dr. Francis as well. The mailing envelopes will be labeled as “Confidential”.

Identifying documents (e.g. registration forms, consent forms) will be kept in a secure location separate from the coded documents in Dr. Francis' office. The questionnaires will be kept for five years following the close of the study or until the results are published, whichever occurs first. If the results are published, your identity will remain confidential.

Will I incur any costs from participating or will I be compensated?

You will need to pay for travel from your house to the LIFE Program location and back home. You will not receive compensation for participating in the LIFE Program, other than free access to the exercise sessions and newsletters. You may also receive small gifts as part of participation raffles that take place during the time of the sessions. These gifts may include a wellness journal or an older adult exercise DVD.

What are my rights as a human research participant?

Your participation in the LIFE Program is completely voluntary and you may refuse to participate or leave at any time. If you decide to not participate in the LIFE Program or leave the LIFE Program early, it will not result in any penalty or loss of benefits to which you are otherwise entitled. When completing the questionnaires, you can skip any questions that you do not wish to answer.

Whom can I call if I have questions or problems?

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Sarah L. Francis, PhD, MHS, RD at 515-294-1456 or slfranci@iastate.edu.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, 1138 Pearson Hall, Iowa State University, Ames, Iowa 50011.

Consent and Authorization Provisions

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) _____

(Participant's Signature)

APPENDIX C: FOLLOW-UP QUESTIONNAIRE

Note: All questions are the same for Pre-, Post-, and Follow-up with only evaluation questions at Post and Follow-up

Please write your code number below:

First three letters of the county in which you reside	FIRST letter of your first name	FIRST letter of your middle name	LAST letter of your last name	Month of your birth date	First digit of your day of birth



FOLLOW-UP QUESTIONNAIRE

The questions contained in this questionnaire are intended to help us better understand the general characteristics of LIFE Program participants. Your answers will remain confidential. Your name does not appear anywhere on this questionnaire. Please take your time completing this questionnaire. It may take up to 40 minutes to complete.

PLEASE USE A PEN.

(15 pages including cover)

Please provide the following general information.

	<i>Office Use Only</i>
1. Age: _____ years	OAQFU1
2. Sex: <input type="checkbox"/> Male (1) <input type="checkbox"/> Female (2)	OAQFU2
3. Ethnicity: <input type="checkbox"/> Caucasian (1) <input type="checkbox"/> African American (2) <input type="checkbox"/> Asian (3) <input type="checkbox"/> Other (4)	OAQFU3
4. Marital status: <input type="checkbox"/> Single, never married (1) <input type="checkbox"/> Married (2) <input type="checkbox"/> Divorced (3) <input type="checkbox"/> Widowed (4)	OAQFU4
5. In general, how would you describe your health: <input type="checkbox"/> Very poor (1) <input type="checkbox"/> Somewhat poor (2) <input type="checkbox"/> Average (3) <input type="checkbox"/> Somewhat good (4) <input type="checkbox"/> Very good (5)	OAQFU5
6. Living arrangement <input type="checkbox"/> Community-residing: apartment or home (1) <input type="checkbox"/> Independent &/or Assisted Living Facility (2) <input type="checkbox"/> With Adult Children (3) <input type="checkbox"/> Other (4)	OAQFU6
7. In a typical day, how many times do you have contact with	OAQFU7

high school or college-age youth/young adults? € Never (1) € Occasionally (2) € Several times a day (3)	
--	--

Please read the definition of **Regular Physical Activity** below:

For physical activity to be considered “regular” it must be done for 30 minutes at a time (or more) per day, and be done at least five days per week. The intensity of activity does not have to be vigorous but should be enough to increase your heart rate and/or breathing level somewhat. Examples of activities could include brisk walking, leisure biking, swimming, line dancing, and aerobics classes or any other activities and other activities with a similar intensity level.

According to the above definition answer “YES” to ONLY ONE of the following questions:

	YES	NO
1. Do you currently engage in regular physical activity?		
2. Do you intend to engage in regular physical activity in the next 6 months?		
3. Do you intend to engage in regular physical activity in the next 30 days?		
4. Have you been regularly physically active for the		

past six months?		
Office use only (circle one): STAGEFU: PC(1) C (2) P (3) A (4) M (5)		

The below scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past few weeks. **Use the following scale to record your answers:**

1= Very Slightly or Not at All

2= A Little

3= Moderately

4=Quite a Bit

5= Extremely

		<i>Office Use Only</i>		<i>Office Use Only</i>
	Interested	PANAFU1		Irritable
	Distressed	PANAFU2		Alert
	Excited	PANAFU3		Ashamed
	Upset	PANAFU4		Inspired
	Strong	PANAFU5		Nervous
	Guilty	PANAFU6		Determined
	Scared	PANAFU7		Attentive
	Hostile	PANAFU8		Jittery
	Enthusiastic	PANAFU9		Active
	Proud	PANAFU10		Afraid

Rate your ability to complete the following tasks. Mark your answer with an "X"

	<i>Office Use Only</i>
<p>1. Writing checks, paying bills, balancing checkbook</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU1
<p>2. Assembling tax records, business affairs, or papers</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU2
<p>3. Shopping alone for clothes, household necessities, or groceries</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU3
<p>4. Playing a game of skill, working on a hobby</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU4

<p>5. Heating water, making a cup of coffee, turning off stove after use</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU5
<p>6. Preparing a balanced meal</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU6
<p>7. Keeping track of current events</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU7
<p>8. Paying attention to, understanding, discussing TV, book, magazine</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU8
<p>9. Remembering appointments, family occasions, holidays,</p>	FAQFU9

<p>medications</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	
<p>10. Traveling out of neighborhood, driving, arranging to take buses</p> <ul style="list-style-type: none"> <input type="checkbox"/> I never did the task, and would have difficulty now (1) <input type="checkbox"/> I never did the task, but could do it now (0) <input type="checkbox"/> I have no difficulty performing the task by myself (0) <input type="checkbox"/> I do have difficulty, but I perform the task myself (1) <input type="checkbox"/> I require some assistance to get the task done (2) <input type="checkbox"/> I require total assistance; someone must do the task for me (3) 	FAQFU10
<p>TOTAL SCORE _____</p>	FAQFU11

The next questions are about the level of energy you have on any given day. Please read each of the following statements carefully. Mark (X) the response that best represents your opinion.

	Agree (1)	Neutral (2)	Disagree (3)	Office Use Only
When I am doing something, I can keep my thoughts on it.				MFSFU6
My thoughts easily wander.				MFSFU9
It takes a lot of effort to concentrate on things				MFSFU18
I can concentrate well				MFSFU20

The following questions ask about the confidence you have in yourself regarding taking part in physical activity and exercise. Please answer as honestly as possible.

On a scale of 0% to 100%, how confident are you that you could continuously exercise for the following number of minutes (please write a number from 0 to 100 in EVERY blank):

	Percent Confident (0 to 100)	Office Use Only
5 MINUTES		FUSE1
10 MINUTES		FUSE2
15 MINUTES		FUSE3
20 MINUTES		FUSE4
25 MINUTES		FUSE5
30 MINUTES		FUSE6
35 MINUTES		FUSE7
40 MINUTES		FUSE8
45 MINUTES		FUSE9

Please circle the number that best reflects your confidence that you could exercise for 20 minutes 3 times per week if:

	Not Very Confident										Very Confident	Office Use Only
	1	2	3	4	5	6	7	8	9	10		
The weather was bothering you	1	2	3	4	5	6	7	8	9	10		FUSE10
You were bored by the activity	1	2	3	4	5	6	7	8	9	10		FUSE11
You felt pain	1	2	3	4	5	6	7	8	9	10		FUSE12

when exercising												
You had to exercise alone	1	2	3	4	5	6	7	8	9	10	FUSE13	
You did not enjoy it	1	2	3	4	5	6	7	8	9	10	FUSE14	
You were too busy with other activities	1	2	3	4	5	6	7	8	9	10	FUSE15	
You felt tired	1	2	3	4	5	6	7	8	9	10	FUSE16	
You felt stressed	1	2	3	4	5	6	7	8	9	10	FUSE17	
You felt depressed	1	2	3	4	5	6	7	8	9	10	FUSE18	

Below are statements about how you feel or think about certain situations. Read each statement and select the answer that best reflects what you believe is true for you in the given situation.

Circle the number that indicates the extent to which you agree or disagree with each statement. There are no “right” or “wrong” answers. We want to know which choice best describes you in each case.

1= Slightly agree

2= Agree

3= Strongly agree

4= Strongly disagree

5= Disagree

6= Slightly disagree

							<i>Office Use Only</i>
The older I get, the harder it is to think clearly.	1	2	3	4	5	6	FUPIC3
If I had to take a timed intelligence test or something similar right now, I'd worry whether I'd be able to finish it on time.	1	2	3	4	5	6	FUPIC5
I'm afraid that I wouldn't do very well on an intelligence test or a similar kind of test at this time.	1	2	3	4	5	6	FUPIC6
I have to use a lot more mental energy for solving difficult problems now than I used to.	1	2	3	4	5	6	FUPIC8
I can learn new things as well as always.	1	2	3	4	5	6	FUPIC12

My letter writing skill has gone downhill.	1	2	3	4	5	6	FUPIC20
Right now, I'd be threatened by unfamiliar test problems on an intelligence test or a similar test.	1	2	3	4	5	6	FUPIC23

							<i>Office Use Only</i>
There's no way around it; I'll always be nervous when I take a test.	1	2	3	4	5	6	FUPIC25
I would feel on edge right now if I had to take an intelligence test or something similar.	1	2	3	4	5	6	FUPIC31
I would feel tense and uneasy taking word tests right now.	1	2	3	4	5	6	FUPIC33
I don't remember things as well as I used to.	1	2	3	4	5	6	FUPIC35
It's becoming more hopeless to figure out complicated schedules as I get older.	1	2	3	4	5	6	FUPIC36

The next set of questions (pages 10-14) is intended to help determine the aspects of the LIFE Program you enjoyed and those you did not. Please answer these questions honestly, as your comments will help us improve the LIFE Program.

Thank you again for participating in this program Please circle the choice that best answers the question.

1. I decided to participate in the LIFE Program because (*check all that apply*):

- a. I have a health condition my health care provider said would be helped by physical activity (e.g. diabetes, heart disease, osteoporosis) (1)
- b. It seemed like it would be a fun way to socialize (2)
- c. It was provided at a convenient location and time (3)
- d. All of the above (4)
- e. None of the above (5)

2. The LIFE Program was long enough for me to make changes in my physical activity:

- a. Strongly agree (1)
- b. Agree (2)
- c. Undecided (3)
- d. Disagree (4)
- e. Strongly disagree (5)

3. The length of the onsite LIFE sessions (30-60 minutes/session) was:

- a. Too long; **please answer 3a** (1)
- b. Too short; **please answer 3b** (2)
- c. The right length (3)

3a. If you said the sessions were too long, how long do you think they should last?

Office Use Only
PEVALFU1
PEVALFU2
PEVALFU3
PEVALFU3A

_____ hours _____ minutes

3b. If you said the sessions were too short, how long do you think they should last?

_____ hours _____ minutes

PEVALFU3B

4. The follow-up newsletters (*LIFE Lessons*) were:

- Not helpful; I did not find the information relevant to my lifestyle (1)
- Helpful; it reinforced what I already knew (2)
- Very helpful; it provided me with tips on how to live a more healthy lifestyle (3)

5. The aspect I liked *best* about the LIFE Program was:

6. The aspect I liked *least* about the LIFE Program was:

7. Do you feel you made changes (positive and negative) in your daily routine as a result of the LIFE Program?

- Yes, positive; **please answer 7a** (1)
- Yes, negative; **please answer 7b** (2)
- Yes both positive and negative; **please answer 7a and 7b** (3)
- No (4)

Office Use Only
PEVALFU4
PEVALFU5
PEVALFU6
PEVALFU7

7a. What perceived positive changes did you make in your daily routine?

PEVALFU7A

7b. What perceived negative changes did you make in your daily routine?

PEVALFU7B

8. In addition to the program materials, during the course of the LIFE Program I sought physical activity/health information from (check all that apply):

- a. I did not seek extra physical activity/health information (1)
- b. The television (2)
- c. Magazines (3)
- d. Health professionals (e.g. doctor, nurse, dietitian, personal trainer) (4)
- e. Other _____

Office Use Only

PEVALFU8

9. Did you participate in the on-site LIFE Program led by the on-site program leader?

- a. Yes (1)
- b. No (2)

PEVALFU9

9a. If you answered NO to the question above, why did you not participate in the on-site program led by the on-site program leader?

- a. The program was not offered (1)

PEVALFU9A

- b. I did not continue going to the program site (2)
- c. I did not enjoy the program (3)
- d. Other _____

10. Overall, I thought the LIFE Program was:

- a. Excellent (1)
- b. Good (2)
- c. Okay (3)
- d. Can be improved (4)

11. I would recommend the LIFE Program to a friend.

- a. Strongly agree (1)
- b. Agree (2)
- c. Undecided (3)
- d. Disagree (4)
- e. Strongly disagree (5)

12. If the LIFE Program (including newsletters) was offered as a fee-based service, what do you think the cost should be?

\$ _____

PEVALFU9

PEVALFU11

PEVALFU12

Complete the following questions if you served as an on-site leader

1. I decided to volunteer as an on-site LIFE Program leader because (check all that apply):

- f. I enjoy physical activity (1)
- g. It seemed like it would be a fun way to socialize (2)
- h. I like volunteering (3)
- i. I wanted to make sure the program continued after the youth trainers left (4)
- j. All of the above (5)
- k. None of the above (6)

2. The training I received prepared me to handle the responsibilities of being an on-site LIFE Program leader:

- f. Strongly agree (1)

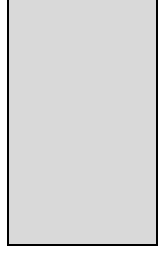
Office Use Only

OSL1

OSL2

g. Agree (2)	
h. Undecided (3)	
i. Disagree (4)	
j. Strongly disagree (5)	
3. Serving as an on-site LIFE Program leader helped me feel good about myself:	OSL3
a. Strongly agree (1)	
b. Agree (2)	
c. Undecided (3)	
d. Disagree (4)	
e. Strongly disagree (5)	
4. Did you continue the program after the on-site trainer left?	OSL4
a. Yes (1)	
b. No (2)	
4a. If you answered YES, how often did you lead the LIFE Program?	OSL4A
a. Once weekly (1)	
b. Twice weekly (2)	
c. Other _____	
4b. If you answered NO, why did you choose not to lead the LIFE Program?	Office Use Only
a. No one came to the sessions(1)	OSL4B
b. I did not have the time (2)	
c. I did not receive support by the location's staff (3)	
d. Other _____	
5. Overall, I enjoyed serving as an on-site LIFE Program leader.	OSL5
f. Strongly agree (1)	

- g. Agree (2)
- h. Undecided (3)
- i. Disagree (4)
- j. Strongly disagree (5)



APPENDIX D: WEEKLY EXERCISE GUIDES

LIFE PROGRAM WEEKLY GUIDE

Onsite Leader-Led program

Keep difficulty at “AMATEUR” level OR progress to “PROFESSIONAL” if the group desires to increase the intensity

Session 1

KINECT WORKOUT (~31 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Use **Party Play mode** as a warm-up.
- With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.

ROUTINE:

- Warm up (2 minutes)
- Bowling (4 minutes)
 - Have participants alternate arms (e.g. right, left)
- Table Tennis (14 minutes)
 - Have participants use RIGHT arm first then
 - When asked to play again select “Yes” and have participants use LEFT arm
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)
- Boxing (4 minutes)

Session 2

KINECT WORKOUT (~31 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Use **Party Play mode** as a warm-up.
- With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.

ROUTINE

- Warm up (2 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect

- High knee lifts when walking will mimic running
- Small toe jump, barely off floor will mimic jumping on screen
- Javelin toss and discus throw: have participants alternate arms (e.g. right, left)
- Soccer (9 minutes)
- Volleyball (6 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)

LIFE PROGRAM WEEKLY GUIDE WEEK 1

Keep difficulty at “BEGINNER” level

Workout durations can be adjusted, as needed, depending upon how the participants respond.

DAY 1

Since Day 1 includes the completion of pre-questionnaires, you may not be able to complete both the exergaming activity and the interactive game activity. For this reason, interactive games will not start until Day 2.

1. Trainers should set up the exergaming equipment before helping with the pre-questionnaires. This is to make sure the equipment is ready for use once participants have completed the pre-questionnaires.
2. Trainers should assist the LIFE Program management team with the distribution of the pre-questionnaires. If participants need assistance with writing or reading, please offer to help.
3. Once about 3-4 participants have completed their pre-questionnaires, Trainers should start the appropriate workouts. Remember do not deviate from the activities listed. These have been approved as safe for participants.
4. To save some time, select “one player” or “against computer.” One participant becomes the on-screen avatar and every other participant follows the movements of that avatar.
 - a. An alternative is to select “four players” and let multiple participants take turns leading the warm-up activities.

KINECT WORKOUT (~28 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Mini Games will be used as the warm-up because of their shorter duration and greater variety.
- There are 13 Mini Games displayed on 3 screens or “pages.” To enable the warm-up to be more continuous, choose games that are displayed on the same page but work different body parts. Alternatively, play the 2 games from the same sport.
 - **Suggested combinations** are:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
 - **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

ROUTINE:

- Bowling (4 minutes)
 - Have participants alternate arms (e.g. right, left)
- Soccer (9 minutes)
- Table Tennis (7 minutes)
 - Have participants use RIGHT arm
- Volleyball (6 minutes)
 - The game is designed to respond to players jumping to spike the ball. That may not be safe with older participants; they can take a small hop barely off the floor and that will work.

DAY 2

KINECT WORKOUT (~29 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

ROUTINE

- Boxing (4 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - The participants do not need to run in place. High knee lifts when walking will mimic running.
 - Small toe jumps, or a hop barely off the floor, will mimic jumping on screen
 - When performing the javelin toss and discus throw, have the participants alternate arms (e.g. right, left)
- Table Tennis (7 minutes)
 - Have participants use LEFT arm
- Soccer (9 minutes)

INTERACTIVE GAMES (20-30 minutes)

- Crosswords (10-15 minutes)
- Card mixers (10-15 minutes)

**LIFE PROGRAM WEEKLY GUIDE
WEEK 2**

Keep difficulty at “BEGINNER” level

Workout durations can be adjusted, as needed, depending upon how the participants respond.

Day 3**KINECT WORKOUT (~28 minutes, includes instruction time)****WARM-UP (~2 to 5 minutes)**

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

ROUTINE:

- Bowling (4 minutes)
 - Have participants alternate arms (e.g. right, left)

- Soccer (9 minutes)
- Table Tennis (7 minutes)
 - Have participants use RIGHT arm
- Volleyball (6 minutes)
 - The game is designed to respond to players jumping to spike the ball. That may not be safe with older participants; they can take a small hop barely off the floor and that will work.

INTERACTIVE GAMES (20-25 minutes)

- Geography (10-15 minutes)
- Ripples (10minutes)

DAY 4

KINECT WORKOUT (~29 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

ROUTINE

- Boxing (4 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - The participants do not need to run in place. High knee lifts when walking will mimic running.
 - Small toe jumps, or a hop barely off the floor, will mimic jumping on screen
 - When performing the javelin toss and discus throw, have the participants alternate arms (e.g. right, left)
- Table Tennis (7 minutes)
 - Have participants use LEFT arm
- Soccer (9 minutes)

INTERACTIVE GAMES (25-30 minutes)

- Story Stretch (10 minutes)
- Letter Openers (15-20)

**LIFE PROGRAM WEEKLY GUIDE
WEEK 3**

Advance difficulty to “AMATEUR” level

Workout durations can be adjusted, as needed, depending upon how the participants respond.

Day 5

KINECT WORKOUT (~28 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

Warm-up Alternative:

- *Consider using Party Play mode as a warm-up, especially if the participants are getting bored and want to try something different. This choice is best done after the participants have become comfortable with how to play all the Main Events and Mini Games.*
- *With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.*

ROUTINE:

- Bowling (4 minutes)
 - Have participants alternate arms (e.g. right, left)
- Soccer (9 minutes)
- Table Tennis (7 minutes)
 - Have participants use RIGHT arm
- Volleyball (6 minutes)

INTERACTIVE GAMES (15-20 minutes)

- Have you ever (15-20 minutes)

DAY 6**KINECT WORKOUT (~29 minutes, includes instruction time)****WARM-UP (~2 to 5 minutes)**

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

Warm-up Alternative:

- *Consider using Party Play mode as a warm-up, especially if the participants are getting bored and want to try something different. This choice is best done after the participants have become comfortable with how to play all the Main Events and Mini Games.*
- *With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.*

ROUTINE

- Boxing (4 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - The participants do not need to run in place. High knee lifts when walking will mimic running.
 - Small toe jumps, or a hop barely off the floor, will mimic jumping on screen
 - When performing the javelin toss and discus throw, have the participants alternate arms (e.g. right, left)
- Table Tennis (7 minutes)
 - Have participants use LEFT arm
- Soccer (9 minutes)

INTERACTIVE GAMES (25-30 minutes)

- Story Stretch (10 minutes)
- Letter Openers (15-20)

**LIFE PROGRAM WEEKLY GUIDE
WEEKS 4 AND 5**

Advance difficulty to “AMATEUR” level

Workout durations can be adjusted, as needed, depending upon how the participants respond.

First Day of Each Week (Days 7 and 9)

KINECT WORKOUT (~31 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

Warm-up Alternative:

- *Consider using Party Play mode as a warm-up, especially if the participants are getting bored and want to try something different. This choice is best done after the participants have become comfortable with how to play all the Main Events and Mini Games.*
- *With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.*

ROUTINE:

- Warm up (2 minutes)
- Bowling (4 minutes)
 - Have participants alternate arms (e.g. right, left)
- Table Tennis (14 minutes)
 - Have participants use RIGHT arm first then
 - When asked to play again select “Yes” and have participants use LEFT arm
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)
- Boxing (4 minutes)

Second Day of Each Week (DAYS 8 AND 10)

KINECT WORKOUT (~31 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Select one of the following Mini Games combinations:
 - Soccer Target Kick followed by Bowling Pin Rush
 - Beach Volleyball Body Ball followed by Table Tennis Paddle Panic
 - Beach Volleyball Body Ball followed by Table Tennis Rally Tally
 - Track & Field: Sprint (walking but lifting knees to hip level) followed by Hurdle (small “hops” instead of jumping over the hurdles) followed by Discus (alternating hands).
- **Do NOT choose** these Mini Games for the warm-up: Soccer Super Saver, Bowling One Bowl Roll, and Beach Volleyball Bump Bash.

Warm-up Alternative:

- *Consider using Party Play mode as a warm-up, especially if the participants are getting bored and want to try something different. This choice is best done after the participants have become comfortable with how to play all the Main Events and Mini Games.*
- *With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.*

ROUTINE

- Warm up (2 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)
- Soccer (9 minutes)
- Volleyball (6 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)

**LIFE PROGRAM WEEKLY GUIDE
WEEKS 6 through 8**

*Keep difficulty at “AMATEUR” level OR progress to “PROFESSIONAL” if the group desires to increase the intensity
Workout durations can be adjusted, as needed, depending upon how the participants respond.*

First Day of Each Week (Days 11, 13 and 15)

KINECT WORKOUT (~31 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Use **Party Play mode** as a warm-up.
- With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.

ROUTINE:

- Warm up (2 minutes)
- Bowling (4 minutes)
 - Have participants alternate arms (e.g. right, left)
- Table Tennis (14 minutes)
 - Have participants use RIGHT arm first then
 - When asked to play again select “Yes” and have participants use LEFT arm
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)
- Boxing (4 minutes)

ON DAY 15:

REMIND PARTICIPANTS THAT THEY WILL BE ASKED TO COMPLETE POST-QUESTIONNAIRES DURING THE NEXT SESSION.

Second Day of Each Week (DAYS 12, 14 and 16)

KINECT WORKOUT (~31 minutes, includes instruction time)

WARM-UP (~2 to 5 minutes)

- Use **Party Play mode** as a warm-up.
- With Party Play, the Kinect computer randomly decides what the participants do and two teams of participants can “compete” against each other.

ROUTINE

- Warm up (2 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)
- Soccer (9 minutes)
- Volleyball (6 minutes)
- Track and Field (7 minutes)
 - If the person who is “on the Kinect” needs to hold on to a chair for balance, make sure it is on the righthand side; the lefthand side may stop the Kinect
 - High knee lifts when walking will mimic running
 - Small toe jump, barely off floor will mimic jumping on screen
 - Javelin toss and discus throw: have participants alternate arms (e.g. right, left)

DAY 16

Since Day 16 includes the completion of post-questionnaires, you may not be able to complete the exergaming program in its entirety. Follow the routine for Days 12 and 14.

1. *Trainers should set up the exergaming equipment before helping with the post-questionnaires. This is to make sure the equipment is ready for use once participants have completed the post-questionnaires.*
2. *Trainers should assist the LIFE Program management team with the distribution of the post-questionnaires. If participants need assistance with writing or reading, please offer to help.*
3. *Once about 3-4 participants have completed their post-questionnaires, Trainers should start the appropriate workouts.*

APPENDIX E. FOCUS GROUP INFORMED CONSENT**Consent Form for:**

***“Evaluation of an Extension-delivered community-based intergenerational exergaming (physical activity) program”* EXTENSION LIFE PROGRAM
MANAGER**

This form describes a community-based program evaluation project that was conducted by Iowa State University (ISU) Extension and Outreach. It has information to help you decide whether or not you wish to participate. Your participation is completely voluntary.

Please discuss any questions you have about the study or about this form with the project staff before deciding to participate.

Program Description

The Living (well through) Intergenerational Fitness and Exercise (LIFE) program was pilot tested with 46 older adults in 2010 by an ISU research team. It was revised based on participant and trainer feedback and was re-tested, by you and others, in rural Iowa counties through local ISU Extension and Outreach offices. A component of this re-testing includes learning whether or not the LIFE Program training materials were successful in helping Extension personnel manage the LIFE Program in their communities with minimal assistance from campus-based project staff researchers.

Who is conducting this focus group?

Drs. Sarah L. Francis, Jennifer Margrett, and Warren Franke are conducting focus groups with the Extension personnel who led the LIFE Program in rural Iowa counties (e.g. Adair, Adams, Audubon, Butler, Calhoun, Clayton, Davis, Decatur, Fremont, Ida, Iowa, Keokuk, Louisa, Lyon, Pocahontas, Ringgold, Sac, Taylor, Van Buren, Wayne, or Worth).

Why am I invited to participate in this focus group?

You are being asked to participate in the 45 to 90 minute focus group discussion because you managed the LIFE Program in one or more of the selected programming areas.

What is the purpose of this focus group?

The purpose of this focus group is to learn more about your experience as a LIFE Program manager.

What will I be asked to do?

If you agree to participate in this focus group discussion you will be asked questions intended to help us identify: 1) challenges to LIFE Program implementation 2) best- and least-liked programming attributes; 3) LIFE Program improvement strategies; and 4) complete a brief written survey. This will assist us in better refining the LIFE Program to make more user-friendly.

What are the possible risks and benefits of my participation?

Risks — While participating in the focus group, the risk to you is minimal. You may feel uncomfortable with discussing your opinions in front of a group and being recorded. You may also feel inconvenienced completing a written survey.

Benefits — If you decide to participate in the focus group discussion, it is hoped that the information gained will aid in our efforts to refine and disseminate an evidence- and community-based intergenerational physical activity program for older adults.

How will the information I provide be used?

It is hoped that the information gained from this focus group will benefit society in that we will have created a physical activity program that is easy to implement in a rural community and that improves health and encourages meaningful interaction between generations.

What measures will be taken to ensure the confidentiality of the data or to protect my privacy?

Records identifying all focus group members will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies including the National Institute of Food and Agriculture (the funding agency), auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: 1) The focus group discussions will be recorded; however names will not be used. This is to ensure your confidentiality. 2) The recordings will be transcribed by an independent party who will not know who attended the focus group session. 3) Immediately before starting the focus group discussion, a list of rules will be read to participants. These rules are to ensure the comfort of participants and the confidentiality of the sessions. 4) No names will be used during the focus group discussions or the resulting transcriptions.

The transcripts will be kept for five years following the close of the study or until the results are published, whichever occurs first. If the results are published, your identity will remain confidential.

Will I incur any costs from participating or will I be compensated?

You will receive travel reimbursement (\$0.555/mile) for coming to Ames, IA for the focus group discussion.

What are my rights as a human research participant?

Your participation in focus group discussion is completely voluntary and you may refuse to participate or leave at any time. If you decide to leave the focus group discussion early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

Whom can I call if I have questions or problems?

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Sarah L. Francis, PhD, MHS, RD at 515-294-1456 or slfranci@iastate.edu.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, 1138 Pearson Hall, Iowa State University, Ames, Iowa 50011.

Consent and Authorization Provisions

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

APPENDIX F. FOCUS GROUP SURVEY

EXTENSION FOCUS GROUP QUESTIONNAIRE

Providing the following information is **optional**. Its purpose is to help identify the characteristics of the general audience participating in the focus groups. Please do not write your name anywhere on this document. We want anonymous answers only.

Approximately how many years have you worked in Extension? _____ years

What is your extension programming area?

- € Family Life
- € Nutrition & Health
- € 4-H, Youth development
- € Other: _____

During an average week, how many hours do you work for Extension?

- € < 10 hours
- € 10-20 hours
- € 21-30 hours
- € 31-40 hours
- € > 40 hours

How often are you approached with new programming opportunities in your job?

- € Often
- € Occasionally
- € Rarely
- € Never

How likely are you to recommend the LIFE Program to a colleague?

- € Very likely
- € Somewhat likely
- € Somewhat unlikely
- € Very unlikely

How likely are you to recommend the LIFE Program to an older adult?

- € Very likely
- € Somewhat likely
- € Somewhat unlikely
- € Very unlikely

How likely are you to recommend the LIFE Program to a younger adult?

- € Very likely
- € Somewhat likely
- € Somewhat unlikely
- € Very unlikely

Please rate your comfort with using technology that is new to you.

- € Very comfortable
- € Somewhat comfortable
- € Neither comfortable nor not comfortable
- € Somewhat comfortable
- € Very comfortable

Please rate your overall satisfaction with the LIFE Program.

- € Very satisfied
- € Somewhat satisfied
- € Neither satisfied or dissatisfied
- € Somewhat dissatisfied
- € Very dissatisfied

APPENDIX G. FOCUS GROUP OPEN-ENDED QUESTIONS

FOCUS GROUP QUESTIONS—EXTENSION PERSONNEL

Introduction (to be read by moderator)

Hi, I know most of us may know one another because of our work with Extension and Outreach. However I'd like for each of us to state our first names as a refresher. These will not be recorded.

The general purpose of this focus group is to capture your thoughts about your experience as a LIFE Program manager. This discussion is expected to take about 45 to 90 minutes. Before we begin, there are a few guidelines and ground rules. These will help us hear everyone's thoughts while allowing us to complete the discussion on time.

- a. Everyone's participation is valuable and we want you to feel free to say whatever you think.
- b. Please speak one at a time and not in side conversations. It's okay to agree, but it's also okay to disagree.
- c. There are no right or wrong answers. Your best responses are those that are true for you.
- d. Keep in mind that we are just as interested in negative experiences and perspectives as positive ones.
- e. We must all agree to a very strict level of confidentiality to the information presented during this discussion. Some quotes from this discussion may be shared in presentations and publications, but the quotes will not be linked to any specific person or location.

To make sure we get everyone's comments, the discussion will be audio -taped and then transcribed at a later time by an independent party who will not know who participated in today's session. You can refuse to answer or respond to any question, and you can choose to stop participating in the focus group discussion at any time. I'll be reading the questions from my notes because we want to ask the same questions to our focus groups. However, where we go with responses to questions is pretty much up to all of you.

Are there any questions?

What made you want to serve as a LIFE Program manager?

What did you like *most* about working as a LIFE Program manager?

What did you like *least* about working as a LIFE Program manager?

What did you think of your LIFE Program training experience?

What could we have done to make your training experience more beneficial to you?

What location characteristics do you think did enhance or would enhance the LIFE Program? *Prompts: size, convenience, support*

What other circumstances did you find helpful or would you recommend? *Prompts: recruiting youth trainers from one group (e.g., national honor society)*

If given the opportunity, would you implement the LIFE Program again? Why or why not?

What, if anything, could be done to improve the LIFE Program?

Do you think this type of program is something that other Extension personnel or community outreach programs would be interested in implementing? Why or why not?

Is there anything else you would like to share about your experience with the LIFE Program?

What was the most difficult task involved in implementing the LIFE Program?

What types of issues did you learn about from the trainers? *Prompts: boredom, repetition*

What steps could be taken to help prevent these issues?

What types of advantages did you learn about from the trainers? *Prompts: fun, relationship building*

What steps could be taken expand these advantages?

What types of issues did LIFE Trainers notify or ask you about with implementation of the LIFE Program?

What types of issues did you learn about from the participants? *Prompts: boredom, repetition*

What steps could be taken to help prevent these issues?

What types of advantages did you learn about from the participants? *Prompts: improved mood, fun, etc*

What steps could be taken expand these advantages?

What are more effective/efficient ways for us to:
Implement this program?

Collect data for this program?

How do you think the LIFE program was received by participants (older adults)?

How do you think the LIFE Program was received by Trainers (younger adults)?

What are some ways we could make this program more cost effective, if any?

What is your overall perception of the LIFE Program?

Who are others you believe we could reach out to that would also benefit from the LIFE Program?