ABSTRACT

NON-PARTICIPATORS’ PERCEPTIONS OF THE BENEFITS AND BARRIERS TO TAKING PART IN FITNESS CLASSES AT SENIOR CENTERS

by Michelle Marie McGuire

This study aimed to fill a gap in knowledge regarding senior center attendees who choose not to participate in fitness classes offered at their senior center. It assessed perceived benefits and barriers related to participation in these classes, among older adults who use the center for other reasons. It also assessed whether activity level over the lifespan, age and education were associated with perceived benefits and barriers. Findings suggest that non-participators are more likely to identify benefits ($M=3.21$ out of seven possible) that would increase their likelihood of participating, rather than barriers ($M=1.48$) that inhibit participation. The benefits selected most often were related to improving overall health and well-being, followed by increasing strength or balance. Only a few statistically significant relationships were observed between activity level over the lifespan, age, and gender with benefits or barriers. For example, males identified significantly fewer barriers to participating in fitness classes than did females. Implications: Education, programming, and fitness class promotion should focus on the personal and health benefits of being physically active. In addition, it only takes one barrier to prevent participation; senior centers should strive to understand, and help potential participants mitigate any identified barriers.
This thesis titled

NON-PARTICIPATORS’ PERCEPTIONS OF THE BENEFITS AND BARRIERS TO TAKING PART IN FITNESS CLASSES AT SENIOR CENTERS

by

Michelle Marie McGuire

has been approved for publication by

The College of Arts and Science

and

Department of Sociology and Gerontology

____________________________________________________
Dr. Jonathon Vivoda, PHD

____________________________________________________
Dr. Suzanne Kunkel, PHD

____________________________________________________
Dr. Sara McLaughlin, PHD
# Table of Contents

Dedication .......................................................................................................................... vi
Acknowledgements ........................................................................................................... vii
Introduction ....................................................................................................................... 2
  Background ....................................................................................................................... 3
  Senior Centers .................................................................................................................. 3
  Review of the literature ................................................................................................... 4
    Benefits and barriers ..................................................................................................... 4
Methods .............................................................................................................................. 7
  Data ................................................................................................................................... 7
  Measures .......................................................................................................................... 7
    Other factors of interest ............................................................................................... 8
  Statistical analysis .......................................................................................................... 9
Results .................................................................................................................................. 10
  Means and standard deviations of age, benefits, barriers, ALOL, and CAL .......... 10
    Frequencies and percentages of the benefits to participating in fitness classes .. 11
    Benefits and Barriers ................................................................................................. 12
    Combined benefits and barriers with continuous variables ............................. 14
    Combined benefits and barriers by gender ................................................................. 15
    Individual benefits and barriers with continuous variables .............................. 15
    Individual benefits and barriers with education and gender ............................ 16
    Combined benefits and barriers with education ...................................................... 16
Discussion ......................................................................................................................... 17
  Individual benefits ......................................................................................................... 17
  Individual barriers ........................................................................................................... 18
  Benefits and barriers with other variables ................................................................. 19
Limitations .......................................................................................................................... 20
Practice Implications and Directions for Future research ........................................... 20
References ......................................................................................................................... 22
Appendix A ......................................................................................................................... 26
List of Tables

Table 1. Continuous variables: Means and standard deviations ........................................ 10
Table 2. Frequencies and percentages of gender, race and education ............................... 11
Table 3. Frequencies and percentages of the benefits to participating in fitness classes .. 11
Table 4. Frequencies and percentages of the barriers to participating in fitness classes .. 12
Table 5. Descriptive statistics of Benefits and Barriers ......................................................... 13
Table 6. Correlation of combined benefits and barriers and continuous variables........... 15
Table 7. t-test comparing combined benefits (1) and barriers (2) by gender ..................... 15
List of Figures

Figure 1 Conceptual model showing the expected relationships among the variables used in this study ................................................................. 7
Figure 2 Means and 95% Confidence Intervals for Individual Benefits and Barriers ..... 15
Figure 3 Means and 95% Confidence Intervals for Combined Benefits and Barriers ..... 15
Dedication

To J.D. Gantz

For his advice, his patience, and his faith in me.
I will always be grateful to have this man in my life.
I will never forget the love and support that he has shown me.
He always understood.

To Edith Lehman

Although our time together was short, I will never forget what you did for me.
Thank you for believing in me and pushing me to do this.
I miss you terribly.

Thank you both for helping me strive to become a better version of myself.
Acknowledgements

My family and friends:
Thank you for your unending love and support.

Committee Chair:
Dr. Jonathon Vivoda

An extraordinary teacher, researcher, and mentor.
Thank you for your positive reassurance, guidance, and understanding.
You inspired me to be a better person, student, researcher and professional.

Thank you for helping me find the courage within myself to keep moving forward.

Committee members:
Dr. Suzanne Kunkel and Dr. Sara McLaughlin

Thank you for your valuable assistance, support and cooperation.
Your kindness and dedication will not be forgotten.

Special thanks to:
Miami University
The Department of Sociology and Gerontology faculty
Scripps Gerontology Center staff and researchers
NON-PARTICIPATORS’ PERCEPTIONS OF THE BENEFITS AND BARRIERS TO TAKING PART IN FITNESS CLASSES AT SENIOR CENTERS

By: Michelle Marie McGuire
Introduction

Senior centers provide older adults with a venue to socialize, receive help, participate in activities, and be physically active. Centers have incorporated a number of different fitness classes to help older adults remain healthy and active. However, despite the variety of fitness classes offered, some center attendees choose not to participate.

A myriad of research studies have clearly established the importance of physical activity (PA). It is known to reduce the chances of developing chronic diseases; to support physical, cognitive and emotional well-being; and to prolong independence among older adults (Bethancourt, Rosenberg, Beatty, & Arterburn, 2014). Nevertheless, older adults are the least active of all age groups (Bethancourt et al., 2014; Sharpe et al., 2016). In order to acquire meaningful health benefits, experts suggest 150 minutes per week of moderate aerobic activity and two days per week of strength training (Bethancourt et al., 2014; Carlson et al., 2010). The 2008 PA Guidelines for Americans state that less than one third of older adults within the United States meet the recommendations for PA (Bethancourt et al., 2014 & Carlson et al., 2010). This finding is particularly alarming given the rapid growth of the older adult population in the U.S. In 2012, an estimated 43.1 million people were aged 65 and over in the U.S., and by 2050 that population is expected to almost double in size, resulting in about 83.7 million older adults (Ortman et al., 2014).

The importance of increasing older adults’ PA has been acknowledged at the national level, and a number of evidence-based programs have been created to increase PA levels of older adults (National Council on Aging, NCOA, 2017). The NCOA advocates for the idea of “Active Aging,” an active lifestyle in older adults, and promotes several programs designed to increase senior fitness. Other organizations and businesses also focus on this issue, with the YMCA, shopping malls, recreational parks, recreational centers (Silver Sneakers), and senior centers offering fitness equipment and/or fitness classes specifically targeting this group. Despite ample opportunities and a wide range of program participation costs (ranging from zero out-of-pocket expenses, to partial coverage through insurance and Medicare, to private pay), inactivity rates among older adults remain high (NCOA, 2017), suggesting that more research and innovative ideas are needed to help mitigate this situation.

The goal of this study is to help fill a gap in knowledge regarding senior center attendees who choose not to participate in fitness classes offered at their senior center. It strives to understand this group of attendees in order to facilitate an increase in fitness class participation rates, and enhance the health and well-being of older adults who attend their senior center. Participation in fitness classes within senior centers is one area where increases could be made. Understanding non-participants will allow senior center directors to make appropriate changes that better meet the needs of these individuals. This study specifically focused on understanding the perceived benefits and barriers to participating in fitness classes at a senior center. It also investigated whether or not there was an association with perceived benefits/barriers and activity level over the lifespan, age and education. By understanding if such relationships exist, this research can provide senior centers with more direction and innovative ways of meeting the needs of those who do not currently participate. The respondents for this study attend at least one senior center in a Midwestern county, and were contacted via a telephone survey.
Background

Senior Centers

The first senior center was established in 1943 in New York (Wacker & Roberto, 2013). The mission of that center – the William Hodson Community Center – was to provide its 250 members with a “home away from home,” where they could develop relationships and have a sense of security (NYSenate.gov, 2013). Senior centers have evolved from small meeting groups in churches and basements to accessible facilities that provide services and programs to older adults within a community. They have become “a community focal point, where older adults come together for services and activities that reflect their experience and skills, respond to their diverse needs and interests, enhance their dignity, support their independence, and encourage involvement in and with the center and the community” (Lawler, 2011, pg. 2). Senior centers are an entrance into the aging network (agencies, programs, and organizations supporting older adults; Lawler, 2011).

According to AARP, there are currently 11,000 senior centers nationwide and an unprecedented number of older adults to be served in the coming years (Lawler, 2011). As senior centers prepare to meet the needs of future generations, it is important for them to evaluate the way they provide services, who these services reach and benefit, as well as who they do not. No standard model meets the needs of all senior centers because of the variety of communities and areas each center serves. Centers vary in their design and function, with some serving as recreational clubs, nutritional sites, community-based centers, and multipurpose senior centers (Krout, 1985; Lawler, 2011). However, nutrition, health and fitness, recreation, volunteer opportunities and social services are the central programs and services offered (Aday, 2003; Eaton & Salari, 2005; Gavin & Myers, 2003; Gelfand et al., 1991; Krout, 1985; Leanse & Wagner, 1975; Pardasani, 2004; Skarupski & Pelkowski, 2003).

Current U.S. trends related to the importance of individuals living a healthier life are also impacting senior centers; as they make improvements and changes to meet the needs of the older population, a focus on health is necessary (Lawler, 2011). In the senior center network, many centers now offer ample fitness classes, equipment and programs for older adults (Lawler, 2011). However, the breadth, variety and number of options for exercise in which older adults may participate vary from center to center. Specific classes that may be offered include line dancing, aerobics, western round dancing, low-moderate impact fitness, cardio drumming, yoga, zumba, square dancing, jazzercise, and many others (National Council on Aging, 2017). These structured classes are typically led by educated trainers.

Even though older adults have more exercise options than ever, data from the 2003 Behavioral Risk Factor Surveillance System (surveys that assess behavioral and chronic diseases, including sustained PA among women) suggested that only 23.0% of women within the 65-69 year old age group were sufficiently active, with the percentage declining with increasing age category (70-74: 21.3%, 75-79: 18.5%, 80-84: 15.6%, and 85+ 13.6%; McGuire, Ahluwalia, & Strine, 2006).

Although little information is known about participants of fitness classes at senior centers, some information regarding participation trends for senior centers suggests that different demographic characteristics may be related to participation. Individuals between ages 75 to 84 have high participation rates, and those older than 84 are more likely to reduce their participation level due to health limitations (Pardasani & Thompson, 2012). A 2013 study examined 21 multipurpose senior centers in a metropolitan area and concluded that men were more likely to
take part in PA outside of their senior center, whereas women tended to participate at the center. Males had a lower participation rate when it came to physical fitness, aerobic/dance exercise, and chair exercises, despite being more active than females in general (Swan, Turner, Shashidhara, & Sanders, 2013). Most commonly, white, single or widowed older women utilize senior centers. Participants also tend to have low to medium incomes and few physical disabilities (Pardasani & Thompson, 2012). They also tend to be older in age, live in rural areas, have more social connections, and are more aware of resources, agencies and services (Calsyn, & Winter, 2000).

Review of the literature

Benefits and barriers

Previous studies have examined the perceptions of older adults about the benefits of participating in PA. In fact, a 2011 study focused on understanding health behaviors among older adults and developing appropriate interventions (Gristwood, 2011). Some of the benefits identified in previous research include a strong sense of accomplishment and enjoyment, and improvements in overall functional and psychological health and well-being (Gristwood, 2011). An additional study developed themes from 4 focus group discussions consisting of 19 participants between the ages of 66 to 95. The benefits they identified included the ability to manage current health problems, as well as having companionship and positive social health (Eriksson, 2016). Participants believed that taking part in PA decreased the number of medications that they needed to take, and reduced the symptoms and problems of existing conditions, diseases and illnesses. A quote taken from Eriksson (2016, p.18) is a good example of the effect that participating in PA had on an older adult, “My diabetes nurse always told me that I should exercise more. So finally I started to, walking. Taking walks. And you know what, I could reduce my medicine. Fantastic!” Aside from improvements to one’s health, opportunities to socialize is also an important benefit to PA (Costello, Kafchinski, Vrael, & Sullivan, 2011; Eriksson, 2016). Those who considered themselves not physically active believed that exercise should also be purposeful, social and fun (Costello et al., 2011).

Other studies have focused on identifying recommendations and interventions to promote more structured PA. Understanding how to meet the individual needs of participants by providing appropriate training and programming options, as well as having knowledgeable staff, helps with the success of a program (Costello et al., 2011; Eriksson, 2016; Gristwood, 2011). Counseling, being advised by an instructor, or receiving a recommendation from a physician, are all also motivators for individuals to increase their levels of PA (Eriksson, 2016; Swan, Turner, Shashidhara, & Sanders, 2013). Although many studies have identified benefits to being physically active, there are also many barriers that make participation a challenge.

Barriers to participating in PA include having poor health (Emery, Hauck & Blumenthal, 1992; Jette, Rooks, Lachman, Lin, Levenson, Heislein & Harris, 1998; Moschny, Platen, Klaaben-Mielke, Trampusch, & Hinrichs, 2011; Shephard, 1994; Stephen & Craig, 1990; Williams & Lord, 1995), medical concerns and fear of injury (Elward & Larson, 1992; Shephard, 1994; Stephen & Craig, 1990; Wolinsky, Stump, & Clark, 1995), as well as a perceived lack of ability and misconceptions related to exercise in general (Khoury-Murphy, & Murphy, 1992; Lee, 1993; Mobily, Lemke, Drube, Wallace, Leslie, Weissinger, 1987; Stephen & Craig, 1990). Other reported barriers include pain related to an existing condition, lack of interest, facility accessibility (Crombie, Irvine, Williams, McGinnis, Slane, Alder, & McMurdo, 2004), a lack of individualized programs (Jancey, Clarke, Howat, Maycock, Lee, 2009), and activity programs
that are not suitable for some individuals (Burbank, & Riebe, 2001; McPherson & Yamaguchi, 1995). In addition, lack of time, fear of injury, environmental considerations (convenience/access, safety and cost), a lack of knowledge (Costello, 2011), as well as the challenge to ensure safety and proper technique during exercise, have all been identified as barriers to participation (Chao, Foy, & Farmer, 2000). Eriksson’s (2016) study also identified specific barriers that affected inactive older adults’ motivation to being active. Those barriers included not being provided with possibilities or options for exercise, and a lack of appropriate assistive devices and environmental issues (Eriksson, 2016). Having a variety of exercise options to choose from was important to older adults, and it allowed them to take part in an activity in which they felt comfortable engaging.

Differences in the perceptions of what would be a barrier to being physically active have also been identified between those who consider themselves physically active, and those who do not. Those who considered themselves inactive had lower expectations related to fitness, and needed an exercise program to be tailored to fit their needs (Costello et al., 2011). Inactive older adults were intimidated by facilities, and had fears about affecting or slowing down other participants of a group exercise program (Costello et al., 2011).

Although many benefits and barriers to being physically active have been well established, other factors may also contribute to this behavioral decision. As discussed in the previous section, activity level over the lifespan, age, gender, and education are related to PA, and may directly influence perceived benefits and barriers to participation in fitness classes at senior centers. For example, senior center fitness class participants are more likely to be female; males tend to find ways of being physically active elsewhere (Swan et al., 2013), so men and women may identify different benefits and barriers. In terms of general PA, at least one study concluded that women were less physically active than men, however, factors affecting this included poor environmental conditions for engaging in PA. This might suggest that having fitness classes offered at a convenient/adequate setting (such as a senior center) improves PA levels among females. Therefore, senior centers are an important venue to make improvements to and encourage more females to participate (Lee, 2005).

Although age has also been a well-documented predictor of engagement in regular PA overall (Costello, 2011), the relationships between age and perceived benefits and barriers of exercise participation have not been well established. Given that many previous studies have identified a decline in participation with an increase in age (Armstrong, Bauman, & Davies, 2000; Kruger, Ham, & Kohl, 2005; Norman, Bellocco, Vaida, & Wolk, 2003; Patel, Coppin, Manini, Lauretani, Bandinelli, Ferrucci, & Guralnik, 2006; Turner, Schmitt, & Hubbard-Turner, 2016), advances in age may be related to the selection of more barriers to participating in fitness classes at a senior center.

Having a history of PA, and beginning participation in PA at an earlier stage in life, are both good predictors of being physically active in later life (Cohen-Mansfield, Marx, & Guralnik, 2003; Kluge, 2002). Level of PA throughout the lifespan is related to current PA level, and may affect the perceived benefits of participation in exercise. For example, one’s perceived level of PA over the lifespan may result in the identification of different benefits and barriers to taking part in fitness classes. Very active individuals may be less likely to select barriers because they have more experience with exercise in general (less likely to have concerns related to safety or their ability to perform exercises).

Education also plays an important role in exercise, health, lifestyle and many other facets of an individual’s life (Shaw & Spokane, 2008), and these relationships may extend to
understanding participation in senior center fitness classes. Older adults with higher levels of education may be more likely to understand and believe the health benefits and importance of being physically active. If non-participators are less educated, they may need additional education and information provided to them about the relationship between PA and health. Also, those who are more educated may not identify the same barriers to participation as those with less education.
Methods

Data

Data for this study were drawn from an ongoing assessment of satisfaction among senior center users in one county of a Midwestern state. This cross-sectional study utilized telephone interviews to better understand perceived benefits of and barriers to participation in fitness classes, with the goal of identifying ways to increase senior center fitness class enrollment. Older adults who use the senior center, but do not participate in the centers’ fitness classes were assessed. The questionnaire was developed using Qualtrics (Snow & Mann, 2013).

Data were collected between December 2016 and April 2017. Interviews were conducted by two graduate and two undergraduate students within Miami University’s Department of Gerontology. Each interview took roughly 20-25 minutes to complete. The total questionnaire contained 96 questions and consisted of several sections (meals, recreation/fitness classes, transportation, supportive services, outcome assessment, loneliness, self-rated health, general/overall, demographics/miscellaneous, driving, experiences growing older, and financial status). There were seven questions specific to fitness classes (see Appendix A for actual items). Data from the demographics section of the questionnaire was also used for the analyses. Analyses for this study commenced prior to reaching the final sample size for the overall satisfaction study; the final data extract was drawn in mid-March, 2017. A conceptual model illustrating the relationships among all variables used in this study is presented in Figure 1.

Figure 1. Conceptual model showing the expected relationships among the variables used in this study.

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Benefits and Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Age</td>
<td></td>
</tr>
<tr>
<td>- Gender</td>
<td></td>
</tr>
<tr>
<td>- Education</td>
<td></td>
</tr>
<tr>
<td>Activity levels throughout the lifespan</td>
<td></td>
</tr>
</tbody>
</table>

Measures

Primary factors of interest

The Health Belief Model (HBM) describes the role a number of different psychological factors play on health behaviors. Champion (1984) describes the HBM as follows: a model designed to help explain, predict and prevent health-related behaviors in individuals. It is made up of four original concepts: perceived susceptibility, seriousness, benefits and barriers. Perceived benefits focus on beliefs related to the effectiveness of a behavior at maintaining or increasing health. Benefits to participation in fitness classes at a senior center were assessed using this initial statement: “Please tell me if any of the following would increase your likelihood of participating in fitness classes at the center.” Specific benefits were operationalized using the following question format: Would [benefit] increase your likelihood of participating? Benefits included the belief that it would increase strength or balance, improve overall health and well-
being, reduce the amount of medication needed, help maintain independence, the tailoring of classes to one’s needs, the opportunity to socialize with friends, and a higher level of confidence in the fitness instructor. The response categories included yes or no.

Perceived barriers are factors that reflect perceived obstacles to engaging in a health behavior (Champion, 1984). Barriers to participation in senior center fitness classes were assessed in this study by first describing the purpose of the questions using this statement: “Now I’d like to ask you about reasons why you do not participate in fitness classes at the senior center. Even if you exercise somewhere else or at home, please tell me if any of the following are reasons why you do not participate in fitness classes at the center.” Specific barriers were operationalized using the following question format: Is [barrier] a reason why you do not participate? Barriers included confidence in ability to perform exercises, pain related to an existing condition, current health, level of confidence in the fitness instructor, times classes are offered, and the types of classes offered. The response categories included yes or no.

A combined score for barriers and a combined score for benefits were also created. These were calculated by summing the total number of barriers identified by each respondent, and then separately summing the total number of benefits.

Other factors of interest

Activity level over the lifespan (ALOL) was operationalized as follows: “For the next question, please think back about your experiences with physical activity and exercise throughout your entire life. Using a scale from 1 to 5, where 1 is not at all active and 5 is very active, how would you describe your physical activity throughout your lifetime?” Response categories included 1, (Not at all active), 2, 3, 4, and 5 (Very active). This question was adapted from items used in several other studies of PA (Kluge, 2002). The current activity level (CAL) of each respondent was operationalized and recoded in the exact same manner. “Using the same scale, where 1 is not at all active and 5 is very active, how physically active would you say you are now?” Response categories included 1 (Not at all active), 2, 3, 4, and 5 (Very active).

The gender of each respondent was determined using the data provided by the study’s sponsor. Gender was analyzed as a categorical variable, with responses being either male or female. Age was operationalized using the following open-ended question: “What is your current age?” Age was treated as a continuous variable. Performing data cleaning on age required the deletion of invalid responses.

Education was operationalized using the following open-ended question: “What is the highest grade of school you have completed, or the highest degree you have received?” Responses were categorized into less than high school, high school, some college, college degree, and advanced degree. This question was adapted from the education item used in the Health and Retirement Study (HRS, 2016). Some responses for this variable included invalid data, which were considered missing in the statistical analysis, and open-ended responses were placed into the appropriate categories for analysis. Studies suggest that research has not yet branched out to incorporate other certifications or fields of interest, other than college degrees or an advanced degree, therefore the categories for this study remained broad (Lawrence, Rogers, & Zajacova, 2016). Respondents who stated that they completed no-degree credentials such as trade school, or certifications were categorized as some college. Associate’s or two year degrees were also placed in this category, due to the low cell counts.
**Statistical analysis**

Statistical analyses were performed using Statistical Analysis System (SAS) software version 9.4. Each variable was individually assessed for potential errors by ensuring no out-of-range errors existed, and for missing values. Means, frequencies, and the distribution of each variable were also calculated as appropriate, given each variable type. Prior to data cleaning, there were 365 respondents altogether who took part in the survey. More than half of these respondents were removed from the study to assess only non-participators of fitness classes.

For each individual barrier and benefit, independent samples t-tests were conducted with each of the continuous variables of interest (age and activity level over the lifespan). For collective barriers and benefits, Pearson correlations were calculated with each continuous variable of interest. Chi-square tests were used to examine the association between education and gender and each barrier and benefit. ANOVAs were conducted to examine the relationship between education and the combined score for barriers, as well as the combined score for benefits. The mean and frequencies of current level of PA, and the frequency of respondents’ race were also calculated in order to further describe this target population throughout the results and discussion of these analyses.
Results

Means and standard deviations of age, benefits, barriers, ALOL, and CAL

Sample size, mean values, and standard deviations for the continuous variables are presented in Table 1. The average age of the 122 respondents was 75.29 (sd = 8.76). An average of 3.21 benefits to participating in fitness classes at a senior center were selected by 121 respondents, and 129 respondents provided responses to barriers of participating in fitness classes, with an average of 1.48 barriers identified. Only six barriers were identified by any single individual, however the maximum value was 7. Regarding activity level over the lifespan, 115 responded, with an average activity level of 3.82. Respondents felt that they were active, given the scale of 1 through 5, 1 being not at all active and 5 being very active. When asked about their current activity level, the average response was 3.00 on the same scale as ALOL. This suggests that non-participants perceived themselves as being more active throughout their entire lifetime compared to their current level of activity.

Table 1. Continuous variables: Means and standard deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean</th>
<th>sd</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>122</td>
<td>75.29</td>
<td>8.76</td>
<td>53</td>
<td>96</td>
</tr>
<tr>
<td>Benefits</td>
<td>121</td>
<td>3.21</td>
<td>2.60</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Barriers</td>
<td>129</td>
<td>1.48</td>
<td>1.43</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>ALOL</td>
<td>115</td>
<td>3.82</td>
<td>1.15</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>CAL</td>
<td>114</td>
<td>3.00</td>
<td>1.29</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Notes: n = sample size; sd = standard deviation; min = minimum; max = maximum; ALOL = activity level over the lifespan; CAL = current activity level

The frequencies for gender, race and education are displayed in Table 2. Out of 130 respondents, 35% were male and 65% were female, and 78% of respondents identified their race as White. Regarding education, 38% had a high school diploma, 23% received some college and 21% had a college degree.
Table 2. Frequencies and percentages of gender, race and education

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub-Categories</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>84</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>46</td>
<td>35%</td>
</tr>
<tr>
<td>Race</td>
<td>White</td>
<td>91</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td>Black/African American</td>
<td>22</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Something else</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Multi-racial</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Education</td>
<td>Less than High School</td>
<td>12</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>High School</td>
<td>46</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Some College</td>
<td>27</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>College Degree</td>
<td>25</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Advanced Degree</td>
<td>10</td>
<td>8%</td>
</tr>
</tbody>
</table>

Frequencies and percentages of the benefits to participating in fitness classes

The frequency and percentage of respondents who selected each individual benefit assessed in this study is shown in Table 3. More respondents answered yes than no to improving their overall health and well-being (61%), whereas the opposite was identified regarding the likelihood of reducing the amount of medication that they would need to take (34%). Confidence in the fitness instructor was only identified by 35% of respondents. Other benefits had an approximately equal number of non-participators respond in favor of, as well as against.

Table 3. Frequencies and percentages of the benefits to participating in fitness classes

<table>
<thead>
<tr>
<th>Categories</th>
<th>Questions</th>
<th>Yes</th>
<th>No</th>
<th>% Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>Increase your strength or balance</td>
<td>64</td>
<td>56</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>Improve your overall health and well-being</td>
<td>73</td>
<td>46</td>
<td>61%</td>
</tr>
<tr>
<td></td>
<td>Reduce amount of medication</td>
<td>40</td>
<td>76</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>Maintain your independence</td>
<td>56</td>
<td>63</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Classes tailored to fit your needs</td>
<td>58</td>
<td>61</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>Opportunity to socialize with friends</td>
<td>59</td>
<td>59</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Confidence in the fitness instructor</td>
<td>39</td>
<td>74</td>
<td>35%</td>
</tr>
</tbody>
</table>

Frequencies and percentages of the barriers to participating in fitness classes

Table 4 presents the frequency of each individual barrier and the percentage of respondents who selected each one. Pain related to an existing condition impeded 33% of respondents, 31% selected their current health and 28% identified confidence in their ability to
perform as barriers to taking part in fitness classes. A lack of confidence in the fitness instructor was selected by 7% of respondents and only 9% had concerns about safety.

Table 4. Frequencies and percentages of the barriers to participating in fitness classes

<table>
<thead>
<tr>
<th>Categories</th>
<th>Questions</th>
<th>Yes</th>
<th>No</th>
<th>% Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers</td>
<td>Concerns about safety</td>
<td>12</td>
<td>116</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Your confidence in your ability to perform</td>
<td>35</td>
<td>90</td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>Pain related to an existing condition</td>
<td>42</td>
<td>84</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Your current health</td>
<td>39</td>
<td>85</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>Lack of confidence in the fitness instructor</td>
<td>9</td>
<td>112</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Times classes are offered</td>
<td>30</td>
<td>94</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>Types of classes offered</td>
<td>24</td>
<td>97</td>
<td>20%</td>
</tr>
</tbody>
</table>

Benefits and Barriers

Descriptive statistics of Benefits and Barriers

Table 5 displays the sample size, means, standard deviations, minimum and maximum values, and confidence intervals for combined and individual benefits and barriers. The average number of benefits is higher than the number of barriers \((M=3.21, \ M=1.48, \text{respectively})\). Overall, a greater number of respondents answered the barrier questions, but fewer responded yes to each barrier when compared to each benefit. All percentages for barriers were below 35%.
Table 5. Descriptive statistics of Benefits and Barriers

<table>
<thead>
<tr>
<th>Reasons</th>
<th>n</th>
<th>Mean</th>
<th>sd</th>
<th>Min</th>
<th>Max</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>121</td>
<td>3.21</td>
<td>2.60</td>
<td>0</td>
<td>7</td>
<td>(2.75 - 3.68)</td>
</tr>
<tr>
<td>Increase your strength or balance</td>
<td>120</td>
<td>0.53</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
<td>(0.44 - 0.62)</td>
</tr>
<tr>
<td>Overall health and well-being</td>
<td>119</td>
<td>0.61</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
<td>(0.52 - 0.70)</td>
</tr>
<tr>
<td>Reduce amount of medication</td>
<td>116</td>
<td>0.34</td>
<td>0.48</td>
<td>0</td>
<td>1</td>
<td>(0.26 - 0.43)</td>
</tr>
<tr>
<td>Maintain your independence</td>
<td>119</td>
<td>0.47</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
<td>(0.38 - 0.56)</td>
</tr>
<tr>
<td>Classes tailored to fit your needs</td>
<td>119</td>
<td>0.49</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
<td>(0.40 - 0.58)</td>
</tr>
<tr>
<td>Socialize with friends</td>
<td>118</td>
<td>0.50</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
<td>(0.41 - 0.59)</td>
</tr>
<tr>
<td>Confidence in the instructor</td>
<td>113</td>
<td>0.35</td>
<td>0.48</td>
<td>0</td>
<td>1</td>
<td>(0.26 - 0.43)</td>
</tr>
<tr>
<td>Barriers</td>
<td>129</td>
<td>1.48</td>
<td>1.43</td>
<td>0</td>
<td>7</td>
<td>(1.23 - 1.73)</td>
</tr>
<tr>
<td>Concerns about safety</td>
<td>128</td>
<td>0.09</td>
<td>0.29</td>
<td>0</td>
<td>1</td>
<td>(0.04 - 0.14)</td>
</tr>
<tr>
<td>Ability to perform</td>
<td>125</td>
<td>0.28</td>
<td>0.45</td>
<td>0</td>
<td>1</td>
<td>(0.20 - 0.36)</td>
</tr>
<tr>
<td>Pain related to existing condition</td>
<td>126</td>
<td>0.33</td>
<td>0.47</td>
<td>0</td>
<td>1</td>
<td>(0.25 - 0.42)</td>
</tr>
<tr>
<td>Your current health</td>
<td>124</td>
<td>0.31</td>
<td>0.47</td>
<td>0</td>
<td>1</td>
<td>(0.23 - 0.40)</td>
</tr>
<tr>
<td>Lack confidence in instructor</td>
<td>121</td>
<td>0.07</td>
<td>0.26</td>
<td>0</td>
<td>1</td>
<td>(0.03 - 0.12)</td>
</tr>
<tr>
<td>Times classes are offered</td>
<td>124</td>
<td>0.24</td>
<td>0.43</td>
<td>0</td>
<td>1</td>
<td>(0.17 - 0.32)</td>
</tr>
<tr>
<td>Types of classes offered</td>
<td>121</td>
<td>0.20</td>
<td>0.40</td>
<td>0</td>
<td>1</td>
<td>(0.13 - 0.27)</td>
</tr>
</tbody>
</table>

Notes: n = sample size; sd = standard deviation; min = minimum; max = maximum; CI = Confidence interval

Means and 95% confidence intervals for individual benefits and barriers

Figure 2 displays the means and confidence intervals for each individual benefit and each individual barrier. As this figure shows, statistically significant differences were observed between some of the benefits and barriers. For example, the belief that it would increase your strength and balance was selected significantly more times than the belief that it would reduce the amount of medication you need to take, confidence in the fitness instructor, and all of the barriers. Overall health and well-being had a significantly higher affirmative response than the belief that it would reduce the amount of medication you need to take, confidence in the fitness instructor, and it is also statistically higher than all barriers. No significant relationships existed between classes tailored to fit your needs, the opportunity to socialize with friends and any other benefits, however significant relationships were observed between these and some of the barriers.
Figure 3 displays the means and confidence intervals of the combined benefits and the combined barriers. Based on these data, the rate of combined benefits is between 2.75 percent and 3.68 percent, and combined barriers is between 1.23 percent and 1.73 percent. There were significantly fewer barriers than benefits selected.

Table 6 shows the Pearson correlation coefficients that were calculated between combined benefits, combined barriers, activity level over the lifespan, and age. A moderate positive correlation was found ($r(119)= .34, p<.0001$), indicating a significant positive
relationship between combined benefits and combined barriers. No other significant relationships were identified.

Table 6 Correlation of combined benefits and barriers and continuous variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits (1)</td>
<td>1</td>
<td>0.34***</td>
<td>0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td>Barriers (2)</td>
<td>1</td>
<td>-0.14</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>ALOL (3)</td>
<td>1</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (4)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01. ***p < 0.001. Notes: ALOL= activity level over the lifespan.

Combined benefits and barriers by gender

Table 7 displays the results of independent samples t-tests that compared combined benefits and barriers among males and females. No significant difference was found (t(2) = -0.40, ns) between benefits and gender. The mean of combined benefits with males (M= 3.09, sd = 2.59) was not significantly different from females (M= 3.29, sd= 2.61). However, a significant difference between barriers and gender was observed (t(2) = -2.10, p<0.05); the mean number of barriers identified by males was significantly lower (M= 1.13, sd= 1.36) than by females (M=1.67, sd=1.44).

Table 7 t-test comparing combined benefits (1) and barriers (2) by gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean</th>
<th>sd</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (1)</td>
<td>44</td>
<td>3.09</td>
<td>2.60</td>
<td>-0.40</td>
<td>0.69</td>
</tr>
<tr>
<td>Female (1)</td>
<td>77</td>
<td>3.28</td>
<td>2.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (2)</td>
<td>46</td>
<td>1.13</td>
<td>1.36</td>
<td>-2.13</td>
<td>0.04*</td>
</tr>
<tr>
<td>Female (2)</td>
<td>83</td>
<td>1.67</td>
<td>1.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01. ***p < 0.001. Notes: n = sample size; sd = standard deviation

Individual benefits and barriers with continuous variables

Independent samples t-tests were also conducted to compare each individual benefit and individual barrier with each continuous variable (activity level over the lifespan and age). No significant differences were observed comparing individual benefits with activity level over the lifespan, and only two were significantly related to ALOL. A significant difference was noted between the means of ALOL and times classes are offered (t(107)= .02, p<0.05). Respondents who were less active answered yes to times classes were offered significantly fewer times (M= 3.45, sd= 1.02), than those who were more active (M=4.0000, sd= 1.13). A significant difference was also identified between the means of ALOL and lack of confidence in the fitness instructor (t(106)= 0.0087, p<.01). Respondents who were less active answered yes to lack of confidence in the fitness instructor significantly fewer times (M= 2.88, sd= 1.46), than those who were more active (M= 3.94, sd= 1.05). In other words, more active individuals are less likely to lack confidence in the fitness instructor or be affected by the availability of classes. This might
suggest that they have a higher confidence level in themselves and choose to remain active despite the instructor or the times that classes are offered.

A significant difference between the means of age and concerns about safety ($t(119)=0.05, p<.05$) was found. The mean age of those who answered yes was significantly higher ($M=80.6, sd=7.85$) than the mean age of those who answered no ($M=74.9, sd=8.72$). In other words, older people were more likely to note safety as a concern.

**Individual benefits and barriers with education and gender**

Chi-square tests of independence were calculated to compare the frequency of individual benefits and individual barriers with gender and education. A significant relationship was found ($\chi^2(3)=10.66, p<0.01$) between pain related to an existing condition and gender ($p<0.01$). Females were more likely to answer yes when asked if pain related to an existing condition was a reason why they do not participate in fitness classes. No significant relationships were found with education.

**Combined benefits and barriers with education**

To test the relationship between combined benefits and education, an ANOVA was conducted, but no statistically significant differences were observed ($F(4) = 1.11, ns$). No statistically significant differences were found between education and combined barriers either ($F(4) = 1.26, ns$), but respondents who had less than a high school degree ($M=1.83$) had the highest mean overall.
Discussion

The findings from this study convey that non-participators are more likely to identify benefits that would increase their likelihood of participating in fitness classes at their senior center, as opposed to barriers that prevent participation. The average number of barriers each non-participant identified was 1.48, and is statistically significantly less than the average number of benefits (3.21). Based on these findings we can assume that many non-participants believe in the health and other benefits associated with being physically active, but may lack the motivation (or have other reasons) to not participate. This study identified some of the benefits that may increase non-participants likelihood of engaging in senior center fitness classes; addressing ways to motivate non-participants to be active would be a good place to start for future research. These findings also suggest that focusing on providing more education related to health and PA might impact non-participants, and solidify their understanding and beliefs.

Despite the higher number of benefits (than barriers) selected by non-participants, the importance of barriers should not be discounted. The benefits and barriers to taking part in fitness classes at a senior center are not necessarily equivalent, meaning that one barrier may outweigh a number of benefits with regard to the impact or effect it has on a non-participant. A barrier obstructs an individual from a given behavior, perhaps regardless of the perceived benefits. Senior centers should consider focusing on mitigating the barriers to participating in fitness classes, especially pain related to an existing condition, current health, and ability to perform exercises, which were selected most often.

In addition, the barriers and benefits addressed in this study could be classified into different groups: personal and structural. Personal describes the benefits and barriers related to one’s health condition, abilities, and concerns; whereas types/times classes are offered, tailored classes, and socialization are more structural reasons related to fitness classes. A greater number of personal benefits and barriers were identified by non-participants in this study as opposed to anything structurally related to the fitness classes themselves. This suggests these types of benefits and barriers may be more relevant, and should be a focus of senior center staff. Further discussion regarding the results of this study follows, including a detailed discussion of individual benefits and barriers, and explanations for these findings.

Individual benefits

Of the seven benefits addressed in this study, improving overall health and well-being and increasing strength and balance were selected most often. This is an important finding for senior centers as they strive to evolve. Centers should consider adapting their focus; more attention should be put on educating individuals about health and the benefits of strengthening their body. Ample studies have researched the physiological, psychological and overall health benefits of participating in regular PA, and guidelines have been developed to help people understand how much, what kind, and why exercise is important (National Council on Aging, NCOA, 2017 & Bethancourt, Rosenberg, Beatty, & Arterburn, 2014). The results of this study suggest that focusing on positive health benefits associated with PA at senior centers could have a positive impact and may affect participation.

The ability to socialize with friends was selected by 50% of respondents. This might be because respondents are seeking an avenue to develop friendships, and would be more likely to participate in fitness classes if they believed that it would be a channel to develop relationships.
Not only is socializing a part of many senior centers mission statements, but it has been reported in prior research as a motivator to be physically active among inactive individuals (Beisgen & Kraitchman, 2003 & Costello et al., 2011). Therefore, emphasizing opportunities to socialize at a senior center may also enhance participation rates.

Having classes tailored to fit your needs was also identified as a benefit by half of the respondents. Based on this finding, we may infer that respondents who believed this would increase their likelihood of participating would be more comfortable and willing to engage if classes were more suitable for them. In order to understand and be accommodating to the needs of center attendees, a recommendation to senior centers would be to take on a more person-centered approach.

Having confidence in the fitness instructor was identified by about 35% of the respondents as a perceived benefit to participation. As such, having an instructor who is very competent and teaches the class well might entice individuals to come to class. No previous studies have examined this issue, and it should be assessed further with future research. Senior centers selecting a candidate for the position of fitness instructor should ensure that this person is confident, capable and willing to meet the needs of all participants.

Additional benefits like reducing the amount of medication and maintaining independence were identified by some non-participants. Acknowledging this, a greater effort can be made to educate senior center attendees on the positive effects exercise can have, and how much it could influence other facets of their life. Many individuals who have participated in PA were able to reduce the amount of medication that they needed to take, and it allowed them to remain independent longer (Eriksson, 2016).

**Individual barriers**

Although each individual barrier was identified by fewer than half of the respondents, from a qualitative perspective, the selection of one barrier may outweigh the impact of several benefits. Including open-ended response options in future research may help to identify important insights into these differences. In addition, barriers may have been selected less often because respondents may have been hesitant to acknowledge existing barriers at their senior center, for fear that it would reflect badly on their center itself. Finally, the particular barriers assessed in this study may not have resonated with non-participants. The majority of previous studies have identified barriers to PA and exercise in general (from which these barriers were adapted), not solely related to fitness classes at a senior center, as assessed in the current study.

The (personal) barriers selected most often included pain related to an existing condition (33%), ability to perform (28%) and current health (31%). These findings are compatible with previous studies that indicate that pain related to an existing condition is a barrier to participating in PA (Crombie, Irvine, Williams, McGinnis, Slane, Alder, & McMurdo, 2004), as is a perceived lack of ability to perform (Khoury-Murphy, & Murphy, 1992; Lee, 1993; Mobily, Lemke, Drube, Wallace, Leslie, Weissinger, 1987; Stephen & Craig, 1990), and poor health (Emery, Hauck & Blumenthal, 1992; Jette, Rooks, Lachman, Lin, Levenson, Heislein & Harris, 1998; Moschny, Platen, Klaaben-Mielke, Trampisch, & Hinrichs, 2011; Shephard, 1994; Stephen & Craig, 1990; Williams & Lord, 1995). This emphasizes the importance of senior centers providing a place for older adults to be physically active, but also a site that incorporates and encourages learning about their own health conditions. Essentially, a center should be accommodating, educational, and meet the needs of all individuals.
Other barriers, including the *times* (24%) and *types of classes offered* (20%), are additional (structural) barriers for senior centers to consider. Centers might try incorporating a wider variety of classes, with varying degrees of difficulty, and determine set times throughout the day and week that would be inclusive to those interested in participating. The barriers selected the fewest times were *concerns about safety* (9%) and *confidence in the fitness instructor* (7%). Concerns about safety in the context of a senior center fitness class requires further examination. Nine non-participators did identify this barrier, which suggests that creating an environment where people feel safe is important to some. Ultimately, more research is needed to determine what would ease fears or increase confidence in instructors. However, centers might consider incorporating the following modifications: advertising safety more effectively, starting up conversations and group discussions about the importance of being safe, and spending more time explaining and guiding individuals through the proper techniques for safe exercise, in order to avoid accidents and injury.

**Benefits and barriers with other variables**

Few significant relationships were observed between individual benefits and barriers with age, gender, education, or activity level over the lifespan. The lack of a relationship between ALOL and combined benefits/barriers may be explained by these non-participators having been active throughout their lifetime, and what they do for exercise has nothing to do with fitness classes at their senior center. On average, non-participators responded that they have been active (3.82) throughout their lifetime and somewhat active (3) currently. This suggests that non-participants have other venues that they are using for PA. More research is necessary to establish if a relationship exists between these, particularly if there is a difference between those who are inactive, and those who exercise elsewhere.

No age-related relationships were identified, despite age being a well-documented predictor of engagement in regular PA (Costello, 2011). In terms of gender, however, males identified fewer barriers to participation than did females. This finding could have multiple potential explanations including: (1) barriers do exist for males, but they were not addressed in this study, (2) barriers asked about in this study did not resonate with males as much as females, (3) males may be less likely to address health related concerns or issues related to exercise. Because females are more likely to participate in fitness classes, when centers present materials and information, it might be framed in a manner that is more relatable to women, to help mitigate barriers.

Overall, the results of this study suggest that non-participants might benefit from receiving more education/information related to the personal benefits of PA. While barriers were not selected as often, they cannot necessarily be seen as being equivalent to benefits; it may only take one barrier to prevent participation. This is a population that senior centers have been unable to effectively reach, and these findings provide insight and understanding about how that might be changed.
Limitations

Limitations to this study include the sample location and population. This study only assessed a small section of a Midwestern state. It was conducted on respondents of twelve different senior centers in only one county. Having data from multiple different senior centers could affect the data and outcomes of this study because of the breadth/variety of capabilities across each center. Future studies might consider identifying and grouping together senior centers that have similar capabilities. Additionally, this cross-sectional study cannot address causation, but can assess the relationships between variables. Only bivariate analyses were conducted in this study, therefore no assessment of the influence of multiple variables at once was determined.

Data collection for this study was completed through telephone interviews, which can be challenging for the interviewer and the respondent. Interviewers went through a training session and learned how to appropriately conduct a telephone survey, however, issues of bias and survey delivery are limitations due to any possible human error. The survey took about 20 to 25 minutes to complete, therefore some respondents may have gotten tired and provided inaccurate answers. In addition, respondents may have answered questions based on what they think interviewers want to hear, or answered in a way to “protect their senior center” and avoid stating how they truly felt.

Questions were piloted during the month of December, and during this time callers identified ways of improving the questions and making them clearer. Specific wording and phrasing of the questions were clarified based on the suggestions of the callers. However, piloted questions were included in the analysis, since only minor changes to the wording of some questions were made. The wording/phrasing: the belief that [benefit] would increase your likelihood of participating in fitness classes could also be considered a limitation of the study due to the amount of complex processing involved in answering questions worded that way.

Conducting a study that assesses only non-participators of senior center fitness classes can also be seen as a limitation, because no comparisons can be made with those who do participate. However, the goal of this study was to investigate this very specific population and gain a greater understanding of what might engender their participation in fitness classes at their local senior center. Future researchers should consider conducting a study comparing participators to non-participators. Finally, the benefits and barriers assessed in the current study do not comprise an exhaustive list, and individuals may choose not to participate in the fitness classes at their senior center because they have memberships elsewhere, or prefer to exercise in a less formal/structured manner.

Practice Implications and Directions for Future research

As research continues and innovative ideas are developed, it is important to build on the understanding gained in the current study. I would suggest that centers take into consideration these ideas when determining an innovative approach to educate non-participators about the benefits of exercise. Senior center instructors could develop an educational segment that would be added pre- or post-class time; this would give non-participators a chance to learn about exercise, health and fitness without attending the instructed class. Instructors could use their knowledge and expertise to explain the benefits of each exercise, explain what muscle groups are being worked, and how strengthening exercises may result in their ability to continue doing their
daily tasks. Additional instruction may help non-participators overcome the health related barriers that they identified as reasons for why they do not participate.

Also, a community exercise program similar to the one examined in a study by Hwang, Wang, and Jones (2016) that encompasses socialization, PA, and health education throughout the program, may produce many positive results and help non-participators understand more fully how important it is to maintain their health. In addition, developing a questionnaire that allows senior center participants to explain their health problems, issues, concerns and other related experiences, would be a way of tailoring classes to fit the needs of everyone. In that situation, non-participants might be more likely to consider participating, because they know that their needs and concerns have been heard.

Future research is needed to further understand this population of senior center attendees. In order to improve upon this study, researchers could consider increasing the number of benefits/barriers addressed and include a qualitative component that captures all explanations or reasons for why they believe it is a benefit/barrier or not. The qualitative component might focus on understanding the health conditions and concerns of non-participants, because these personal reasons were identified most often across the benefits and barriers. This study was only able to identify whether or not these benefits and barriers existed for non-participants but was not able to gather any specific information or explanation about them. For example, is pain related to having arthritis or the result of a knee replacement? What is it about your ability to perform that causes you to not participate? What health concerns act as an obstruction to participating in fitness classes?

Future studies might take a more comprehensive look at the activity levels of non-participants. For example, a mixed methods approach could be used to better capture the thoughts of each participant. What forms of exercise are they thinking about when they talk about being physically active? What does being physically active mean to them? How does this vary across cohorts or age groups? Such a study could provide fitness instructors with a better sense of the range of participants’ physical capabilities, particularly among women who attend most often, and help them develop strategies and exercise programs that fit both lifelong exercisers and beginners. Another topic to consider would be to develop a test that assesses a non-participants’ level of understanding of exercise and fitness. This idea is often used among college professors who are developing material for a new course, and want to be able to gauge how much students have retained or understand, in order to teach at an appropriate level. Although we are still in the preliminary stages of gathering information about this group of senior center attendees, I believe these are good next steps to consider.
References

Aday, R. H. (2003, March). Identifying important linkages between successful aging and senior center participation. In Joint Conferences of the National Council on Aging (pp. 12-16).


Appendix A

Appendix A contains the actual items from the questionnaire used in this study, along with the response categories.

Q41 Now we have a few questions specifically about your fitness, and fitness classes at the center. For the next question, please think back about your experiences with physical activity and exercise throughout your entire life. Using a scale from 1 to 5, where 1 is not at all active and 5 is very active, how would you describe your physical activity throughout your lifetime?

1= Not at all active (1)
2 (2)
3 (3)
4 (4)
5= Very active (5)
Don't Know (7)
Refused (8)

Q42 Using the same scale, where 1 is not at all active and 5 is very active, how physically active would you say you are now?

1= Not at all active (1)
2 (2)
3 (3)
4 (4)
5= Very active (5)
Don't Know (7)
Refused (8)

Q43 About how many years would you say you’ve been as physically active as you are now?

Q44 Does your senior center offer any exercise or fitness classes?

Yes (1)
No (0)
Don't Know (7)
Refused (8)

Q45 In the last year, did you take part in any exercise or fitness classes at your senior center?

Yes (1)
No (0)
Don't Know (7)
Refused (8)
Q46 Are you satisfied with the exercise or fitness classes offered by the center?
   ○ Yes (1)
   ○ No (0)
   ○ Don't Know (7)
   ○ Refused (8)

Q47 In general, how often do you participate in your center’s fitness classes? Would you say every day, more than once a week, once a week, 1-3 times per month, every few months, or about 1 time each year?
   ○ Every Day (1)
   ○ More than once a week (2)
   ○ Once a week (3)
   ○ 1-3 times per month (4)
   ○ Every few months (5)
   ○ About 1 time each year (6)
   ○ Don't Know (7)
   ○ Refused (8)

Q48 Have you ever participated in a fitness class at your senior center?
   ○ Yes (1)
   ○ No (0)
   ○ Don't Know (7)
   ○ Refused (8)

Q41a For the next question, please think back about your experiences with physical activity and exercise throughout your entire life. Using a scale from 1 to 5, where 1 is not at all active and 5 is very active, how would you describe your physical activity throughout your lifetime?
   ○ 1= Not at all active (1)
   ○ 2 (2)
   ○ 3 (3)
   ○ 4 (4)
   ○ 5= Very active (5)
   ○ Don't Know (7)
   ○ Refused (8)
Q42a Using the same scale, where 1 is not at all active and 5 is very active, how physically active would you say you are now?

- 1= Not at all active (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5= Very active (5)
- Don't Know (7)
- Refused (8)

Q43a About how many years would you say you’ve been as physically active as you are now?

Q48a Have you ever participated in a fitness class at your senior center?

- Yes (1)
- No (0)
- Don't Know (7)
- Refused (8)

Q49 Now I'd like to ask you about reasons why you do not participate in fitness classes at the senior center. Even if you exercise somewhere else or at home, please tell me if any of the following are reasons why you do not participate in fitness classes at the center, by saying yes or no.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Yes (1)</th>
<th>No (0)</th>
<th>Don't Know (7)</th>
<th>Refused (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are concerns about safety a reason why you don't participate? (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is your confidence in your ability to perform exercises a reason why you don't participate? (2)</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is pain related to an existing condition a reason why you don't participate? (3)</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is your current health a reason why you don't participate? (4)</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would your level of confidence in the fitness instructor be a reason why you don't participate? (5)</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the times classes are offered a reason why you don't participate? (6)</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the types of classes offered a reason why you don't participate? (7)</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q50 Please tell me if any of the following would increase your likelihood of participating in fitness classes at the center?

<table>
<thead>
<tr>
<th></th>
<th>Yes (1)</th>
<th>No (0)</th>
<th>Don't Know (7)</th>
<th>Refused (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would the belief that it would increase your strength or balance increase your likelihood of participating? (1)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Would the belief that it would improve your overall health and well-being increase your likelihood of participating? (2)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Would the belief that it would reduce the amount of medication you need to take increase your likelihood of participating? (3)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Would the belief that it would help you maintain your independence increase your likelihood of participating? (4)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Would classes that are tailored to fit your needs increase your likelihood of participating? (5)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Would the opportunity to socialize with friends increase your likelihood of participating? (6)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Would a higher level of confidence in the fitness instructor increase your likelihood of participating? (7)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>