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Emily Eve Widra
Mind, Body, & Spirit:
An Ecological Community-
Based Approach to Healthy
Aging

ABSTRACT

Based on the biopsychosocial approach of the ecological theory of aging, the present study examined the health status and social engagement of participants in an osteoporosis-prevention exercise class for adults over the age of 65 in two counties in Western Massachusetts. A self-rated health survey was developed and administered in each of the Healthy Bones & Balance classes with 226 responses in total.

Participants in this study had higher self-rated health scores than have been found in a national epidemiological study. In particular, participants who live alone were engaging in more social activities – at senior centers and places of worship – than those participants who did not live alone and had face-to-face daily interactions with others.

This study adds depth and nuance to our understanding of the multidimensional human experience of aging, rather than focusing on the surface-level perception of older adults as either sick or healthy.

MIND, BODY, & SPIRIT:
AN ECOLOGICAL COMMUNITY-BASED APPROACH TO HEALTHY AGING

A project based upon an independent investigation,
submitted in partial fulfillment of the requirements
for the degree of Master of Social Work.

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To my parents and my brother, thank you for always being impressed by my ideas and my work, no matter how critical I am of them. Thank you for all your reassurance and strength.

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CHAPTER I

Introduction

The common misperception that psychosocial development ends in young adulthood inhibits our ability to understand and address the changing psychological and social needs that occur in late adulthood. Through the lens of the ecological theory of aging, understanding the “dynamic interplay among biologic, behavioral, and environmental factors” is crucial to addressing the biopsychosocial needs of older adults (Satariano, 2005, p. 41). This theory connects the physical and functional changes experienced in late adulthood with the social and psychological factors that mediate those changes. With an emphasis on understanding each of these areas of life – physiological, psychological, and environmental – we can begin to meet the psychosocial needs of older adults living at home.

Examining participants’ experiences at one community-based, health-focused program helps us better understand some of the potential types of benefits and outreach needed to support the biological, behavioral, and environmental factors of aging and to reduce isolation among older adults living at home. The study seeks to evaluate the ways in which the Healthy Bones & Balance (HBB) program may influence the self-rated health, socialization, and perspectives on institutionalization among HBB participants. In the process of identifying relationships between HBB class participation and psychosocial factors, this study also investigates the population which is being served by this program.

The Healthy Bones & Balance (HBB) program consists of classes offered by the Retired & Senior Volunteer Program (RSVP) of the Hampshire Council of Governments in western Massachusetts. HBB is a free program designed to increase participants’ strength, mobility,

flexibility, and balance. Participants in this program are at least 55 years of age, but exceptions are made for older adults who attend with a caregiver who may be younger than 55 years old. RSVP volunteers facilitate the weekly classes and participate in initial and on-going training opportunities to target fall-prevention and balance development for older adults. The volunteer class leaders are themselves older adults, with an average age of 74 years (L. Bennett-Jacobs, personal communication, June 19, 2017).

Need for the Study

Previous research has investigated most of the topics of this study. However, this study contributes to the field by pulling together the ecological theory of aging (Lawton & Nahemow, 1973), evidentiary support for group exercise classes targeting older adults (Cohen-Mansfield et al., 2004), and the relationship between social isolation and physical health (Berkman & Syme, 1979; Dean et al., 1992; Hawkey et al. 2006; Krause, 1987; Thoits & Hewitt, 2011). To study these factors and their relationship to the aging process, this study investigates the role of HBB class participation in socialization, self-rated health, and perspectives on institutionalization.

Purpose of the Study

The participants in this study are participants in HBB classes designed to help prevent osteoporosis and falls. As the HBB program is a specific class designed and implemented by the Retired & Senior Volunteer Program (RSVP) of the Hampshire Council of Governments in western Massachusetts, all participants in this study are local to Hampshire and Franklin counties. These participants completed pen and paper surveys, which were supplied by the class leaders and then mailed to the researcher. The survey included questions designed to elicit demographic information (age, marital status, income, living situation), socialization

(participation in social activities outside of HBB classes), the social effect of HBB participation (and the participants' reasons for class attendance), and self-rated health scores of participants.

Relevance of the Study

The goal of this study is to contribute to the existing body of knowledge supporting community-based health- and wellness-focused programs designed for older adults. Existing research suggests that programs targeting the health of older adults do have a significant impact (Ruuskanen & Ruopilla, 1995; Beyer et al., 2015). But this study suggests that these programs also have another significant effect: reducing the experience of social isolation among older adults living in the community. With the results of this study, we can see the ways in which this exercise class fosters social connection and supports individuals' efforts to remain connected to community while living alone.

Definitions of Key Terms

Older adults. Within the context of this study, older adults are understood as people aged 65 or older.

Healthy Bones and Balance. Healthy Bones and Balance (HBB) is a free community-based program designed to increase participants' strength, mobility, flexibility, and balance offered in Hampshire and Franklin Counties in western Massachusetts.

Self-rated health (SRH). Self-rated health (SRH) refers to a reliable and validated single-item health measure in which individuals rate the current status of their health on a four- or five-point scale from *excellent* to *poor*. For the purposes of this study, participants were asked to rate their current health status as “excellent,” “very good,” “good,” “fair,” or “poor.”

Socialization. For the purposes of this study, socialization refers to participation in social activities such as volunteering, religious services, group exercise classes, and face-to-face contact with friends and family.

Institutionalization. Institutionalization, in this study, refers to residency in a nursing home or long-term care facility, which is consistent with other research of aging (Luppa et al., 2010).

CHAPTER II

Literature Review

The following literature review consists of seven sections informing the goals, methods, and background for this study. The first section provides the theoretical framework informing the study, the ecological theory of aging. The second and third sections offer an overview of the statistical relevance of institutionalization, primarily nursing-home placement, and the risk factors for institutionalizations among older adults in the US. The fourth section introduces existing literature regarding the benefits of and reasoning behind group exercise for older adults. The following two sections identify supporting literature for the measurement tools used in this study, the Berkman-Syme social network index (SNI) and self-rated health (SRH). In conclusion, the review ends with a brief summary of what the included studies provide to this study.

Theoretical Framework

The ecological theory of aging (Lawton & Nahemow, 1973; Nahemow, 2000) provides a perspective through which to understand the ways in which aging adults begin to “experience environments that are either more stressed or less accommodating, at a time when they are becoming increasingly dependent” (Hansson & Stroebe, 2007, p. 143). For this study, the key part of the ecological theory is the assumption that well-being is affected by a “dynamic interplay among biologic, behavioral, and environmental factors” (Satariano, 2005, p. 41). From a public health perspective (the context that this theory has often been used in), this theory helps identify possible points of public health interventions. From a social work perspective, this theory has the potential to connect the physical and functional changes experienced in late

adulthood with the social and psychological factors that mediate those changes. As adults age and lose functional independence or simply lose some physical strength, “the relative resources and demands of the social and physical environments” impact an individual’s ability to adapt to the changes (Satariano, 2005, p. 42).

The HBB program is designed to promote strength, mobility, flexibility, and balance among older adult participants. According to ecological theory of aging, an individual’s well-being is impacted by biologic, behavioral, and environmental factors. The explicit goal of HBB is to address the physical (biologic) well-being of older adult participants; however, this study proposes that HBB class participation influences the social and psychological (environmental and behavioral) spheres of participants’ aging experience. In this sense, this study uses a perspective informed by the ecological theory of aging to understand the connections between physical health, community engagement, social support, and functional independence.

Institutionalization of Older Adults

As the field of social work continues to emphasize client-centered services, this study offers an opportunity to further understand what is needed in the community to support community residence for older adults later in life. In an expansive national study released by the AARP (Keenan, 2010), 88% of respondents over the age of 65 years “strongly agreed” or “somewhat agreed” with the following statement: “What I’d really like to do is stay in my current residence for as long as possible” (p. 4). Importantly, 71% of respondents over the age of 65 years rated the importance of “being near friends and/or family” as “extremely important” or “very important” and 41% of those respondents rated the importance of “being near church or social organization” as “extremely important” or “very important” (Keenan, 2010, p. 11). Older adults want to stay in their homes and in their communities as long as possible and one of the

main tasks of social workers in the field of aging is find innovative ways to encourage this while supporting the health and safety of older adults.

Risk Factors for Institutionalization

Established risk factors for institutionalization of adults over the age of 65 years include increased age, low self-rated health status, functional and cognitive impairment, dementia, prior nursing home (institutional) placement, and a high number of prescriptions (Luppa et al., 2009, p. 31). In an investigation of social isolation among older adults, Cornwell & Waite (2009) found that low self-rated physical health status is associated with two forms of social isolation, perceived isolation and social disconnectedness (p. 9). As evidenced by these studies and corroborating evidence from numerous other investigations, perceived social isolation and low self-reported health status are connected to institutional placement of older adults.

Group Exercise among Older Adults

In light of the structure of the HBB program, it is important to note that older adults seemingly prefer group-based exercises and exercising with people near to their own age, consistent with the motivation for providing the HBB classes exclusively for older adults. In a study of adult exercise preferences, Beauchamp et al. (2007) found that across age groups from 30 to 91 reported a positive preference for exercising in standard exercise classes comprised of others of a similar age (p. 204). In particular, older participants reported a general preference for age-matched, group-based exercise settings over exercising alone (p. 205).

Older adults prefer group exercise classes designed for their age cohort because of the opportunities to socialize with their peers within and outside of class. Cohen-Mansfield, Marx, Biddison, & Guralnik (2004) examined the social and environmental exercise preferences of

older adults 75 to 85 years of age. In terms of exercise groups and classes, 43.4 percent of participants rated having a friend to exercise with as “important” or “very important,” 28.1 percent rated having a group to socialize with after exercising as “important” or “very important,” and 17.6 percent rated having a group to eat with after exercising as “important” or “very important” (Cohen-Mansfield et al., 2004, p. 806). Not only do older adults seem to appreciate the social benefits of group exercise, but they experience the additional effect of more positive thoughts and attitudes about exercise and health. In general, the social influence that can be associated with exercise groups is positively correlated with adherence and compliance to exercise behavior, positive cognitions about exercising, and positive attitudes associated with the exercise experience (Carron & Hausenblas, 1996, p. 7).

Exercising has important mental health benefits, as well as key health benefits such as better physiological functioning. Current research conducted with older adults suggests that self-rated health status improves with more physical activity and exercise. Ruuskanen & Ruopilla (1995) conducted a study of adults 65 to 84 years old and found that “an association between physical exercise and better physiological functioning and health among elderly people is substantial” (p. 292).

Not only does having positive attitudes toward exercise encourage participation in physical activity, but these attitudes also encourage positive self-perceptions of aging, which seemingly predict more physical activity and better health among older adults. In a longitudinal study of older adults’ self-rated health status, Beyer et al. (2015) found that “self-perceptions of ageing predicted changes in physical activity over six months and these changes in physical activity in turn predicted changes in self-rated health over the following two years” (p. 10). This

conclusion suggests that self-perceptions of aging and participation in physical activity are two crucial factors that may impact self-rated health measures of older adults.

Some studies suggest that older adults with “poor perceptions of health” may be less likely to participate in physical activities; inactivity has been linked to functional decline and is a predictor of morbidity (Mor et al., 1989; Rakowski & Mor, 1992). Because the number of people who exercise or consider themselves physically active decreases with age, the level of activity of older adults who participate in physical activity “is subjectively a strong indicator for high self-rated health ratings” (Spuling et al., 2015, p. 469). In addition, Beyer et al. (2015) found that more positive self-perceptions of aging are associated with increased levels of physical activity, which in turn predict higher self-rated health scores (p. 671).

In summary, the current literature shows a correlation between group exercise, positive attitudes toward health, exercise, and aging, and physiological and psychological benefits of physical activity among older adults. For older adults, group exercise classes can be an intervention in line with the ecological theory of aging; group exercise targets the physiological, behavioral, and psychosocial factors promoting health among older adults.

Health and Social Isolation

Social isolation and perceived loneliness are associated with objectively worse health outcomes. Previous research has established that a lack of social connections and reported loneliness is correlated with higher rates of morbidity and mortality, infection, depression, and cognitive decline (Cornwell & Waite, 2009, p. 31). In particular, living alone, having a small social network, low levels of social activity engagement, perceived lack of social support, and self-reported loneliness are associated with worse health outcomes (Berkman & Syme, 1979; Dean et al., 1992; Hawkey et al. 2006; Krause, 1987; Thoits & Hewitt, 2011). In particular,

according to Cornwell & Waite (2009), older adults who experience perceived isolation are at greater risk for diminished immune function, depression, and cognitive decline (p. 33).

Measuring Social Support

The social and health benefits of group exercise for older adults should not be underestimated. Social isolation is a major cause for concern in this population, as it is tied to poorer physical and psychological outcomes. Studies of older adults have consistently sought to measure social isolation in order to illuminate this relationship further. The Berkman-Syme social network index (SNI) is based on four types of social connections: marital status, sociability, religious group affiliation, and membership in other social or community organizations (Eng et al., 2002, p. 701). Studies of older adults have repeatedly shown the strong associations between the increasing social isolation as measured by the SNI and increasing mortality risk (Eng et al., 2002; Schoenbach et al., 1986; Seeman et al., 1987). The Berkman-Syme SNI is a reliable measurement of self-rated health among older adults and is a useful tool for visualizing the different components of social isolation.

Measuring Self-Rated Health (SRH)

Self-rated health (SRH) refers to a single-item health measure in which individuals rate the current status of their health on a four- or five-point scale from *excellent* to *poor*. In a large study addressing the validity of self-rated health scores, Pérez-Zepeda et al. (2016) compared self-rated health scores with the empirically supported Short Physical Performance Battery (SPPB) and confirmed self-rated health scores as a valid measure of overall health in older adult participants. In a longitudinal study published in 2015, Beyer et al. (2015) found that self-perceptions of aging were significantly predictive of self-rated health and older adults with more positive self-perceptions of aging reported better self-rated health than those with less positive

self-perceptions of aging (p. 10). Like the Berkman-Syme SNI, the self-rated health scale is a reliable and useful representation of older adults' perceptions of their physical health. Instead of conducting physical examinations on each participant, self-rated health scores are highly predictive of actual health and wellbeing.

Summary

In summary, there is a vast amount of research detailing each aspect of this study – aging in the US, institutionalization of older adults, group exercise, self-rated health, and social support – however, there has been little done to incorporate all of these perspectives into the study of a particular exercise program. There is evidence that older Americans prefer to live in their home as long as possible, but what are the concrete steps that can help support that goal?

By examining a specific exercise program targeting older adults, this study furthers the research on the experience of aging in the U.S. Informed by an ecological perspective, this study addresses the interaction between attitudes toward institutionalization, group exercise, self-rated health, and social support among community-dwelling older adults in Western Massachusetts. This study proposes that exercise classes designed for older adults, like the HBB class, are tools that can be used to intervene and promote longer community living, greater social connectedness, and higher self-rated health scores.

The five research hypotheses of this study seek to address the influence of the HBB class on physical, psychological, emotional, and social health. In hypothesizing that my sample of program attendees will be representative of Western Massachusetts (in particular, Franklin and Hampshire Counties), this study will be limited in its ability to include a diverse racial, ethnic, and socioeconomic sample. The **first hypothesis** of this study investigates the sample of the Western Massachusetts population who is able to participate in the HBB program, which I

hypothesize will be representative of the larger population of the area in terms of marital status, age, and type of living situation. This will be investigated using available census data.

The **second research hypothesis** – that more frequent HBB attendance is related to experiencing more socialization benefits from the class – draws on the existing literature on ecological aging theory (Lawton & Nahemow, 1973) and the social factors of group exercise (Cohen-Mansfield et al., 2004). Hypothesizing that frequent participation in group exercise with similar-aged peers offers social benefits highlights the importance of an ecological perspective of aging: health and well-being of older adults can be influenced by a multi-factorial approach to address biological, environmental, and behavioral influences on aging.

Although this is not a longitudinal study comparing self-rated health scores from before and after HBB participation (which would be the ideal manner in which to study this hypothesis), I propose that this study will begin to illuminate the relationship between self-rated health – and therefore actual health – and HBB class participation.

The third hypothesis proposes a relationship between frequency of class attendance and higher self-rated health scores. This hypothesis and the analysis of the data is informed by the existing literature on the use of the self-rated health score (Beyer et al., 2015) and the study of group exercise among older adults (Pérez-Zepeda et al., 2016).

This study does not investigate the racial, ethnic, or religious demographics of participants and the larger local population. According to prior research, there is also evidence suggesting that the self-rated health (SRH) measures do not adequately represent actual health status of Black Americans (Assari et al., 2016), lower socioeconomic classes (Suresh et al., 2011), higher socioeconomic classes (Singh-Manoux et al. 2007), gender (Benyamini et al., 2003), and ethnicity (Lee et al., 2007). Because of this gap in the research methods available to

study self-rated health and the limits based on HBB participant demographics (which will be discussed further in the results section), the identity dimensions addressed in this study were limited by the sample demographics and available self-rated health measures.

However, **the fourth hypothesis** proposes a relationship between income and perception of “aging in place,” as measured by responses to questions about placement in nursing home facility or other institutionalized setting. Low self-rated health scores and social isolation are established risk factors for institutionalization (Luppa et al., 2009), but this study seeks to investigate the relationship between income and perception of institutionalizations. Do older adults with higher incomes expect to age in place more so than those with lower incomes? This demographic category is one of the dimensions along which this study seeks to investigate the relationship between health and institutionalization.

The **fifth research hypothesis** seeks to identify the relationship between the self-rated health scores of HBB class participants in this sample and the larger U.S. population by comparing the results of this study and the publically available dataset from a national epidemiological survey using the self-rated health scale, the National Health and Nutrition Examination (NHANES, 2007-2008) (see Appendix D). Based on the relationship between self-rated health scores and actual physical health (Beyer et al., 2015), this hypothesis will investigate the potential impact of HBB class participation on self-rated health scores.

Throughout the existing literature, it is clear there is a correlation between group exercise, socialization, emotional wellbeing, and physical health. This literature review provides an overview of the relevant studies on large populations of older adults. The existing literature informs the measurement tools used, the theoretical framework, and the hypotheses of this study. Using the results of prior studies, this research study examines the relationship of a specific form

of group exercise, the Healthy Bones and Balance (HBB) class, to physical, psychological, and social health among older adults in Western Massachusetts.

CHAPTER III

Methodology

Hypotheses

The social influence of exercise groups is correlated with adherence to exercise behavior, positive cognitions about exercising, and positive attitudes associated with exercising (Carron and Hausenblas, 1997, p. 7). In addition, Ruuskanen and Ruopilla (1995) found that older adults' self-rated health status increased with physical activity and exercise. In other words, exercise with others seems to support an increase in overall health and health behaviors, perhaps particularly important for older adults. Conversely, a correlation between perceived social isolation and increased risk for poor health outcomes has been well-documented (Cornwell & Waite, 2009; Berkman & Syme, 1979; Dean et al., 1992; Hawkey et al. 2006; Krause, 1987; Thoits & Hewitt, 2011). To test the hypotheses listed below, this study was designed to investigate the relationship between participation in HBB and self-rated health scores, perceived socialization benefits of the class, and perspectives on institutionalization. Based on these findings from the literature, the hypotheses of this study are as follows:

Hypothesis 1. Attendance in this program will be fairly evenly distributed across social class, marital status, age, and type of living situation, based on the demographics of local census data.

Hypothesis 2. Those who attend the class more than the average experience more social benefits from attending the class as evidenced by a higher socialization composite score.

Hypothesis 3. Those who attend the class more than the average experience an improvement in health measured by their self-rated health (SRH) score.

Hypothesis 4. In addition to the overall benefits of participation in this class, those with higher than average incomes will more negatively perceive institutionalization than other groups and therefore, “age in place.”

Hypothesis 5. Participants in the HBB program will have higher self-rated health scores than non-participants, as evidenced by data collected in a national epidemiological study.

Research Design

This study is quantitative, using primary data collection via survey dissemination. Quantitative research methods are used “to verify whether a cause produces an effect in general” and is often the method used with survey dissemination (Rubin & Babbie, 2013, p. 79). According to Rubin and Babbie (2013), the aims of a quantitative study are often generalizability and hypothesis testing (p. 82). For the purpose of this study, a quantitative framework helps provide structure within which the five research hypotheses (listed above) can be tested for validity.

This is a descriptive, single-subject, non-experimental study with a goal of assessing the HBB program in terms of reducing social isolation among a large group of older adults in Western Massachusetts. Descriptive studies seek to describe situation and events (Rubin & Babbie, 2013, p. 154); consistent with that definition, this study seeks to provide an informed description of the social support, self-rated health scores, and living situations of older adults participating in HBB classes. As Rubin and Babbie (2013) explain, a descriptive study does not provide an explanation of why or how two factors relate, but it can illuminate the existence of a relationship (p. 155). In this case, the quantitative descriptive study will not be sufficient to identify causal relationships, why the HBB program may positively impact older adults, nor a complete evaluation of the effectiveness of the HBB program. However, this study provides

descriptive information regarding participant's perspectives of the HBB program effects and sets the ground work for later explanatory or predictive studies.

The theoretical approach for this study design is deductive. Deductive reasoning involves moving from theory to operationalization to observation (Rubin & Babbie, 2013, p. 67-82). In this study, the theoretical approach – an ecological theory of aging (Lawton & Nahemow, 1973) – combined with existing research on the relationship of exercise to older adults' health status, socialization, and institutionalization, heavily informed the hypotheses and methodologies used in this study of HBB program participants.

Data collection. Prior to beginning data collection, Human Subjects Review approval was obtained from the Smith College HSR Committee (see Appendix A). The primary data collection for this study was conducted via a paper survey consisting of fifteen multiple choice questions. These questions were developed from a collaboration with the RSVP staff and were based on previous research studies. The survey questions were developed in an effort to collect information regarding participant living situations, social networks, income, social activities, exercise behaviors, and motivations for HBB class participation. In particular, survey questions 11 and 12 were adapted from an AARP report on the home and community preferences of adults in order to compare this study's responses with the national study conducted by the AARP in 2010 (Keenan, 2010). Please see Appendix B for a copy of the survey questions, including the questions adapted from the AARP report.

Publically available census data was utilized in order to compare the demographics of this sample of older adults to the overall population of older adults in this area (e.g., by age and income). Census data for Hampshire County, MA, Franklin County, MA, and the United States provided comparison data for this study. All of the HBB classes are offered in Hampshire and

Franklin Counties; efforts to compare the demographic makeup of class participation to the larger county populations were enabled by this census data.

In addition, publically available data collected through the 2007-2008 Centers for Disease Control and Prevention's National Health and Nutrition Examination Survey (NHANES) was incorporated into this study. Using the most recent publically available data (2007-2008) from this epidemiological study of U.S. residents, this study compares the national data on older adults' self-rated health scores and the self-rated health scores of HBB participants. Considering the HBB program is local to Massachusetts and the NHANES study incorporates the results of over 2,400 adults over the age of 55 years, it is reasonable to use the NHANES data as a representative sample of non-HBB participants.

Reliability and validity. The majority of the questions in the survey used for this study collected descriptive data in order to address questions about what population the HBB program was accessing. However, the measurement tools used to measure social support and self-rated health score have been previously utilized in research and have been determined reliable and valid.

To compare self-rated health (SRH) scores between the NHANES (2007-2008) national epidemiological sample, this study measured self-rated health on a five-point scale consistent with NHANES methodology. Pérez-Zepeda et al. (2016) confirmed the validity of the self-rated health scale used here as a measure of overall health status in older adults by measuring the linear association between the “mean scores of the Short Physical Performance Battery and the ordinal categories of self-rated health across research sites and gender groups” (p. 2). By comparing the results of the Short Physical Performance Battery – a confirmed valid measurement of overall health status in older adults – to the self-rated health categorization,

Pérez-Zepeda et al. (2016) solidified the usefulness of the five ordinal categories. For the purposes of this study, survey question 14 is a prompt to measure self-rated health score. Please see Appendix B for a copy of the survey questions.

The questions targeting social networks and perceived isolation are derived from the work of Berkman and Syme (1979), who developed the social-network index (SNI). The SNI was developed inductively from data collected in the Alameda County Study (1979) of 6,000 adults. Berkman and Syme (1979) found that social networks were conceptualized in four categories: marital status, contacts with friends and relatives; religious affiliation and membership, and membership in voluntary organizations (p. 10). Berkman (2000) explains that the SNI has been reliable and valid in terms of measuring the relatedness of social networks, health, and mortality risk (p. 10). The questions in this study, in particular, questions 5-10 were incorporated to address the four domains of SNI. Please see Appendix B for a copy of the survey questions.

Sample. For this study, probability sampling was not possible. This study utilizes availability sample of HBB class participants. Inclusion criteria for this sample was simple, participants were eligible to participate in this study if they were present at an HBB class when the class leader disseminated this survey. There were no limits on the number of classes a participant must attend in order to be a participant. The major feasibility issue with availability sampling is a limited ability to generalize the data to the large population of older adults in the United States. However, data has already been collected – primarily by large organizations like the AARP – on older adults’ self-report physical activity, self-rated health, and perceived isolation. The existence of this previously collected data allows this study to produce results that

can then be compared to national studies in order to demonstrate the possible effects of HBB participation.

As discussed above, this study seeks to include a sample that is demographically representative of the larger older adult population of Hampshire and Franklin Counties. The significant barrier to a representative sample across demographics is the limited participation of male-identified older adults; based on RSVP staff reports, the majority of HBB class participants are female. This study seeks to quantify the gender proportions of the HBB class participants and other demographics of the HBB participant population.

Although this sample may be reflective of the larger population of Hampshire and Franklin Counties, it is important to note that the population of Hampshire and Franklin Counties are not representative of the larger United States population. For example, in 2015, the census reported that 88.6% of Hampshire County and 94.5% of Franklin County identified as white, while the 77.1% of the United States identified as white (U.S. Census Bureau, 2015). Both Hampshire and Franklin Counties have a higher average education level, median household income, and per capita income (U.S. Census Bureau, 2015).

Ethics & safeguards. Participants in this study were anonymous and voluntary. As mentioned, previous data collection by RSVP is anonymous. Survey dissemination for the purposes of this study did not collect identifiable information and maintained anonymity. Participants in this study were recruited through the RSVP program director, who disseminated the survey to HBB class leaders who in turn disseminated the survey to the class participants. Participation by HBB class leaders and class participants was voluntary.

The voluntary nature of participation was emphasized in four specific ways. Initially, a statement about the voluntary participation on the part of class leaders was expressed in writing

by the RSVP director when disseminating the surveys. Second, class participants were encouraged to use their own discretion when choosing to participate, as this was a completely voluntary survey. This was included in a short passage the class leaders were asked to read to the class participants when they offered the survey. Third, survey participants read and signed an informed consent document that was the first page of the survey (please see Appendix C for the consent form). Finally, each completed survey was placed in a manila envelope outside the room in which the survey was taken so as to avoid any sense of pressure or coercion that may come with returning the completed survey to the class leader.

The only identifying information collected during the course of this study was the informed consent documentation signature provided by each participant. The informed consent documentation was separated from the completed surveys by each participant so as to detach the survey results from participant's signatures on the informed consent documentation. All research materials including analyses and consent documents will be stored in a secure location for three years according to federal regulations. In the event that materials are needed beyond this period, they will be kept secured until no longer needed, and then destroyed. All electronically stored data will be password protected during the storage period.

Risks & benefits. There were no foreseeable, expected, or reported risks to participation in this study. The study took approximately 20 minutes for participants to complete and was disseminated during their HBB class so as to eliminated the time burden participants may have felt. There were no monetary incentives or benefits to participating in the study. Participants may have benefits from study participation by reflecting on experiences with the HBB program, developing insight into the changes this program brought, and providing participant feedback to

RSVP staff. The RSVP program benefits from this study through participant feedback and increased insight into participant experiences.

Data Analysis

Once the completed surveys were collected, they were coded (please see Attachment 5: Coded Survey) for ease of importing the data into Microsoft Excel for analysis. The numbers utilized in coding the survey results do not reflect, rather the number is assigned as a code representative of a name of a category, not an amount (Rubin & Babbie, 2013, p. 544). At this point, the data was completely de-identified with no identifying information on any of the surveys. As outlined by Rubin & Babbie (2013), the data analysis process for quantitative studies is to “calculate statistics that describe a population or assess the probability of error in inferences about hypotheses” (p. 82).

For this study, both forms of data analysis were utilized. Descriptive statistics of the sample were compiled in order to illuminate the demographic information of this sample and to compare the demographics to the U.S. Census data for Franklin and Hampshire Counties. In addition, the five hypotheses were tested using the chi-square statistical test. Chi-square is a nonparametric test utilized when both independent and dependent variables are nominal, rather than numerical (Rubin & Babbie, 2013, p. 601). The survey for this study included nominal – or categorical – variables rather than numeric variables (Rubin & Babbie, 2013, p. 544), so the chi-square test was a fitting procedure.

Initially, all five original hypotheses were tested using the chi-square procedure. Second, the descriptive statistics for the sample were compiled to create a table with the demographic representation of the HBB participants who participated in this study. Third, the researcher looked at the frequency of responses to each question and identified multiple areas of further

study within the parameters of this dataset. These additional exploratory hypotheses were informed by the frequency tables created in Excel for each of the survey questions:

Exploratory hypothesis 6. HBB participants who live alone are will seek participation in social activities beyond HBB class attendance more than those who live with one or more others.

Exploratory hypothesis 7. HBB participants who live alone will have a lower composite social activity score than those who live with one or more others.

Exploratory hypothesis 8. HBB participants with “excellent” or “very good” self-rated health scores will live with others, have a higher income, be younger, and/or exercise outside of HBB classes.

Exploratory hypothesis 9. HBB participants’ perspectives on institutionalization will have a relationship to their age. For example, older respondents will view nursing home placement more favorably than their younger counterparts.

Exploratory hypothesis 10. Older HBB participants will live alone more often than their younger counterparts.

Composite scoring and secondary data usage. In order to address some of the hypotheses developed at the outset of this study and some of the inductively created hypotheses established after data collection and review, a composite socialization score was created. The process for creating relevant scoring systems is outlined below paired with the appropriate hypothesis.

Scoring for exploratory hypothesis 6. Those who attend the class more than the average will experience more social benefits from attending the class, as evidenced by a higher composite social-participation score.

Composite social participation score. The score to measure the social benefits of class was created by compiling the socialization-related responses to survey question 15, “Why do you attend the HBB class?” These responses were coded numerically; socialization-related responses were weighted in order to measure the target of this study, participation in social activities. Socialization-related responses included “the class leader/s make exercising enjoyable,” “I like being a part of a group,” and “I like the people who come to class.” Non-socialization responses included, but were not limited to, responses like “I like having a specific exercise routine” and “I feel stronger and more confident when I participate in this class.”

Scoring for exploratory hypothesis 7. HBB participants who live alone will have a lower composite social activity score than those who live with one or more others.

Composite social activity score. This score was calculated by combining responses to socialization questions. These questions included the following survey items:

7. What is your relationship status?

9. Which of the following activities do you participate in once a week or more? Please do not include your participation in this HBB class.

10. In the past seven days, on how many days did you have face-to-face contact with family, friends, and neighbors?

Relationship status responses were coded into two categories and given a numerical weight: respondents were either in a relationship (selected “married” or “partnered”) or not in a relationship (all other responses). Those who were in a relationship were scored with 1, those not in a relationship with a 0. Responses regarding social activities outside HBB were all given a score of 1; each option that was not selected was scored as 0. For each social group (family, friends, and neighbors), the frequency with which they were engaging face-to-face with the

respondents was weighted. For example, someone who saw their family once in the last seven days received a score of 1, twice in the last week was 2, three to six times in the last week was scored as a 3, every day was scored as 4, and someone who saw their family every day, multiple times a day received a score of 5. This same process was repeated for friends and neighbors. The highest possible score was 20. The scores were then divided into nominal categories of “low” (score of 0-5), “moderately low” (score of 6-10), “moderately high” (score of 11-15), and “high” (score of 16-20).

To incorporate the 2007-2008 NHANES data for comparison to the HBB participants’ self-rated health scores, the data needed to be reorganized to be suitable for chi-square testing. NHANES initially coded their data with nominal numbers; for example, a self-rated health score of “excellent” was coded as 1, “very good” as 2, “good” as 3, “fair” as 4, and “poor” as 5 (Centers for Disease Control and Prevention, 2008). For the purposes of this study, the NHANES data was recoded into the nominal categories for ease of comparison. Then, participants under the age of 55 were removed, as the age of participants in NHANES could be as low as 1 year old, and therefore not relevant to this study. This left 2,252 available responses with self-rated health scores and ages. The primary limitation with using the NHANES data for this study is that they categorized all adults 80 years of age or older as “80 years old,” so there are no comparison categories for adults over the age of 80 available for this study (Centers for Disease Control and Prevention, 2008). After the NHANES data was reorganized, it was appropriate to use in chi-square testing with the sample of HBB respondents.

CHAPTER IV

Findings

The goal of this study is to investigate the relationship between HBB class participation and socialization, self-rated health, and perspectives on institutionalization. In addition, this study seeks to clarify who is targeted by this program, who the participants are, and why they participate in this exercise class. This study finds that most HBB participants identify social reasons for participation, primarily “I like being a part of a group” (80%) and “I like the people who come to class” (79%). Often, participants identified social reasons for participation in addition to citing health benefits such as “I feel healthier when I participate in this class” (83%) and “The class leader/s make exercising enjoyable” (85%). In addition to the existing research pointing to the relationship between group exercise designed for a specific age cohort and the importance of socialization for older adults (Cohen-Mansfield et al., 2004), the results of this study suggest that participants in HBB classes are socially motivated engaged, often seeking out additional social activities outside of HBB classes in their communities. It is also important to note that this program reaches a large number of individuals (42% of the HBB participants who completed the survey) who live alone and are at higher risk for social isolation (Kharicha et al., 2007). Although it is not within the scope of this study to compare HBB participants to demographically-matched non-HBB participants, the following results suggest that HBB participants are socially engaged, motivated to participate in community activities, and are in generally good health. HBB participants also identify the benefits of class attendance across numerous elements of their day-to-day life including physical activity, improved balance, and social opportunities.

The results of this study can be divided into four useful categories: demographics and descriptive data, self-rated health data, socialization data, and perspectives on aging in place. First, this study seeks to identify who participates in HBB classes. The descriptive demographic data collected in this study suggests that HBB class participants are representative of the larger population of Hampshire and Franklin Counties, as represented in Census data. In particular, this study measured age, marital/relationship status, type of living situation, and general income. These data are presented in the first section to highlight the demographics of older adults in Western Massachusetts and of HBB class participants.

The second subgroup of results focuses on the self-rated health scores. As presented in the literature review, self-rated health (a five-item scale ranging from excellent to poor) is a validated and reliable measurement of general health and well-being among older adults (Pérez-Zepeda et al., 2016). The hypotheses tested that utilized this scoring system investigated the relationship between HBB class participation and self-rated health scores.

Consistent with the literature on health and aging, this study also investigated the relationship between socialization, aging, and physical health. To measure these items, social and/or community activities and household size were identified as factors contributing to socialization.

The final subgroup of results centers on questions of institutionalization and aging in place. Institutionalization, or the placement of older adults in nursing homes and care facilities, has repeatedly been identified as a something older adults prefer to avoid (Keenan, 2010). With that in mind, numerous studies have been conducted to promote “aging in place” and supporting individuals in their quest to remain at home and/or in their communities for as long as possible.

This study investigates the relationship between participation in an exercise class and perceptions of institutionalization.

Demographics

Geography. Most participants (82.74%) in this study attended HBB classes in Hampshire County, where 18 HBB classes are offered at differently locations each week, while only 9 classes are offered in Franklin County each week. The U.S. government defines most of the towns in which HBB classes are offered as “urban clusters,” areas with populations between 2,500 and 50,000 (HRSA, 2017). The only towns in which HBB classes are offered that have populations exceeding 20,000 are Northampton and Amherst, where only 15.49% of HBB class participants

Table 1
Descriptive Statistics of HBB Participants

	Frequency	Percent
Gender		
Male	24	11
Female	202	89
Age (in years)		
55-64	8	4
65-74	77	34
75-84	94	42
85-94	37	16
95+	9	4
County		
Hampshire	187	83
Franklin	39	17
Annual income		
Below \$25,000	40	18
\$25,000-\$75,000	89	39
More than \$75,000	33	15
No response/I'd rather not say	64	28
Relationship status		
Married	110	49
Widowed	83	37
Divorced/separated	23	10
Never married	9	4

attend classes. The majority (45.58%) of participants attend classes in smaller towns with populations of less than 10,000 (see Table 1 for descriptive statistics of this sample).

Age. The majority (41.59%) of participants were 75 to 84 years of age.

Among Hampshire and Franklin County residents over the age of 65, the mean age is 73.1 years and 72.5 respectively (U.S. Census Bureau, 2015). About 20% of HBB class participants are 85 or older and about 38% are 74 years old or younger (see Table 1 for descriptive statistics).

Income. For the purposes of this study, annual income was divided into three broad categories: below \$25,000, \$25,000-75,000, and above \$75,000. Because income was only one of many demographic measures investigated in this study and was primarily utilized to compare to county-wide census data, a broad range of incomes was appropriate for this study.

Unexpectedly, a majority of participants (39.38%) fell into the middle income category. This is consistent with the Census data, which points to a mean income of \$58,720 and a mean retirement income of \$27,517 among Hampshire County residents over the age of 65, both of which are significantly above the national average for adults over 65 years of age (U.S. Census Bureau, 2015). Of note, a large portion (24.34%) of HBB participants elected not to provide an income and instead selecting the choice “I’d rather not say,” despite the anonymity of the survey (please see Table 1 for descriptive statistics).

Relationship status. The majority (48.67%) of HBB participants identified as married or partnered and over a third of the participants identified as widowed (see Table 1 for descriptive statistics of the sample). Compared to the census data for both Hampshire and Franklin Counties, the population of HBB participants had a higher percentage of people who identified as widowed and a lower percentage of married and/or partnered people than the counties’ populations (U.S. Census Bureau, 2015).

Living situation. As one of the measures of socialization, living situation was measured by identified the number of individuals in a household and whether or not they were considered family by the participant. 42.04% of participants live alone and 45.58% live with only one

family member. These data are consistent with the average household size in Hampshire County and Franklin Counties, which is about 1.82 people in owner-occupied homes and about 1.3 people in rented housing (U.S. Census Bureau, 2015). In these counties, about 78% of people over 65 own their current residence and about 21% rent their current residence (U.S. Census Bureau, 2015). Among HBB participants, 70.79% own their own house, apartment, or condo and 9.73% live in a rented house, apartment or condo. Unlike the county Census data, HBB participants were offered other housing options in the survey; importantly, 15.04% of participants live in an independent living facility. There are three Hampshire County HBB classes offered at three separate independent living facilities. The census data pertains to community-dwelling adults over 65, and therefore excludes these independent living facility residents.

Descriptive Findings

Hypothesis 1. Attendance in this program will be fairly evenly distributed across social class, marital status, age, and type of living situation, based on the demographics of local census data.

Findings. Hampshire and Franklin Counties are very similar across demographic categories of income, marital status, age, race, and living situation based on 2015 census data. The demographics that were measured in this HBB sample (income, marital status, age, living situation) are also consistent with the census data, suggesting that this sample was close to representative of the population of Hampshire and Franklin Counties in these categories.

Exploratory hypothesis 10. Older HBB participants will live alone more often than their younger counterparts.

Findings. In a chi-square test of statistical significance, the relationship between living alone and age group was statistically significant ($p = 0.00129$, $\alpha = 0.05$). In this sample of HBB class participants, older participants more frequently live alone than their younger counterparts. To calculate this significance, living situation was identified as “alone” or “not alone” and the age categories were merged into the following three groups: younger than 75 years old, 75-84 years old, and 85 years and older.

Self-Rated Health Findings

Hypothesis 3. Those who attend the class more than the average experience an improvement in health measured by their self-rated health (SRH) score.

Findings. People who attend class more than the average do not have a higher self-rated health score. Participants who attend class four three or more times a week do not report excellent self-rated health more than those participants who attend class once a week.

Hypothesis 5. Participants in the HBB program will have higher self-rated health scores than non-participants, as evidenced by data collected in a national epidemiological study.

Findings: There is a statistically significant difference between the SRH scores of HBB participants and the participants in a large, national epidemiological study, 2007-2008 Centers for Disease Control and Prevention’s National Health and Nutrition Examination Survey (NHANES). In the NHANES study, approximately 6.11% of the 1,359 participants over the age of 65 rated their health as “good” compared to over 11% of HBB participants over the age of 65. In a chi-square test of significance comparing the self-rated health scores of participants 65 years or older, there was a significant difference ($p = 3.030e-54$, $\alpha = 0.05$) between HBB participants and the larger epidemiological sample of non-HBB Participants.

Exploratory hypothesis 8. HBB participants with “excellent” or “very good” self-rated health scores will live with others, have a higher income, be younger, and/or exercise outside of HBB classes.

Findings: The relationship between self-rated health scores and living situation ($p = 0.409$), income ($p = 0.9958$), age ($p = 0.364$), and exercise outside of HBB classes ($p = 0.089$) was not statistically significant. When self-rated health was tested against living situation (alone vs. not alone), income (less than \$25,000, \$25,000-75,000, or \$75,000 or more), age (55-64, 65-74, 75-84, or 95+), and exercise outside of HBB classes (never, once a week, twice a week, three times a week, or more than three times a week), there was no statistically significant findings. This may be in part due to the lack of diversity in the self-rated health scores in this sample, as most participants (50.88%) identified their health as “very good” and only 4.86% identified their health as fair or poor.

Socialization Findings

Hypothesis 2. Those who attend the class more than the average experience more social benefits from attending the class as evidenced by a higher socialization composite score.

Findings. The relationship between class attendance and social reason for class attendance is statistically insignificant. However, most participants selected social reasons (ex: “I like being a part of group” and “I like the people who come to class”) for attending HBB classes.

Social attendance composite score calculated by scoring each of the possible reasons provided for attending HBB class. Social reasons for class attendance included responses like “I like the people who come to class” and “I like being a part of a group.” The highest possible

score was 14 and the scores were then divided into categories of low, somewhat, moderate, and high. High social attendance composite scores were not correlated with class attendance.

Most participants one (33.63%) or two (45.58%) times each week and most participants had social attendance scores in the high (46.12%) or moderate (33.98%) categories. Although there was no statistical significance in this relationship, most participants identified social reasons for class attendance.

Exploratory hypothesis 6. HBB participants who live alone are will seek participation in social activities beyond HBB class attendance more than those who live with one or more others.

Findings. The relationship between living alone and participating in social activities beyond HBB classes is statistically significant. More participants who live alone report participation in weekly social activities outside of HBB classes than those who live with others. The social activities outside of HBB class that were included in this study were activities at a local senior center and/or council on aging, volunteering, activities at a place of worship, and religious services. There is a statistically significant correlation between living alone and seeking social engagement beyond HBB class participation.

Exploratory hypothesis 7. HBB participants who live alone will have a lower composite social activity score than those who live with one or more others.

Findings. The relationship between living situation and social activity score is statistically significant ($p = 0.0036$, $\alpha = 0.05$). More HBB class participants who live alone report factors that contribute to a lower social score than their counterparts who do not live alone. This social activity score was measured by combining a number of social factors identified in the survey disseminated to HBB participants. Each participant was given a social score based on

their responses to the following questions: relationship status, face-to-face contact with family/friends/neighbors in the past 7 days, and participation in social activities outside of HBB class. Participants who did not identify as in a relationship were given 0 points; participants who were married or partnered were given 1 point. For face-to-face contact with family, friends, and neighbors, participants were given 1 point for each face-to-face interaction. Weekly participation in social activities outside of HBB classes were given 1 point each. The highest possible score was 20 points and the social activity scores were divided into four categories: high (score of 16-20), moderately high (score of 10-15), moderately low (score of 6-10), and low (score of 0-5). Each participant's living situation was re-coded as "alone" or "not alone" for the purpose of testing the significance of living situation and social activity score.

Institutionalization Findings

Hypothesis 4. In addition to the overall benefits of participation in this class, those with higher than average incomes will more negatively perceive institutionalization than other groups and therefore, "age in place."

Findings. The relationship between income and perceptions of institutionalization was statistically insignificant in this sample. There was no significant relationship between income level (less than \$25,000, \$25,000-75,000, or \$75,000 or more), and perspectives on institutionalization as measured by participant agreement with the following two statements: "I know that living in an assisted living facility or nursing home is the best option for me if I am physically unable to meet my needs" ($p = 0.875$, $\alpha = 0.05$) and "I know that living in an assisted living facility or nursing home is the best option for me if I am mentally unable to meet my needs" ($p = 0.357$, $\alpha = 0.05$).

Exploratory hypothesis 9. HBB participants' perspectives on institutionalization will have a relationship to their age. For example, older respondents will view nursing home placement more favorably than their younger counterparts.

Findings. The perspectives on institutionalization were not correlated with participant age. The relationship between participant age (55-64, 65-74, 75-84, or 95+) and perspectives on institutionalization was not statistically significant. A chi-square significance test was completed for participant responses to the two measures of agreement with institutionalization: "I know that living in an assisted living facility or nursing home is the best option for me if I am physically unable to meet my needs" ($p = 0.158$, $\alpha = 0.05$) and "I know that living in an assisted living facility or nursing home is the best option for me if I am mentally unable to meet my needs" ($p = 0.1002$, $\alpha = 0.05$).

Summary of the Findings

Based on these findings, the sample studied was representative of the larger population of older adults in Western Massachusetts, in good health, and engaged in numerous social activities outside their homes. Interestingly, participants who lived alone participated more in other community-based activities, but had fewer weekly social interactions with family, friends, and neighbors than their counterparts who did not live alone. Because of the correlational nature of this study, the relationship between health, socialization, and participation in HBB classes is not causal. It is possible that healthier individuals are seeking physical activity and social engagement or that the physical activity and social engagement offered by HBB classes improves the physical health of participants.

CHAPTER V

Discussion

The goal of this study was to investigate the relationship between participation in HBB exercise classes and socialization, self-rated health, and perspectives on aging in place. The study began with five initial hypotheses synthesized based on the previous research on self-rated health, exercise groups, and perspectives on aging in place among non-HBB participants. The results of this study confirmed two of the hypotheses and the results were not statistically significant for the three other hypotheses. In addition, throughout the research process, further hypotheses were created as more information was available about the sample of HBB participants. The hypotheses confirmed by the results of this study are consistent with existing research that posits health and social benefits of group exercise classes among older adults. The unconfirmed hypotheses expand the understanding of the population served by the HBB program and provide insight into possible future research and program evaluation.

The following sections of this chapter will discuss the relationship between each of these findings and the relevant existing literature. The four main sections of the results are the descriptive findings of the HBB participants, self-rated health scores, socialization findings, and perspectives on institutionalization. Following these four sections, the strengths and limitations of this study will be addressed in terms of the sample, generalizability, reliability, and validity. Finally, this chapter will conclude by addressing the implications of these results for social work practice and theory, as well as providing recommendations for future research.

Demographic Findings

HBB class participants are overwhelming female-identifying (89%), mostly 75-84 years of age (42%), and attended classes in Hampshire County (83%). Prior to disseminating this survey, the RSVP – the program responsible for organizing the HBB classes – expressed their awareness that their participants were predominately female and predominately from Hampshire County, although they did not have explicit statistical information on the demographics of their participation. Beyond these demographic categories, this study also investigated the incomes, living situations, and relationship status of HBB participants. In these categories, the HBB participants were fairly similar to the populations of Hampshire and Franklin Counties, as measured by the publically available 2015 U.S. Census data.

Age. The median age of adults over the age of 65 is 73.1 in Hampshire County and 72.5 years in Franklin County, while most participants (89%) in this study were 75-84 years of age (U.S. Census Bureau, 2015). The slight difference in age between participants in this study and the census data for these two counties may be attributable to gender differences, as the life expectancy at birth for females is almost five years longer than that of males in the U.S. (National Center for Health Statistics, 2016) and the HBB participants are mostly female-identifying. Additionally, older adults closer to the ages of 65 may remain in the workforce longer than their older counterparts (Karp & National Institute on Aging, 2007, p. 40-41), making them ineligible to participate in HBB classes that are scheduled during weekdays.

Income. For the purposes of this study, participants self-selected the most appropriate average annual household income: below \$25,000 (18% of participants), \$25,000-\$75,000 (39% of participants), and above \$75,000 (15% of participants). It was not within the scope of this study to comprehensively investigate socioeconomic class and financial status of HBB class participants; instead, the income data was collected to provide a general sense of the economic

status of HBB participants. However, this study did investigate the relationship between these broad economic categories and perceptions of aging in place, as well as similarities of the HBB participants to the large population of older adults in Hampshire and Franklin Counties. The average annual household income among adults 65 years and older is \$58,720 in Hampshire County and \$46,678 in Franklin County (U.S. Census Bureau, 2015). With this information, the HBB participants' income level does not appear drastically different from the relevant census data, suggesting that HBB participants were economically similar to the large population of older adults in Western Massachusetts. Of note, existing literature has found large variations of income among older adults in the U.S., ranging from \$20,000 among the poorest fifth of households to over \$200,000 in the highest income group; considering that financial well-being is strongly linked to the health older adults, there is a need to further investigate the complex relationship between income, wealth, and health among older adults (Karp & National Institute on Aging, 2007, p. 56-7).

Living situation and relationship status. Living alone is one of the primary social factors associated with worse health outcomes across numerous studies (Berkman & Syme, 1979; Dean et al., 1992; Hawkey et al. 2006; Krause, 1987; Thoits & Hewitt, 2011). Based on previous examinations of socialization and health among older adults, this study gathered information regarding living situation (how many related and non-related others a participant lives with), relationship status, and social activity engagement to measure socialization among participants. This study utilized three of the four types of social connections measured by the Berkman-Syme social network index: marital status, religious group affiliation, and membership in other social or community organizations (Eng et al., 2002, p. 701). Most participants in this study identified frequent participation in senior center activities (52%), volunteer activities

(64%), community activities at a place of worship (77%), and weekly religious services (60%). In addition, 49% of respondents identified as in a relationship (partnered or married) and 51% of respondents identified as not in a relationship (widowed, divorced, separated, or never married). Based on these data, the HBB participants have high scores on the Berkman-Syme social network index, indicated high levels of socialization and low levels of social isolation.

Importantly, the relationship between age and living alone is statistically significant. More older HBB participants live alone than the younger participants, which is consistent with the national data collected in the NHANES study that suggests older adults over 75 are more likely to live alone than those aged 65-74. Because living alone is a risk factor for worse health outcomes (Berkman & Syme, 1979; Dean et al., 1992; Hawkey et al. 2006; Krause, 1987; Thoits & Hewitt, 2011), the fact that so many of our oldest older adults are living alone shows us that these individuals may benefit from health and socialization interventions.

In addition, this study utilized data on living situation to further this study of socialization. A slight majority of participants live with one or more others (57%), while 42% of participants live alone. Living alone and more participation in non-HBB social activities (senior center, religious services, volunteering, and/or community activities at places of worship) and lower composite social activity scores (as measured by relationship status, non-HBB class participation, and face-to-face interaction with family, friends, and/or neighbors) was statistically significant. Based on these data, HBB participants who live alone less frequently identify as in a relationship and have fewer face-to-face interactions with family, friends, and/or neighbors; however, these same HBB participants more frequently seek participation in non-HBB social activities than their partnered or married counterparts. These results contribute to the literature by incorporating living situation into measures of socialization and social isolation, as well as

expanding the understanding of which older adults are engaged in social and/or community activities.

Race, ethnicity, and religion. It is important to note that this study did not measure a number of demographic categories, such as race, ethnic identity, and religion. The racial identities of older adults in Hampshire and Franklin Counties are predominantly white (96.5% and 97.6%, respectively) (U.S. Census Bureau, 2015), suggesting that finding statistical differences based on racial identity in this small sample size would be unlikely. In terms of religious affiliation, this study measured participation in social activities at a place of worship (77%) and participation in religious services (60%), but did not specify which religion individuals affiliated with, as this was outside the scope of the research questions. However, race, ethnicity, and religion are crucial identifiers for many individuals and require further investigation to address the best ways to measure the relationship between these demographic categories and social and physical well-being.

Gender differences in participation. Although this study did gather gender-identity data, the participants were overwhelming female-identifying (89%), making statistical analysis based on gender uninformative. In the larger population of older adults in Western Massachusetts, there is a slight majority of women over the age of 65 (57% in Hampshire County, 55% in Franklin County) (U.S. Census Bureau, 2015); however, this difference does not explain the even larger gender difference in HBB participation. Generally, older women are more sedentary and less active than their male counterparts (Lee, 2005; Lin, Yeh, Chen, & Huang, 2010), but are more likely to participate in balance and fall-prevention exercise groups (Sandlund et al., 2017). The gender data collected in this study is consistent with the higher rates of female participation in such balance and fall-prevention group exercise programs (like HBB)

found throughout the existing literature. In a study specific to balance and fall-prevention exercise programs, men identified women as “high-priority recipients of balance and fall-prevention messages” and women self-identified as more likely to respond to fall-prevention messages than their male counterparts (Clark et al., 2013, p. 107-8). Additionally, women are significantly more likely to attend group strength and balance classes than their male counterparts (Yardley et al., 2008). Despite the existing research highlighting the popularity of group exercise among older women rather than their male counterparts, there is little discussion of the reasons for this gender difference.

Self-Rated Health Findings

Self-rated health (SRH) refers to a single-item health measure in which individuals rate the current status of their health on a five-point scale from *excellent* to *poor*. As a reliable and valid measurement of perceived physical health, self-rated health scores are highly predictive of actual health and wellbeing among older adults (Beyer et al., 2015; Pérez-Zepeda et al., 2016). The results of this study suggest that HBB participants self-identify as healthy; over half (51%) of the participants rated their health as “very good” and only one participant rated their health as “poor.” The self-rated health scores of HBB participants were not meaningfully correlated with living situation (alone vs. not alone), income (below \$25,000, \$25,000-\$75,000, or above \$75,000), age, or participation additional exercise activities outside of HBB classes.

Self-rated health and class participation. Based on research suggesting that self-rated health status improves with more physical activity and exercise (Ruuskanen & Ruopilla, 1995; Beyer et al., 2015; Spuling et al., 2015), this study investigated the relationship between frequency of HBB class participation and self-rated health scores. The results of this study did not confirm this hypothesis; attending class more than the average (the average attendance was

two classes per week) was not correlated with higher self-rated scores. The lack of a statistically significant relationship between these variables is at least partially attributed to the lack of diversity among self-rated health scores in this sample; less than 5% of respondents rated their health below *good*. Because of the large percentage of high self-rated health scores, statistical analysis comparing high scores to low scores was not possible.

HBB participants and non-participants. Based on the research correlating self-rated health scores and actual health and physical wellbeing (Beyer et al., 2015; Pérez-Zepeda et al., 2016), the data collected in this study suggests that HBB participants are a very healthy group of older adults (see Figure 1 for a representation of the self-rated health scores of HBB participants and NHANES participants). Compared to the data collected from adults 65 years of age and older in a national epidemiological study (NHANES, 2007-2008), there is a statistically

Figure 1
Self-Rated Health Scores of HBB Class Participants and NHANES Study Participants



significant difference between the self-rated health scores and those of the NHANES participants.

Because the NHANES study has such a large sample of adults 65 and older (n = 1359) and these participants are recruited from across the country, it is unlikely that a large number of NHANES participants ever attended an HBB class offered in Western Massachusetts. The majority of HBB participants rated their health as *very good*, while the majority of NHANES

participants rated their health as *good*. The NHANES self-rated health falls on a bell-curve, while the HBB self-rated health scores are skewed toward higher self-rated health scores.

Assuming that the NHANES participants did not have access to the HBB program, these results are consistent with the existing literature that identifies group exercise as a factor in contributing to health and physical well-being among older adults. Additionally, these results suggest that HBB participants are healthier than non-HBB participants, although the causation of this difference cannot be determined from these results.

Socialization Findings

Social isolation and perceived loneliness are associated with objectively worse health outcomes and a lack of social connections is correlated with higher rates of morbidity, mortality, infection, depression, and cognitive decline (Cornwell & Waite, 2009, p. 31). The existing literature suggests that older adults prefer group exercise classes designed for their age cohort because of opportunities to socialize with peers (Cohen-Mansfield et al., 2004). The results of this study are consistent with existing data; HBB participants identify primarily social reasons for participation in classes, HBB participants have higher self-rated health scores than non-participants, and HBB participants engage in multiple social activities outside of HBB classes.

Perspectives on Institutionalization Findings

Based on existing literature that identifies low self-rated health status, functional impairment, and social isolation as risk factors for institutionalization, this study explored the perceptions of institutionalization held by HBB participants. Because group exercise classes target these three risk factors (self-rated health, functional impairment, and social isolation), this study began with the hypothesis that there would be relationship between self-rated health, age, income, and perceptions of institutionalization. Based on the overwhelming majority (90%) of

participants who reported that they *strongly agree* or *somewhat agree* with the statements that they would like to remain in their current home and community for as long as possible, respondents seem to prefer “aging-in-place” to institutionalization and nursing home placement.

Perceptions of institutionalization were measured by responses to two statements on a six-point scale from *strongly agree* to *strongly disagree*: “I know that living in an assisted living facility or nursing home is the best option for me if I am physically unable to meet my needs” and “I know that living in an assisted living facility or nursing home is the best option for me if I am mentally unable to meet my needs.” These statements were formulated based on collaboration with RSVP and HBB program staff to investigate the specific circumstances under which HBB participants would agree with institutionalization. However, because of the lack of variation among self-rated health scores, there were not statistically significant relationships between self-rated health scores and perceptions of institutionalization. In addition, there was no statistically significant relationship between age or income with perceptions of institutionalization; suggesting that HBB participants, like their non-HBB counterparts, vastly prefer “aging-in-place” to institutionalization (Keenan, 2010).

Strengths and Limitations of the Study

The results of this study form a large collection of valuable data about the relationship of HBB classes to health and socialization among participating older adults. The content collected from the results of the surveys was consistent with the expectations of this study. The survey used for this study elicited quantitative results which were then utilized in statistical analysis via chi-square significance testing. The sample of HBB participants who completed the survey was a large portion of the total population of HBB participants. The HBB staff estimate that 270 individuals attended at least 26 classes and 640 individuals attended at least one class in the last

year (L. Bennett-Jacobs, personal communication, May 16, 2017). Two hundred and twenty-six HBB participants responded to the survey disseminated for the purposes of this study, representing 35% of all the class participants in the last year. As discussed above in the section on measured demographics, this availability sample (non-probability and non-random sampling method) is relatively consistent with the demographic representation among the larger population of older adults in Western Massachusetts.

Generalizability. It is important to note that the population of older adults in Hampshire and Franklin Counties is not representative of the larger U.S. population of adults over the age of 65, so these results are not generalizable to the population of older adults in the U.S. or even to the population of older adults in Hampshire and Franklin Counties. The results of this study are unique to HBB participants.

Validity and reliability. The results of this study establish a valid relationship between the measured variables, suggesting a degree of content validity, face validity, and internal validity. Within the study, the sample of participants is representative of both the HBB population based on the large sample size and the responses collected from every location where HBB classes are offered. This study does not have external validity, as the conclusions of this study cannot be generalized to other populations of older adults not participating in HBB classes. Additionally, because of the anonymous nature of the data collected for this study, the conclusions of this study cannot identify causal relationships between the measured variables. Although the reliability of this study was not tested, given the sample size and the reliable and validated measurement tools, there is likely test-retest reliability.

Implications of the Study

The major goal of this study is to empower HBB participants by providing an opportunity for their voices to be heard about the program, their health, and their community by participating in the movement toward client-centered care. This study was not designed or intended to measure concrete health outcomes as determined by a physician, but is instead designed to capture the perspective of the participants regarding their own social connectivity and health.

Social work practice. The results of this study inform the social work field about older adults' healthcare decision-making by revealing the understandings that participants have about their own health status and goals to remain in their homes and communities. In addition, these data can inform the field's understanding of living arrangements, family dynamics, and systems affecting the lives of community-dwelling and HBB-participating older adults in Western Massachusetts. For example, discovering the relationship between older age and living alone among HBB participants (as well as the broader U.S. population of older adults) highlights a need to engage these individuals in socialization efforts, based on the existing literature linking social connectivity and positive health outcomes. Additionally, this study provides the RSVP administration and leadership with new insights into the program and empowered HBB class participants by providing them with a platform to assess their experiences with the class. The results of this study have the real-world value to the community of older adults in Western Massachusetts, to the HBB program, and to biopsychosocial social work interventions.

Theory. This study address three specific factors of aging: the physical (self-rated health), behavioral (socialization, relationships), and environmental (community engagement, perspectives on institutionalization). The physical dimension of aging is measured by the self-rated health scores and the relationship between health status and exercise participation, social

engagement, and age. The behavioral aspect of aging is addressed in this study by measures of socialization, social isolation, and relationships. The environmental aspects of aging are encompassed by the investigation of town and city, living situation, community engagement and activity, and perspectives on institutionalization. By addressing the interconnected nature of these three components of aging, this study incorporates an innately biopsychosocial approach founded in the ecological theory of aging. These three factors – physical, behavioral, and environmental – are emphasized in the ecological theory of aging, a theoretical foundation focused on the dynamic interplay between these different aspects of aging (Lawton & Nahemow, 1973; Nahemow, 2000). This theory of aging is consistent with the biopsychosocial approach to clinical social work (Berzoff, Flanagan, & Hertz, 2016, p. 4), an effort to connect the physical and functional changes experienced in late adulthood with the social and psychological factors that mediate those transitions.

Future research. As suggested throughout the discussion section, there are numerous areas for further investigation. There are many gaps in the existing social work, psychological, and public health literature on health status and socialization among aging adults. In addition, this study provides a glimpse into the possible areas for program evaluation for group exercise programs designed for older adults, including the HBB program. For example, further research needs to be conducted on which populations are successfully targeted by these programs and how a more diverse population can be engaged in these health-focused programs. The HBB program conducts annual surveys to collect data on the frequency of falls and perceptions of balance among participants, however, further research needs to be conducted on the relationship between this class and maintaining older adults in their communities.

Conclusion

This study adds depth and nuance to our understanding of the multidimensional human experience of aging, rather than focusing on the surface-level perception of older adults as either sick or healthy. If this study focused primarily on the effect of HBB classes on physical measures of well-being (like frequency of falls or bone density measurements), we might not be able to see the social, engaged, and active lifestyles of the older adults who participate in these classes. As a way to illuminate the multidimensional factors of aging, this study serves as a lens through which we can begin to see the aging process holistically. This type of thinking – a biopsychosocial and ecological approach to aging – can be applied to other areas of social work with aging adults to further understand their needs and the applicable services, instead of a traditional, compartmentalized model of aging that only focuses on one aspect of aging at a time.

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Appendix A
Smith College HSR Committee Approval Form



School for Social Work
Smith College
Northampton, Massachusetts 01063
T (413) 585-7950 F (413) 585-7994

December 1, 2016

Emily Widra

Dear Emily,

Congratulations! No revisions are required on your incredible study plan. Your project is approved by the Human Subjects Review Committee.

Please note the following requirements:

Consent Forms: All subjects should be given a copy of the consent form.

Maintaining Data: You must retain all data and other documents for at least three (3) years past completion of the research activity.

In addition, these requirements may also be applicable:

Amendments: If you wish to change any aspect of the study (such as design, procedures, consent forms or subject population), please submit these changes to the Committee.

Renewal: You are required to apply for renewal of approval every year for as long as the study is active.

Completion: You are required to notify the Chair of the Human Subjects Review Committee when your study is completed (data collection finished). This requirement is met by completion of the thesis project during the Third Summer.

Again, our congratulations and our best wishes on your interesting study.

Sincerely,

A handwritten signature in black ink, appearing to read 'Elaine Kersten'.

Elaine Kersten, Ed.D.
Co-Chair, Human Subjects Review Committee

CC: Alisa Ainbinder, Research Advisor

Appendix B
Survey

Socialization and Self-Rated Health Status of HBB Participants

Class location: _____

1. What is your age?

- 54 or younger 55-64 65-74 75-84 85-94 95+
 I'd rather not say

2. What is your gender?

- Female Male Transgender I'd rather not say

3. What is your approximate average household income?

- Below \$25,000 \$25,000-\$75,000 Above \$75,000 I'd rather not say

4. Which of the following best describes your current home?

- | | |
|--|---|
| <input type="checkbox"/> Own house | <input type="checkbox"/> Own apartment |
| <input type="checkbox"/> Rented house | <input type="checkbox"/> Rented apartment |
| <input type="checkbox"/> Friend's house or apartment | <input type="checkbox"/> Family member's house or apartment |
| <input type="checkbox"/> Independent living facility | <input type="checkbox"/> Assisted living facility |
| <input type="checkbox"/> Nursing home | <input type="checkbox"/> Other (please specify) |

5. Who lives in your home?

- I live alone
 I live with 1 family member I live with 2 or more family members
 I live with 1 non-related other I live with 2 or more non-related others
 Other (please specify) _____

6. How far from your home do the people (family or friends) with whom you have the closest relationship live?

- Within 25 miles Within 100 miles More than 100 miles

7. What is your relationship status?

- Married Partnered Widowed Divorced
 Separated Never married I'd rather not say
 Other (please specify) _____

8. What is your employment status?

- Full-time employment Part-time employment Unemployed
 Semi-retired Retired I'd rather not say

9. Which of the following activities do you participate in once a week or more? Please do not include your participation in this HBB class.

- Activities at a local senior center and/or council on aging
 Volunteering
 Activities at a place of worship
 Religious services
 Other (please specify) _____

10. In the past 7 days, on how many days did you have face-to-face contact with family, friends, and neighbors?

	None	1 Day	2 Days	3-6 Days	Daily once a day	Daily more than once a day
Family members						
Friends						
Neighbors						

11. Please rate how much you agree or disagree with the following statements.

	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree	Don't Know
What I'd really like to do is stay in my current home for as long as possible.						
What I'd really like to do is remain in my community for as long as possible.						
I know that living in an assisted living facility or nursing home is the best option for me if I am physically unable to meet my needs.						
I know that living in an assisted living facility or nursing home is the best option for me if I am mentally unable to meet my needs.						

12. Please rate the importance of the following factors that might affect where you want to live.

	Very Important	Somewhat Important	Neither Important nor Unimportant	Somewhat Unimportant	Very Unimportant	Don't Know
Being near friends or family						
Being near where you want to go						
Being near place of worship or social organizations						
Easy to walk						
Being near work						
Being near transit						
Being near good schools						

13. In an average week, how often do you exercise?

	Once a week	Twice a week	Three times a week	More than three times a week	I do not exercise outside of HBB
I participate in HBB classes					
I exercise outside of HBB classes					

14. In general how would you rate your overall health?

___ Excellent ___ Very good ___ Good ___ Fair ___ Poor

15. Why do you attend the HBB class? (Please select all that apply)

The class leader/s make exercising enjoyable.

The class leader/s are knowledgeable and helpful.

I like being part of a group.

I like the people who come to class.

It gives me something to do.

I like having a specific exercise routine.

I feel healthier when I participate in this class.

I feel stronger and more confident when I participate in this class.

The exercises include modifications to meet my ability level.

The class helps me maintain my ability to perform my daily activities.

The class helps me remain independent.

Other (please specify)_____

16. Please feel free to add comments or questions below.

Thank you for participating in this survey.

Appendix C
Informed Consent



2016-2017

Consent to Participate in a Research Study

Smith College School for Social Work • Northampton, MA

.....
Title of Study: Socialization and Self-Rated Health Status of Healthy Bones & Balance Participants

Investigator:

Emily Widra, BA, MSW candidate

Email: ewidra@smith.edu

Phone: ~~(240) 506-4907~~

Research Advisor:

Alisa Ainbinder, PhD

.....
Introduction

- You are being asked to be in a research study the effectiveness of the Healthy Bones & Balance (HBB) program.
- You were selected as a possible participant because you attend local classes as part of the Healthy Bones & Balance program offered by RSVP of Hampshire & Franklin Counties.
- Participation in this study is *completely voluntary*.
- We ask that you read this form and ask any questions that you may have before agreeing to be in the study.
- If you attend multiple HBB classes where this survey is presented, please make sure that you only complete one survey. Multiple surveys from the same person will skew the data and will not help the study achieve its aims.

Purpose of Study

- The purpose of the study is to investigate ways in which the Healthy Bones & Balance program could access and benefit more individuals as well as assess the degree to which this program increases socialization among participants.
- This study is being conducted as a research requirement for my masters in social work (MSW) degree.
- Ultimately, this research may be published or presented at professional conferences.

Description of the Study Procedures

- If you agree to participate in this study, you will be asked to complete the following survey, which will take an estimated time of 20 minutes.

Risks/Discomforts of Participating in this Study

- There are no foreseeable (or expected) risks.

Benefits of Participating in the Study

- Participants may benefit from reflection on experiences with the HBB program, developing insight into the changes this program may have brought into their lives, and impacting the future of the HBB program.

- The benefits to RSVP and the HBB program include participant feedback and increased insight into the experiences of HBB participants.
- The field of social work will benefit from information gathered about this population's decision-making preferences, activity level, and socialization. This information will inform further client-centered interventions to support the health and social goals of older adults.

Confidentiality

- This study is anonymous. We will not be collecting or retaining any information about your identity.
- The name and signature on this form will not be paired with your survey results at any point during this study.

Payments/gift

- You will not receive any financial payment for your participation.

Researcher Training

- I have completed the Collaborative Institutional Training Initiative (CITI) on line training course prior to HSR approval. The certificate of completion is on file at the SSW and was completed within the past four years.

Right to Refuse or Withdraw

- The decision to participate in this study is entirely up to you. You may refuse to answer any question or withdraw from the study *at any time* during this survey without affecting your relationship with the researchers of this study, RSVP, Healthy Bones & Balance, or Smith College. Your decision to refuse will not result in any loss of benefits (including access to services) to which you are otherwise entitled.
- This is an anonymous survey, simply exit at any point by returning the blank survey to your HBB class leader, by discarding the partially completed survey, or placing the survey in the envelope labelled "Incomplete/Blank Surveys." I will have no way to know who you are and the survey will be discarded as I will not use incomplete surveys in my study.

Right to Ask Questions and Report Concerns

- You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Emily Widra, at ewidra@smith.edu or by telephone at ~~(248) 586-4907~~ ~~(413) 585-7974~~. If you would like a summary of the study results, one will be sent to you once the study is completed. If you have any other concerns about your rights as a research participant, or if you have any problems as a result of your participation, you may contact the Chair of the Smith College School for Social Work Human Subjects Committee at (413) 585-7974.

Consent

- Your signature below indicates that you have decided to volunteer as a research participant for this study and that you have read and understood the information provided above. There is a second copy of this form available in this packet for you to keep for your records.

.....

Name of Participant (print): _____

Signature of Participant: _____

Date: _____

Signature of Researcher(s): emily widra

Date: 12/05/2016

Form updated 6-13-16

Appendix D

NHANES Survey Information

National Center for Health Statistics

National Health and Nutrition Examination Survey	
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National Health and Nutrition Examination Survey

[CDC](#) > [NCHS](#)

National Health and Nutrition Examination Survey



Language: English (US) 

The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations.

[Selected Participants](#)

Have you been selected to take part in the National Health and Nutrition Examination Survey?

[Information for Health Professionals](#)

Learn about participant involvement and benefits with the National Health and Nutrition Examination Survey

[NHANES National Youth Fitness Survey](#)

The NHANES National Youth Fitness Survey (NNYFS) was a one year survey conducted in 2012. The NNYFS collected nationally representative data on physical activity and fitness levels of children and adolescents in the United States through interviews and fitness tests. On September 30, 2013, the first wave of this data was released. To review documentation and download datasets, go to the [NNYFS Data and Documentation page](#).

What's New

Publications

- [National Health and Nutrition Examination Survey: California and Los Angeles County, Estimation Methods and Analytic Considerations, 1999-2006 and 2007-2014](#)
- [Characteristics of U.S. Adults With Hypertension Who Are Unaware of Their Hypertension, 2011-2014](#)
- [Prevalence of HPV in Adults Aged 18-69: United States, 2011-2014](#)

Updated Data

The variable SSTOXAV, Toxoplasmosis IgG Avidity, is being removed from the 2011-2012 data file because this variable is related to Toxoplasmosis IgM antibody which is not being released at this time due to quality control concerns.

- [Toxoplasma gondii Antibody - Serum \(Surplus\) \(SSTOXO_G 2011-2012\)](#)

Withdrawn Data

The UVOC_G and UVOC_S_G datasets will be temporarily removed from the NHANES website for correction, due to lot-to-lot variation of standard materials.

- [Volatile Organic Compounds & Metabolites - Urine \(Subsample\) \(UVOC_G 2011-2012\)](#)
- [Volatile Organic Compounds & Metabolites - Urine - Special Sample \(Subsample\) \(UVOC_S_G 2011-2012\)](#)

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