

THE AGE WELL STUDY:

Comparing Wellness Outcomes
in Life Plan Communities vs.
the Community-at-Large

Year 1 Report

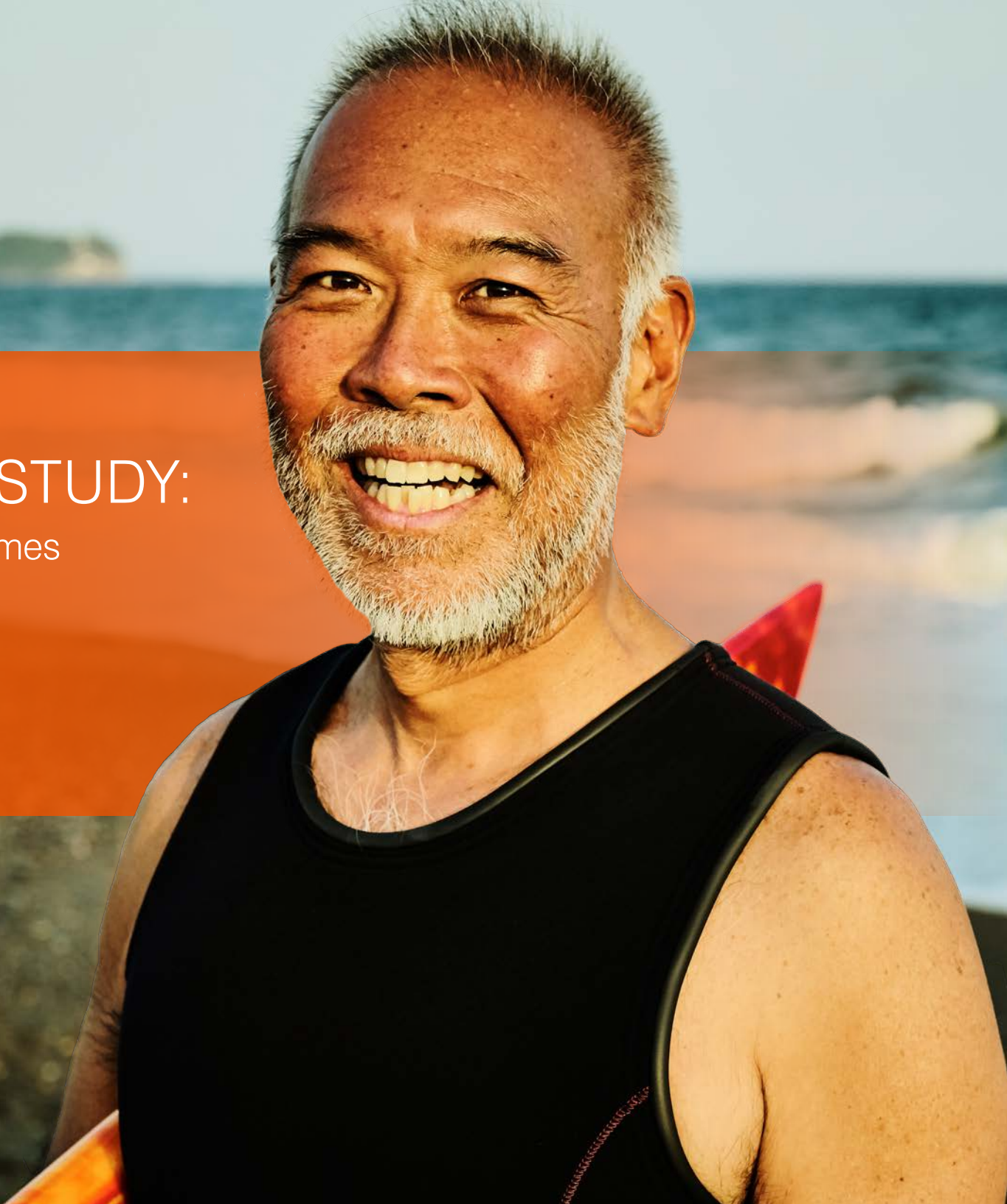


Table of Contents

Introductory Letter	3
Key Findings	4
Background & Significance.	7
Theory & Rationale	10
Study Overview & Methodology	13
Study Eligibility & Recruitment	14
Life Plan Communities	14
Residents	15
Community-at-Large Older Adults	15
Survey Development	16
Statistical Analyses	16
Description of Study Participants	18
Detailed Findings	22
Emotional Wellness	23
Social Wellness.	27
Physical Wellness.	30
Spiritual Wellness	33
Intellectual Wellness	35
Vocational Wellness	38
Changes in Wellness	41
Discussion.	43
Caveats	46
Future Study	47
Acknowledgements.	47
References	48
Appendix A – Study Measures	54
Appendix B – Map of Geographic Regions	59
Appendix C – Associations between Organizational Factors and Resident Outcomes	60
About the Advisory Group.	62

Introductory Letter

Dear Colleague,

Those of us in the senior living industry know that Life Plan Communities offer opportunity-rich environments with programs, services, amenities, and health care that support physical health, a sense of community, social engagement, avenues to find fulfillment, and more.

This report—representing the most extensive research to-date exploring health and wellness in Life Plan Communities—provides strong evidence for Life Plan Communities as places that offer tremendous opportunities for resident well-being.

Ultimately, the five-year Age Well Study will quantify the benefits of Life Plan Communities, providing data points that can support and inform the senior living industry for years to come. Mather LifeWays Institute on Aging is excited to collaborate with 125+ Life Plan Communities located across more than 30 states, and pleased to contribute to the industry at large.

Thank you to the communities and the residents who took the time to participate in this landmark study, as well as to our research partners at Northwestern University, ASHA, LeadingAge, Ziegler, Novare, Life Care Services, and National Investment Center. Your contributions helped build this report, and we hope you find it useful.

Regards,

A handwritten signature in black ink that reads "Mary Leary". The script is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Mary Leary
CEO and President
Mather LifeWays



Key Findings



The main purpose of the Age Well Study is to assess the impact of residing in a Life Plan Community on residents' health and wellness over time. This report presents findings from Year 1 of the five-year longitudinal study. Study findings are based on responses from 5,148 residents from 80 Life Plan Communities across the nation. Life Plan Communities with at least 100 residents residing in independent living were eligible to enroll, and residents residing in independent living at participating organizations were invited to participate in the study. Residents completed surveys that assessed their health and wellness as well as other individual characteristics, while staff completed surveys to gather data on organizational characteristics. The Age Well survey was administered from January to May 2018.

Responses from residents of Life Plan Communities were compared with responses from older adults in the community at large. A sample of 1,000 community-at-large older adults was obtained from a publicly available data set from the Health and Retirement Study (HRS). Participants from this sample are comparable to Life Plan Community residents in terms of age, income, and race/ethnicity. Compared to community-at-large adults, Life Plan Community participants tend to have greater emotional, social, physical, intellectual, and vocational wellness, but lower spiritual wellness. See Table 1 for a comparison of average scores for each wellness outcome.

Table 1. Wellness of Life Plan Community Residents and Community-at-Large Older Adults

Measure	Scale Min and Max Values	Life Plan Community Residents	Community-at-Large Older Adults	Significant Difference
Emotional Wellness				
Satisfaction with Life	1 – 7	5.84	5.34	Yes
Depression*	0 – 8	1.19	1.05	Yes
Mood	1 – 5	3.95	3.77	Yes
Hopelessness*	1 – 6	2.08	2.57	Yes
Perceptions of Aging	1 – 6	4.01	3.64	Yes
Optimism	1 – 6	4.86	4.51	Yes
Pessimism*	1 – 6	1.89	2.40	Yes
Perceived Control	1 – 6	4.69	4.62	No
Subjective Age	N/A	14% younger	15% younger	No
Social Wellness				
Loneliness*	1 – 3	1.41	1.51	Yes
Social Contact	1 – 6	4.37	3.23	Yes
Physical Wellness				
Self-Reported Health	1 – 5	3.55	3.20	Yes
Chronic Conditions*	0 – 7	1.86	2.19	Yes
Physical Activity: Vigorous	1 – 5	2.22	1.95	Yes
Physical Activity: Moderate	1 – 5	3.45	2.88	Yes
Physical Activity: Mild	1 – 5	3.37	3.06	Yes
Spiritual Wellness				
Spirituality	1 – 6	4.30	4.79	Yes
Frequency of Praying Privately	1 – 7	4.40	4.71	No
Intellectual Wellness				
Self-Reported Memory	1 – 5	3.70	2.95	Yes
Intellectual Activities	1 – 7	4.13	3.40	Yes
Vocational Wellness				
Purpose in Life	1 – 6	4.70	4.50	Yes
Retirement Satisfaction	1 – 3	2.70	2.65	No
Frequency of Volunteering with Children/Young People	1 – 7	1.52	1.45	No
Frequency of Other Volunteering or Charity Work	1 – 7	3.37	2.14	Yes

* A lower score is more favorable.



Background & Significance



Scant research has examined health and wellness among residents of Life Plan Communities using a longitudinal design. **Two studies, however, suggest that service-rich environments such as those found in Life Plan Communities may provide certain benefits.** The Pathways to Life Quality study examined the effects of type of residence on health, well-being, and quality of life among older adults (Krout & Wethington, 2003). Their sample included residents from a Life Plan Community, an independent and assisted living community, two low-income residences, and seven rural senior housing residences that provide no on-site health or support services. In addition, 100 individuals on the wait list for an independent or assisted living apartment took part in the study, as did 400 other older adults from the community at large.

Among Life Plan Community residents, researchers found that social connectedness and perceptions of being socially integrated increased after moving to a Life Plan Community (Erickson, Dempster-McClain, Whitlow, & Moen, 2000). Additional research using Pathways to Life Quality data found that those in service-rich environments, including one Life Plan Community and one residence offering independent living and assisted living, had better physical, mental health, and social outcomes than those in service-poor environments. However, in much of the analyses utilizing Pathways to Life Quality data, the focus was on exploring how a range of residential settings affects quality of life and well-being rather than exploring the potentially unique contribution of Life Plan Community occupancy. In addition, since only one Life Plan Community was included in the study, organizational factors (e.g., size of community, amenities) and outcomes were not examined.



The second study, the Erickson Life Study, followed 300 new residents of four Life Plan Communities in Maryland and Virginia for five years (Marx, Burke, Gaines, Resnick, & Parrish, 2011). The initial study was designed to test the usefulness of a resident assessment tool in determining the best initial care level placement, monitoring changes over time, and guiding care transitions (Bintrim, Gaines, Resnick, & Parrish, 2005; Marx, Gaines, Resnick, & Parrish, 2011). Other studies used data from the Erickson Life Study to examine various aspects of wellness among Life Plan Community residents. In one such study, researchers examined responses from 229 residents in comparison with a matched sample of 229 older adults from the community at large (Gaines, Poey, Marx, Parrish, & Resnick, 2011). They found that Life Plan Community residents had better self-reported health than community-at-large older adults. Another study examined quality of life over time among residents and found that participating in formal social activities within a Life Plan Community soon after move-in significantly slowed the rate of decline in quality of life (Roberts & Adams, 2018). Over a two-year period, the percentage of Life Plan Community residents who reported being in good or excellent health increased by 0.8%, compared to a 1.7% decrease among older adults in the community at large (Gaines et al., 2011). Data from the Erickson Life Study, however, included only four Life Plan Communities in one region of the country, all of which had on-site medical centers that offer primary care to residents in independent living. Both the small number of communities and the special features of these communities limit generalizability to Life Plan Communities as a whole.

The Age Well Study provides a comprehensive examination of health and wellness that is specific to Life Plan Community residents. This study incorporates the strengths of the Pathways to Life Quality Study and the Erickson Life Study through the longitudinal design and inclusion of a comparison sample of community-at-large older adults. In addition, it is national in scope, including communities in every region of the country, and includes a greater number of Life Plan Communities and residents. The study size and scope allow for in-depth analyses of organizational factors and resident characteristics and produces results more representative of Life Plan Communities overall than did previous studies. With the first wave of surveys conducted in 2018, the Age Well Study provides an up-to-date portrait of Life Plan Community resident health and wellness and how it changes over time.



Theory & Rationale



Gerontologists generally agree that both personal resources (e.g., physical abilities, emotional strengths, and social competencies) and environmental resources (e.g., walking paths, educational and social opportunities) are important to aging well. The Ecological Theory of Aging posits that **it is the unique combination of personal competence and environment that determines an individual's optimal level of function** (Lawton & Nahemow, 1973). Related is the idea of “press-competence,” which is the fit between an individual’s competence or capacities and his/her environmental press (or stress). If the environment is too challenging (e.g., universal design is absent but needed) or not challenging enough (e.g., opportunities for physical activity are absent), there is a lack of person-environment fit. Later theories (Kahana, 1982; Danford, 1983; Carp and Carp, 1984) modified this idea by considering as important not just how older adults are able to react to their environments, but how they perceive and contribute to them. Finally, how older adults experience and fit with their environment includes not only physical, but psychological and social aspects (Weisman, Chaudhury, & Diaz Moore, 2000).

The Six Dimensions of Wellness Model has six dimensions: emotional, intellectual, [vocational], physical, social, and spiritual, that are thought to fully describe wellness for an individual.

When individuals retire, they may find new interests and opportunities, such as volunteering or joining a club, that replace the fulfillment often experienced through professional roles and associated social opportunities in the workplace. However, these opportunities may be more challenging to identify in the larger community than within a Life Plan Community, which is designed to provide an environment in which older adults can find a fit between living preferences and needs and what the community has to offer. These environments, most with a wide array of programs, services, and amenities, may provide support for healthy behaviors and wellness in multiple dimensions that are not experienced to the same degree in the larger community. In addition, several studies suggest that residents of Life Plan Communities have more time for socialization, expand their network of friends, and consider residents within their community as an important part of that network (Stacey-Konnert & Pynoos, 1992; Sherwood, Ruchlin, Sherwood, & Morris, 1997). Unlike their counterparts in the community at large, residents also have regular contact with staff, who may provide additional social connectedness. It should be noted that many residents continue to access social, intellectual, and other resources in the larger community, while their Life Plan Community provides additional opportunities from which they may benefit.

The Six Dimensions of Wellness Model was utilized as a framework for examining wellness among residents of Life Plan Communities (Hettler, 1976). Also known as “whole-person wellness,” this model has six dimensions: emotional, intellectual, occupational, physical, social, and spiritual, that are thought to fully describe wellness for an individual. As applied to an older adult population, “vocational” is frequently included rather than “occupational,” to reflect experiences beyond those specific to career or workplace. Descriptions of each dimension were adapted from Hettler’s model and are included in the Detailed Findings section of this report.



Study Overview & Methodology



The main purpose of the Age Well Study is to better understand the impact of living in a Life Plan Community on residents' health and wellness. In addition, this study seeks to identify which organizational factors, such as size or amenities, are associated with more positive outcomes for residents.

The Age Well Study is a five-year study that includes four main components:

- 1) self-administered organizational surveys completed by one staff member from each participating Life Plan Community,
- 2) self-administered surveys completed annually by Life Plan Community residents for five years,
- 3) semi-structured interviews with a subset of residents from three communities conducted once a year for two years, and
- 4) secondary data analysis with a comparison sample of older adults living in the community at large.

Together, these components provide multiple sources of data to assess objective questions of health and wellness and enable a closer examination of residents' experiences. This report describes the results of the Year 1 organizational and resident survey. A subsequent report will examine interview data, which captures residents' perspectives on health and wellness within a Life Plan Community.

Study Eligibility & Recruitment

Life Plan Communities. Organizations were eligible to participate if they reported being a Life Plan Community with at least 100 residents residing in independent living. The National Investment Center definition was adopted, where a Life Plan Community is defined as a residence providing at least independent living and skilled nursing care. Staff at Life Plan Communities in the United States were contacted by email and invited to enroll their community in the study. Staff were invited to attend an informational webinar to learn more

about the study. As a requirement of participation, a staff member knowledgeable about the characteristics of the community first completed an online survey designed to gather organizational details, such as number of residents, location, for-profit vs. nonprofit status, amenities, and services. Organizations were enrolled in the study once they met the eligibility criteria, completed the organizational survey, and signed a letter of agreement. A total of 86 eligible organizations returned completed resident surveys. Six of those organizations were excluded from analyses because fewer than 25 resident surveys were completed. A minimum of 25 completed resident surveys was set so that each community was likely to maintain residents throughout the five years, with an expected 20% attrition rate year to year.

Residents. Individuals were eligible to participate if they reported residing in independent living in a participating Life Plan Community at the time of the first survey. Residents from skilled and assisted living levels of care were not included because the aim of the study was to examine the impact of residing in a community over time on wellness, which is more feasible when including people who have a higher degree of wellness at the beginning of the study period. Life Plan Community staff distributed recruitment flyers and made announcements about the survey at information sessions or other gatherings. A total of 5,295 resident surveys were submitted. These were screened for adherence to the eligibility criteria and degree of completion. Out of the initial surveys, 119 were excluded because respondents submitted duplicate surveys ($n = 7$), resided at the six organizations that were excluded for low completion rates ($n = 83$), or completed less than 70% of the survey items ($n = 29$). Analyses included responses from 5,148 Life Plan Community residents, for an overall response rate of 19.2%.

Community-at-Large Older Adults. A comparative sample of older adults from the community at large was drawn from publicly available data sets from the Health and Retirement Study (HRS), a longitudinal survey that includes more than 22,000 Americans over the age of 50. The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. A total of 13,904 respondents completed the HRS psychosocial survey in 2014 or 2016. Respondents who met one or more of the exclusion criteria were removed from the sample: (1) residing in senior housing or nursing home, (2) younger than 60 years old, (3) Alzheimer's or dementia diagnosis, or (4) household income below the poverty threshold. After exclusion criteria, 8,562 HRS respondents remained eligible

for the study. The Age Well Study community-at-large comparison group was created by proportionally sampling 1,000 of the eligible HRS respondents to be demographically comparable to the Age Well Study participants to match age, income, and race/ethnicity.

Survey Development

The organizational and resident surveys were developed by Mather LifeWays Institute on Aging with input from an advisory group. In order to compare Life Plan Community residents with older adults from the community at large, many of the psychosocial and health measures on the resident survey were drawn from the HRS. Prior to implementation, the survey was reviewed with several Life Plan Community residents to identify areas of ambiguity and to improve clarity. For a list of specific measures surveyed, see Appendix A.

Statistical Analyses

Averages (mean scores) or percentages are presented for each wellness outcome (measure). Percentages are rounded to the nearest whole number, and thus total percentages may not always add up to 100%.

A statistical procedure called multilevel modeling was used to test the associations among organizational and respondent characteristics and wellness outcomes. Survey responses from residents of the same Life Plan Community are likely to have more in common with each other than with responses from residents of other Life Plan Communities due to shared living environments. Multilevel modeling adjusts for this clustering in the data, i.e., individual residents within their respective Life Plan Communities. Statistical significance was set at a p-value of less than .05 ($p < .05$), which indicates that there is less than a 5% likelihood that the effect is due to chance.



Two sets of multilevel analyses were conducted to answer the following research questions. The first examines individual differences, while the second identifies influences at the community level:

- 1) How does the health and wellness of Life Plan Community residents compare to older adults in the community at large? Analyses comparing residents' and community-at-large older adults' wellness scores controlled for participants' age, household income, level of education, gender, and the geographic region in which they reside.
- 2) What organizational characteristics are associated with resident wellness outcomes? These analyses included profit status, single-site vs. communities whose parent organization has other communities, fee structure, religious affiliation, neighborhood area type, number of residents in independent living, number of amenities provided for residents, and geographic region as predictors of resident wellness, controlling for resident age and length of residence.

Note: In observational studies, “controlling for” a variable during analysis is the attempt to eliminate any effect of other extraneous variables that may affect the outcome. For example, in assessing the relationship between living in a Life Plan Community and health outcomes, income is controlled for, among other factors, because income has been shown to be related to better health. Additional factors that were controlled for include age, education, gender, geographic region, and health. The analysis allows examination of the relationship between living in a Life Plan Community and health outcomes, independent of any influence these factors may have.

A photograph of an older couple walking hand-in-hand in a grassy field. The man is on the left, wearing a blue long-sleeved shirt and light blue jeans. The woman is on the right, wearing a green quilted vest over a white long-sleeved shirt and dark pants. They are both smiling and looking towards the right. The background features a line of trees with autumn foliage and distant mountains under a clear blue sky.

Description of Study Participants

80
LIFE PLAN COMMUNITIES
AROUND THE US PARTICIPATED
IN THE STUDY

5,148
LIFE PLAN COMMUNITY RESIDENTS
PARTICIPATED IN THE STUDY

The table below describes organizational characteristics reported by Life Plan Community staff representatives. See Appendix B for a map of the geographic regions.

Table 2. Organizational Characteristics

Organizational Characteristics	Percent of Respondents	Organizational Characteristics	Percent of Respondents
Number of organization respondents	80	Community location	
Profit status		Suburban	65%
Not-for-profit	89%	Urban	20%
For-profit	11%	Rural	15%
Fee structure		Region	
Entrance fee	93%	South	31%
No entrance fee	7%	Northeast	25%
Religious affiliation		Midwest	23%
No religious affiliation	74%	West	21%
Religious affiliation	26%	Average age of residents	
Number of communities		Younger than 80	4%
Single-site	63%	80 to 84	51%
Multisite ¹	37%	85 or better	45%
Community size		Age of community	
1–300 residents in independent living	55%	Less than 10 years	7%
301+ residents in independent living	45%	10 to 19 years	28%
Levels of care		20 to 29 years	16%
Independent living	100%	30 to 39 years	24%
Assisted living	93%	40 to 49 years	7%
Skilled nursing	99% ²	50 years and greater	18%
Memory support	81%		
Home care	53%		
Hospice	25%		
Adult day program	9%		

¹ Communities whose parent organization has other communities

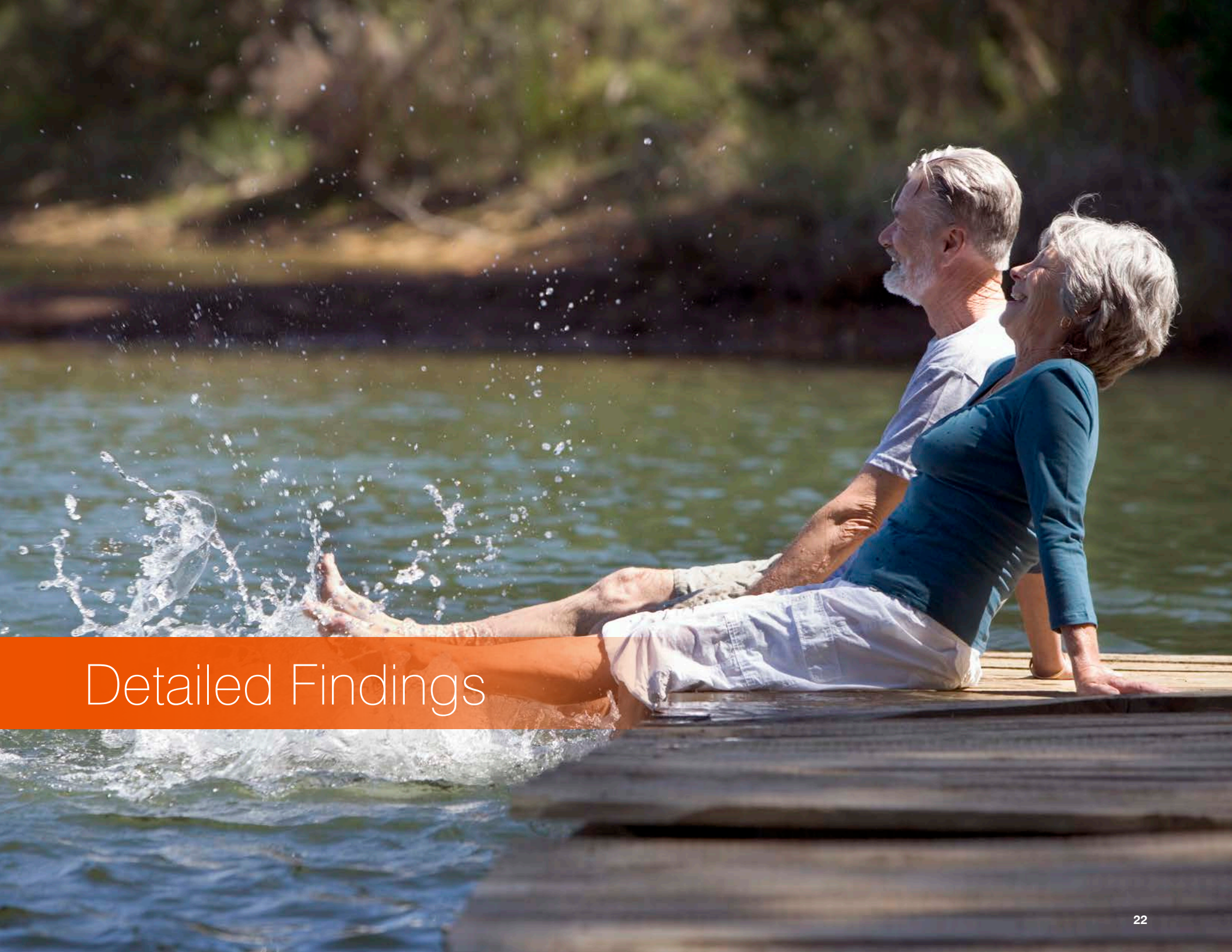
² One community provides skilled nursing immediately adjacent to the community



The table on the following page describes demographic characteristics of Life Plan Community residents who participated in the Age Well Study and older adults in the community at large who participated in the HRS sample. The table demonstrates how the Age Well Study data matches categories reported in HRS. For example, Age Well Study data includes responses for additional racial categories (namely, American Indian, East Asian, and South/Southeast Asian), but these responses were collapsed with the “Other” category to match HRS reporting).

Table 3. Respondent Characteristics

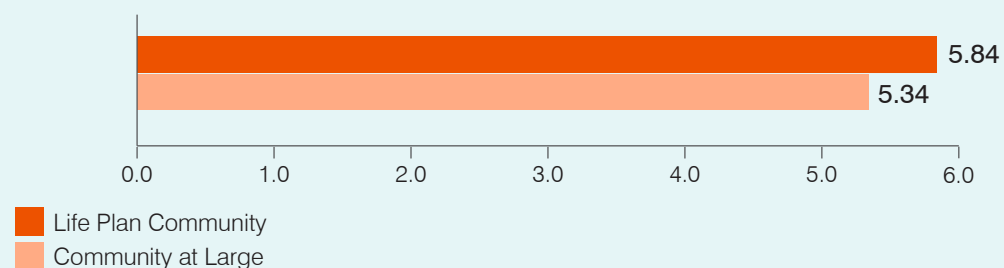
	Life Plan Community	Community at Large		Life Plan Community	Community at Large
Number of respondents	5,148	1,000			
Age					
Younger than 80	24%	26%	High school	15%	44%
80 to 84	26%	26%	Associate's degree	7%	4%
85 or better	49%	48%	Bachelor's degree	33%	20%
Not reported	1%	0%	Master's degree	28%	12%
Gender			Doctorate degree	13%	6%
Female	67%	49%	Other	2%	0%
Male	31%	51%	Not reported	1%	0%
Not reported	2%	0%	Religious preference		
Ethnicity			Protestant	56%	63%
Hispanic/Latino	<1%	2%	Catholic	15%	26%
Not Hispanic/Latino	98%	98%	Jewish	7%	4%
Not reported	2%	<1%	None/No preference	14%	6%
Race			Other	6%	1%
White/Caucasian	95%	96%	Not Reported	2%	<1%
Black/African American	<1%	3%	Household income (gross)		
Other	3%	1%	Less than \$20,000	2%	9%
Not Reported	1%	0%	\$20,000 to less than \$40,000	6%	15%
Marital status			\$40,000 to less than \$60,000	10%	21%
Married	47%	64%	\$60,000 to less than \$80,000	11%	12%
Widowed	41%	28%	\$80,000 to less than \$100,000	11%	13%
Divorced	6%	3%	\$100,000 to less than \$120,000	10%	8%
Never married	4%	1%	\$120,000 to less than \$140,000	7%	6%
Partnered	1%	3%	\$140,000 to less than \$160,000	6%	3%
Separated	<1%	<1%	\$160,000 or more	20%	13%
Not reported	1%	0%	Not reported	19%	0%
Education			Region		
No degree	<1%	12%	South	29%	34%
GED	<1%	3%	West	27%	23%
			Northeast	23%	15%
			Midwest	21%	28%



Detailed Findings



SATISFACTION WITH LIFE



Emotional Wellness

Being more resilient to difficult events is associated with better quality of life.

Emotional wellness involves the capacity to manage and express feelings, recognize feelings in self and others, control stress, problem solve, and manage success and failure. Much research has suggested that the ability to manage feelings and stress can indeed have a significant impact on one's health and well-being. Among older adults, high levels of stress are predictive of greater cognitive decline (Munoz, Sliwinski, Scott, & Hofer, 2015) and lower levels of physical health (de Frias & Whyne, 2015), whereas being more resilient to difficult events is associated with better quality of life, better mental and physical health, and increased longevity (MacLeod, Musich, Hawkins, Alsgaard, & Wicker, 2016). In addition, more positive perceptions of aging are associated with higher levels of physical activity and better self-rated health among older adults (Beyer, Wolff, Warner, Schütz, & Wurm, 2015), and a more optimistic outlook is associated with better self-rated health and fewer chronic illnesses (Chopik, Kim, & Smith, 2015). Regulation of one's emotions is an important ability in maintaining wellness.

Life Plan Community residents tend to have greater life satisfaction than older adults from the community at large.

Table 4. Average Emotional Wellness Outcomes

Measurement	Scale Min and Max Values	Life Plan Community Resident Average	Community-at-Large Participant Average	Range of Life Plan Community Site Averages
Satisfaction with Life	1 – 7	5.84	5.34	5.22 – 6.33
Resilience	1 – 7	5.16	N/A	4.72 – 5.55
Depression	0 – 8	1.19	1.05	0.64 – 1.80
Mood	1 – 5	3.95	3.77	3.53 – 4.28
Hopelessness	1 – 6	2.08	2.57	1.44 – 2.94
Perceptions of Aging	1 – 6	4.01	3.64	3.46 – 4.59
Optimism	1 – 6	4.86	4.51	4.22 – 5.33
Pessimism	1 – 6	1.89	2.40	1.44 – 2.87
Stress	1 – 5	1.90	N/A	1.65 – 2.23
Perceived Control	1 – 6	4.69	4.62	4.17 – 5.08
Subjective Age	N/A	14% younger	15% younger	8 – 20% younger

Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold. N/A indicates that the measure was not included in the HRS survey.

Table 4 lists the average level of each emotional wellness outcome among Life Plan Community residents and community-at-large older adults from the HRS database. The range of average resident scores across Life Plan Communities is also provided. Overall, results indicate that residents of Life Plan Communities have generally high levels of emotional wellness. Compared to older adults residing in the community at large, Life Plan Community residents had significantly more favorable scores on seven emotional wellness outcomes and a less favorable score on one outcome.

- **Satisfaction with Life:** Life Plan Community participants have high levels of satisfaction with life on average, and they tend to have greater life satisfaction than community-at-large older adults.
- **Resilience:** Overall, Life Plan Community participants have moderately high resilience, which means that they tend to be able to “bounce back” or recover from stressful events.
- **Depression:** On average, Life Plan Community participants have low levels of depression but report more depressive symptoms than older adults in the community at large.

*Life Plan Community residents have
a positive outlook about the future.*

- **Mood:** Overall, Life Plan Community participants' mood was generally positive over the last 30 days. Life Plan Community participants tend to experience more positive mood compared to the community-at-large group.
- **Hopelessness:** Life Plan Community participants tend to have moderately low levels of hopelessness, which suggests that they have an expectation that they can achieve their goals.
- **Perceptions of Aging:** On average, Life Plan Community participants have moderately positive attitudes toward aging, and their perceptions of aging tend to be more positive than those of older adults in the community at large.
- **Optimism/Pessimism:** Overall, Life Plan Community participants have high levels of optimism and low levels of pessimism, which suggests they have a positive outlook about the future. Life Plan Community residents have significantly higher optimism and lower pessimism compared to the community-at-large comparison group.
- **Stress:** On average, Life Plan Community participants experience fairly low levels of stress, which suggests that they feel capable of handling current challenges in their lives.
- **Perceived Control:** Life Plan Community participants tend to have a moderately high sense of control over their lives. Life Plan Community residents and older adults in the community at large have similar levels of perceived control.
- **Subjective Age:** Overall, Life Plan Community participants feel approximately 14% younger than their chronological age. Community-at-large older adults tend to feel 15% younger than their chronological age, which is not a statistically significant difference.

One factor that may contribute to the relatively low stress levels of residents and greater emotional wellness compared to community-at-large older adults is the service-rich environment of Life Plan Communities. Residents are likely to have more time to pursue personal interests and social activities, because less time is spent on home and yard maintenance. Indeed, eliminating responsibilities of home upkeep and maintenance is one of the main drivers for moving into Life Plan Communities (Krout, Moen, Holmes, Oggins, & Bowen, 2002; Marx et al., 2011). Relationships resulting from increased social contact that comes from living in the same community as other residents or staff may also reduce stress. Such relationships may also strengthen a sense of community and the idea that there is someone looking out for you.



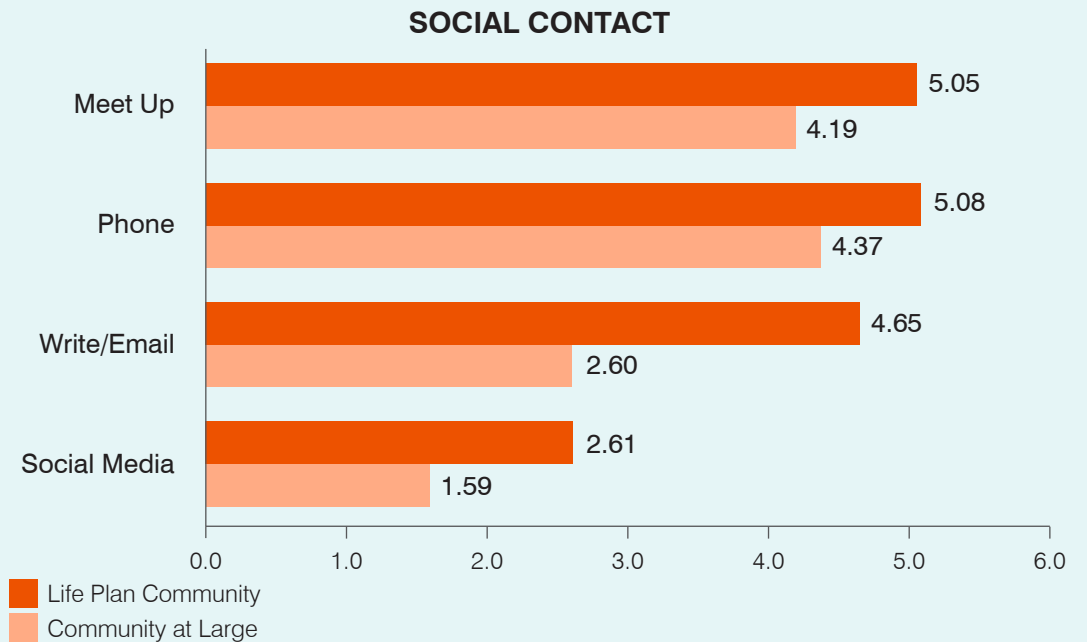
Despite higher life satisfaction and positive mood, residents of Life Plan Communities report higher depressive symptoms than community-dwelling older adults. One difference between these measures is that the depression measure focused on feelings during the past week, whereas satisfaction with life is a more global assessment and mood focused on feelings in the past 30 days. Across both groups, depressive symptoms are relatively low, with approximately half of respondents reporting no depressive symptoms (47.8% of residents and 52.7% of older adults in the community at large). Typically, a score of 3 or lower on the depressive symptoms scale is considered normal. Only 9.6% of Life Plan Community participants and 8.7% of community-at-large participants scored 4 or higher, i.e., in the abnormal range (Steffick, 2000).

There are several significant associations between organizational characteristics and resident emotional wellness. Life Plan Community residents from larger communities (301+ vs. 1–300 residents) have greater life satisfaction, more positive mood, more positive perceptions of aging, less stress, and greater perceived control. In addition, single-site communities and communities with more amenities have residents with lower hopelessness. Residents in for-profit (vs. not-for-profit) and urban (vs. rural and suburban) communities feel younger. Finally, residents in communities with an entrance fee have lower depression.

In addition, there are several statistically significant associations between region and emotional wellness of Life Plan Community residents. The overall pattern of findings suggests that emotional wellness is highest for residents of Life Plan Communities located in the West and South. Statistically significant differences between regions are presented below:

- Residents in the South and West have greater life satisfaction and are more optimistic than those in the Midwest and Northeast.
- Residents in Life Plan Communities in the West have lower depression than those in the Northeast and Midwest, with no significant differences between the South and other regions.
- Residents in the Midwest are more pessimistic than in other regions.
- Residents in the South and West have less stress than those in the Midwest, with no significant differences between the Northeast and other regions.
- Residents in the Northeast feel younger than residents in other regions.

For a map of geographic regions, see Appendix B.



Social Wellness

69%

OF RESIDENTS REPORTED
THAT MOVING TO A LIFE PLAN
COMMUNITY “SOMEWHAT” OR
“GREATLY IMPROVED” THEIR
SOCIAL WELLNESS

Social wellness emphasizes creating and maintaining healthy relationships by talking, sharing interests, and actively participating in social events. Evidence suggests that social connections and support have important implications for an individual’s physical and mental health. For example, having higher levels of social support and lower levels of loneliness are related to improved well-being (Chen & Feeley, 2014), and older adults who have more positive perceptions of their social relationships reported higher levels of overall health (Chang, Wray, & Lin, 2014). Loneliness and social isolation are topics of growing concern and have been linked to a wide range of negative health outcomes throughout one’s lifetime, such as depression, poor sleep quality, cognitive decline, and poor general health (Hawkley & Capitanio, 2015). Greater feelings of neighborhood cohesion, however, are associated with enhanced mental well-being,



particularly for older adults (Elliott, Gale, Parsons, & Kuh, 2014). Life Plan Communities offer a wealth of social opportunities which residents may take advantage of to reduce feelings of isolation and create connections with others.

Table 5. Average Social Wellness Outcomes

Measurement	Scale Min and Max Values	Life Plan Community Resident Average	Community-at-Large Participant Average	Range of Life Plan Community Site Averages
Community Belonging	1 – 6	4.48	N/A	4.16 – 4.75
Social Cohesion	1 – 6	3.93	N/A	3.57 – 4.40
Loneliness	1 – 3	1.41	1.51	1.21 – 1.62
Social Contact	1 – 6	4.37	3.23	3.64 – 4.78
Meet Up	1 – 6	5.05	4.19	4.26 – 5.55
Phone	1 – 6	5.08	4.37	4.68 – 5.42
Write/Email	1 – 6	4.65	2.60	2.97 – 5.42
Social Media	1 – 6	2.61	1.59	1.81 – 3.20

Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold. N/A indicates that the measure was not included in the HRS survey.

Table 5 displays the average level of each social wellness outcome among Life Plan Community residents and community-dwelling older adults, as well as the range of average resident scores across Life Plan Communities.

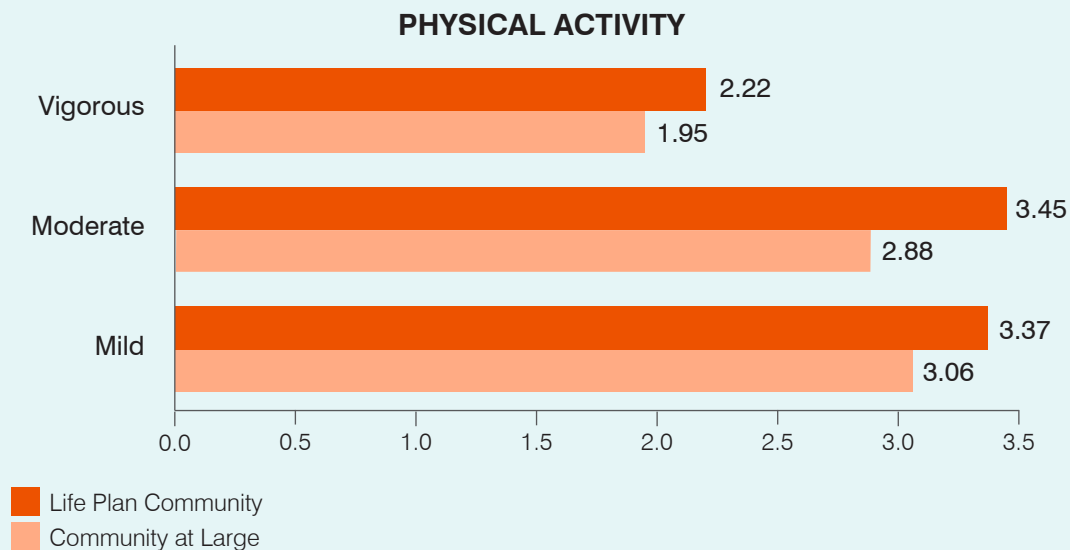
- **Community Belonging:** On average, Life Plan Community participants feel a strong sense of belonging to their communities.
- **Social Cohesion:** Life Plan Community participants feel a relatively strong sense of social cohesion and closeness with residents in their community.
- **Loneliness:** Overall, Life Plan Community participants have relatively low levels of loneliness, and residents are less lonely than older adults from the community at large.
- **Social Contact:** Compared to older adults in the community at large, Life Plan Community participants have more frequent social contact with friends. Frequency of interaction varied based on the mode of contact. On average, Life Plan Community residents meet up or speak on the phone with friends once or twice a week, and they write or email friends a few times

Overall, Life Plan Community participants have relatively low levels of loneliness, and residents are less lonely than older adults from the community at large.



a month. Social media use is less frequent. On average, residents communicate with friends via social media once every few months.

These findings suggest that residents of Life Plan Communities tend to experience high levels of social wellness, which is consistent with perceptions that greater social opportunities are an advantage of living in a Life Plan Community (Marx et al., 2011). Residents of Life Plan Communities typically have many formal and informal opportunities for social interactions, such as concerts, games, and holiday celebrations. The differences in social wellness between residents of Life Plan Communities and older adults in the community at large may increase over time, particularly for people who experience decreases in mobility. In addition, there is a regional difference in social contact for residents of Life Plan Communities, with residents in the South and West having more frequent contact with their social networks than residents in the Northeast and Midwest.



Physical Wellness

FEWER
THAN 2

AVERAGE NUMBER OF CHRONIC
HEALTH CONDITIONS REPORTED BY
LIFE PLAN COMMUNITY RESIDENTS

Physical wellness refers to regular engagement in physical activity, maintaining a healthy diet, and appropriate utilization of health care, as well as engaging in healthy behaviors such as getting enough sleep and maintaining personal safety. It is estimated that among younger and older adults with no difficulty walking, 9.9% of health-care expenditures in the US (about \$90 billion per year) are associated with inadequate amounts of physical activity, or less than 150 minutes per week of moderate-intensity activity (Carlson, Fulton, Pratt, Yang, & Adams, 2015). This amount of spending underscores the importance of physical wellness. Similarly, a growing body of research suggests that remaining sedentary for too long throughout the day significantly increases risk of mortality among older adults (de Rezende, Rey-Lopez, Matsudo, & Luiz, 2014). While these examples emphasize how important it is to stay physically active, diet is also an important aspect of physical wellness. For example, greater adherence to the

Mediterranean Diet—a diet high in fruits, vegetables, and nuts, with olive oil as the main source of fat and consumption of fish in place of other meats—has been associated with benefits to global cognition, memory, and processing speed among older adults (Loughrey, Lavecchia, Brennan, Lawlor, & Kelly, 2017). These modifiable behaviors have a major influence on one’s overall health.

Table 6. Average Physical Wellness Outcomes

Measurement	Scale Min and Max Values	Life Plan Community Resident Average	Community-at-Large Participant Average	Range of Life Plan Community Site Averages
Self-Reported Health	1 – 5	3.55	3.20	2.95 – 3.98
Number of Chronic Conditions	0 – 7	1.86	2.19	1.50 – 2.36
Physical Activity: Vigorous	1 – 5	2.22	1.95	1.38 – 3.00
Physical Activity: Moderate	1 – 5	3.45	2.88	2.52 – 4.27
Physical Activity: Mild	1 – 5	3.37	3.06	2.60 – 3.99
Health of Overall Diet	1 – 5	3.85	N/A	3.30 – 4.34

Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold. N/A indicates that the measure was not included in the HRS survey.

Residents of Life Plan Communities engage in vigorous, moderate, and mild levels of physical activity more frequently compared to older adults in the community at large.

Table 6 presents the average level of each physical wellness outcome among Life Plan Community residents and community-at-large older adults as well as the range of average resident scores across Life Plan Communities.

- **Self-Reported Health:** On average, Life Plan Community participants rate their health between “Good” and “Very good.” Residents of Life Plan Communities have better self-reported health than older adults in the community at large.
- **Number of Chronic Conditions:** Life Plan Community participants have, on average, about two chronic health conditions diagnosed by a doctor, such as high blood pressure or diabetes. The number of chronic health conditions is significantly lower for residents of Life Plan Communities compared to older adults in the community at large.



- **Physical Activity:** On average, Life Plan Community participants engage in vigorous physical activity one to three times a month, and they engage in moderate and mild physical activity once or a few times a week. Residents of Life Plan Communities engage in vigorous, moderate, and mild levels of physical activity more frequently compared to older adults in the community at large.
- **Health of Overall Diet:** Life Plan Community participants have generally “Very good” diets.

Overall, residents of Life Plan Communities have better physical wellness compared to older adults in the community at large. One likely contributor to residents’ physical wellness is the presence of fitness centers and wellness services typically available in Life Plan Communities. Most of the Life Plan Communities included in the study have a fitness center (98.8%), aerobics studio (72.8%), and swimming pool (85.2%), and commonly offer group exercise (100%) and fitness training (91.4%). In addition, residents are likely to have opportunities to attend health-related educational sessions and health screenings within their community. Older adults in the community at large can seek out similar physical wellness resources, such as gym memberships or educational lectures at a local senior center; however, there tend to be greater barriers to participation compared to Life Plan Communities, where wellness resources are more conveniently accessed.

In terms of organizational characteristics, **residents in Life Plan Communities with more amenities engage in moderate and vigorous physical activity more frequently**, and residents in Life Plan Communities that offer fitness training engage in moderate physical activity more frequently. In addition, residents in communities with an entrance fee have healthier diets. No other organizational characteristics were associated with physical wellness.



Spiritual Wellness

Spiritual wellness encompasses a variety of domains beyond religion.

Spiritual wellness includes seeking meaning and purpose, demonstrating values through behaviors such as meditation, prayer, and contemplation of life/death, as well as appreciating beauty, nature, and life. Attending religious services more frequently has been associated with lower risk of mortality among women, which is only partially explained by social integration (Li, Stampfer, Williams, & VanderWeele, 2016). And older adults who score higher on measures of spirituality tend to report higher overall health (Boswell, Kahana, & Dilworth-Anderson, 2006). The practice of mindfulness can also have positive effects on one's health. For example, older adults who engaged in 10 minutes of mindfulness meditation per day showed moderate improvements in cognitive performance after only eight weeks (Malinowski, Moore, Mead, & Gruber, 2017). Spiritual wellness encompasses a variety of domains beyond religion and plays an important part in one's well-being.

Table 7. Average Spiritual Wellness Outcomes

Measurement	Scale Min and Max Values	Life Plan Community Resident Average	Community-at-Large Participant Average	Range of Life Plan Community Site Averages
Spirituality	1 – 6	4.30	4.79	2.39 – 5.55
Frequency of Praying Privately	1 – 7	4.40	4.71	2.18 – 6.34

Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold. N/A indicates that the measure was not included in the HRS survey.

Table 7 presents the average level of each spiritual wellness outcome among Life Plan Community residents and older adults from the community at large as well as the range of average resident scores across Life Plan Communities.

- **Spirituality:** As a whole, Life Plan Community participants have moderate levels of spirituality. Residents of Life Plan Communities have lower levels of spirituality compared to older adults in the community at large.
- **Frequency of Praying Privately:** Life Plan Community participants engage in private prayer about as often as older adults in the community at large.

Overall, these findings suggest that residents of Life Plan Communities have lower levels of spiritual wellness compared to community-at-large older adults. These results could be attributed to differences in religious affiliations between the two groups. A greater number of Age Well Study participants were categorized as “None/No preference” than were older adults in the community at large.

Regionally, Life Plan Community participants in the Midwest and South are more spiritual than those in the West, with no significant differences between the Northeast and other regions. It is interesting to note that there was a wide range of average spirituality scores across Life Plan Communities. There were no other organizational characteristics associated with spiritual wellness.

As a whole, Life Plan Community participants have moderate levels of spirituality.



Intellectual Wellness

96%

OF LIFE PLAN COMMUNITY
RESIDENT RESPONDENTS READ
A BOOK OR NEWSPAPER AT
LEAST ONCE PER WEEK

Intellectual wellness involves expanding knowledge and skills through a variety of resources, as well as through stimulating and creative activities. Intellectual wellness contributes to maintaining cognitive function. In a review of programs targeting intellectual or physical wellness, Strout and colleagues (2016) determined that intellectual programs were most often related to improved cognitive health outcomes. Learning new things, such as studying a language, can help improve cognitive function among young, middle-aged, and older adults (Bak, Long, Vega-Mendoza, & Sorace, 2016), and bilingualism may have a protective effect against dementia (Bialystok, Abutalebi, Bak, Burke, & Kroll, 2016). Even cultural participation, such as visiting a museum or art gallery, and attending a theater, concert, or opera performance, is associated with slower cognitive decline and better memory (Fancourt & Steptoe, 2018). For intellectual wellness, it is important to engage one's mind and seek out new experiences.



Table 8. Average Intellectual Wellness Outcomes

Measurement	Scale Min and Max Values	Life Plan Community Resident Average	Community-at- Large Participant Average	Range of Life Plan Community Site Averages
Self-Reported Memory	1 – 5	3.70	2.95	3.13 – 4.00
Intellectual Activities	1 – 7	4.13	3.40	3.47 – 4.72

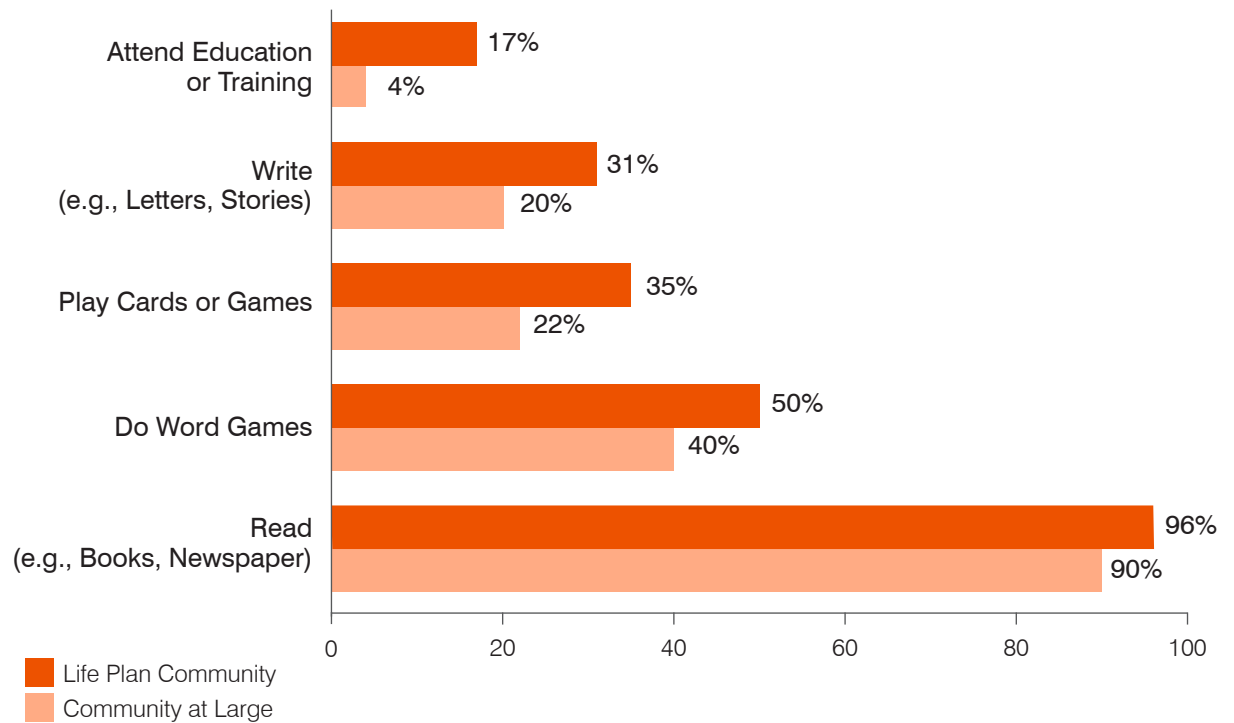
Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold. N/A indicates that the measure was not included in the HRS survey.

Table 8 displays the average level of each intellectual wellness outcome among Life Plan Community residents and older adults in the community at large. The range of average resident scores across Life Plan Communities is also provided.

- **Self-Reported Memory:** On average, Life Plan Community participants rate their own memory as “Good” or “Very good.” Self-reported memory is higher for residents of Life Plan Communities compared to older adults in the community at large.
- **Intellectual Activities:** Overall, residents of Life Plan Communities engage in intellectual activities more often than older adults in the community at large. The figure on page 37 illustrates the percentage of participants who engage in each intellectual activity at least once per week.

Overall, residents of Life Plan Communities engage in intellectual activities more often than older adults in the community at large.

Figure 1. Percent of Respondents Who Engage in Intellectual Activities at Least Once per Week

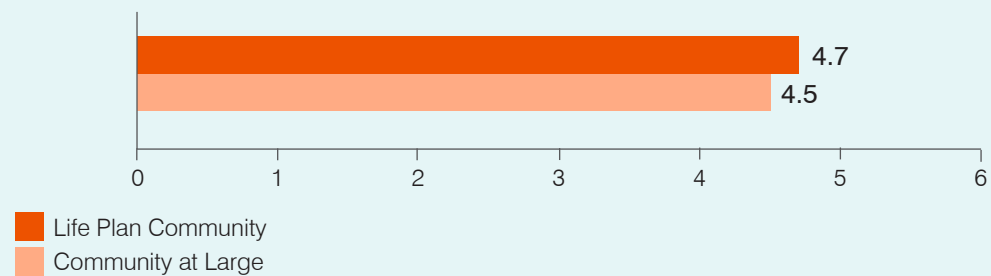


Overall, residents of Life Plan Communities have greater intellectual wellness compared to community-dwelling older adults. In addition, residents engage in the intellectual activities measured in this study more frequently than community-dwelling older adults. This finding may be related to services offered at Life Plan Communities in several ways. It is likely that residents have more access to educational programs and opportunities offered through the community. In addition, residents of Life Plan Communities are likely to have more time to spend pursuing their intellectual interests, because less time is needed for home upkeep.

There were no significant associations between organizational characteristics and measures of intellectual wellness.



PURPOSE IN LIFE



Vocational Wellness

Vocational wellness refers to finding and pursuing one's calling in life.

Vocational wellness refers to finding and pursuing one's calling in life, including throughout retirement. This can take the form of achieving personal and occupational interests through meaningful activities, including life-span occupations, learning new skills, volunteering, and developing new interests or hobbies. For example, having a lifetime passion for work that does not interfere with one's personal life is related to better life satisfaction in retirement (Houlfort et al., 2015). Volunteer work can be a meaningful activity that offers opportunity for social contact and can have a positive impact on one's health. Han, Tavares, Evans, Saczynski, and Burr (2017) found that older adults who volunteer have a reduced risk for cardiovascular disease, whereas religious service and social group attendance did not have the same effect. Having a strong sense of purpose in life is important as well. Older adults who have a higher sense of purpose tend to experience more positive and fewer negative emotions, and are not as affected by stressors (Hill, Sin, Turiano, Burrow, & Almeida, 2018). Throughout retirement, it remains important to pursue meaningful activities.

Sense of purpose is greater for Life Plan Community residents compared to older adults in the community at large.

Table 9. Average Vocational Wellness Outcomes

Measurement	Scale Min and Max Values	Life Plan Community Resident Average	Community-at-Large Participant Average	Range of Life Plan Community Site Averages
Purpose in Life	1 – 6	4.70	4.50	4.16 – 5.12
Retirement Satisfaction	1 – 3	2.70	2.65	2.46 – 2.83
Frequency of Volunteering with Children/Young People	1 – 7	1.52	1.45	1.19 – 2.00
Frequency of Any Other Volunteering or Charity Work	1 – 7	3.37	2.14	1.91 – 5.15

Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold. N/A indicates that the measure was not included in the HRS survey.

Table 9 lists the average level of each vocational wellness outcome among Life Plan Community residents and older adults in the community at large as well as the range of average resident scores across Life Plan Communities.

- **Purpose in Life:** Life Plan Community participants have a moderately strong sense of purpose in life. Sense of purpose is greater for residents compared to older adults in the community at large.
- **Retirement Satisfaction:** Both Life Plan Community participants and community-at-large older adults are “Moderately” to “Very satisfied” with their retirement, and the two groups do not significantly differ in retirement satisfaction.
- **Volunteering:** Life Plan Community participants conduct volunteer work more often than older adults in the community at large, although the two groups do not significantly differ in volunteer/charity work, specifically work with children or young people.



Overall, residents of Life Plan Communities have greater vocational wellness compared to older adults in the community at large. Although it was not measured in this survey, residents may be exposed to more volunteer opportunities within the Life Plan Community. Volunteer activities may be organized by the community, initiated by residents, or requested by members of the broader community. In addition, resident committees and groups may provide residents with opportunities to share their skills and knowledge with others.

Residents of single-site Life Plan Communities volunteer with children or young people more frequently than those in communities whose parent organization has other communities. Also, participants in not-for-profit communities volunteer more on average than those in for-profit communities. Regionally, residents of Life Plan Communities in the West have a greater sense of purpose in life than those in the Midwest and Northeast, with no significant differences between residents in the South and other regions.

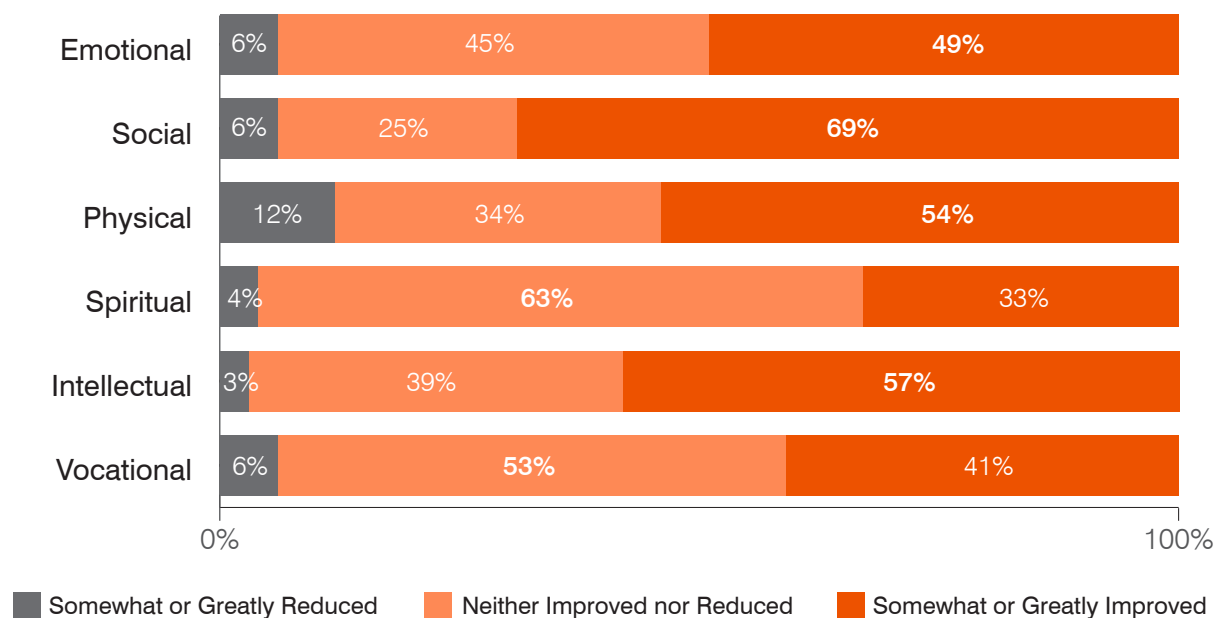


Changes in Wellness

Future waves of the Age Well Study will enable us to examine changes in residents' health and wellness over time by providing additional data to compare with that of Year 1. In addition to examining change longitudinally through these comparative analyses, as an additional data point, residents reported their perceptions of how moving to a Life Plan Community affected their wellness (see Figure 2).

Respondents reported that their social, intellectual, physical, and, to a lesser extent, emotional wellness have improved since moving to a Life Plan Community.

Figure 2. Perceived Impact of Moving to a Life Plan Community on Wellness



Overall, respondents reported that their social, intellectual, physical, and, to a lesser extent, emotional wellness have improved since moving to a Life Plan Community. Respondents predominantly indicated that moving to a Life Plan Community did not change their spiritual and vocational wellness. For the most part, residents' perceptions of the impact of moving to a Life Plan Community are consistent with other findings from the survey. For example, 69% of residents reported that moving to a Life Plan Community "Somewhat or greatly improved" their social wellness, with another 25% saying it was unchanged. This is consistent with the fact that residents scored high on social contact and low on loneliness relative to older adults in the community at large. Similarly, differences in levels of wellness between the two groups are favorable in all dimensions to residents of Life Plan Communities, with the exception of spiritual wellness.



Discussion



Findings from this study suggest Life Plan Community residents are, as a whole, aging very well. Compared to older adults in the community at large, **Life Plan Community participants had more favorable average scores on all measures of physical, social, and intellectual wellness.** Residents generally had better emotional wellness outcomes and had higher scores on two out of four vocational wellness outcomes, with the other two showing no significant differences. Although available Year 1 data does not provide a conclusive reason for this, one potential explanation for these favorable outcomes across domains is that they may be the result of the opportunity-rich environments of Life Plan Communities. The wide array of resources, programs, and amenities available in Life Plan Communities may offer a “just right” environmental fit for residents. Such resources span the six dimensions, the availability of which provides residents with a level of support in initiating and sustaining healthy behaviors that may be greater than that experienced by their community-dwelling counterparts. The interpretation that Life Plan Community residence leads to positive outcomes is consistent with residents’ own perceptions of how their wellness has changed after moving into a Life Plan Community.

In addition, it should be noted that analyses in this report focus on average wellness scores, with wellness scores varying across individuals and across communities. Even when average wellness outcomes are high within a Life Plan Community, **it is likely that some residents could benefit from additional support and resources to improve their wellness.**

There were only two measures where Life Plan Community participants did not compare favorably to the community-at-large sample. Older adults in the community at large displayed lower levels of depressive symptoms, a finding that is puzzling in that it is inconsistent with other outcomes demonstrated among Life Plan Community participants, including greater satisfaction with life, better mood, lower levels of loneliness, and higher optimism relative to older adults in the community at large. It may be that residents of Life Plan Communities have a greater consciousness about mental health issues and/or greater utilization of mental health services. Data from future years may provide more insight regarding this finding. Additionally, spiritual wellness scores were higher for older adults in the community at large. As noted earlier, this may be due to the fact that older adults in the community at large are more likely to report a religious affiliation than individuals residing in a Life Plan Community. However, in

light of this finding, Life Plan Community staff may wish to reexamine opportunities in their community for spiritual wellness to ensure resident needs are met.

In considering organizational factors, a few strong patterns of associations emerged. (See Appendix C for a detailed list of findings.) Among these were that having a greater number of residents in independent living (301+) was associated with greater life satisfaction, better mood, more positive perceptions of aging, reduced stress, and higher perceived control. It may be that with a greater number of residents comes more resources that have a positive impact on residents; however, specific amenities or quantity of amenities was not associated with these outcomes.

The second notable finding related to organizational factors was the **association between region and a variety of emotional and spiritual outcomes**. Life Plan Communities in the South and West had more favorable resident outcomes than those in the Northeast or Midwest. Communities in the South and the West had a higher average number of residents, which may have influenced outcomes through greater availability of resources. Milder weather during the data collection period (January to May) in the South and West vs. the Northeast and Midwest may have also influenced outcomes. A study of older women found that increased light exposure was associated with improved quality of life and social and emotional functioning, but not with optimism (Grandner, Kripke, & Langer, 2006). Seasonal variations in depression and other moods have also been found, with higher scores on depression, anger, hostility, irritability, and anxiety being found in winter months (Harmatz et al. 2000). However, research on life-satisfaction ratings suggests that weather does not play a significant role in ratings of life satisfaction (Lucas, & Lawless, 2013).

Findings also show that residents in the South and Midwest scored higher on spirituality. This may reflect the relatively greater cultural importance placed on spirituality and religion in these regions of the country.

Caveats

Although the analyses reveal associations between residing in a Life Plan Community and wellness outcomes, the correlational design of the study cannot test causal relationships. One of the methodological requirements for testing causality is random assignment, and it is not feasible to randomly assign older adults to move to a Life Plan Community or to remain living in the broader community. Therefore, there may be pre-existing differences between Life Plan Community residents and older adults in the community at large that affect their wellness outcomes. The study was designed to minimize any effect of potential differences between the Life Plan Community sample and older adults in the community at large by selecting a comparative sample that was closely matched on key demographic factors and by controlling for those and other potential influences in the analysis. However, it is possible that there are yet unknown differences between the samples that may affect the outcome.

A second caveat is that Age Well Study organizations and participants self-selected into the study, and their responses may not be representative of all Life Plan Communities. For instance, participating Life Plan Communities may place a greater emphasis on wellness compared to those who did not participate. Similarly, Life Plan Community residents with a greater interest in wellness may have been more likely to participate in the study.

Finally, it should be mentioned that the aspects of health and wellness assessed in this study were self-reported and may not be completely accurate due to participants' difficulty recalling their experience or a tendency to inflate positive scores. For example, participants were asked about their exercise frequency rather than having that data collected from a Fitbit or other device. Participants may have difficulty recalling instances of exercise and report more or less than they did. The comparative sample of older adults in the community at large also relied upon self-report measures, and so the same opportunities for inaccuracies exist.

Future Study

Even with the caveats in the previous section, study findings strongly suggest that, at minimum, Life Plan Communities provide environments where older adults can thrive.

This study represents an important source of information for better understanding health and wellness among Life Plan Community residents. Data collected in Year 1 provides a snapshot of health and wellness among participants at one point in time. Additional data will be collected annually for the next four years. Future waves will examine changes in residents' wellness over time. Collecting data from multiple time points will also allow identification predictors of various wellness outcomes in Life Plan Community participants. For example, analyses may reveal that residents with high levels of optimism experience greater resilience or other outcomes. Finally, in future years, change in wellness outcomes over time among residents will be compared to change over time among older adults in the community at large.

Acknowledgements

The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. Analyses of community-at-large older adults use Early Release data from the Health and Retirement Study (2016 HRS Core, Early V2.0) that have not been cleaned and may contain errors that will be corrected in the Final Public Release version of the dataset. The RAND HRS Longitudinal File 2014 (V2) was developed at RAND with funding from the National Institute on Aging and the Social Security Administration.

References

- Bak, T. H., Long, M. R., Vega-Mendoza, M., & Sorace, A. (2016). Novelty, challenge, and practice: The impact of intensive language learning on attentional functions. *PloS One*, 11(4), e0153485.
- Beyer, A. K., Wolff, J. K., Warner, L. M., Schüz, B., & Wurm, S. (2015). The role of physical activity in the relationship between self-perceptions of ageing and self-rated health in older adults. *Psychology & Health*, 30(6), 671-685.
- Bialystok, E., Abutalebi, J., Bak, T. H., Burke, D. M., & Kroll, J. F. (2016). Aging in two languages: Implications for public health. *Ageing Research Reviews*, 27, 56-60.
- Bintrim, K., Gaines, J., Resnick, B., & Parrish, J. (2005). A comparison of spousal caregivers and non-caregivers living in a continuing care retirement community (CCRC). *Gerontologist*, 45, 305-305.
- Boswell, G. H., Kahana, E., & Dilworth-Anderson, P. (2006). Spirituality and healthy lifestyle behaviors: Stress counter-balancing effects on the well-being of older adults. *Journal of Religion and Health*, 45(4), 587-602.
- Buckner, J. C. (1988). The development of an instrument to measure neighborhood cohesion. *American Journal of Community Psychology*, 16(6), 771-791.
- Carlson, S. A., Fulton, J. E., Pratt, M., Yang, Z., & Adams, E. K. (2015). Inadequate physical activity and health care expenditures in the United States. *Progress in Cardiovascular Diseases*, 57(4), 315-323.
- Carp, F. M., & Carp, A. (1984). A complementary/congruence model of well-being or mental health for the community elderly. *Human Behavior & Environment: Advances in Theory & Research*, 7, 279-336.
- Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology*, 79(4), 644-655.
- Chang, P. J., Wray, L., & Lin, Y. (2014). Social relationships, leisure activity, and health in older adults. *Health Psychology*, 33(6), 516-523.
- Chen, Y., & Feeley, T. H. (2014). Social support, social strain, loneliness, and well-being among older adults: An analysis of the Health and Retirement Study. *Journal of Social and Personal Relationships*, 31(2), 141-161.
- Chopik, W. J., Kim, E. S., & Smith, J. (2015). Changes in optimism are associated with changes in health over time among older adults. *Social Psychological and Personality Science*, 6(7), 814-822.

- Cohen S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396.
- Danford, S. (1983). Dynamic reciprocal determinism: A synthetic transactional model of person-behavior-environment relations. In D. X. Amedeo, J. Griffin, & J. Potter (Eds.), *EDRA 1983: Proceedings of the Fourteenth International Conference of the Environmental Design Research Association* (pp. 19-28). Lincoln, NE: Environmental Design Research Association.
- de Frias, C. M., & Whyne, E. (2015). Stress on health-related quality of life in older adults: The protective nature of mindfulness. *Aging & Mental Health*, 19(3), 201-206.
- de Rezende, L. F. M., Rey-López, J. P., Matsudo, V. K. R., & do Carmo Luiz, O. (2014). Sedentary behavior and health outcomes among older adults: A systematic review. *BMC Public Health*, 14(1), 333.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71-75.
- Elliott, J., Gale, C. R., Parsons, S., Kuh, D., & HALCYon Study Team. (2014). Neighbourhood cohesion and mental wellbeing among older adults: A mixed methods approach. *Social Science & Medicine*, 107, 44-51.
- Erickson, M.A., Dempster-McClain, D., Whitlow, C., & Moen P. (2000). Social integration and the move to continuing care retirement community, in Pillemer, K., Moen, P., Glasgow, N., Wethington, E., (Eds.) *Social integration in the second half of life*. (pp. 211-230). Baltimore, MD: Johns Hopkins University Press.
- Everson, S. A., Kaplan, G. A., Goldberg, D. E., Salonen, R., & Salonen, J. T. (1997). Hopelessness and 4-year progression of carotid atherosclerosis: The Kuopio Ischemic Heart Disease Risk Factor Study. *Arteriosclerosis, Thrombosis, and Vascular Biology*, 17, 1490-1495.
- Ewen, H. H., Emerson, K. G., Washington, T. R., Carswell, A. T. & Smith, M. L. (2017). Aging in place: community-based services and resources in residential settings among older adults, *Housing and Society*, 44:1-2, 114-126, DOI: 10.1080/08882746.2017.1389577
- Fancourt, D., & Steptoe, A. (2018). Cultural engagement predicts changes in cognitive function in older adults over a 10 year period: Findings from the English Longitudinal Study of Ageing. *Scientific Reports*, 8(1), 10226.
- Fone, D., Dunstan, F., Lloyd, K., Williams, G., Watkins, J., & Palmer, S. (2007). Does social cohesion modify the association between area income deprivation and mental health? A multilevel analysis. *International Journal of Epidemiology*, 36(2), 338-345.
- Gaines, J. M., Poey, J. L., Marx, K. A., Parrish, J. M., & Resnick, B. (2011). Health and medical services use: A matched case comparison between CCRC residents and national Health and Retirement Study samples. *Journal of Gerontological Social Work*, 54(8), 788-802.

- Grandner, M. A., Kripke, D. F., & Langer, R. D. (2006). Light exposure is related to social and emotional functioning and to quality of life in older women. *Psychiatry Research*, 143(1), 35-42. <http://doi.org/10.1016/j.psychres.2005.08.018>
- Han, S. H., Tavares, J. L., Evans, M., Saczynski, J., & Burr, J. A. (2017). Social activities, incident cardiovascular disease, and mortality: Health behaviors mediation. *Journal of Aging and Health*, 29(2), 268-288.
- Harmatz, M. G., Well, A. D., Overtree, C. E., Kawamura, K. Y., Rosal, M., & Ockene, I. S. (2000). Seasonal variation of depression and other moods: a longitudinal approach. *Journal of Biological Rhythms*, 15(4), 344-350.
- Hawkley, L. C., & Capitanio, J. P. (2015). Perceived social isolation, evolutionary fitness and health outcomes: A lifespan approach. *Philosophical Transactions of the Royal Society of London, Series B*, 370(1669), 20140114.
- Health and Retirement Study. (2017). *HRS 2014 core (final V2.0) public use dataset* [data set]. Ann Arbor, MI: University of Michigan.
- Health and Retirement Study. (2018). *HRS 2016 core (early V2.0) public use dataset* [data set]. Ann Arbor, MI: University of Michigan.
- Hettler W. (1976). The six dimensions of wellness. Available online at <https://cdn.ymaws.com/www.nationalwellness.org/resource/resmgr/pdfs/sixdimensionsfactsheet.pdf>. Accessed January 15, 2019.
- Hill, P. L., Sin, N. L., Turiano, N. A., Burrow, A. L., & Almeida, D. M. (2018). Sense of purpose moderates the associations between daily stressors and daily well-being. *Annals of Behavioral Medicine*, 52(8), 724-729.
- Houliort, N., Fernet, C., Vallerand, R. J., Laframboise, A., Guay, F., & Koestner, R. (2015). The role of passion for work and need satisfaction in psychological adjustment to retirement. *Journal of Vocational Behavior*, 88, 84-94.
- Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging*, 655-672.
- Kahana, E., Lovegreen, L., Kahana, B., & Kahana, M. (2003). Person, environment, and person-environment fit as Influences on Residential Satisfaction of Elders. *Environment and Behavior*, 35(3), 434-453. <https://doi.org/10.1177/0013916503035003007>
- Kastenbaum, R., Durbin, V., Sabatini, P., & Artt, S. (1972). "The ages of me": Toward personal and interpersonal definitions of functional aging. *Aging and Human Development*, 3, 197-211.

- Kotter-Grühn, D., Kleinspehn-Ammerlahn, A., Gerstorf, D., & Smith, J. (2009). Self-perceptions of aging predict mortality and change with approaching death: 16-year longitudinal results from the Berlin Aging Study. *Psychology and Aging, 24*, 654-667.
- Krout, J. A., Moen, P., Holmes, H. H., Oggins, J., & Bowen, N. (2002). Reasons for relocation to a continuing care retirement community. *Journal of Applied Gerontology, 21*, 236-256.
- Krout, J. A., & Wethington, E. (Eds.). (2003). *Residential choices and experiences of older adults: Pathways to life quality*. New York: Springer Publishing Company.
- Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology, 74*(3), 763-773.
- Lawton, M. P. (1975). The Philadelphia Geriatric Center Morale Scale: A revision. *Journals of Gerontology, 30*, 85-89.
- Lawton, M. P., & Nahemow, L. (1973). Ecology and the aging process. In C. Eisdorfer & M. P. Lawton (Eds.), *The psychology of adult development and aging* (pp. 619-674). Washington, DC: American Psychological Association.
- Levin, J. S. (2003). Private Religious Practices. In N. W. Group (Ed.), *Multidimensional measurement of religiousness/spirituality for use in health research: A report of the Fetzer Institute/National Institute on Aging Working Group* (2nd ed., pp. 39-42). Kalamazoo, MI: John E. Fetzer Institute.
- Lewinsohn, P. M., Seeley, J. R., Roberts, R. E., & Allen, N. B. (1997). Center for Epidemiological Studies-Depression Scale (CES-D) as a screening instrument for depression among community-residing older adults. *Psychology and Aging, 12*, 277-287.
- Li, S., Stampfer, M. J., Williams, D. R., & VanderWeele, T. J. (2016). Association of religious service attendance with mortality among women. *JAMA Internal Medicine, 176*(6), 777-785.
- Liang, J. & Bollen, K.A. (1983). The structure of the Philadelphia Geriatric Center (PGC) Morale Scale: A reinterpretation. *Journals of Gerontology, 38*, 181-189.
- Loughrey, D. G., Lavecchia, S., Brennan, S., Lawlor, B. A., & Kelly, M. E. (2017). The impact of the Mediterranean diet on the cognitive functioning of healthy older adults: A systematic review and meta-analysis. *Advances in Nutrition, 8*(4), 571-586.
- Lucas, R. E., & Lawless, N. M. (2013). Does life seem better on a sunny day? Examining the association between daily weather conditions and life satisfaction judgments. *Journal of Personality and Social Psychology, 104*(5), 872-884. <http://doi.org/10.1037/a0032124>
- MacLeod, S., Musich, S., Hawkins, K., Alsgaard, K., & Wicker, E. R. (2016). The impact of resilience among older adults. *Geriatric Nursing, 37*(4), 266-272.

- Malinowski, P., Moore, A. W., Mead, B. R., & Gruber, T. (2017). Mindful aging: the effects of regular brief mindfulness practice on electrophysiological markers of cognitive and affective processing in older adults. *Mindfulness*, 8(1), 78-94.
- Marx, K. A., Burke, K. L., Gaines, J. M., Resnick, B., & Parrish, J. M. (2011). Satisfaction with your new home: Advantages and disadvantages to living in a CCRC. *Seniors Housing & Care Journal*, 19, 83-96.
- Marx, K. A., Gaines, J. M., Resnick, B., & Parrish, J. M. (2011). The Erickson life study: A five-year examination of a screening tool in a continuing care retirement community. *Journal of Housing for the Elderly*, 25(3), 274-287. DOI: 10.1080/02763893.2011.595614
- Mather LifeWays Institute on Aging. (2017). *Resident expectations regarding transparency and decision making in Life Plan Communities*. Evanston, IL: Mather LifeWays.
- Munoz, E., Sliwinski, M. J., Scott, S. B., & Hofer, S. (2015). Global perceived stress predicts cognitive change among older adults. *Psychology and Aging*, 30(3), 487-499.
- Ong, A. D., Edwards, L. M., & Bergeman, C. S. (2006). Hope as a source of resilience in later adulthood. *Personality and Individual Differences*, 41(7), 1263-1273.
- Pavot, W., & Diener, E. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, 5(2), 164-172.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, 19(1), 2-21.
- Radloff, L. S. (1977). The CES-D scale: A self report depression scale in the general population. *Applied Psychological Measurements*, 1, 385-401.
- RAND HRS Longitudinal File 2014 (V2). Santa Monica, CA: RAND Center for the Study of Aging.
- Roberts, A. R. & Adams, K. B (2018). Quality of life trajectories of older adults living in senior housing. *Research on Aging*, 40(6), 511-534.
- Robinson, D., & Wilkinson, D. (1995). Sense of community in a remote mining town: Validating a neighborhood cohesion scale. *American Journal of Community Psychology*, 23(1), 137-148.
- Ross, L. A., Sprague, B. N., Phillips, C. B., O'Connor, M. L., & Dodson, J. E. (2018). The impact of three cognitive training interventions on older adults' physical functioning across 5 years. *Journal of Aging and Health*, 30(3), 475-498.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069.

- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719-727.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063-1078.
- Sherwood, S., Ruchlin, H. S., Sherwood, C. C., & Morris, S. A. (1997). *Continuing care retirement communities*. Baltimore: Johns Hopkins University Press.
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194-200.
- Smith, J., Fisher, G., Ryan, L., Clarke, P., House, J., & Weir, D. (2017). *Psychosocial and Lifestyle Questionnaire 2006-2016*. From <https://hrs.isr.umich.edu/documentation/user-guides> (accessed July 2018). Ann Arbor, Michigan: Survey Research Center, Institute for Social Research, University of Michigan.
- Stacey-Konnert, C., & Pynoos, J. (1992). Friendship and social networks in a continuing care retirement community. *Journal of Applied Gerontology*, 11(3), 298-313. <http://dx.doi.org/10.1177/073346489201100304>
- Steffick, D. E. (2000). *Documentation of affective functioning measures in the Health and Retirement Study*. Ann Arbor, MI: University of Michigan.
- Strout, K. A., David, D. J., Dyer, E. J., Gray, R. C., Robnett, R. H., & Howard, E. P. (2016). Behavioral interventions in six dimensions of wellness that protect the cognitive health of community-dwelling older adults: A systematic review. *Journal of the American Geriatrics Society*, 64(5), 944-958.
- United States General Accounting Office (1997). *Health care services: How continuing care retirement communities manage services for the elderly*. HEHS-97-36. Washington, D.C.
- Watson, D., & Clark, L. A. (1994). The PANAS-X: *Manual for the positive and negative affect schedule – expanded form*. University of Iowa.
- Weisman, G., Chaudhury, H. and Moore, Diaz K. (2000). "Theory and practice of place: Toward an integrative model." In *The many dimensions of aging*, Edited by: Rubenstein, Moos and Kleban. New York: Springer.

Appendix A – Study Measures

EMOTIONAL WELLNESS

Satisfaction with Life: Measures one's overall evaluation of his or her life (Diener, Emmons, Larsen, & Griffin, 1985; Pavot & Diener, 1993). Participants rated the extent to which they agreed or disagreed with five statements related to overall quality of life (1 = Strongly disagree, 2 = Somewhat disagree, 3 = Slightly disagree, 4 = Neither agree nor disagree, 5 = Slightly agree, 6 = Somewhat agree, 7 = Strongly agree). Items were averaged together for a composite score that could range from 1 to 7. [Included from HRS]

Resilience: Measures an individual's ability to “bounce back” or recover from stressful events. It was assessed using the six-item Brief Resilience Scale (Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008). Participants rated the extent to which they agreed or disagreed with each statement (1 = Strongly disagree, 7 = Strongly agree), and items were averaged together for a composite score that could range from 1 to 7.

Depression: Measures the extent to which participants experience depressive symptoms. Participants completed an eight-item version of the Center for Epidemiological Studies-Depression (CES-D) measure (Lewinsohn, Seeley, Roberts, & Allen, 1997; Radloff, 1977). Participants indicated whether or not they experienced each depressive symptom “much of the time” during the past week. The number of depressive symptoms was added together, and composite scores could range from 0 to 8. [Included from HRS]

Mood: Measures participants' overall mood (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Ong, Edwards, & Bergeman, 2006; Watson & Clark, 1994). Participants rated the extent to which they experienced five different emotional states (Happy, Bored, Content, Sad, and Inspired) during the past 30 days (1 = Not at all, 2 = A little, 3 = Moderately, 4 = Quite a bit, 5 = Very much). Negative items were reverse-scored, and the five items were averaged together for a composite score that could range from 1 to 5. [Included from HRS]

Hopelessness: Measures the extent to which participants believe that they cannot attain goals (Everson, Kaplan, Goldberg, Salonen, & Salonen, 1997). Administered as a single-item

statement (“I feel it is impossible for me to reach the goals that I would like to strive for”) to which participants rated their agreement or disagreement (1 = Strongly disagree, 6 = Strongly agree). [Included from HRS]

Perceptions of Aging: Measures attitudes toward aging (Kotter-Grühn, Kleinspehn-Ammerlahn, Gerstorf, & Smith, 2009; Lawton, 1975; Liang & Bollen, 1983). Participants rated the extent to which they agreed or disagreed with eight statements (1 = Strongly disagree, 6 = Strongly agree). Items were averaged together for a composite score that could range from 1 to 6. [Included from HRS]

Optimism/Pessimism: Measures the extent to which people expect positive or negative outcomes in the future (Scheier, Carver, & Bridges, 1994). Participants rated their level of agreement with six items (1 = Strongly disagree, 6 = Strongly agree). Composite scores were calculated by averaging the three optimism items and the three pessimism items, and composite scores could range from 1 to 6. [Included from HRS]

Stress: Measures participants’ appraisal of stress in their daily lives (Perceived Stress Scale; Cohen, Kamarck, & Mermelstein, 1983). Participant rated four statements that assessed how often they felt stressed or that their problems were out of their control (1 = Never, 2 = Almost never, 3 = Sometimes, 4 = Fairly often, 5 = Very often). The ratings were averaged together for a composite score that ranged from 1 to 5.

Perceived Control: Measures participants’ sense of control or agency over their own lives and activities (Lachman & Weaver, 1998; Pearlin & Schooler, 1978). Participants rated the extent to which they agreed or disagreed with five statements regarding their confidence in controlling their own lives (1 = Strongly disagree, 6 = Strongly agree). Responses to the five items were averaged together for a composite score that could range from 1 to 6. [Included from HRS]

Subjective Age: Measures the age a person “feels” as compared to their actual chronological age (Kastenbaum, Durbin, Sabatini, & Artt, 1972), calculated as a percentage difference between their self-reported “felt age” and chronological age. A negative score indicates that participants feel younger than their chronological age. [Included from HRS]

SOCIAL WELLNESS

Community Belonging: Adapted from a measure of neighborhood cohesion, measures participants' sense of belonging as a member of their community (Buckner, 1988; Fone, Dunstan, Lloyd, Williams, Watkins, & Palmer, 2007; Robinson & Wilkinson, 1995). Participants rated the extent to which they agreed with six statements about their feelings toward the community (1 = Strongly disagree, 6 = Strongly agree). Responses were averaged together for a composite score that could range from 1 to 6.

Social Cohesion: Adapted from a measure of neighborhood cohesion, measures an individual's perceptions of cohesion and closeness with others living in their community, focusing more on social relationships than on being part of the community overall (Buckner, 1988; Fone et al., 2007; Robinson & Wilkinson, 1995). Administered as an eight-item scale that asks participants to rate the extent to which they agree/disagree with statements about their relationships with others within the community (1 = Strongly disagree, 6 = Strongly agree). Responses to each item were averaged together for a composite score that could range from 1 to 6.

Loneliness: Measures feelings of isolation and lack of social contact/connections (Hughes, Waite, Hawkley, & Cacioppo, 2004). Administered as a 10-item scale that asks participants how often they feel lonely or isolated from others (1 = Often, 2 = Some of the time, 3 = Hardly ever or never). Item responses were averaged together for a composite score that could range from 1 to 3. [Included from HRS]

Social Contact: Measures how often individuals contact others in their social networks through various means of communication. Participants rated how frequently they contact their friends using four modes of communication: in-person meetings, phone calls, written/email messages, and social media (1 = Less than once a year or never, 2 = Once or twice a year, 3 = Every few months, 4 = Once or twice a month, 5 = Once or twice a week, 6 = Three or more times a week). Scores on the four items were averaged together for a composite score that could range from 1 to 6. [Included from HRS]

PHYSICAL WELLNESS

Self-Reported Health: Participants rated their own health status using a single-item measure (1 = Poor, 2 = Fair, 3 = Good, 4 = Very good, 5 = Excellent). [Included from HRS]

Number of Chronic Conditions Diagnosed by a Doctor: Participants indicated (Yes/No) if a doctor has ever informed them that they have one of the chronic health conditions listed (high blood pressure; diabetes or high blood sugar; heart attack, coronary heart disease, angina, congestive heart failure, or other health problems; stroke; emotional, nervous, or other psychiatric problems; arthritis or rheumatism; memory problems). An overall score was calculated by adding together the number of chronic conditions for each participant, and scores could range from 0 to 7. [Included from HRS]

Physical Activity: Participants were asked three questions assessing how often they engage in vigorous, moderate, or mildly energetic activities (1 = Hardly ever or never, 2 = One to three times a month, 3 = Once a week, 4 = More than once a week, 5 = Every day). [Included from HRS]

Health of Overall Diet: Participants are asked to rate how healthy their diet is overall using a single-item measure (1 = Poor, 5 = Excellent).

SPIRITUAL WELLNESS

Spirituality: Measures religious beliefs and values separate from religious affiliation (Levin, 2003). Participants rated the extent to which they agree/disagree with four statements regarding their religious beliefs (1 = Strongly disagree, 6 = Strongly agree). Responses to the items were averaged together for a composite score that could range from 1 to 6. [Included from HRS]

Pray Privately Daily: As part of a list of daily activities, participants were asked how often they pray privately in places other than formal religious centers (1 = Never/not relevant, 2 = Not in the last month, 3 = At least once a month, 4 = Several times a month, 5 = Once a week, 6 = Several times a week, 7 = Daily). [Included from HRS]

INTELLECTUAL WELLNESS

Self-Reported Memory: Participants rated the quality of their own memory (1 = Poor, 5 = Excellent). [Included from HRS]

Intellectual Activities: As part of a list of daily activities, participants were asked five questions regarding how often they take part in various intellectual activities: attend educational/training course; read books/magazines/newspapers; do word games such as crosswords/Scrabble; play cards or games such as chess; write letters, stories, or journal entries. Participants reported how frequently they engage in each activity (1 = Never/not relevant, 7 = Daily), and responses to the five items were averaged together into a composite score that could range from 1 to 7. [Included from HRS]

VOCATIONAL WELLNESS

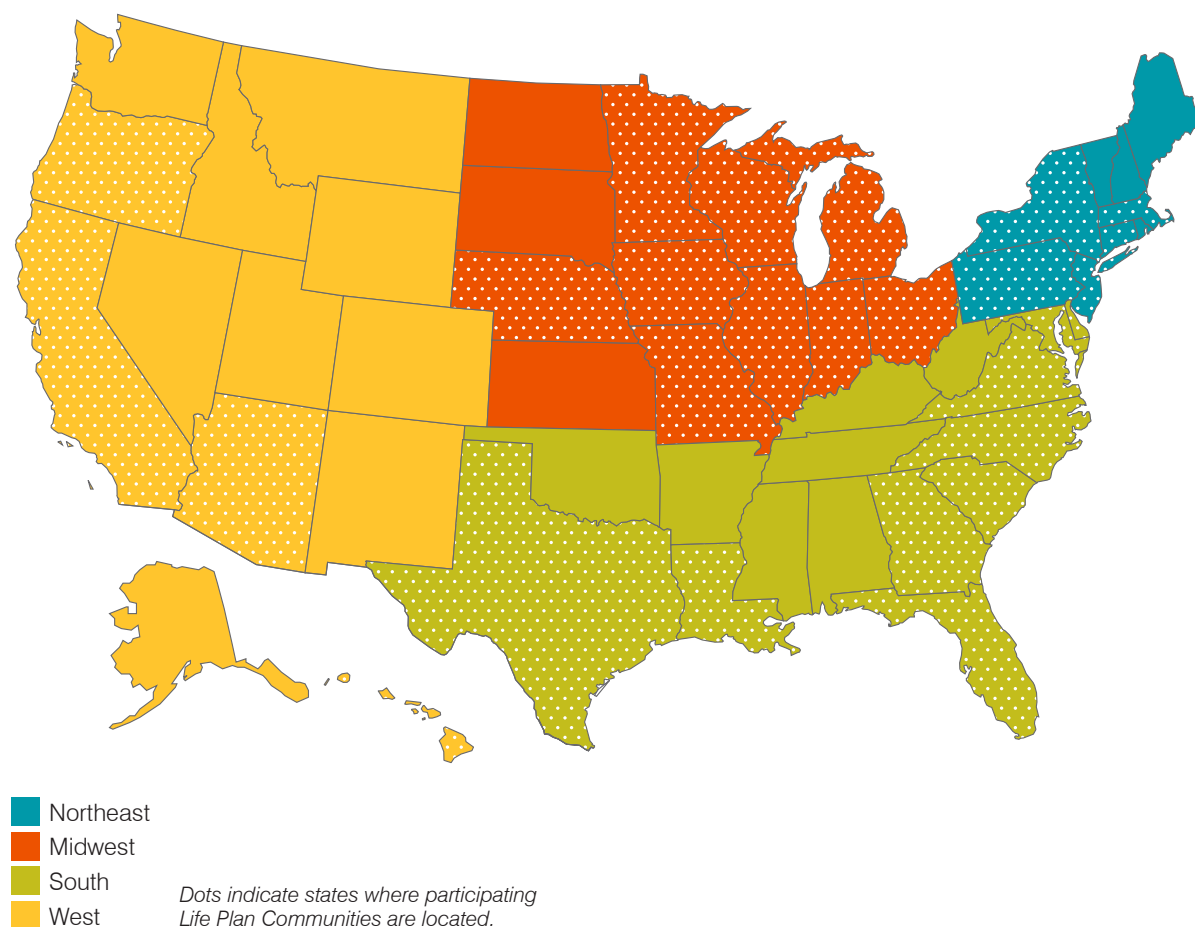
Purpose in Life: Measures an individual's feelings of worth and accomplishment in life (Ryff, 1989; 1995). Participants rated their agreement with seven statements regarding their feelings of purpose and sense of direction in life (1 = Strongly disagree, 6 = Strongly agree). Responses to each item were averaged together for a composite score that could range from 1 to 6. [Included from HRS]

Volunteering: As part of a list of daily activities, participants were asked how often they participate in volunteer or charity work, and more specifically, how often they do volunteer work with children or young people (1 = Never/not relevant, 7 = Daily). [Included from HRS]

Retirement Satisfaction: Participants rated how satisfied they are with their retirement using a single-item measure (1 = Not at all satisfying, 2 = Moderately satisfying, 3 = Very satisfying, or Not applicable). Participants who selected "Not applicable" were excluded from analyses of retirement satisfaction. [Included from HRS]

Appendix B – Map of Geographic Regions

Organizations and residents were categorized based on the US geographic region in which they are located. Regions are based on HRS definitions. The figure below displays the states included in Northeast, Midwest, South, and West regions. Life Plan Communities that are participating in the Age Well Study are located in the states marked with dots. Older adults from the community at large may reside anywhere in the region.



Appendix C – Associations between Organizational Factors and Resident Outcomes

Measures	Scale Min and Max Values	Group Averages			
For Profit (vs. Not-for-Profit)		Yes	No	p value	
Subjective Age	N/A	15% younger	14% younger	< .05	
Frequency of Volunteering	1 – 7	2.85	3.46	< .05	
Entrance Fee		Yes	No		
Depression*	1 – 8	1.18	1.39	< .05	
Health of Overall Diet	1 – 5	3.86	3.72	< .05	
Single vs. Multisite ¹		Single-site	Multisite ¹		
Hopelessness*	1 – 6	2.05	2.12	< .05	
Frequency of Volunteering with Children/Young People	1 – 7	1.57	1.44	< .05	
Size (# of IL residents)		Larger (301+)	Smaller (1-300)		
Life Satisfaction	1 – 7	5.92	5.74	< .05	
Mood	1 – 5	4.00	3.90	< .05	
Perceptions of Aging	1 – 6	4.09	3.92	< .05	
Stress*	1 – 5	1.85	1.96	< .05	
Perceived Control	1 – 6	4.79	4.58	< .05	
Provides Fitness Training		Yes	No		
Physical Activity: Moderate	1 – 5	3.47	3.27	< .05	
Area Type ²		Rural	Suburban	Urban	p value
Subjective Age	N/A	-0.13 _B	-0.14 _B	-0.15 _A	< .05

Note: When there are statistically significant differences between the Life Plan Community and community-at-large samples, the score associated with more positive outcomes is highlighted in bold.

* A lower score is more favorable.

¹ Communities whose parent organization has other communities

² For Area Type, subscripts indicate grouping of scores for statistical differences. Values sharing a letter do not differ from one another on that measure (e.g., all "A" values are equal to other As, but are different from Bs, and "AB" is equal to both As and Bs).

Measures	Region				
Region ¹	Northeast	Midwest	South	West	p value
Life Satisfaction	5.71 _B	5.72 _B	5.93 _A	5.94 _A	< .05
Optimism	4.69 _C	4.80 _{BC}	4.95 _A	4.95 _{AB}	< .05
Depression*	1.28 _B	1.30 _B	1.15 _{AB}	1.07 _A	< .05
Pessimism*	1.93 _A	2.04 _B	1.80 _A	1.82 _A	< .05
Stress*	1.95 _{AB}	1.98 _B	1.87 _A	1.84 _A	< .05
Subjective Age	15% younger _A	13% younger _B	14% younger _B	15% younger _B	< .05
Social Contact	4.26 _B	4.23 _B	4.47 _A	4.45 _A	< .05
Meet Up	5.04 _{AB}	4.86 _B	5.13 _A	5.12 _A	< .05
Write/Email	4.38 _C	4.45 _{BC}	4.84 _{AB}	4.85 _A	< .05
Social Media	2.45 _B	2.52 _{AB}	2.75 _A	2.64 _{AB}	< .05
Spirituality	4.19 _{AB}	4.50 _A	4.50 _A	4.04 _B	< .05
Purpose in Life	4.62 _B	4.62 _B	4.78 _{AB}	4.77 _A	< .05

¹ For Region, subscripts indicate grouping of scores for statistical differences in each row/measure. Values sharing a letter do not differ from one another on that measure (e.g., all "A" values are equal to other As, but are different from Bs, and "AB" is equal to both As and Bs).

* A lower score is more favorable.

About the Advisory Group

Mather LifeWays Institute on Aging (Evanston, IL) is a respected resource for research and information about wellness, aging, trends in senior living, and aging services innovations. In order to support senior living communities and others that serve older adults, the Institute shares its cutting-edge research in areas including effective approaches to brain health, ways to enhance resilience, and employee wellness programs. Mather LifeWays Institute on Aging is part of Mather LifeWays, a 75+-year-old not-for-profit organization dedicated to developing and implementing Ways to Age WellSM by creating programs, places, and residences for today's young-at-heart older adults. In 2018, Mather LifeWays impacted more than 180,000 older adults and industry professionals, directly and indirectly.

American Seniors Housing Association (Washington, DC) provides leadership for the seniors housing industry on legislative and regulatory matters, advances research, education and the exchange of strategic business information, and promotes the merits of seniors housing. While most members are for-profit operators or financiers, ASHA's membership also includes a significant number of executives from leading not-for-profit seniors housing providers and other prominent professionals. The Association's membership owns and/or manages an estimated 600,000 units of seniors housing in the US. The ASHA membership is comprised of companies with small market and regional presence, as well as most national providers.

LeadingAge (Washington, DC) is a national association of 6,000 not-for-profit organizations representing the entire field of aging services, 39 state partners, and hundreds of businesses, consumer groups, foundations, and research partners. Together, its members touch 4 million lives every day. The mission of LeadingAge is to expand the world of possibilities for aging. LeadingAge is also a part of the International Association of Homes and Services for the Aging (IAHSA), which spans 30 countries across the globe. LeadingAge is a 501(c)(3) tax exempt charitable organization focused on education, advocacy, and applied research.

Life Care Services (Des Moines, IA) is the third largest manager of rental senior living communities and Life Plan Communities. Every community offers a rich array of services, countless programs for a fulfilling lifestyle, wellness programming for healthful living, social opportunities and resident camaraderie, plus a community-customized continuum of care for peace of mind. Communities managed by Life Care Services may include residences for independent living, assisted living, memory care, skilled nursing care, or a combination of these living arrangements.

National Investment Center (Washington, DC) is a 501(c)(3) organization whose mission is to advance access and choice in seniors housing and care—from independent living (IL), assisted living (AL), and memory care, to skilled nursing and post-acute care. NIC provides research, education, and increased transparency that facilitate informed investment decisions, quality outcomes and leadership development in seniors housing and care.

Northwestern University (Evanston, IL) is a leading university committed to excellent teaching, innovative research, and the personal and intellectual growth of its students in a diverse academic community. It is a premier research university that is home to more than 90 school-based centers and more than 50 University research centers.

Novare® is a national consortium of single-site and small-system Life Plan Community providers, whose mission is to accelerate member potential through peer-inspiring, collaborative leadership.

Ziegler (Chicago, IL) is a privately held investment bank, capital markets, wealth management, and proprietary investments firm. Specializing in the health care, senior living, education and religion sectors, as well as general municipal and structured finance, enables the firm to generate a positive impact on the communities it serves. Headquartered in Chicago with regional and branch offices throughout the US, Ziegler provides its clients with capital raising, strategic advisory services, equity and fixed income sales & trading, wealth management, and research.



Mather LifeWays Institute on Aging is a respected resource for research and information about wellness, aging, trends in senior living, and successful aging service innovations. Whether conducting new research or interpreting the latest studies for professionals who serve older adults, the Institute is dedicated to supporting ways for older adults to Age Well.

The following people contributed to the development of this report:

Mary Leary, CEO and President, Mather LifeWays

Cate O'Brien, PhD, Assistant Vice President & Director, Mather LifeWays Institute on Aging

Jennifer L. Smith, PhD, Director of Research, Mather LifeWays Institute on Aging

Joseph Bihary, PhD, Senior Research Associate, Mather LifeWays Institute on Aging

Ajla Basic, Project Coordinator, Mather LifeWays Institute on Aging

Dugan O'Connor, MS, Research Associate, Mather LifeWays Institute on Aging

For questions about the content of this report, email agewellstudy@matherlifeways.com.