Mather
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THE AGE WELL STUDY:

Stress & Resilience among Residents of
Life Plan Communities during the Pandemic

YEAR 4 REPORT

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Dear Colleague,

When Mather Institute began the five-year Age Well Study, we anticipated a variety of new insights into the health and wellness of residents of Life Plan Communities—and the groundbreaking research has not disappointed. From the first year of the study, released in 2018, we learned that residents tend to have greater emotional, social, physical, intellectual, and vocational wellness than their counterparts in the community at large. In 2019, researchers focused on specific personality traits and other characteristics associated with residents' healthy behaviors and overall health. The study revealed that residents with higher scores on personality traits of "openness to experience" and "extroversion" reported the highest levels of healthy behaviors, and those who form strong bonds within their community tend to have better overall health. And in 2020, focus turned to factors associated with residents' happiness and life satisfaction, with insightful findings on associations such as the fact that residents are happier and more satisfied when they have a greater sense of community belonging.

Now, Year 4 study findings provide a deeper understanding of how specific individual and organizational factors, changes in the quality of social relationships, and coping strategies are related to residents' response to the COVID-19 pandemic. The findings are invaluable for senior living providers, who can use this information to craft new strategies aimed at alleviating residents' stress and promoting resilience during extreme circumstances.

On behalf of Mather Institute, I'd like to thank the 122 Life Plan Communities that are participating in this important research, and especially the 3,400+ residents who participated in the most recent survey. Our valued research partners also deserve thanks: National Investment Center, LeadingAge, ASHA, Ziegler, Life Care Services, and Novare.

Regards,

Mary Leary

Mary Leary
CEO and President, Mather

PS: The three previous reports from the Age Well Study are available at TheAgeWellStudy.com.
If you haven't yet read them, I encourage you to do so.

KEY FINDINGS

3,441

RESIDENTS FROM

122

LIFE PLAN COMMUNITIES AROUND THE US PARTICIPATED IN THE STUDY

The main purpose of the five-year Age Well Study is to assess the impact of residing in a Life Plan Community on residents' health and wellness over time. Each year, analyses are conducted to understand this impact, as well as to identify factors among residents and Life Plan Communities that may affect health and wellness. Year 4 of the study took place during a unique time in history. Although effects of the COVID-19 pandemic have been widely felt by all ages, there is still much to learn about its effect on older adults, as well as their ability to bounce back from challenges they may have faced. Thus, in Year 4, analyses focus on investigating factors that may be associated with stress and resilience during the pandemic.

Year 4 study findings are based on responses from 3,441 residents from 122 Life Plan Communities across the US. During Years 1 and 2, Life Plan Communities with at least 100 residents residing in independent living, and residents residing in independent living at participating communities, were invited to participate. 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 Year 4 survey was administered from January to May 2021.

Approximately one-half of respondents were age 85+ (55%), and two-thirds were female (67%). Residents were predominately White/Caucasian (98%). In terms of marital status, one-half of respondents were married (49%) and just over one-third were widowed (39%). Respondents were highly educated, with most earning either a bachelor's degree or higher (77%) and approximately one-half of respondents reporting annual household incomes of $100,000 or higher (55%). More than half of respondents identified as Protestant (62%). In addition, respondents were fairly evenly distributed across the four regional areas, with one-third of respondents residing in Southern states (32%), a quarter in the West (25%) and in the Midwest (24%), and 18% of respondents from the Northeast.

Analyses examined resident stress and resilience during the COVID-19 pandemic, including
- individual characteristics (personality, personal resources, demographics)
- organizational characteristics
- changes in the quality of social relationships
- coping strategies during the pandemic

Table 1 summarizes key findings from Year 4 of the Age Well Study, including how stress and resilience during COVID-19 are associated with personality traits, personal resources, and coping strategies. The upward arrows indicate positive outcomes while the downward arrows indicate negative outcomes.

TABLE 1. Factors Associated with Stress and Resilience during COVID-19 among Residents in Life Plan Communities		
	Stress	**Resilience during COVID-19**
Personality Traits		
Neuroticism	↑	↓
Extroversion	↓	↑
Openness to new experiences	↓	↑
Agreeableness	↓	↑
Conscientiousness	↓	
Personal Resources		
Autonomy	↓	↑
Affiliation	↓	↑
Achievement	↓	↑
Social cohesion	↓	↑
Perceptions of aging	↓	↑
Purpose	↓	↑
Coping Strategies		
Talking with friends and family		↑
Intellectual activities	↓	↑
"Screen time" activities	↑	↑
Meditation and/or mindfulness practices	↓	↑
Volunteering	↓	↑
Eating and snacking	↑	
Talking to a mental health provider	↑	

■ Positive Outcomes   ■ Negative Outcomes

Direction of arrows indicates an increase (↑) or decrease (↓) in relation to the traits in the left column. Since outcomes may be positive (e.g., resilience) or negative (e.g., stress), colors highlight positive (teal) or negative (orange) outcomes. Spaces without arrows indicate that there is no association between the variables.

BACKGROUND & SIGNIFICANCE

The Age Well Study is a longitudinal, nationwide study examining the impact of residing in Life Plan Communities on residents' health and wellness over a span of five years. Year 1 of the study examined baseline measures of health and wellness. The data indicated that, compared to older adults within the community at large, those who resided in Life Plan Communities displayed greater social, emotional, physical, vocational, and intellectual wellness, but lower spiritual wellness.

During Year 2, the study examined factors associated with residents' physical health and healthy behaviors. The data revealed that residents with higher scores on personality traits of openness to experiences and extroversion were more likely to exhibit healthy behaviors and that those who form strong bonds within their communities tend to have better overall health.

Year 3 of the Age Well Study focused on factors associated with residents' emotional wellness, specifically happiness and life satisfaction. The study demonstrated that residents were happier and more satisfied when they had a greater sense of community and belonging and that those who were satisfied with their daily life and leisure activities were more likely to exhibit overall happiness. Building on former years of the Age Well Study but also considering this unique time in history, the Year 4 analysis provides a deeper understanding of how various individual and organizational factors, changes in the quality of social relationships, and coping strategies are related to residents' response to the pandemic.

As people age, they are exposed to greater stressors that can negatively impact physical and psychological well-being. Even perceived stress, or the perception that one is unable to cope with a given situation, influences the risk of many health conditions, including asthma, cardiovascular disease, stroke, anxiety, and depression (Slavich, 2016).

However, many older adults maintain their physical and psychological well-being despite increased exposure to these stressors. Some researchers suggest that this is because they exhibit characteristics of resilience, which buffers negative consequences associated with stressors (Fergus & Zimmerman,

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2005). For example, previous studies have linked resilience with increased longevity and reduced risk of mortality (Shen & Zeng, 2011; Zeng & Shen, 2010). Older adults can become resilient by developing the psychological and behavioral skills necessary to survive these stressors (Ryff et al., 1989). These psychological and behavioral skills can include personality characteristics (Vollrath, 2001), personal resources (Mertens et al., 2012; Weinstein & Ryan, 2011), social support from others (MacLeod et al., 2016), and other coping strategies (Kar et al., 2020). In relation to physical health, older adults are particularly likely to get severely sick from COVID-19 (COVID-19 Risks and Vaccine Information for Older Adults, 2021).

Research related to older adults' psychological response is mixed. For example, one study found older adults exhibited greater resilience and lower depressive consequences during the pandemic than those who are younger, while another indicated that physical and psychological barriers have had a greater impact than age on resilience during the pandemic (Ferreira, Buttell, & Cannon 2020; García-Portilla et al., 2021; Grolli et al., 2021; Pasion et al., 2020). Yet another study demonstrated that social isolation and physical vulnerabilities decrease the likelihood that older adults exhibit resilience relative to their younger counterparts (Grolli et al., 2021; Pasion et al., 2020). One study indicated that 37.1% of individuals over the age of 60 reported symptoms of severe depression, anxiety, and stress related to the pandemic, in addition to an elevated risk of getting severely sick from COVID-19 (Meng et al., 2020). Such findings underscore the need to examine older adults' ability to cope with stress and develop resilience during this uniquely challenging time in our history (Meng et al., 2020). The current study thus considers how different coping strategies are associated with stress and resilience during COVID-19.

While many studies have examined demographics, personality characteristics, and personal resources associated with stress and resilience, this study is unique in that it examines how these associations may differ amid the COVID-19 pandemic within a resident population. It further addresses how changes in relationship quality and other coping strategies are associated with stress and resilience during the pandemic. The results of this study can be used by senior living professionals to develop strategies aimed at alleviating residents' stress and promoting resilience during extreme circumstances.

STUDY OVERVIEW & METHODOLOGY

The purpose of the Age Well Study is to help providers and residents better understand the impact of living in a Life Plan Community on residents' health and wellness. In this particular year of the study, analysis seeks to identify which individual and organizational factors are associated with stress and resilience during the COVID-19 pandemic.

THE AGE WELL STUDY 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 residents of Life Plan Communities for five years

3) semi-structured interviews with a subset of residents from three communities

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 an analysis of survey responses from Year 4.

STUDY ELIGIBILITY & RECRUITMENT

Respondents were recruited from Life Plan Communities during Years 1 and 2 of the Age Well Study. With the goal of tracking responses from the same residents across time, no additional respondents were enrolled during Years 3 or 4 of the Age Well Study. The reports for Years 1 and 2 provide a detailed overview of the study eligibility and recruitment procedures. Those efforts are summarized here, in addition to Year 4 recruitment procedures.

LIFE PLAN COMMUNITIES. Communities were eligible to participate if they reported being a Life Plan Community with at least 100 residents residing in independent living. Life Plan Community was defined as a residence providing at least independent living and skilled nursing care, following the National Investment Center definition. Across Years 1 and 2, a total of 122 eligible communities returned completed resident surveys. A staff member knowledgeable about the characteristics of the community completed an online survey designed to gather organizational details, such as number of residents, location, for-profit vs. nonprofit status, amenities, and services. Eighty-three participating communities completed a Year 4 organizational survey. For the remaining communities, researchers used data from Year 2 and Year 3 organizational surveys.

RESIDENTS. All individuals who resided in independent living at participating Life Plan Communities were eligible to enroll in the Age Well Study in Years 1 or 2. All respondents with valid mailing or email addresses who participated in Years 2 or 3 were invited to participate in the Year 4 survey (n = 6,091). Participants were given an option of receiving an online or paper survey, which was mailed to them. A total of 3,462 Year 4 resident surveys were submitted. These were screened for quality, and 21 were excluded because residents either submitted duplicate surveys or they completed less than 70% of the survey items. Analyses included responses from 3,441 Life Plan Community residents (a 56% response rate). Out of the total respondents, 2,725 participated in both Years 2 and 3, 459 participated in Year 2 but missed Year 3, and 257 participated in Year 3 but missed Year 2.

SURVEY DEVELOPMENT

The organizational and resident surveys were developed by Mather Institute with input from an advisory group. To compare residents of Life Plan Communities with older adults from the community at large, many of the psychosocial and health measures on the resident survey were drawn from the Health and Retirement Study (HRS), a longitudinal survey that includes more than 22,000 Americans over the age of 50. Prior to implementation, the survey was reviewed with several residents of Life Plan Communities to identify areas of ambiguity and improve clarity. For a list of specific measures surveyed, see Appendix A.

STATISTICAL ANALYSES

Averages (mean scores) or percentages are presented for select wellness outcomes. 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 accounts for this clustering in the data, i.e., individual residents within their respective Life Plan Communities, so that results do not assume that resident experiences in all Life Plan Communities are equal. 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. Also, analyses test for correlations between organizational/respondent characteristics and wellness outcomes; direction of causality (that a specific characteristic directly causes an outcome of interest) cannot be conclusively determined from these results. This is discussed further in the Caveats section.

A series of multilevel analyses were conducted to examine how stress and resilience during the pandemic are associated with various types of changes in relationship quality and coping strategies.

Analyses controlled for the effects of residents' age, gender, income, education, marital status, depressive symptoms, number of chronic health conditions, and length of residence.[1] All analyses discussed in this paper are statistically significant. Analyses addressed the following questions:

In the context of the pandemic:

1. **WHAT RESIDENT CHARACTERISTICS ARE ASSOCIATED WITH RESIDENT STRESS AND RESILIENCE?**

   Resident characteristics include personality, personal resources, and demographic factors.

2. **WHAT COMMUNITY CHARACTERISTICS ARE ASSOCIATED WITH RESIDENT STRESS AND RESILIENCE?**

   Community characteristics include each organization's profit status, fee structure, religious affiliation, number of communities, community size, and levels of care.

3. **HOW ARE STRESS AND RESILIENCE ASSOCIATED WITH CHANGES IN THE QUALITY OF SOCIAL RELATIONSHIPS?**

   Social relationships include relationships with children, grandchildren, other family members, friends, and neighbors.

4. **HOW ARE STRESS AND RESILIENCE ASSOCIATED WITH RESIDENTS' COPING STRATEGIES?**

   Coping strategies include meditation and/or mindfulness practices, talking with friends and family, "screen time" activities, eating and snacking, intellectual activities, and volunteer work.

[1]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 autonomy and resilience, gender is controlled for, among other factors, because previous research has noted gender differences in resilience. Additional factors that were controlled for include age, education, marital status, income, depressive symptoms, chronic health conditions, and length of residence in the community. The analysis allows for examination of the relationship between a variety of characteristics (demographics and personal resources) and resilience, independent of any influence these other control variables may have. The individual effects of these control variables on resilience are included separately in the Detailed Findings section.
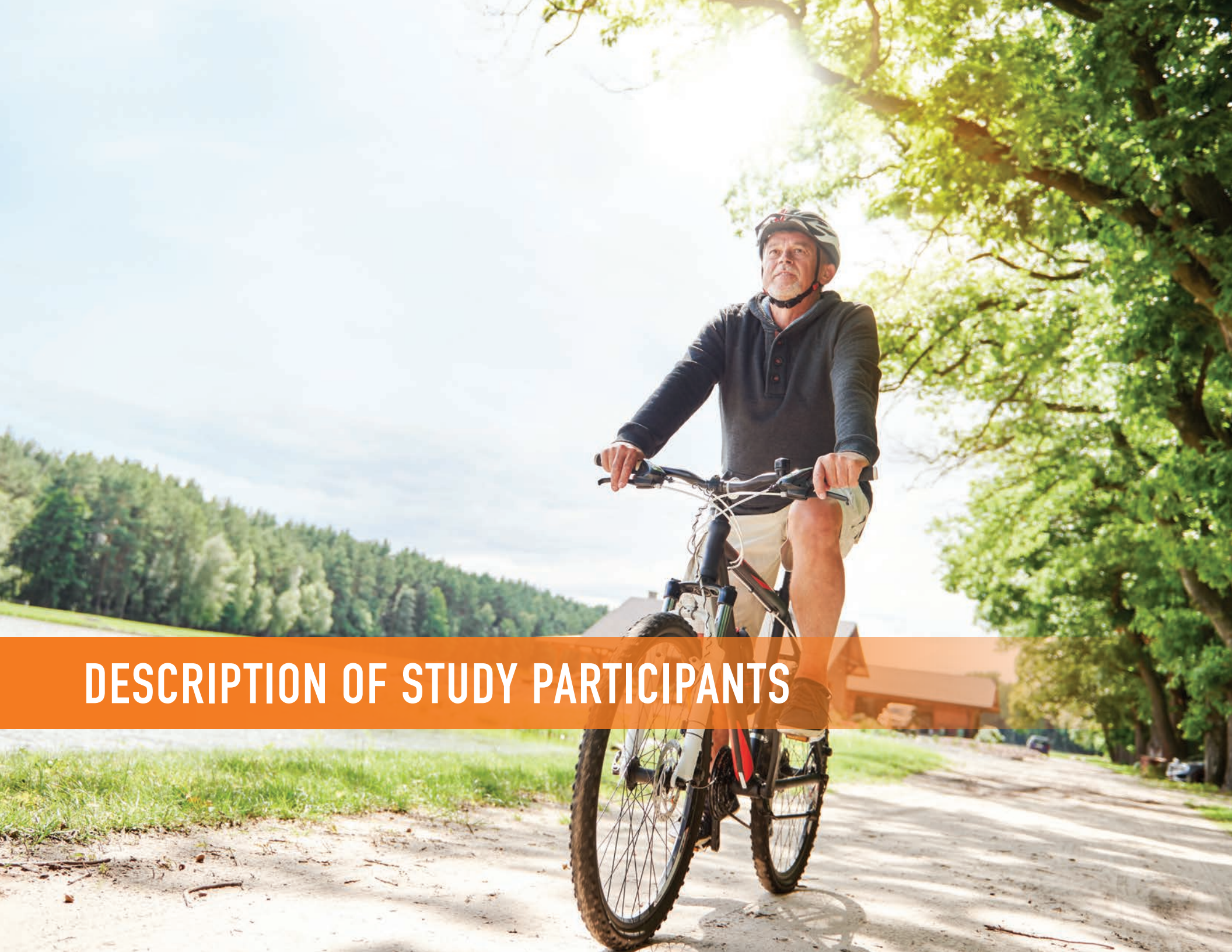
DESCRIPTION OF STUDY PARTICIPANTS

Table 2 presents the demographic characteristics of residents who participated in Year 4 of the Age Well Study. Certain categories of responses (such as the "Other" Race category combining American Indian, East Asian, and South/Southeast Asian) continue to match categories from the Health and Retirement Study (HRS) that provided comparison data across the Age Well Study report during Year 1 (National Institute on Aging, 2020). Just over half of the respondents were older than 85. Most respondents were female, White (Non-Hispanic), Protestant, and married. They were also highly educated.

TABLE 2. Respondent Characteristics

Number of respondents	3,441
Age	
Younger than 80	21%
80 to 84	25%
85 or better	55%
Gender	
Male	33%
Female	67%
Other	<1%
Ethnicity	
Hispanic/Latino	1%
Not Hispanic/Latino	99%
Race	
White/Caucasian	98%
Black/African American	0%
Other	2%
Not reported	<1%

Marital status	
Married	49%
Partnered	1%
Separated	<1%
Divorced	6%
Widowed	39%
Never married	4%
Education	
No degree	1%
GED	<1%
High school	10%
Associate's	8%
Bachelor's	31%
Master's	31%
Doctorate	15%
Other	3%
Not reported	<1%

Religion	
Protestant	58%
Catholic	14%
Jewish	6%
None/No preference	8%
Other	14%
Not reported	<1%
Income	
Less than $20,000	1%
$20,000 to less than $40,000	6%
$40,000 to less than $60,000	10%
$60,000 to less than $80,000	13%
$80,000 to less than $100,000	14%
$100,000 to less than $120,000	17%
$120,000 to less than $140,000	8%
$140,000 to less than $160,000	7%
$160,000 or more	23%
Region	
South	32%
West	25%
Midwest	25%
Northeast	18%

Table 3 describes organizational characteristics of participating Life Plan Communities reported by staff members. The communities primarily served residents between the ages of 80 and 84, but also largely served those over the age of 85. About half of the communities had fewer than 300 residents and half had more than 300 residents. Slightly more organizations were single-site communities rather than multisite communities. Most were nonprofit communities between the ages of 10 and 39 years old, had no religious affiliation, and/or required an entrance fee. Almost all communities served residents through independent living, assisted living, memory support, and skilled nursing. While the largest number of communities were located in the South, they were evenly distributed among the Northeast, Midwest, and West. (See Appendix B for a map of geographic regions.) They were also most frequently located in suburban areas. Category totals for both Tables 2 and 3 may not sum to 100% due to rounding.

TABLE 3. Organizational Characteristics

Number of organization respondents	122
Profit status	
Not-for-profit	79%
For-profit	21%
Fee structure	
Entrance fee	90%
No entrance fee	10%
Religious affiliation	
No religious affiliation	70%
Religious affiliation	30%
Number of communities[2]	
Single-site	60%
Multisite	40%

Community size	
1–300 residents in independent living	51%
301+ residents in independent living	49%
Levels of care	
Independent living	100%
Assisted living	93%
Skilled nursing[3]	98%
Memory support	85%
Home care	51%
Hospice	28%
Adult day program	7%
Community location	
Suburban	63%
Urban	21%
Rural	16%

Region	
South	38%
Northeast	22%
Midwest	20%
West	20%
Average age of residents	
Younger than 80	3%
80 to 84	56%
85 or better	41%
Age of community	
Less than 10 years	3%
10 to 19 years	26%
20 to 29 years	17%
30 to 39 years	21%
40 to 49 years	11%
50 years and greater	22%

[2] Communities whose parent organization has other communities

[3] Three communities provide skilled nursing immediately adjacent to their communities.

DETAILED FINDINGS

STUDY RESULTS ARE PRESENTED IN FOUR SECTIONS:

1. Stress and resilience
2. Organizational factors affecting resident stress and resilience
3. Changes in relationship quality and their relationship with stress and resilience
4. Coping strategies and their relationship with stress and resilience

The first section provides an overview of stress and resilience during the COVID-19 pandemic, including differences in demographics, personality, and personal resources. Section 2 examines organizational differences associated with stress and resilience among residents during the pandemic. Sections 3 and 4 address how stress and resilience during the pandemic are associated with changes in relationship quality with people in personal networks and coping strategies, respectively.

RESIDENT STRESS AND RESILIENCE

RESIDENT STRESS

Respondents completed four items to assess the extent to which they exhibited characteristics associated with stress (Cohen et al., 1983). On a scale ranging from 1 to 5, the average level of stress across all respondents was 1.44, which indicates respondents generally exhibited low levels of stress. More than nine out of 10 (62.15%) indicated they "never" or "almost never" felt that they were unable to control important things in their lives, while 85.40% reported that they "never" or "almost never" felt that their difficulties were piling up so high that they could not be overcome. A large majority (80.10%) of respondents indicated they were confident in their ability to handle personal problems either "often" or "fairly often." Slightly fewer respondents agreed that things go their way "very often" or "fairly often" (71.60%). Figure 1 depicts the frequency with which respondents exhibit each of the four characteristics associated with stress.

FIGURE 1. Characteristics of Stress

	Never	Almost Never	Sometimes	Fairly Often	Very Often
I find that difficulties pile up so high that I cannot overcome them.	55.6	29.8	11.8	2.2	0.4
I find that things usually go well.	0.9	3.7	23.7	45.6	25.9
I am confident about my ability to handle problems.	2.4	4.2	13.3	33.6	46.3
I am unable to control the important things in my life.	28.8	33.3	27.2	7.2	3.4
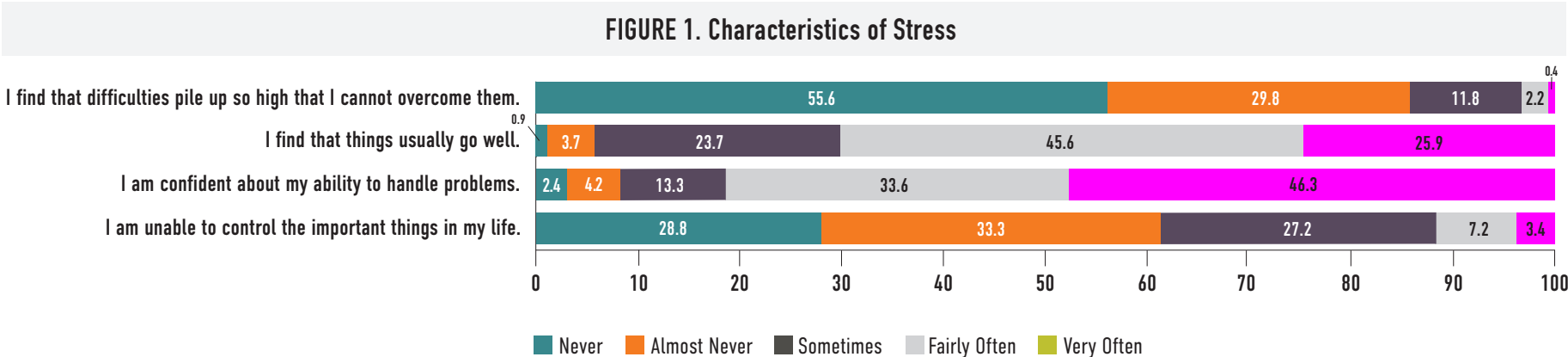
DEMOGRAPHIC DIFFERENCES IN STRESS

There were small but statistically significant differences in stress associated with respondent demographics and background characteristics:

- **GENDER:** Women reported greater stress than men (see Figure 2).

- **AGE:** Respondents in the oldest age range (85+) reported greater stress than younger age groups (see Figure 3). Levels of stress did not significantly differ between respondents in the middle age range (80–84) and those in the youngest age range (younger than 80).

- **DEPRESSIVE SYMPTOMS:** Respondents with more depressive symptoms were more likely to exhibit stress compared to those with fewer depressive symptoms. Examples of depressive symptoms include feeling sad, lonely, or having restless sleep much of the time during the last week (see Figure 4).

- **CHRONIC DISEASE:** Respondents with two or more chronic disease symptoms tended to report greater stress than those with either no chronic disease symptoms or one chronic disease symptom (see Figure 5).

- **RELIGION:** Respondents who reported their religious affiliation as either Protestant, Catholic, or Jewish were more likely to exhibit stress than respondents who reported no religious affiliation (see Figure 6).

- **INCOME:** Greater household income was related to lower levels of stress (see Figure 7). The greatest average differences in stress occurred between residents with household incomes less than $40,000 compared to residents with household incomes greater than $60,000.

- Average levels of stress did not significantly differ based on college education, being married/partnered, or length of residence in the Life Plan Community.[4]

[4] Average Levels of Stress indicates the extent to which respondents exhibited stress-related characteristics on a scale ranging from 1 (1 = Never) to 5 = (Very often)
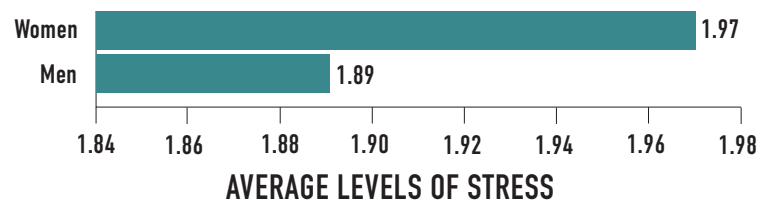
FIGURE 2. Relationship between Gender and Stress

Women	1.97
Men	1.89

1.84   1.86   1.88   1.90   1.92   1.94   1.96   1.98

AVERAGE LEVELS OF STRESS

FIGURE 3. Relationship between Age and Stress

Age	Average Levels of Stress
Younger than 80	1.83
80–84	1.88
85+	2.01

AVERAGE LEVELS OF STRESS
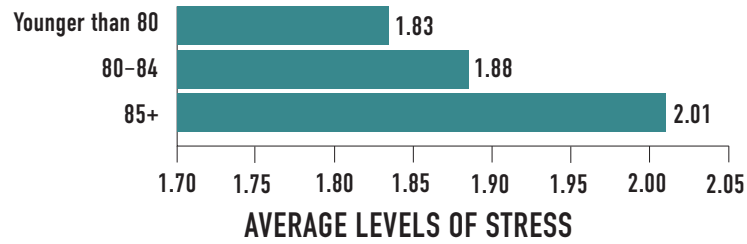
FIGURE 4. Relationship between Number of Depressive Symptoms and Stress

	Average Levels of Stress
0 depressive symptoms	1.65
1–2 depressive symptoms	1.94
3–4 depressive symptoms	2.36
5–6 depressive symptoms	2.60
7–8 depressive symptoms	3.05

AVERAGE LEVELS OF STRESS
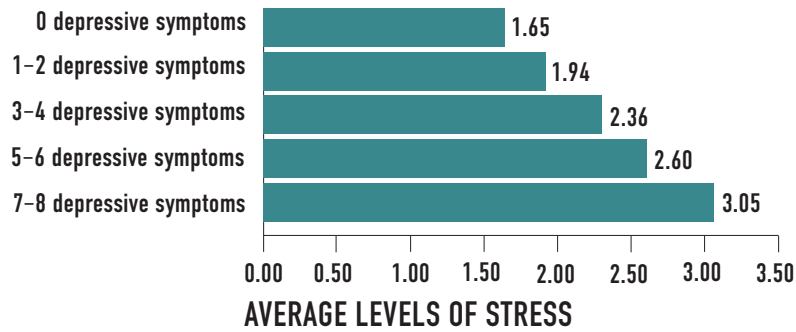
FIGURE 5. Relationship between Number of Chronic Disease Symptoms and Stress

	Average Levels of Stress
0 symptoms	1.82
1 symptom	1.86
2 symptoms	1.94
3+ symptoms	2.10

AVERAGE LEVELS OF STRESS
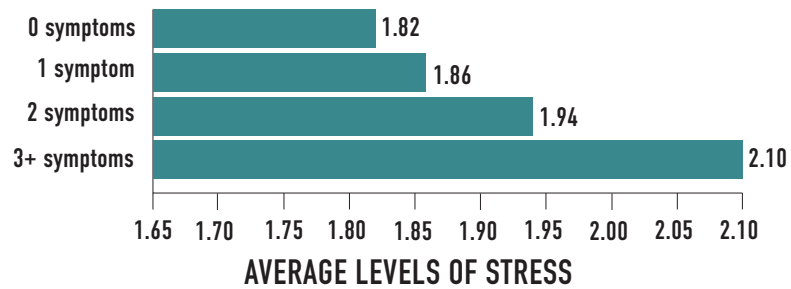
FIGURE 6. Relationship between Religion and Stress

	Average Levels of Stress
Protestant	1.94
Catholic	1.97
Jewish	1.99
None/No preference	1.81
Other	1.95

AVERAGE LEVELS OF STRESS
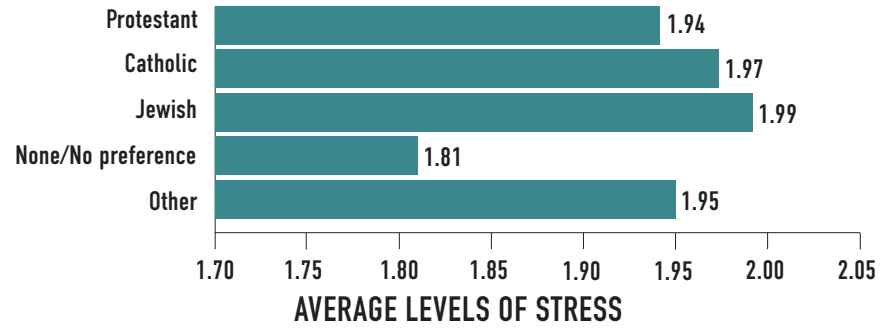
FIGURE 7. Relationship between Income and Stress

	Average Levels of Stress
Less than $40,000	2.13
$40,000–$60,000	2.02
$60,000–$80,000	1.95
$80,000–$100,000	1.96
$100,000–$120,000	1.88
$120,000–$140,000	1.90
$140,000–$160,000	1.88
$160,000 or more	1.89

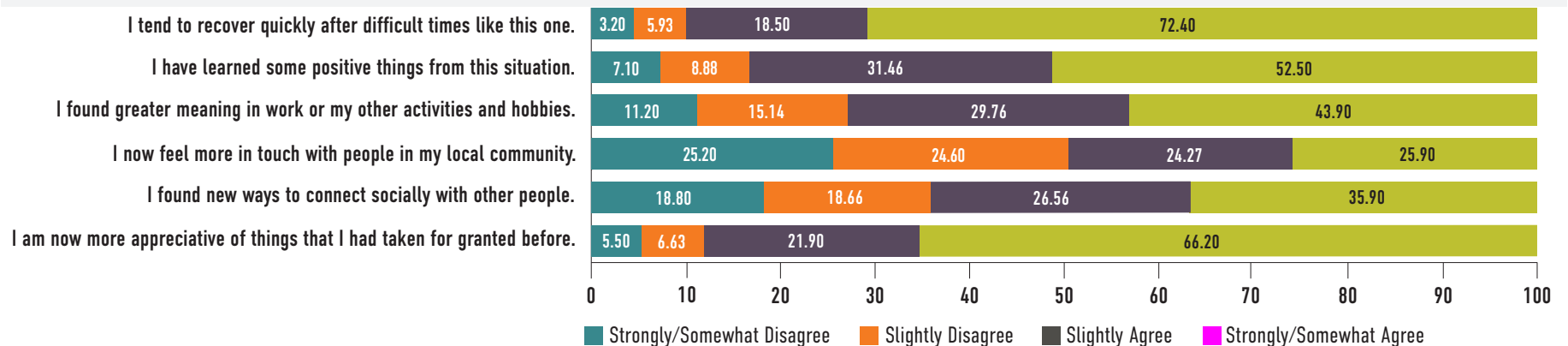AVERAGE LEVELS OF STRESS
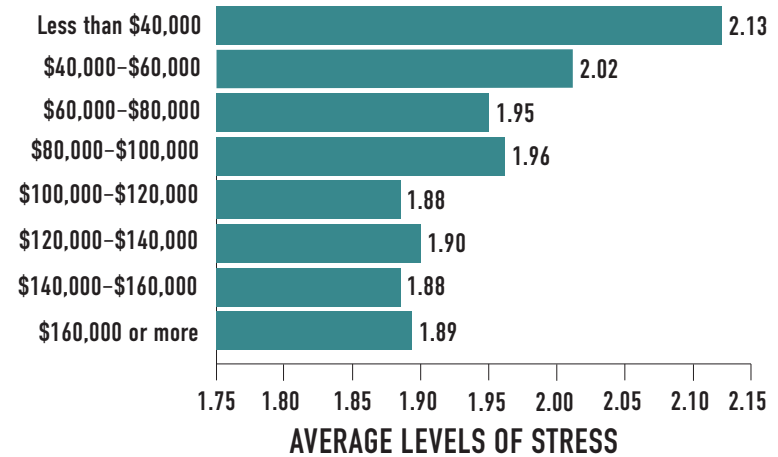
RESIDENT RESILIENCE

Resilience is defined as an individual's ability to cope with adversity, stress, and risk associated with stressful experiences (Bonanno, 2004). It serves to protect a person from stressful experiences, promote recovery from complications the experiences have caused, and consequentially encourage personal development (Fontes & Neri, 2019). Lower resilience is associated with worse mental health outcomes, including depression and anxiety (García-Fernández et al., 2020). Exhibiting concerns about COVID-19 increases the likelihood of developing these characteristics (Killgore et al., 2020).

Respondents completed five items to assess the extent to which they exhibited characteristics associated with resilience during the pandemic. On a scale ranging from 1 to 6, the average level of resilience across all respondents was 4.3, which indicates that most respondents either "slightly agreed" or "somewhat agreed" that they exhibited resilience during the pandemic. Approximately 72.4% of respondents reported that they either "strongly agreed" or "somewhat agreed" that they tend to recover quickly during times like the pandemic, and 66.2% highly agreed that they are now more appreciative of things they had taken for granted before. About half of respondents highly agreed that they learned something positive about themselves (52.56%). Less than half of respondents highly agreed that they found greater meaning in their work or activities and hobbies (43.90%) or found ways to connect socially with other people (35.94%). Only about a quarter highly agreed that they felt more in touch with people within their local community (25.90%). These results are depicted in Figure 8.

FIGURE 8. Resilience during the Pandemic

	Strongly/Somewhat Disagree	Slightly Disagree	Slightly Agree	Strongly/Somewhat Agree
I tend to recover quickly after difficult times like this one.	3.20	5.93	18.50	72.40
I have learned some positive things from this situation.	7.10	8.88	31.46	52.50
I found greater meaning in work or my other activities and hobbies.	11.20	15.14	29.76	43.90
I now feel more in touch with people in my local community.	25.20	24.60	24.27	25.90
I found new ways to connect socially with other people.	18.80	18.66	26.56	35.90
I am now more appreciative of things that I had taken for granted before.	5.50	6.63	21.90	66.20

DEMOGRAPHIC DIFFERENCES IN RESILIENCE

There were small but statistically significant differences in resilience during the pandemic associated with respondent demographics and backgrounds:

- **GENDER:** Women exhibited greater resilience during the pandemic than men (Women=4.37; Men=4.12) (see Figure 9).

- **AGE:** Residents in the oldest age range (85 or better) were less resilient during COVID-19 than those who were younger (see Figure 10).

- **DEPRESSIVE SYMPTOMS:** Respondents who exhibited more depressive symptoms were less likely to be resilient during the pandemic (see Figure 11).

- **CHRONIC DISEASE:** Respondents with two or more chronic disease symptoms tended to exhibit less resilience during the pandemic than those with fewer than two chronic disease symptoms (see Figure 12).

- **RELIGION:** Respondents who reported their religious affiliation as "Other" were less resilient during the pandemic than those who were Protestant or Catholic (see Figure 13).

- Average resilience during the pandemic did not significantly differ based on income, college education, being married/partnered, or length of residence.

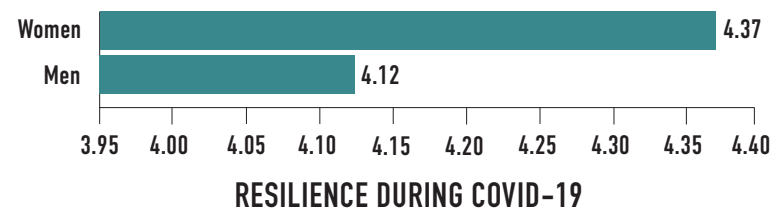**FIGURE 9. Relationship between Gender and Resilience during the Pandemic**

RESILIENCE DURING COVID-19

FIGURE 10. Relationship between Age and Resilience during the Pandemic

Age	Resilience
Younger than 80	4.43
80–84	4.34
85+	4.21

RESILIENCE DURING COVID–19
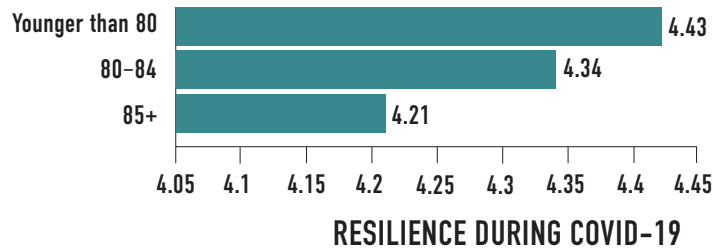
FIGURE 12. Relationship between Number of Chronic Disease Symptoms and Resilience during the Pandemic

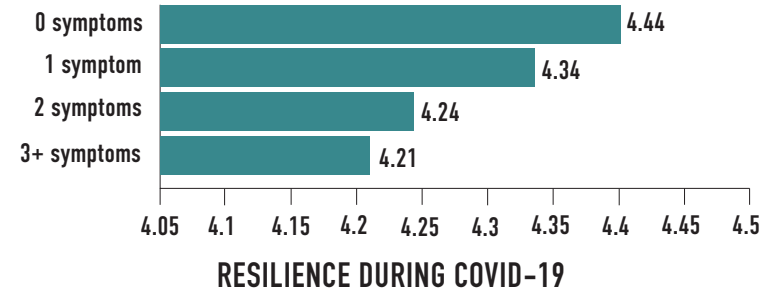|	Resilience
0 symptoms	4.44
1 symptom	4.34
2 symptoms	4.24
3+ symptoms	4.21

RESILIENCE DURING COVID–19

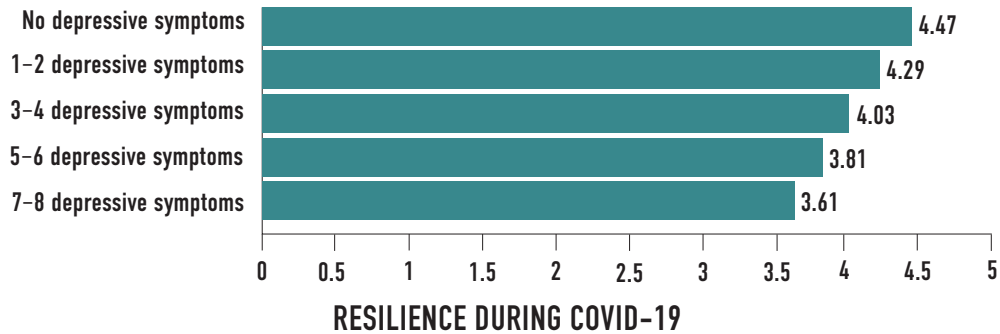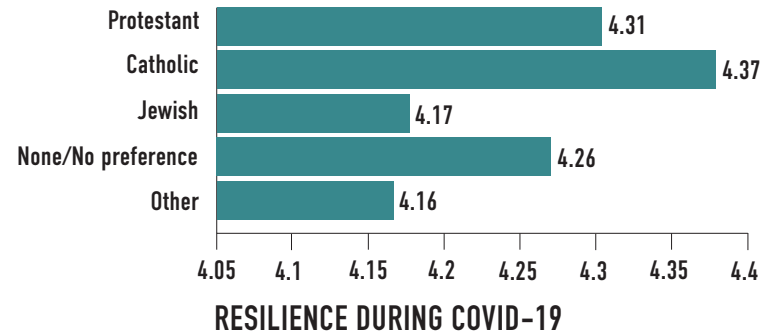**FIGURE 11. Relationship between Number of Depressive Symptoms and Resilience during the Pandemic**

	Resilience
No depressive symptoms	4.47
1–2 depressive symptoms	4.29
3–4 depressive symptoms	4.03
5–6 depressive symptoms	3.81
7–8 depressive symptoms	3.61

RESILIENCE DURING COVID–19

FIGURE 13. Relationship between Religion and Resilience during the Pandemic

	Resilience
Protestant	4.31
Catholic	4.37
Jewish	4.17
None/No preference	4.26
Other	4.16

RESILIENCE DURING COVID–19

The findings examining how chronic conditions and depression are associated with stress and resilience during the pandemic are consistent with past research (García-Fernández et al., 2020; Weinstein & Ryan, 2011). Consistent with existing research, we found that religion was associated with reduced stress and greater resilience during the pandemic. Recent studies indicate this is the case regardless of religious affiliation (Ouanes et al., 2021; Pirutinsky, Cherniak, & Rosmarin, 2020). One reason for this is because religion provides a framework for understanding and accepting stressors (Krause, 1997; Morales-Rodríguez et al., 2021).

Findings are mixed in prior research examining age and its association with stress and resilience during the pandemic. Like the Age Well Study, some have found that those who are younger are more resilient than those who are older.

The findings indicating that women exhibit more stress than men are consistent with past research as well. Such research shows that women exhibit more daily stress, more chronic problems, and increased daily demands (Matud, 2004). Additionally, one study conducted in Israel found that women reported a higher sense of danger and higher distress during the COVID-19 pandemic than men (Kimhi et al., 2020). However, this study did not specifically examine gender differences in stress among older adults.

The findings regarding gender differences in resilience during COVID-19 are not consistent with past research specifically addressing COVID-19-related resilience. One study conducted in Turkey examined the association between resilience during the pandemic with psychological factors like life satisfaction and hope and concluded that there were no gender differences (Karatas & Tagay, 2021). However, this study also does not focus on gender differences in resilience among older adults. Other studies specifically examining gender differences in resilience among older adults prior to the pandemic indicate that older men exhibit greater resilience than older women. For instance, a study examining those over the age of 60 indicates that women are less resilient than men and ultimately exhibit poorer well-being (Leppert et al., 2005). Another study examining those who are "very old" who exhibit low resilience found that women are particularly more vulnerable than men (Aléx & Lundman, 2011).

Findings are mixed in prior research examining age and its association with stress and resilience during the pandemic. Like the Age Well Study, some have found that those who are younger are more resilient than those who are older (Weitzel et al., 2021). However, other researchers examining adults of all ages have found that those who are older are more likely to exhibit resilience during the pandemic (Ferreira, Buttel, & Cannon, 2020). Another study conducted prior to the pandemic that specifically examined older adults found no association between age and resilience (Leppert et al., 2005).

It's possible that the findings herein may be inconsistent with other studies because, unlike the Age Well Study, many other studies have considered how perceptions of risk associated with the pandemic impact stress and resilience during COVID-19. For instance, women, those who are older, and those with lower household incomes are more likely to exhibit a sense of danger associated with COVID-19, which leads to symptoms of distress (Kimhi et al., 2020).

THE ASSOCIATION BETWEEN PERSONALITY AND RESILIENCE AND STRESS

Personality is often described by five core traits. Commonly called the "Big Five" by psychologists, the traits are openness, conscientiousness, extroversion, agreeableness, and neuroticism (Lachman & Weaver, 1998). These patterns of behavior, feelings, and thoughts have complex genetic and environmental origins, and tend to be fairly stable throughout our lives (Strickhouser, Zell, & Krizan, 2017).

Personality helps to shape various aspects of life, including stress and resilience (Kim et al., 2016). For instance, individuals who are extroverted may exhibit lower levels of perceived stress because they report more positive emotional experiences in their daily lives (Costa & McCrae, 1990). Those exhibiting openness may exhibit lower levels of stress because they tend to be imaginative, creative, mindful, and flexible thinkers; and agreeable individuals tend to be good-natured and cooperative, which is also helpful when handling daily stress (Costa & McCrae, 1992). Table 4 indicates how these personality traits are associated with stress and resilience during the pandemic.

TABLE 4. Association between Personality Traits and Stress and Resilience during the Pandemic

	Stress	Resilience during COVID-19
Neuroticism	↑	↓
Extroversion	↓	↑
Openness to new experiences	↓	↑
Agreeableness	↓	↑
Conscientiousness	↓	

■ Positive Outcomes   ■ Negative Outcomes

Direction of arrows indicates an increase (↑) or decrease (↓) in relation to the traits in the left column. Since outcomes may be positive (e.g., resilience) or negative (e.g., stress), colors highlight positive (teal) or negative (orange) outcomes. Spaces without arrows indicate that there is no association between the variables.

Those who were open to new experiences, as well as those who exhibited high levels of extroversion and agreeableness, were less likely to exhibit stress and more likely to exhibit resilience during the pandemic, while those exhibiting neuroticism were more likely to exhibit stress and less likely to exhibit resilience. Those who exhibited conscientiousness were additionally less likely to experience stress during the pandemic.

These findings are consistent with past research, which has found that higher levels of neuroticism, as well as lower levels of extroversion, agreeableness, and conscientiousness, are significantly associated with greater perceived stress (Kim et al., 2016).

It is noteworthy, however, that while certain "favorable" personality characteristics may be associated with lower levels of perceived stress, exhibiting characteristics of neuroticism may be beneficial in helping individuals physiologically cope with stressors. One study found that those who exhibited neuroticism were less likely to react to stressors by producing cortisol, a stress-induced hormone, than those with more positive personality characteristics (Bibbey et al., 2013). Their study contributes to literature that suggests that drivers of subjective stress reactions, such as personality characteristics, are different from those that contribute to physiological stress reactivity (Campbell & Ehlert, 2012).

THE ASSOCIATION BETWEEN PERSONAL RESOURCES AND STRESS AND RESILIENCE

Older adults can strengthen resilience by developing personal resources to overcome stressors (Mertens et al., 2012; Weinstein & Ryan, 2011). Some of these personal resources include autonomy, affiliation, achievement, social cohesion, positive perceptions of aging, and a sense of purpose. (Autonomy, affiliation, and achievement were identified by Mather Institute in 2021 as the three key drivers of well-being.) Table 5 examines their association with stress and resilience during the COVID-19 pandemic.

TABLE 5. Association between Personal Resources and Stress and Resilience during the Pandemic

	Stress	Resilience during COVID-19
Autonomy	↓	↑
Affiliation	↓	↑
Achievement	↓	↑
Social cohesion	↓	↑
Perceptions of aging	↓	↑
Purpose	↓	↑

■ Positive Outcomes ■ Negative Outcomes

Direction of arrows indicates an increase (↑) or decrease (↓) in relation to the traits in the left column. Since outcomes may be positive (e.g., resilience) or negative (e.g., stress), colors highlight positive (teal) or negative (orange) outcomes.

Autonomy, affiliation, and achievement are associated with reduced stress and greater resilience during the COVID-19 pandemic.

• Greater autonomy is associated with less stress and greater resilience during the pandemic.
• Greater affiliation is associated with less stress and greater resilience during the pandemic.
• Greater achievement is associated with less stress and greater resilience during the pandemic.
• Greater social cohesion is associated with less stress and greater resilience during the pandemic.
• Greater perceptions of aging are associated with less stress and greater resilience during the pandemic.
• Greater sense of purpose is associated with less stress and greater resilience during the pandemic.

These findings are consistent with past research, which indicates that decreased stress and greater resilience are associated with all the personal resources examined in this study. They are associated with autonomy (the degree to which individuals feel responsible for their behavior), affiliation (the extent to which individuals feel connected with others within their social environment), and achievement (the extent to which individuals feel capable of effectively engaging in opportunities) (Ferrand, Martinet, & Durmaz, 2014; Weinstein & Ryan, 2011). They are also associated with exhibiting greater social cohesion (Ludin et al., 2019), more positive perceptions of aging (Scheier & Carver, 1985), and greater sense of purpose in life (Nygren et al., 2005).

HOW ORGANIZATIONAL FACTORS AFFECTED RESIDENT RESPONSE TO THE PANDEMIC

ORGANIZATIONAL FACTORS AND RESIDENT STRESS

Most organizational characteristics measured in this study were unrelated to resident stress; however, there were small differences in levels of stress for two organizational characteristics:

- **COMMUNITY SIZE:** Respondents of smaller communities (300 or fewer residents in independent living) were less likely to be stressed compared to residents of communities with more than 300 residents in independent living (<300 residents=1.9; 300+ residents=2.0) (see Figure 14).

- **REGION:** Residents of communities located in the Northeast reported more stress than residents in other regions (see Figure 15).

- There were no significant differences in stress associated with profit status, fee structure, religious affiliation, number of communities, levels of care, or age of community.

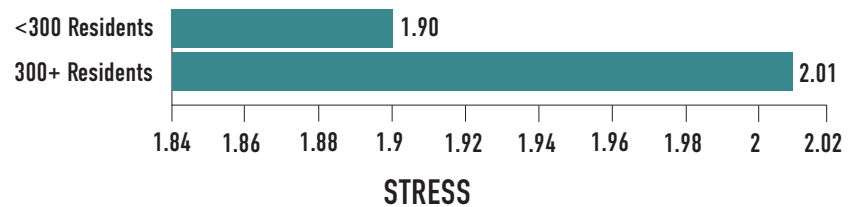### FIGURE 14. Relationship between Community Size and Stress
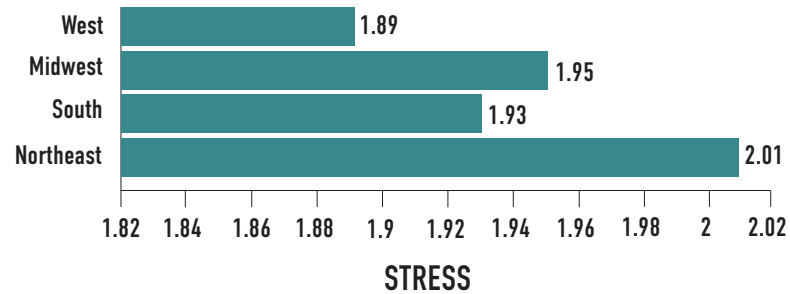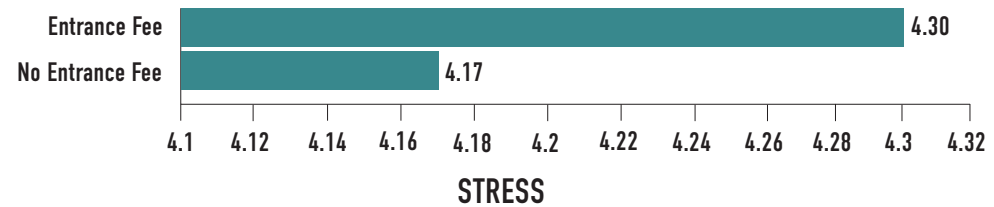
FIGURE 15. Relationship between Region and Stress

Region	Stress
West	1.89
Midwest	1.95
South	1.93
Northeast	2.01

STRESS

FIGURE 16. Relationship between Community Entrance Fees and Resilience during the Pandemic

	Stress
Entrance Fee	4.30
No Entrance Fee	4.17

STRESS

ORGANIZATIONAL FACTORS AND RESIDENT RESILIENCE

Most organizational characteristics measured in this study were unrelated to resilience during the pandemic among residents; however, there were small differences in levels of resilience for one organizational characteristic:

• **FEE STRUCTURE:** Residents living in communities without an entrance fee tended to exhibit more resilience during the pandemic than those who lived in communities with entrance fees (Entrance fee=4.3; No entrance fee=4.2) (see Figure 16).

• Resilience during the pandemic did not significantly differ by profit status, religious affiliation, number of communities, community size, community location, region, number of residents, or age of community.

CHANGES IN RELATIONSHIP QUALITY

A large body of literature demonstrates that the quality of social relationships impacts wellness (Cornwell et al., 2008). High levels of social support provided by social relationships can reduce psychological problems associated with stressful circumstances like the COVID-19 pandemic (Ward et al., 2021). The quality of social support provided by social relationships differently impacts wellness depending upon relationship type (Antonucci & Akiyama, 1987). Aside from relationships with partners, for instance, wellness is additionally associated with high-quality relationships with children, grandchildren, other family members, friends, and neighbors.
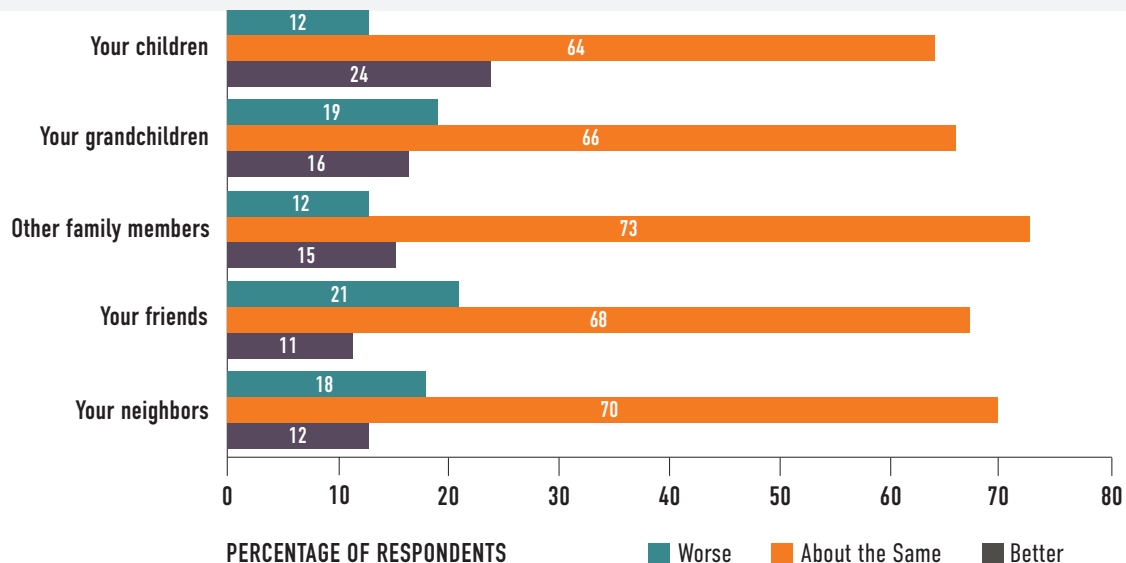
To examine how changes in the quality of social relationships are associated with stress and resilience during the pandemic, respondents were asked whether the pandemic has impacted the quality of their relationships with five types of relationships: those with children, grandchildren, other family members, friends, and neighbors. Responses ranged from 1 (indicating that relationships got worse) to 3 (indicating that relationships got better). Residents decided on their own what it meant for their relationships to get better or worse. The quality of most relationships remained "about the same," regardless of relationship type (average: 2.0). When respondents did report changes, a greater percentage reported better relationships with their children and other family members and worse relationships with friends, neighbors, and grandchildren. Figure 17 depicts residents' perceptions of how the quality of their social relationships changed during the pandemic.

The quality of social relationships can impact one's ability to cope with stress and exhibit resilience (Fuller-Iglesias et al., 2008). However, COVID-19 guidelines promoting social distancing disrupted many people's ability to maintain quality relationships, ultimately challenging their ability to cope with stress and exhibit resilience during the pandemic (Birditt et al., 2021).

Findings from Year 4 of the Age Well Study suggest that, relative to respondents who indicated that the quality of their relationships with children, grandchildren, other family members, friends, and neighbors worsened, those who felt that the quality of these relationships remained about the same or became better were less likely to exhibit stress.

FIGURE 17. Changes in the Quality of Relationships with Non-Household Members during the Pandemic

	Worse	About the Same	Better
Your children	12	64	24
Your grandchildren	19	66	16
Other family members	12	73	15
Your friends	21	68	11
Your neighbors	18	70	12

PERCENTAGE OF RESPONDENTS

Like the association between relationship quality and stress, respondents who thought that relationships with grandchildren, other family members, friends, and neighbors remained the same or improved were also likely to exhibit greater resilience during the pandemic than those who thought that these relationships worsened.

Like the association between relationship quality and stress, residents who reported that their relationships with grandchildren, other family members, friends, and neighbors remained the same or improved were also likely to exhibit greater resilience during the pandemic than those who thought that these relationships worsened. Additionally, respondents who felt that their relationships with their children improved were more likely to exhibit greater resilience during the pandemic than those who indicated that these relationships remained the same or worsened. These findings indicate that developing quality relationships with children helped residents exhibit greater resilience during the pandemic.

Other research published during the pandemic came to similar conclusions. For example, one study indicated that negative relationship quality is associated with greater COVID-19-related stress (Birditt et al., 2021) and another showed that receiving social support from network members is associated with greater resilience during the pandemic, particularly when provided by quality relationships with family (Li et al., 2021). However, the Age Well Study is the first to examine whether changes in relationship quality among different types of relationships are associated with stress and resilience during the pandemic.

COPING STRATEGIES

Coping has been defined as the continuous changing of behavioral and mental efforts to manage internal and external demands causing stress. It serves to regulate stressful emotions and help people adjust to aspects of their environments that may be causing the distress (Lazarus & Folkman, 1982).

In the Age Well Study, respondents were asked to indicate if they had engaged in any of seven specific activities to cope with stress related to the COVID-19 pandemic. Nearly all (98%) residents engaged in at least one of the seven coping strategies, with an average of 3.3 coping strategies each. Most coped with the pandemic by talking with friends and family (89.2%) and/or by increasing the time that they spent on intellectual activities like reading or doing puzzles (81.6%). Respondents were least likely to talk to a mental health provider (such as therapist, psychologist, or counselor) for support (4.3%). Figure 18 displays the number of residents who reported engaging in each of the coping strategies.

Additional analyses examined the relationship between each coping strategy and stress and resilience during the pandemic. A summary of these results is depicted in Table 6.

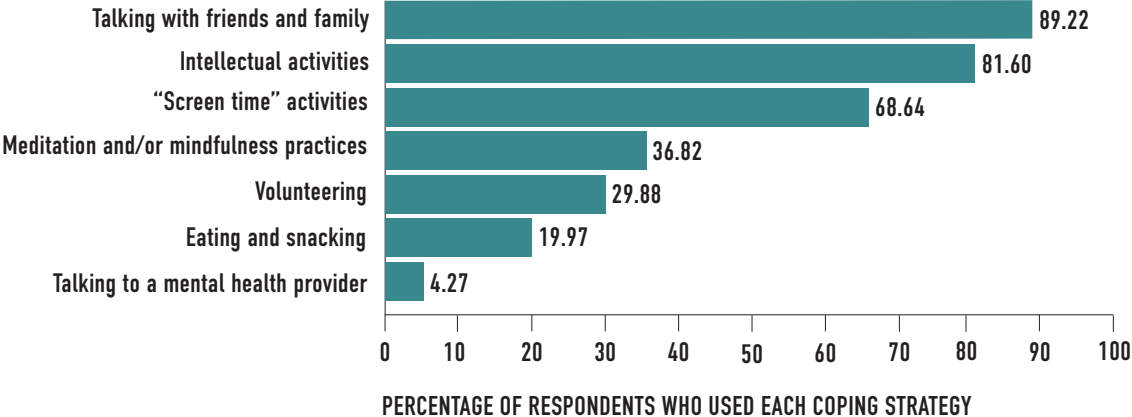## FIGURE 18. Coping Strategies Used during the Pandemic

Coping Strategy	Percentage
Talking with friends and family	89.22
Intellectual activities	81.60
"Screen time" activities	68.64
Meditation and/or mindfulness practices	36.82
Volunteering	29.88
Eating and snacking	19.97
Talking to a mental health provider	4.27

PERCENTAGE OF RESPONDENTS WHO USED EACH COPING STRATEGY

TABLE 6. The Association between Coping Strategies and Stress and Resilience during the Pandemic

	Stress	Resilience during COVID-19
Talking with friends and family		↑
Intellectual activities	↓	↑
"Screen time" activities	↑	↑
Meditation and/or mindfulness practices	↓	↑
Volunteering	↓	↑
Eating and snacking	↑	
Talking to a mental health provider	↑	

■ Positive Outcomes　　■ Negative Outcomes

Direction of arrows indicates an increase (↑) or decrease (↓) in relation to the traits in the left column. Since outcomes may be positive (e.g., resilience) or negative (e.g., stress), colors highlight positive (teal) or negative (orange) outcomes. Spaces without arrows indicate that there is no association between the variables.

- **TALKING WITH FRIENDS OR FAMILY:** Talking with friends and family (either by phone, text, or video) is associated with greater resilience during the pandemic, but is not significantly associated with stress.

- **INTELLECTUAL ACTIVITIES:** Engaging in activities like reading, puzzles, and crosswords help to stimulate the mind. Individuals who engage in any of these activities were more likely to exhibit less stress and greater resilience during the pandemic.

- **"SCREEN TIME":** Individuals engage in "screen time" when they watch television or use tablets, smartphones, or computers to engage in activities like playing video games or spend time on social media. Engaging in screen time is associated with higher levels of stress but greater resilience during the pandemic.

- **MEDITATION AND/OR MINDFULNESS:** Those who meditate were less likely to exhibit stress and more likely to exhibit resilience during the pandemic compared to those who don't meditate.

- **VOLUNTEERING:** During the pandemic, many people started volunteering through activities such as donating masks and making friendly phone calls to decrease social isolation. For this reason, these activities were proposed to residents as examples for how they could have volunteered during the pandemic. Residents who volunteered were more likely to exhibit less stress and greater resilience during the pandemic.

- **EATING AND SNACKING:** Eating more often is associated with higher levels of stress but is not significantly associated with resilience during the pandemic.

- **TALKING TO A MENTAL HEALTH PROVIDER:** Talking to a mental health provider can include talking to a therapist, psychologist, or counselor. It is associated with increased stress but is not associated with resilience during the pandemic. However, since we did not ask respondents about how their stress changed in response to speaking to a mental health provider over time, we cannot say with certainty whether residents were stressed because they saw a mental health provider or whether they saw a mental health provider because they were stressed.

These findings are consistent with past research, which has indicated that meditation/mindfulness, mental activities, and volunteering are all coping strategies associated with less stress and greater resilience (Behan, 2020; Pagnini, Bercovitz, & Langer, 2016; Dekel et al., 2015). Likewise, eating and snacking has been identified as an unhealthy coping mechanism for handling stressful experiences (Adam & Epel, 2007). Some coping mechanisms like meditation/mindfulness help individuals feel in control of their lives, which leads to better physical and mental health (Pagnini, Bercovitz, & Langer, 2016). Mental activities like puzzles and other hobbies help individuals alleviate stress and learn how to appreciate life (Dekel et al., 2015).

Findings examining the association between "screen time" and stress and resilience are mixed. Some studies indicate that, like engaging in mental activities such as puzzles, engaging in screen time can be a hobby that helps to alleviate stress and provides a greater appreciation of life (Dekel et al., 2015). Others indicate that screen time can be positively or negatively associated with stress and resilience depending on how it is used. On one hand, watching your favorite television show may be therapeutic, ultimately reducing stress and increasing resilience (Pahayahay & Khalili-Mahani, 2020). On the other hand, watching COVID-19-related news could decrease stress and increase resilience if it helps you feel more in control of your health, or it could increase stress and decrease resilience if it makes you feel more fearful of the pandemic. Thus, findings indicating that screen time is associated with both greater stress and resilience during the pandemic likely suggest that residents may be responding to different types of screen time.

> These findings are consistent with past research, which has indicated that meditation/mindfulness, mental activities, and volunteering are all coping strategies associated with less stress and greater resilience.

Unlike past research suggesting that individuals should talk with friends and family as a coping mechanism to reduce stress and exhibit resilience during the pandemic, this study did not find an association between talking with friends and family and stress, though it did show that such communication is associated with greater resilience during the pandemic.

Unlike past research suggesting that individuals should talk with friends and family as a coping mechanism to reduce stress and exhibit resilience during the pandemic (Polizzi & Perry, 2020), this study did not find an association between talking with friends and family and stress, though it did show that such communication is associated with greater resilience during the pandemic. These findings are also counterintuitive to findings mentioned earlier that indicate maintaining quality relationships with friends and family is associated with less stress in addition to greater resilience during the pandemic. This may be because relationship quality and communicating with others can differently impact stress; it could also mean that communicating with others is not necessarily a measure of relationship quality. Third, it's possible that these findings might be unique because of how respondents were asked about whether they relied on communicating with friends and family as a coping strategy. Respondents were specifically asked if they talked with friends and family to cope with stress related to the pandemic. It's conceivable that respondents who did not report talking with family and friends to cope with stress may still have talked to them. More research in this area is needed to better understand the role of family and friends in relation to stress.

DISCUSSION

The Year 4 analysis contributes to our understanding of how older adults have responded to the pandemic. Specifically, the study identifies specific types of personality and personal resources that are associated with stress and resilience among Life Plan Community residents. It further examines how changes in relationship quality within one's social network as well as other coping mechanisms are associated with stress and resilience. By identifying key factors related to resident stress and resilience during the COVID-19 pandemic, the study findings can be used to inform the development and customization of programs and resources to alleviate residents' stress and cultivate their resilience in times of greater hardship.

Findings from Year 4 of the Age Well Study revealed that Life Plan Community residents, on average, exhibited low levels of stress and high levels of resilience during the pandemic. However, there are individual differences in stress and resilience across residents.

Findings from Year 4 of the Age Well Study revealed that Life Plan Community residents, on average, exhibited low levels of stress and high levels of resilience during the pandemic. However, there are individual differences in stress and resilience across residents. Overall lower levels of neuroticism as well as higher levels of extroversion, agreeableness, and openness to new experiences are associated with less stress and better resilience during the pandemic. Residents with higher levels of personal resources, such as autonomy, affiliation, achievement, and social cohesion, as well as positive perceptions of aging and sense of purpose, also exhibited less stress and greater resilience. Programs to increase residents' personal resources may help lower residents' stress and strengthen their resilience. For instance, an inability to maintain their autonomy or accomplish tasks may lead residents to become stressed. Creating programs that give residents the opportunity to practice autonomy and exhibit achievement may help to decrease residents' stress associated with developing limitations as they age, and may help them exhibit resilience during times of hardship like the COVID-19 pandemic.

Interestingly, many of these personality characteristics and personal resources are also associated with wellness outcomes in prior reports. For instance, while the current Year 4 report indicates that higher extroversion, sense of purpose, and social cohesion are related to less stress and more resilience, prior reports found that the same characteristics are associated with better resident health (Year 2) and happiness (Year 3). This suggests that many programs offered by Life Plan Communities to enhance residents' physical and emotional wellness may also decrease their stress and cultivate resilience.

The Age Well Study further indicates that strengthening bonds with children was significantly associated with residents' ability to exhibit high levels of resilience during the pandemic. However, both strength-

ening and maintaining bonds with all types of network members—including grandchildren, other family members, friends, and neighbors—were associated with decreased stress and greater resilience during the pandemic. Strengthening and maintaining the quality of relationships with children were also associated with lower levels of stress. These findings indicate that strengthening the quality of relationships with children may be of greatest importance when cultivating resilience during difficult times.

Overall, the various coping strategies examined differently impacted stress but are consistently associated with greater resilience during the pandemic. Creating programs for which respondents could engage in meditation/mindfulness, intellectual activities, or volunteering may help reduce residents' stress and promote resilience. Additionally, providing opportunities for residents to engage in "screen time" may be both beneficial and harmful to psychological wellness, depending on how it is used or how information is perceived.

It is interesting to note that stress and resilience during the pandemic were both associated with gender, religion, age, depressive symptoms, and the number of chronic disease symptom. In other words, individual factors seem to matter a great deal in relation to one's capacity to manage stress and develop resilience. This reinforces the idea that staff should attend to individual differences when aiming to promote wellness within their communities.

PROPOSED STRATEGIES FOR COMMUNITIES

Life Plan Communities interested in leveraging the study findings to mitigate residents' stress while promoting resilience and healthy coping strategies should consider the following broad strategies for developing or customizing programs and resources:

- **Offer educational and experiential programs that promote the use of personal resources.**
  For instance, Life Plan Communities can cultivate resident autonomy in a variety of ways, starting with providing more choices for participation in wellness opportunities. Communities can also provide residents with opportunities to participate in activities that foster a sense of personal achievement. For example, a lecture program could be redesigned as a short series, with residents receiving a certificate of completion when they have attended all events. Finally, affiliation may be encouraged in a multitude of ways, such as incorporating opportunities for discussion during or after wellness events.

- **Offer residents lectures and other programs that provide education about how to engage in healthy coping strategies in addition to opportunities to practice these strategies.**
  For instance, Life Plan Communities can offer yoga events to teach engagement in meditation/mindfulness and trivia game nights to promote engagement in intellectual activities.

- **Encourage residents to invite others who may not live in the Life Plan Communities to social events.**
  Enabling residents to invite others to social events can help provide residents with opportunities to enhance relationships with their children and maintain social relationships with grandchildren, other family members, friends, and neighbors.

CAVEATS

Participants self-selected into the Age Well Study, and their responses may not be representative of all residents of Life Plan Communities. For instance, residents who chose to enroll and to continue participating in this study may be more interested in wellness-related activities than those who chose not to participate. Similarly, participating Life Plan Communities may also be more likely than non-participating communities to prioritize wellness and offer greater wellness resources.

Respondents may have exhibited differing levels of resilience to the pandemic throughout the year in response to changes in perceptions of its severity and changes in COVID-19 positivity rates over time throughout different regions of the country. For instance, research indicates that those who aren't threatened by COVID-19 are more likely to exhibit resilience than those who feel that COVID-19 is a threat (Weitzel et al. 2021). Additionally, those who lived in regions with higher positivity rates during the time that they completed the Age Well Study survey may have reported different levels of resilience to COVID-19 than those who lived in regions where positivity rates were lower. Lastly, given the dates of participation (January to May 2021), some residents may have been vaccinated while others may not have been. Vaccination status may have affected reporting of resilience and stress.

FUTURE STUDY

The Age Well Study Year 1 results indicate that residents of Life Plan Communities reported better physical, social, intellectual, vocational, and emotional wellness compared to older adults who do not live in Life Plan Communities, but they exhibited lower levels of spiritual wellness. The Year 2 report deepened our understanding of resident wellness by identifying factors associated with healthy behaviors and health outcomes. Our understanding of factors associated with resident wellness continued in Year 3 through the examination of their association with happiness and life satisfaction, as well as in Year 4 through the examination of how residents responded to the pandemic. Age Well Study surveys will be administered one last time in 2022, with the goal of exploring changes in wellness outcomes over time among residents of Life Plan Communities compared to older adults in the community at large.

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OUTCOMES

STRESS: Measures participants' appraisal of stress in their daily lives (Perceived Stress Scale; Cohen, Kamarck & Mermelstein, 1983). Participants 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.

RESILIENCE DURING COVID-19: An item examining resilience from the Health and Retirement Study was adapted to examine resilience during COVID-19 (National Institute on Aging, 2020). The item measures participants' perceptions of how much they have exhibited specific psychological characteristics associated with resiliency, specifically during the COVID-19 pandemic. Participants rated six statements that assessed their agreement in the extent to which they exhibited characteristic of resiliency (1=Strongly Disagree, 2=Somewhat Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Somewhat Agree, 6=Strongly Agree). Unlike Figures 9-13, which examine demographic differences in resilience during COVID-19 using a scale ranging from 1 to 6, Figure 8 simplifies the frequencies for which residents responded to questions targeting resilience during COVID-19 by categorizing it using a scale consisting of four categories (1=Strongly/Somewhat Disagree, 2=Slightly Disagree, 3=Slightly Agree, 4=Strongly/Somewhat Agree). The ratings were averaged together for a composite score that ranged from 1 to 4.

PERSONALITY

PERSONALITY: Measures the "Big 5" dimensions of personality (Lachman & Weaver, 1997). Participants rated the extent to which 31 personality traits describe themselves (1=Not at all, 4=A lot). Four to 10 items were averaged together for each dimension of personality to produce composite scores (ranging from 1 to 4) for neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness.

PERSONAL RESOURCES

AUTONOMY, AFFILIATION, AND ACHIEVEMENT: Participants completed a 12-item version of the Basic Psychological Needs Satisfaction scale to create indicators for autonomy, affiliation, and achievement (Chen et al., 2015). Participants were asked the degree to which statements examining characteristics of autonomy, affiliation, and achievement were true at this point in their lives. Responses ranged from 1 to 5 (1=Not at all, 2=Slightly true, 3=Somewhat true, 4=Moderately true, 5=Completely true). Each of these psychological needs were derived from four of the 12 questions to create three separate composite scores ranging from 1 to 5.

SOCIAL COHESION: Adapted from a measure of neighborhood cohesion, social cohesion measures an individual's perceptions of cohesion and closeness with others living in their senior living community, focusing more on social relationships than on being part of the community overall (Buckner, 1988; Fone et al., 2007; Robinson & Wilkinson, 1995). It is 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 senior living 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.

PERCEPTIONS OF AGING: This 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.

PURPOSE IN LIFE: This measures an individual's feelings of worth and accomplishment in life (Ryff, 1989). 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.

SOCIAL RELATIONSHIPS: An item examining changes in social relationships from the Health and Retirement Study was adapted to examine changes in social relationships during COVID-19

(National Institute on Aging, 2020). Participants were asked to rate the extent to which the quality of five different types of social relationships have changed since the COVID-19 pandemic. These relationships included those with their children, grandchildren, other family members, friends, and neighbors. Participants rated changes in the quality of these relationships in four ways (1=Worse, 2=About the same, 3=Better, 4=Not relevant). After excluding participant responses indicating that a type of relationship was not relevant, the ratings for each type of social relationship were averaged together to create separate composite scores for each relationship type that ranged from 1 to 3.

COPING STRATEGIES: An item to examine coping strategies was created by the Mather Institute for a former project examining meaning and purpose among older adults. Participants were asked to indicate which of seven activities they had done in order to cope with the COVID-19 pandemic (0=Did not use coping strategy; 1=Used coping strategy). If they had not done any of the seven activities, they were asked to mark that they had not done so. Because few participants indicated that they had talked to a mental health provider during the pandemic, this coping strategy was excluded from analysis. Each coping strategy was examined individually.

OTHER
CHRONIC HEALTH CONDITIONS: Participants indicated (Yes/No) whether 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.

DEPRESSION: A measure of depressive symptoms experienced by older adults (Lewinsohn et al., 1997). Participants completed an eight-item version of the Center for Epidemiological Studies-Depression scale (CES-D; Radloff, 1977). Participants indicated (Yes/No) whether they experienced each depressive symptom "much of the time" during the past week. The number of depressive symptoms experienced were added together, and composite scores could range from 0 to 8.
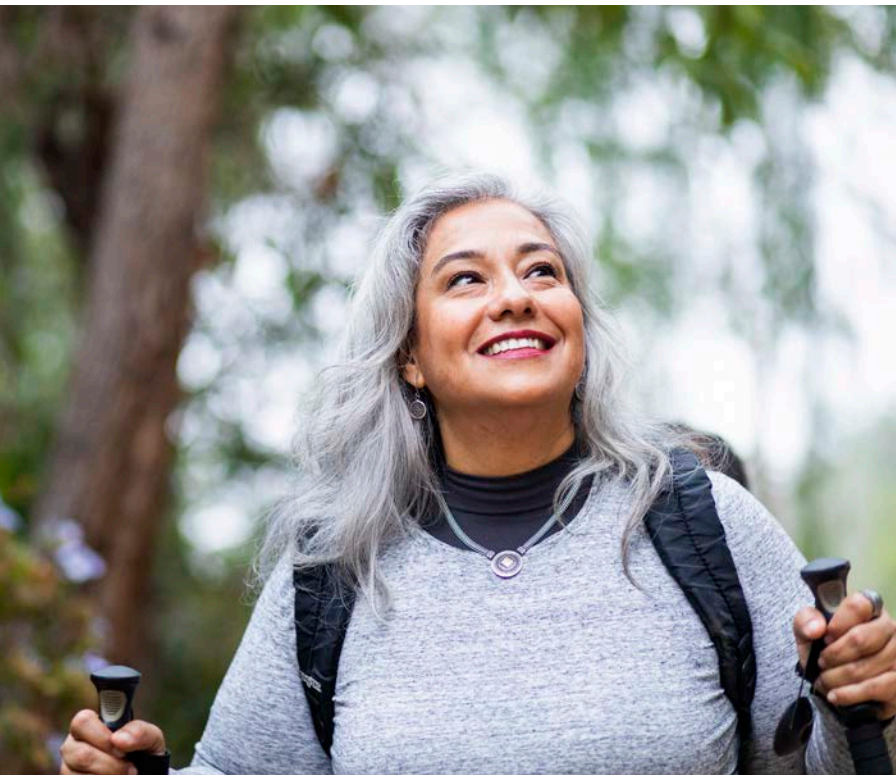
TABLE 7. Descriptive Statistics for Select Measures

	Participant Mean (Average)	Participant Range
Outcome		
Stress	1.94	1 - 5
Resilience during COVID-19	3.33	0 - 7
Personality		
Neuroticism	1.91	1 - 4
Extroversion	3.29	1 - 4
Openness	3.12	1 - 4
Agreeableness	3.49	1 - 4
Conscientiousness	3.37	1 - 4
Personal Resources		
Autonomy	4.16	1 - 5
Affiliation	4.56	1 - 5
Achievement	4.07	1 - 5
Social cohesion	3.66	1 - 5
Perspectives of aging	3.74	1 - 6
Purpose	4.62	1 - 6
Changes in Relationship Quality		
Children	2.12	1 - 3
Grandchildren	1.97	1 - 3
Other family members	2.03	1 - 3
Friends	1.90	1 - 3
Neighbors	1.94	1 - 3
Coping Strategies		
Talking with friends or family	0.89	0 - 1
Intellectual activities	0.82	0 - 1
"Screen time"	0.69	0 - 1
Meditation/Mindfulness	0.37	0 - 1
Eating and snacking	0.20	0 - 1
Volunteering	0.30	0 - 1
Talking to a mental health provider	0.04	0 - 1
Other		
Chronic conditions	1.76	0 - 7
Depression	1.44	0 - 8

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.

- Northeast
- Midwest
- South
- West
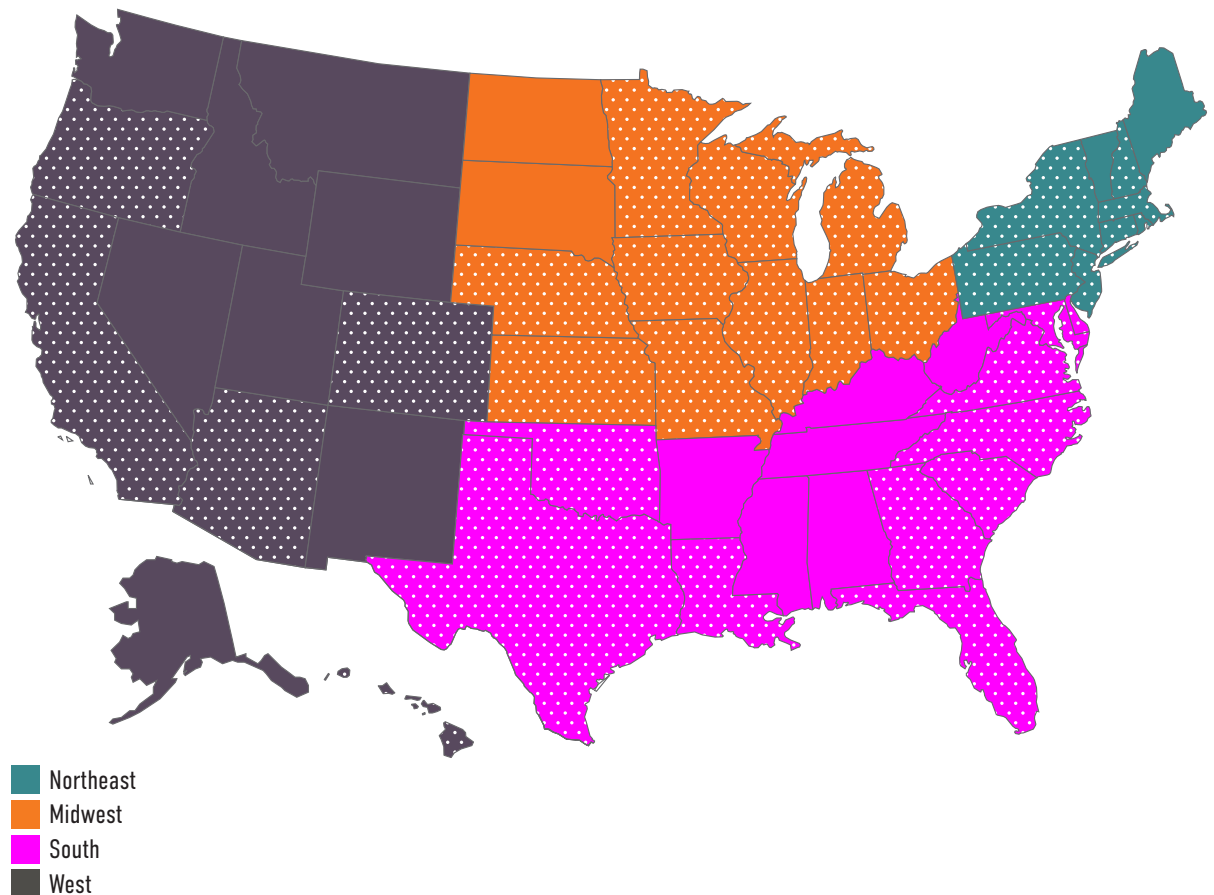
Dots indicate states where participating Life Plan Communities are located.

Mather Institute 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.

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