



Mortality and Longevity

# Longevity Perceptions and Drivers: How Americans View Life Expectancy



January 2020



# Longevity Perceptions and Drivers How Americans View Life Expectancy

#### AUTHORS

## Greenwald & Associates Brian Perlman, Ph.D, CLU, ChFC SVP/Financial Services Practice Lead

Caroline Fauquier Research Director

#### Society of Actuaries Project Oversight Group

Marianne Purushotham, FSA, MAAA, Chairperson Magali Barbieri, Ph.D. Shing-Her Juang, Ph.D. Donna Megregian, FSA, MAAA Larry Stern, FSA, MAAA Ronora Stryker, ASA, MAAA Amy Whinnett, FSA, MAAA

#### **Caveat and Disclaimer**

The opinions expressed and conclusions reached by the authors are their own and do not represent any official position or opinion of the Society of Actuaries or its members. The Society of Actuaries makes no representation or warranty to the accuracy of the information

Copyright © 2020 by the Society of Actuaries. All rights reserved.

# CONTENTS

Executive Summary	4
Section 1: Individual Life Expectancy Estimations Versus Standard Actuarial Estimates	8
1.1 OVERALL LIFE EXPECTANCY ESTIMATION	8
1.2 COMPARISON OF <b>RESPONDENT</b> LIFE EXPECTANCY ESTIMATES TO STANDARD ACTUARIAL	
ESTIMATES	11
Section 2: Subgroups that Over- and Underestimate Life Expectancy	12
Section 3: Impact of Exposure to Health and Lifestyle Longevity Drivers on Behavior	14
Section 4: Self-Reported Health Status vs. Health Status Indicated by Responses to Health Questions	16
Section 5: Caveats and Limitations	20
Section 6: Acknowledgments	21
References	22
Appendix A: Lifestyle and Health Status Responses	23
Appendix B: Demographic Breakouts	30
About The Society of Actuaries	

# Longevity Perceptions and Drivers How Americans View Life Expectancy

# **Executive Summary**

People are living longer than ever before, and while this is a great societal achievement, it also introduces greater risk that individuals may outlive their financial assets. This means there is a greater need to develop a financial strategy that manages longevity risk. A key element in creating such a strategy is understanding your own potential life expectancy and the factors that can influence it.

The Society of Actuaries (SOA) Mortality and Longevity Program Steering Committee sponsored a study that examines the question of how well people estimate their own life expectancy and probability of survival to different ages relative to current data and actuarial estimates.

The SOA engaged Greenwald and Associates to perform the study with two primary goals:

- 1. to determine how realistic individuals are in their perception about their remaining length of life
- 2. to measure variations in perception across socioeconomic and demographic groups within the population.

The study is based on an online survey of 2,012 Americans, including both pre-retirement (those ages 50–64) and post-retirement populations (those ages 65 and older). Respondents were all age 50 or older, with similar proportions in their 50s (37%), 60s (33%), and 70 and over (30%). All respondents over age 65 were retired, and all respondents below age 65 were not yet retired. Data were weighted by age, education, sex and household income to be representative of the U.S. population.

The survey questions gathered data regarding respondents' initial perceptions of their own life expectancy and their chance of surviving 10–15 years from today into the future. It then compares responses from the survey to current actuarial estimates.

The current actuarial estimates were calculated by researchers using the SOA and American Academy of Actuaries (AAA) Longevity Illustrator, <sup>1</sup> which determines a general population estimated life expectancy based on current age and sex as well as self-reported smoking habits and health status. These standardized calculations were then compared to the individuals' reported view of their own life expectancy and survival probabilities.

Next, the survey measured changes in the respondents' perceptions after they have been exposed to a series of health and lifestyle questions regarding factors known to impact longevity.

See Appendix A for responses to individual lifestyle and health questions assessed in this study. See Appendix B for the distribution of respondents for each survey variable.

<sup>&</sup>lt;sup>1</sup> The Actuaries Longevity Illustrator (ALI) is a tool that the American Academy of Actuaries and the Society of Actuaries developed to provide individuals with information about their longevity. For information about ALI's underlying mortality assumption, see <a href="http://www.longevityillustrator.org">www.longevityillustrator.org</a>.

# Key Takeaways

• Overall, findings suggest a slight tendency to underestimate life expectancy by a median of 2.0 years—with 23% overestimating and 28% underestimating by five or more years.



• Of the respondents whose life expectancy estimate varied by five or more years from the standard actuarial estimate, those who considered themselves less healthy and who reported having a less healthy lifestyle were more likely to underestimate their life expectancy. Those who rated themselves higher on these dimensions were more likely to overestimate. Other research supports this finding—the U.S. Health and Retirement Study (HRS) shows that those who claim to be in good health similarly tend to overestimate their expected longevity.



- Women were more likely to underestimate their life expectancy, while men were more likely to overestimate.
- Those without a college degree were more likely to underestimate their life expectancy, while those with a college degree or higher tended to overestimate.
- Those with lower incomes were more likely to underestimate their life expectancy, while those with higher incomes tended to overestimate.



# Percent of the Respondents Misestimating Life Expectancy by 5+ Years

There were significant portions of the population who considered themselves healthy even though their responses to questions regarding lifestyle and other longevity factors may suggest otherwise. We know for example that while 70% of the sample is overweight (as calculated using self-reported height and weight), only 57% of all respondents considered themselves to be overweight.

- Even after respondents were exposed to specific questions regarding key drivers of life expectancy and survival probability, only 19% changed their initial estimates. This suggests more education is needed regarding the documented connection between those lifestyle and health drivers and longevity.
- Results also suggest that most people (85%)—if confronted with information regarding behaviors or factors that could lengthen their lives—say that they would attempt to take action to change those factors. However, this study did not follow up to determine whether respondents actually would make those changes.

# Implications of the Study

The most important finding of this study is that 51% of the U.S. population misestimated their life expectancy by at least five years—either too high or too low.

- People who underestimate their life expectancy face a greater risk of outliving their financial assets and experiencing financial stress in retirement.
- People who overestimate their life expectancy may not prepare properly for the care of financial dependents in the future in the event of their death.

This study confirms education of the general public is needed in several key areas:

- 1. Understanding the factors that can have a material impact on longevity, including lifestyle, health conditions, smoking, obesity, genetics and family history.
- 2. Raising awareness of current life expectancy estimates and survival probabilities at different ages.
- 3. Recognizing the impact changes in lifestyle can have on life expectancy.

Increased education regarding expected longevity and its drivers is needed across all socioeconomic groups, as results suggest that significant proportions of those in both higher and lower socioeconomic classes tend to misestimate life expectancy.

A literature review indicates that these survey results are consistent with other studies. This is the case despite some important differences in sampling strategies, characteristics, and comparison values. For example, analyses of US Health and Retirement Study (HRS) results compared respondents' subjective survival probabilities with actual survival as measured by the survey mortality follow-up over time. Other studies compared respondents' expectations with actuarial life tables based on age and sex only but not smoking or self-reported health status.

The similarities in findings between this study and other studies include:

- The overall tendency for survey respondents to underestimate their life expectancy (Bago d'Uva, O'Donnell, and van Doorslaer, 2017)
- The income and education variations in perceived survival probabilities reflecting the difference in actual survival (Bago d'Uva, O'Donnell and van Doorslaer, 2017; Hurd and McGarry, 1995)
- Less healthy individuals (as indicated by lifestyle characteristics or self-reported health status) expecting shorter lives than healthy individuals (Ross and Mirowsky, 2002; Brouwer and van Exel, 2005; Odum, Madden and Bickel, 2002; Hamermesh and Hamermesh, 1983)
- Greater optimism regarding life expectancy among men than women (Mirowski, 1999; Brouwer and van Exel, 2005; Hurd and McGarry, 1995; Bago d'Uva, O'Donnell, and van Doorslaer, 2017; Perozek, 2008)
- Overestimation of survival probabilities by individuals who claim to be in good health (U.S. Health and Retirement Survey, 2017)

One of the main differences is that, in this study, those with lower education, lower income, and less-healthy lifestyle or poor self-rated health tended to underestimate their survival probabilities, while other studies have found the opposite—a greater tendency to underestimate survival probabilities among those who are better educated and wealthier (Bago d'Uva, O'Donnell, and van Doorslaer, 2017; Delavande and Rohwedder, 2011; Kutlu-Koc and Kalwij, 2017).

This, however, may not be so much of an inconsistency as the result of which data were used to assess accuracy of respondents' expectations and differences in respondents' characteristics.

In particular, other studies (Bago d'Uva, O'Donnell, and van Doorslaer, 2017; Delavande and Rohwedder, 2011; Kutlu-Koc and Kalwij, 2017) compared the respondents' perceptions to <u>actual survival</u> (based on mortality follow-up of survey respondents), thus taking into account the decline in mortality in years after the respondents were interviewed. By contrast, this study compared respondents' expectations to current actuarial estimates—taking into account age, sex, smoking status and self-rated health. When respondents adjust for future mortality improvement, they are likely to provide more optimistic answers than what actuarial tables predict based on current mortality trends, and since the educated are more likely to be aware of mortality improvements, they are also more likely to take this more optimistic view of survival than those in the low education category.

# Section 1: Individual Life Expectancy Estimations Versus Standard Actuarial Estimates

One of the study's main goals was to assess the extent to which Americans over- or underestimate their life expectancy compared to actuarial estimates using mortality tables from the Actuaries Longevity Illustrator based on recent population data.

# **1.1 OVERALL LIFE EXPECTANCY ESTIMATION**

To establish a baseline as to the respondents' expectations regarding life expectancy, participants were asked a series of questions regarding how long they expected to live. First, they were asked to what age they expected to live. Next, depending on their age group, respondents were asked the likelihood that they would live 10–15 years or more.

Respondents were next asked about some factors known to influence life expectancy—general health, lifestyle, smoking, medical conditions or events, physical capabilities, parental longevity, height and weight, and stress level. These questions were used for two purposes: (1) to calculate an actuarial estimate of life expectancy; (2) to allow respondents to consider important factors impacting their life expectancy and to determine whether this caused them to change their own life expectancy estimates.

Table 1 shows the life expectancy estimates for the respondents. Overall, respondents expected to live to a median age of 85. Forty-one percent of the total survey respondents expected to live beyond age 90.

		Current Age of Respondent		
Expected Age at Death	All Respondents	Currently Age 50–59	Currently Age 60–69	Currently Age 70+
50–59 years old	2%	6%	—	—
60–69 years old	3	4	4%	—
70–79 years old	13	19	15	4%
80–89 years old	41	37	44	43
90–99 years old	31	23	30	43
100 years or older	10	12	8	11
Mean	85.7	83.4	85.2	88.9
Median	85	85	85	90

# Table 1 SURVEY RESPONDENT ESTIMATED LIFE EXPECTANCY

Significant percentages of respondents expected to live 10–15 years, with their estimates of the likelihood of surviving the next 10–15 years generally declining for those currently at the oldest ages. For example, as shown in Table 2, 73% of 65- to 69-year-olds estimated at least a 70% likelihood of living to age 80, while only 35% of 80- to 84-year-olds estimated that they will live until age 95 with at least a 70% probability.

# Table 2 SURVEY RESPONDENTESTIMATED LIKELIHOOD OF LIVING TO SPECIFIED AGE

Percentage of Total Respondents

Estimated Likelihood	Current Age <65	Current Age 65–69	Current Age 70–74	Current Age 75–79	Current Age 80–84	Current Age 85+
						Live to Age
	Live to age 75	Live to Age 80	Live to Age 85	Live to Age 90	Live to Age 95	100+
Absolutely no chance—0%	1%	2%	3%	3%	5%	15%
10%	1	2	2	2	13	5
20%	2	3	1	4	11	10
30%	2	2	4	8	9	4
40%	2	1	3	7	—	
50%	13	10	17	15	25	12
60%	4	6	8	10	3	4
70%	12	18	12	10	4	16
80%	24	22	21	22	22	13
90%	21	18	20	13	3	21
Absolutely certain—100%	18	15	10	5	6	
Mean Chance %	75.4	72.4	69.0	61.4	49.4	52.5
Median Chance %	80.0	80.0	80.0	70.0	50.0	60.0
Number of Respondents	1,009	473	322	150	40	18

Following the questions regarding health and lifestyle longevity drivers, respondents were again asked how long they expected to live and their likelihood of living for the next 10–15 years past their current age.

As Figure 1 shows, exposure to questions regarding health and lifestyle longevity drivers had little influence on respondents' life expectancy estimates. For example, initially 41% of respondents expected to live past age 90, and 37% still did so after completing the lifestyle and health status questions. Figure 2 shows the initial and revised life expectancy estimates based on the respondent's current age.

# Figure 1

RESPONDENT INITIAL LIFE EXPECTANCY ESTIMATE VS. REVISED LIFE EXPECTANCY ESTIMATE AFTER ANSWERING QUESTIONS ABOUT LIFESTYLE/HEALTH FACTORS



#### Figure 2

# RESPONDENT INITIAL LIFE EXPECTANCY ESTIMATE VS. REVISED LIFE EXPECTANCY ESTIMATE AFTER ANSWERING QUESTIONS ABOUT LIFESTYLE/HEALTH FACTORS—BY CURRENT AGE



There was also little difference in responses regarding the likelihood of living for the next 10–15 years after considering health and lifestyle questions. For example, among those age 70–74, the median subjective probability to survive 10–15 years into the future reached 80% both before and after answering the survey questions.

Close to 1 in 5 respondents (19%) changed their life expectancy estimate after being exposed to the questions regarding health and lifestyle longevity drivers. As shown in Figure 3, among those who did change their life expectancy estimate, the most common reason they provided was thinking about how long their parents survived (39%), followed by lifestyle (34%) and then medical factors (33%).

#### Figure 3

# REASONS FOR CHANGING LIFE EXPECTANCY ESTIMATE

Percentage of Those Respondents who Changed Life Expectancy Estimate (Multiple Responses Allowed)



apply. (Total among those who changed initial life expectancy estimate n=361.)

# **1.2 COMPARISON OF RESPONDENT LIFE EXPECTANCY ESTIMATES TO STANDARD ACTUARIAL ESTIMATES**

Relying on the SOA/AAA Actuaries Longevity Illustrator, the study's researchers derived a life expectancy estimate for each respondent based on the individual's reported age, sex, smoking status and overall health. As shown in Figure 4, based on these estimates, the sample in this study had a median life expectancy of 87.2 years and a mean of 86.5 years. When initially asked to estimate their own life expectancy, respondents gave a median figure of 85 years and a mean of 85.7 years. After answering questions about their lifestyle and health, respondents provided a revised median figure of 85 years and a mean of 85.4 years. Overall, respondents gave estimates of their own life expectancy that were reasonably close to estimate using the actuarial standard tables with about half overestimating their life expectancy and about half underestimating their life expectancy both before and after being exposed to factors impacting life expectancy.

#### Figure 4



RESPONDENT ESTIMATED LIFE EXPECTANCY VS. ACTUARIAL STANDARD LIFE EXPECTANCY

However, within the sample, the level of accuracy varied greatly. As shown in Figure 5, half came within five years of accurately estimating their actuarial life expectancy, but another half either over- or underestimated by five years or more, including a quarter who did so by 10 years or more, compared to the actuarial estimate. This underestimation does raise one concern about the data—that perhaps the questions missed a significant factor for some, such as an illness that was progressing far more seriously than responses would indicate. However, in general, results also suggest that some may underestimate their need for retirement assets because they expect to live shorter lives than estimated using actuarial life tables.



Figure 5 EXTENT TO WHICH RESPONDENTS OVER- AND UNDERESTIMATE THEIR LIFE EXPECTANCY

# Section 2: Subgroups that Over- and Underestimate Life Expectancy

As shown in Figure 6, among the respondents who misestimated their life expectancy by at least five years, the tendency to overestimate versus underestimate life expectancy varied a great deal by subgroup.

- Women were more likely to underestimate life expectancy (63%) than men (46%).
- Those without a college degree were more likely to underestimate their life expectancy (58%), compared to those with a college degree or higher (47%).
- Those with more than \$100,000 or more in household income were more likely to overestimate life expectancy (54%) than those with income under \$100,000 (42%).

# Figure 6

# PERCENT OF RESPONDENTS WHO MISESTIMATED LIFE EXPECTANCY BY 5+ YEARS—BY GENDER, EDUCATION AND INCOME



- Respondents who reported a healthier lifestyle were far more likely to overestimate life expectancy (58% versus 43% who rated their lifestyle as normal and 29% who said they have an unhealthy lifestyle), as shown in Figure 7.
- Similarly, those who rate themselves in excellent or very good health were somewhat more likely to overestimate their life expectancy (56% versus 44% in good health and 29% in fair or poor health).
- Those who felt they would do a fair or poor job at estimating their life expectancy given the necessary information were far more likely to underestimate their life expectancy (72%) than those who felt they would do an excellent or very good job at estimating their life expectancy (43%).

# Figure 7

PERCENT WHO OVERESTIMATED AND UNDERESTIMATED BY 5+ YEARS BY LIFESTYLE, SELF-REPORTED HEALTH AND ABILITY TO ESTIMATE LIFE EXPETENCY



# Section 3: Impact of Exposure to Health and Lifestyle Longevity Drivers on Behavior

After answering the various questions on life expectancy factors, respondents were asked how likely they would be to do something about them if actions would allow them to live longer. A large majority (85%) reported that they would be at least somewhat likely to do so, and close to 4 in 10 (38%) said that they would be very likely to do so (Figure 8).



# Figure 8 LIKELIHOOD OF CHANGING LIFESTYLES IF ALLOWED TO LIVE LONGER

Among the few that claimed that they would not be likely to change behavior, the primary reasons they provided were that they did not believe that doing so would make a difference (35%) and that they did not want to live beyond their life expectancy (35%). As shown in Figure 9, very few respondents (14%) considered that it would be too much effort to change.

## Figure 9

## REASONS FOR NOT CHANGING BEHAVIORS THAT MIGHT ALLOW RESPONDENTS TO LIVE LONGER



Respondents were generally optimistic about how well they could estimate their life expectancy based on the factors presented to them in the survey. Half (49%) felt that they would be either excellent or very good at it, and another 35% felt that they would be good at it. Only 1 in 7 (15%) felt that they would be fair or poor at it, as shown in Figure 10.



# Figure 10

SELF-RATING ON ABILITY TO ESTIMATE LIFE EXPECTANCY

As shown in Figure 11, when asked which of the factors presented in the survey contributed to their life expectancy estimates, respondents pointed to a mix of those they could control and those they could not, including their lifestyle (58%), age to which parents survived (48%), medical conditions (46%), happiness (42%) and physical activity (42%).

## Figure 11

#### FACTORS CONTRIBUTING TO LIFE EXPECTANCY ESTIMATE



# Section 4: Self-Reported Health Status vs. Health Status Indicated by Responses to Health Questions

As part of the survey questions, respondents were asked to rate their health status. Forty-three percent rated their health as excellent (8%) or very good (34%)—as shown in Figure 12—and another 39% said they are in good health. Only 19% said they are in fair (16%) or poor (3%) health.



# Figure 12 RESPONDENT INDICATED HEALTH STATUS

Respondents' self-perceived health status did not always align with what their responses to health-related questions would indicate. For example, among the 43% who said they are in excellent or very good health, 45% said they are overweight. See Figures 12 and 13.

# Figure 13

## SELF-REPORTED WEIGHT CATEGORY VS. RESPONDENT SELF-REPORTED HEALTH STATUS



Even more striking is that 21% who say they are in either excellent or very good health fall into the obese body mass index (BMI) category based on their self-reported height and weight, as shown in Figure 14. Further, 40% of those who rated their health status as good also fall into the obese BMI category.

# Figure 14

# BMI VS. RESPONDENT SELF-REPORTED HEALTH STATUS

BMI calculated based on self-reported height and weight



BMI categories as calculated by self-reported height and weight indicate that 70% of respondents are either overweight or obese. However, as shown in Figure 15, only 57% rated themselves as such. At the same time, while only 29% of respondents were in the normal BMI category based on self-reported height and weight, 39% indicated they would rate themselves as normal. These findings suggest the need for more education around the impact of BMI on health outcomes.

80%

70%



Figure 15 CALCULATED BMI CATEGORY VS. RESPONDENT SELF-RATING OF WEIGHT



Likewise, as shown in Figure 16, while those who rated themselves in excellent or very good health are least likely to say they have been diagnosed with high cholesterol or hypertension, a significant percentage do indicate they have been diagnosed with these conditions—about one-third each. And about half who say they are in good health indicate they have been diagnosed with these conditions.



# Figure 16 SELF-REPORTED DIAGNOSES VS. REPONDENT SELF-RATING OF HEALTH STATUS

While those in fair or poor health were the most likely to smoke, 9% of those in excellent or very good health indicated they currently smoke, and 31% said they had smoked in the past—see Figure 17. Even more of the respondents who report themselves as in good health either currently smoke (15%) or have done so in the past (43%).



# Figure 17

RESPONDENT SMOKER STATUS VS. SELF REPORTED HEALTH STATUS

Those who rate themselves as being in excellent or very good health were more likely than those in good, fair or poor health to drink alcohol two or more times per week—see Table 3. This may be because those who are healthier are also wealthier or more social.

# Table 3

## RESPONDENT ALCOHOL CONSUMPTION VS. SELF-REPORTED HEALTH STATUS

	Total	Excellent/Very good Health	Good Health	Fair/Poor Health
Never	34%	27%	35%	46%
Monthly or less	24	21	27	25
Two to four times a month	16	20	14	13
Two to three times a week	14	18	13	9
Four or more times a week	11	13	11	8

As one may expect, those reporting they are in excellent or very good health are also more likely to work out or exercise at least twice a week—see Table 4.

#### Table 4

## RESPONDENT FREQUENCY OF EXERCISE VS. SELF-REPORTED HEALTH STATUS

	Total	Excellent/Very Good Health	Good Health	Fair/Poor Health
Never	16%	5%	18%	36%
Monthly or less	15	11	18	17
Two to four times a month	12	11	14	12
Two to three times a week	28	29	28	22
Four or more times a week	29	43	22	13

Finally, as shown in Figure 18, respondents who say they are in excellent or very good health (54%) are more likely to overestimate their life expectancy, compared to those in fair or poor health (32%).

## Figure 18





The results of this section seem to indicate that while the general population understands the connection between health status and life expectancy estimates, they may not fully understand the most important health and lifestyle factors or the magnitude of their potential impact.

# Section 5: Caveats and Limitations

This report is intended to be for informational purposes only. It is intended to add to the existing body of information on the public perceptions of longevity and to further research and discussion on this topic. It may not be appropriate and should not be used for other purposes.

In conducting the analysis, the authors relied upon the survey responses of 2,012 individuals. The authors did not audit or independently verify any of the information furnished except that we did review the data for reasonableness and consistency. To the extent that any of the data or other information supplied to us was incorrect or inaccurate, the results of our analysis could be materially affected.

Data presented in this report may not total to 100 percent due to rounding.

For purposes of the data and calculations presented in this report, the margin of error at 95% confidence varies depending on sample size and the data point. A 50% statistic for total sample has a margin of error of +/-2.2. However, when calculating the margin of error around specific age bands, the interval can be substantially larger. For example, for the 150 people age 75–79, the 40% who give themselves an 80% chance of living beyond age 90 has a margin of error +/-7.8.

The opinions expressed and the conclusion reached by the authors are our own and do not represent any official position or opinion of their employers, the SOA or its members. The SOA makes no representations regarding the accuracy or completeness of the content of this study. The SOA does not recommend, encourage or endorse any particular use of the information provided in this study. The study should not be construed as professional or

financial advice. The SOA makes no warranty, express or implied, guarantee or representation whatsoever and assumes no liability or responsibility in connection with the use or misuse of this study.

# Section 6: Acknowledgments

The authors would like to thank the Project Oversight Group of the Mortality and Longevity Steering Committee for their help in reviewing and revising the report.

The authors would also like to thank Jan Schuh and Ronora Stryker at the SOA for performing the coordination needed to complete the project.

# References

Bago d'Uva, Teresa, Owen O'Donnell, and Eddy van Doorslaer. 2017. Who Can Predict Their Own Demise? Heterogeneity in the Accuracy and Value of Longevity Expectations. *The Journal of the Economics of Ageing*, October, <u>https://doi.org/10.1016/j.jeoa.2017.10.003</u> (accessed January 8, 2020).

Brouwer, Werner, and N. Job A. van Exel. 2005. Expectations Regarding Length and Health Related Quality of Life: Some Empirical Findings. *Social Science & Medicine* 61, no. 5:1083–1094.

Delavande, Adeline, and Susann Rohwedder. 2011. Differential Survival in Europe and the United States: Estimates Based on Subjective Probabilities of Survival. *Demography* 48, No. 4:1377–1400.

Dormont, Brigitte, Anne-Laure Samson, Marc Fleurbaey, Stéphane Luchini, and Erik Schokkaert. 2018. Individual Uncertainty About Longevity. *Demography* 55, No. 5:1829–1854.

Hamermesh, Daniel, and Francis Hamermesh. 1983. Does Perception of Life Expectancy Reflect Health Knowledge? *American Journal of Public Health* 73:911–914.

Hurd, Michael, and Kathleen McGarry. 1995. Evaluation of the Subjective Probabilities of Survival in the Health and Retirement Survey. *The Journal of Human Resources* 30:S268–S292

Kutlu-Koc, Vesile, and Adriann Kalwij. 2017. Individual Survival Expectations and Actual Mortality: Evidence From Dutch Survey and Administrative Data. *European Journal of Population* 33, No. 4:509–532.

Mirowsky, John. 1999. Subjective Life Expectancy in the US: Correspondence to Actuarial Estimates by Age, Sex and Race. *Social science & Medicine* 49, No. 7:967–979.

Odum, Amy L., Gregory J. Madden, and Warren K. Bickel. 2002. Discounting of Delayed Health Gains and Losses by Current, Never and Ex-smokers of Cigarettes. *Nicotine & Tobacco Research* 4, No. 3:295–303.

Perozek, Maria. 2008. Using Subjective Expectations to Forecast Longevity: Do Survey Respondents Know Something We Don't Know? *Demography* 45, No. 1:95–113.

Ross, Catherine E., and John Mirowsky. 2002. Family Relationships, Social Support and Subjective Life Expectancy. *Journal of Health and Social Behavior* 43:469–489. doi:10.2307/3090238.

Society of Actuaries and American Academy of Actuaries. Welcome to the Actuaries Longevity Illustrator. *Actuaries Longevity Illustrator*, <u>https://www.longevityillustrator.org</u> (accessed January 8, 2020).

University of Michigan. 2017. U.S. Health and Retirement Survey. <u>https://hrs.isr.umich.edu</u> (accessed January 8, 2020).

# Appendix A: Lifestyle and Health Status Responses

This section presents the responses regarding individual lifestyle and health longevity drivers assessed in the study.



# Figure A.1

# SELF-REPORTED LIFESTYLE RATING COMPARED TO THE GENERAL US POPULATION

# Figure A.2 SELF-REPORTED DIAGNOSES



# Figure A.3 SELF-REPORTED CONTROL OF DIAGNOSED CONDITIONS



# Figure A.4

# SELF-REPORTED HEALTH EVENTS





SMOKING STATUS



# Figure A.6 SELF-REPORTED NUMBER OF CIGARETTES, E-CIGARETTES & CIGARS SMOKED PER DAY







# Figure A.8 LIVE WITH SOMEONE WHO SMOKES CIGARETTES, CIGARS, E-CIGARETTES OR OTHER VAPOR PRODUCTS



# Figure A.9 SELF-REPORTED FREQUENCY OF ALCOHOL CONSUMPTION



# Figure A.10





# Figure A.11 DIFFICULTY WITH PHYSICAL ACTIVITY



Over the past month, how often have you had difficulty with the following? (Total n=2,012) Note: "Don't know/prefer not answer" not shown.

# Figure A.12 SELF-REPORTED DIFFICULTY DRIVING A CAR



# Figure A.13 DIFFICULTIES AFFORDING HEALTH CARE, FOOD OR HOUSING



# Figure A.14 STRESSFULNESS OF LIFE



# Figure A.15 HAPPINESS LEVEL







# Figure A.17 REPORTED AGE OF DEATH OF BIOLOGICAL PARENTS



# Appendix B: Demographic Breakouts

This section presents information regarding the demographic distribution of survey respondents.

# Table B.1

# AGE

	Total
50–59 years old	37%
60–69 years old	33
70–79 years old	26
80–89 years old	3
90–older	<0.5

# Table B.2

# GENDER

	Total
Male	48%
Female	52

# Table B.3

# HIGHEST LEVEL OF EDUCATION COMPLETED

	Total
High school or less	41%
Some college/technical school	25
Bachelor's degree	16
Post-graduate work	3
Graduate or professional degree	15

# Table B.4

# **EMPLOYMENT STATUS**

	Total
Employed full time	35%
Employed part time	7
Disabled and unable to work	7
Laid off or unemployed and seeking work	3
Retired	45
Something else	4

# Table B.5 HOUSEHOLD INCOME

	Total
Less than \$25,000	18%
\$25,000 to \$49,999	21
\$50,000 to \$74,999	16
\$75,000 to \$99,999	13
\$100,000 to \$124,999	13
\$125,000 or more	19

# Table B.6

# SAVINGS AND INVESTMENTS

	Total
Less than \$500	19%
\$500 to \$999	4
\$1,000–\$9,999	8
\$10,000-\$24,999	6
\$25,000–\$49,999	6
\$50,000–\$99,999	8
\$100,000-\$149,999	7
\$150,000-\$249,999	9
\$250,000-\$499,999	11
\$500,000–\$999,999	11
\$1 million or more	11

## Table B.7

## MARITAL STATUS

	Total
Married	60%
Separated or divorced	14
Widowed	11
Single, never married	10
Unmarried and living with a partner in a permanent relationship	5

# Table B.8

#### CURRENT LIVING SITUATION

	Total
Live in a home you own	77%
Pay rent for the home you live in	18
Live with friends, family or roommates but do	2
not contribute to the cost of housing	
Live in a communal or co-living residence	<0.5
Live in an assisted living facility or nursing home	<0.5
Have another living arrangement	2

# Table B.9

# NUMBER OF ADULTS IN HOUSEHOLD—AMONG THOSE NOT MARRIED OR LIVING WITH A PARTNER

	Total
None	66%
One	24
Тwo	7
Three or more	2

# About The Society of Actuaries

The Society of Actuaries (SOA), formed in 1949, is one of the largest actuarial professional organizations in the world dedicated to serving more than 30,000 actuarial members and the public in the United States, Canada and worldwide. In line with the SOA Vision Statement, actuaries act as business leaders who develop and use mathematical models to measure and manage risk in support of financial security for individuals, organizations and the public.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

**Objectivity:** The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

**Quality:** The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and non-actuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

**Relevance:** The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

**Quantification:** The SOA leverages the diverse skill sets of actuaries to provide research and findings that are driven by the best available data and methods. Actuaries use detailed modeling to analyze financial risk and provide distinct insight and quantification. Further, actuarial standards require transparency and the disclosure of the assumptions and analytic approach underlying the work.

Society of Actuaries 475 N. Martingale Road, Suite 600 Schaumburg, Illinois 60173 www.SOA.org