TIAA Institute

Trends and Issues
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Longevity literacy: Preparing for 100-year lives?

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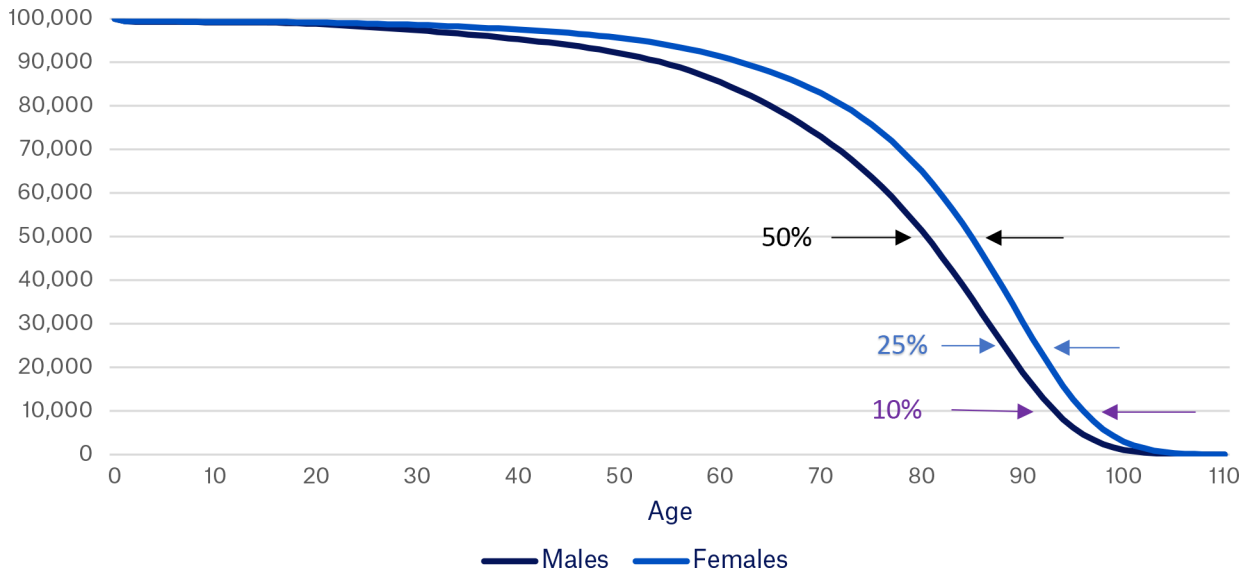
The TIAA Institute recently published a study on financial and longevity literacy.[1] Improving knowledge about these topics enables and promotes saving, investing, and planning behaviors that lead to better financial outcomes in retirement. Unfortunately, the survey indicated that most adults have poor longevity literacy, and those with low longevity literacy tended to be more financially fragile. Therefore, a basic understanding of how long one might live is rather important to household financial security.

While the question "When am I going to die?" is impossible to answer on the individual level, we can provide answers based on an average. Note that the average age at death may not be that meaningful, as it will depend on the underlying mortality table used in the calculation, will vary by current age, and few people die at the average age.

Many are familiar with the recently released Centers for Disease Control and Prevention (CDC) data that says life expectancy in the United States is now lower than age 77.[2] This is a reduction from prior years, due to COVID-19 and other factors. We can compare the CDC's table to the 2019 Social Security Administration (SSA) table, which was the last table not "corrupted" by pandemic data.[3] (The SSA believes that, over the long term, the U.S. mortality distribution will eventually return to pre-COVID-19 levels.) This table indicates that the average retiree (full retirement at age 67) will live until roughly age 85 (around 84 for males and 87 for females). Yet another mortality table is one that TIAA uses, indicating the average age at death for retirees is closer to 90.[4] The different answers of 77, 85 and 90 seem large, so we will start with some basics to explain why.

To begin, Figure 1 provides a view of male and female mortality curves derived from the 2019 SSA mortality table. Note that while the numbers may be different, the shape of this curve would be similar no matter which mortality table (CDC, SSA or TIAA) we used.

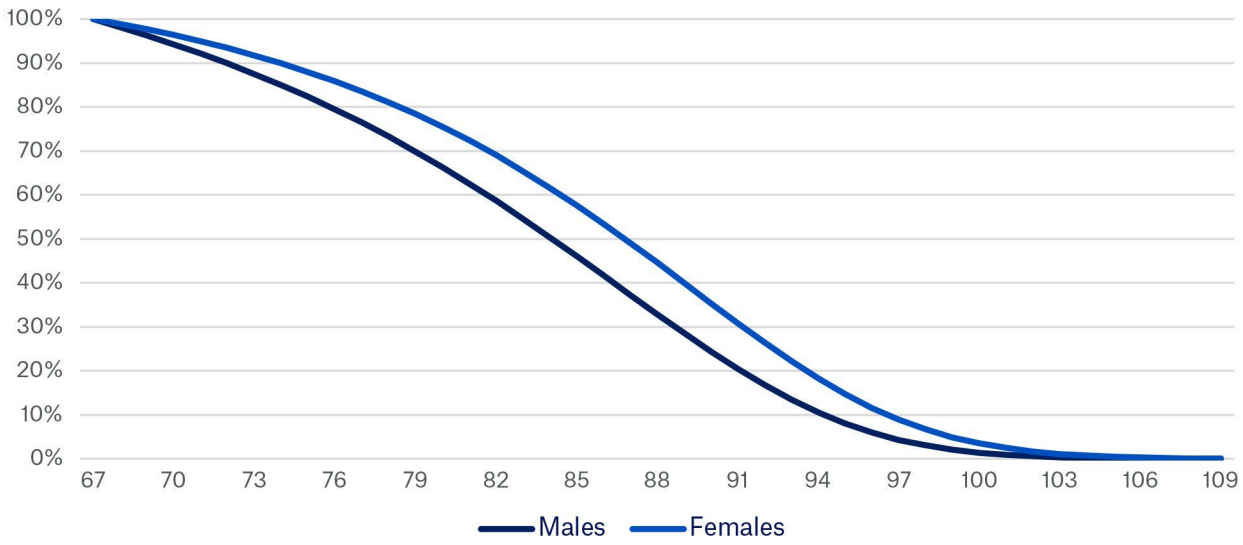
Figure 1



As you can see on the graph, if we start with 100,000 males, at around age 80 only 50,000 remain; using this table, a male born in 2019 has a 50% chance of living to about age 80, but you can also see that 25,000, or 25%, of them are still alive at 88 and 10% remain at 93. For females, the same probabilities occur at ages 85, 91 and 96.[5]

Now let's move on to retirement planning. Should a 67-year-old male retiree think that on average he will live only another 13 years, until age 80? The general answer is no and, to clarify, let's ask the question another way: Should a 79-year-old retiree expect to die in a year? Taking this to an extreme, what should a 81-year-old be thinking about their remaining life expectancy? To answer these questions, Figure 2 uses data from the 2019 SSA mortality table to show the likelihood that a person age 67 will make it to a future age. For example, there is about a 66% chance a 67-year-old man will live to age 80 and about a 75% likelihood that a 67-year-old female lives to that age.

Figure 2



When we start with a cohort of retirees and use the SSA table, 50% of the males will still be alive at 84. Using a life expectancy of 84 as opposed to 80 means planning for an extra four years of life, and instead of 13 years of postretirement spending we now need to fund for 17 years. Importantly, there is a major difference in the calculations when using life expectancy at birth versus life expectancy at retirement. As one ages, the number of *expected years of future life* decreases, but the expected *age at death* increases.

Table 1 and 1A below, based on the SSA 2019 tables, highlight the impact of future life expectancy over time (rounded to the nearest age and using a 50% probability of death, or the median, for the average).

Table 1. Male

Age	Average future years	Average age at death
0	80	80
50	32	82
67	17	84
75	11	86
85	5	90
90	3	93

Table 2. Female

Age	Average future years	Average age at death
0	85	85
50	36	86
67	20	87
75	13	88
85	6	91
90	4	94

Tables 1 and 1A, and Table A3 in the Appendix, highlight the importance of understanding the impact of longevity on retirement planning. We must note that 50% of people will outlive life expectancy; after all, only 50% of the people in a birth cohort have died, while the other half remain alive. For those who want the added security of not outliving income (or having to cut back later in life), insuring against this longevity risk and planning for life beyond the average is encouraged. As seen in Figure 2 above, using a starting age of 67, a male retiree has a 25% chance of being alive at 90 and a 10% chance of still being alive at 94. For females, the results are ages 92 and 96. Quite often in financial planning age 95 is used as a horizon; hopefully, readers now have a better understanding of why. The negative impact of outliving income is much larger than the negative impact of over saving (and, at worst, leaving the remaining balance to a beneficiary or estate).

Up to this point, my analysis has used the 2019 SSA mortality table; we still must address TIAA's expected mortality assumption. While the SSA is tracking the average American, at TIAA we are dealing with participants whose life expectancy is "above average." There are many factors that help increase life expectancy, including education level, type of work (white collar versus blue collar), pay, access to medical care, and others. Many of these factors trend positive for TIAA participants, particularly annuitants who self-select into the product. This helps explain why the mortality table that TIAA uses assumes a 67-year-old retiree will live, on average, to about age 90, with a 25% chance of being alive at 95 and almost a 10% likelihood of making it to 100. To be clear, we are not suggesting that working at an institution with a TIAA plan will result in a longer life—only that the type of people who work at institutions TIAA services have characteristics that often result in a longer life.

The longer a retiree lives, the more savings are needed to fund that retirement; the earlier one starts planning for this eventuality, the lower the cost and the better prepared for it they are. Therefore, it is very important for even younger workers to understand the impact of longevity on retirement saving. An example of the additional saving and assets needed as life expectancy increases is given in Table A3 in the Appendix.

When considering joint life expectancy for a couple consisting of a male and female (both age 67), the odds of needing income for one of the two living into their 90s, or even until 100, increases relative to each person's own needs. SSA Tables A1 and A2 (included in the Appendix) indicate there is a 24%

chance the male will be alive at age 90 and a 35% chance the female will be alive. To arrive at the 24% figure, for example, we divide 18,895 (the number of men alive at age 90) by 77,366 (the number of men alive at age 67). Assuming independence, the odds of both having died is:

(100%–24%) x (100%–35%) =

76% x 65% =

49%

This means the odds of at least one member of the couple being alive at age 90 is 51%. Using these same tables, we can also determine that the odds of one or both being alive at age 100 is about 5%. By comparison, using the TIAA tables, the likelihood of one or both being alive at age 100 is about 16%, or 1 in 6! Same gender couples would have a lower likelihood of reaching age 100 for two males (12%) and a higher likelihood for two females (20%).

In summary, understanding the differences among life expectancy at birth, life expectancy at retirement, and likelihood of living past a particular age are critical to good financial planning and financial well-being in retirement. The CDC life expectancy number was not meant to be used for retirement planning, as it can confuse rather than enlighten employees planning for retirement. It refers to life expectancy *at birth*, not *at retirement*. Furthermore, the CDC number is a snapshot of current health; data released following two years of high deaths due to COVID-19, with the underlying assumption that this trend will continue, further confuses the issue. Even the pre-COVID-19 SSA table may be underestimating life expectancy for much of our readership; adding a few years for an average life expectancy is likely warranted. In addition, retirement planning should not use averages, as there is a 50% chance that one will live beyond the average, so that too must be taken into consideration. Importantly, we note that we have not addressed the potential increase in life expectancy over the coming decades as advances in science and medicine continue; this may result in more centenarians that ever before. See Table A4 in the Appendix for a history of advances in life expectancy over the past 90 years.

Appendix

Table A1. SSA 2019 life table—Males

Age	# of people	Age	# of people	Age	# of people
0	100,000	35	96,438	70	72,915
1	99,392	36	96,231	71	71,283
2	99,350	37	96,017	72	69,559
3	99,324	38	95,794	73	67,732
4	99,305	39	95,564	74	65,791
5	99,289	40	95,327	75	63,725
6	99,275	41	95,081	76	61,519
7	99,262	42	94,825	77	59,165
8	99,249	43	94,557	78	56,669
9	99,238	44	94,275	79	54,041
10	99,227	45	93,979	80	51,288
11	99,218	46	93,665	81	48,404
12	99,207	47	93,331	82	45,385
13	99,193	48	92,973	83	42,243
14	99,171	49	92,588	84	38,996
15	99,139	50	92,171	85	35,663
16	99,096	51	91,720	86	32,273
17	99,041	52	91,232	87	28,858
18	98,974	53	90,702	88	25,457
19	98,894	54	90,125	89	22,119
20	98,802	55	89,497	90	18,895
21	98,695	56	88,814	91	15,840
22	98,575	57	88,075	92	13,006
23	98,444	58	87,278	93	10,439
24	98,306	59	86,422	94	8,172
25	98,162	60	85,506	95	6,226
26	98,014	61	84,527	96	4,615
27	97,862	62	83,482	97	3,327
28	97,704	63	82,376	98	2,336
29	97,541	64	81,212	99	1,598
30	97,372	65	79,994	100	1,068
31	97,198	66	78,714	101	696
32	97,017	67	77,366	102	442
33	96,830	68	75,950	103	272
34	96,638	69	74,468	104	163

Table A2. SSA 2019 life table—Females

Age	# of people	Age	# of people	Age	# of people
0	100,000	35	98,138	70	82,950
1	99,495	36	98,029	71	81,733
2	99,461	37	97,914	72	80,407
3	99,440	38	97,793	73	78,967
4	99,423	39	97,667	74	77,410
5	99,409	40	97,534	75	75,729
6	99,397	41	97,396	76	73,906
7	99,386	42	97,249	77	71,923
8	99,376	43	97,094	78	69,776
9	99,366	44	96,928	79	67,463
10	99,357	45	96,750	80	64,978
11	99,348	46	96,557	81	62,306
12	99,337	47	96,350	82	59,434
13	99,326	48	96,125	83	56,362
14	99,312	49	95,882	84	53,099
15	99,295	50	95,618	85	49,655
16	99,275	51	95,333	86	46,043
17	99,251	52	95,024	87	42,285
18	99,224	53	94,689	88	38,410
19	99,192	54	94,324	89	34,460
20	99,156	55	93,927	90	30,489
21	99,116	56	93,496	91	26,561
22	99,071	57	93,029	92	22,746
23	99,023	58	92,524	93	19,115
24	98,971	59	91,980	94	15,737
25	98,917	60	91,396	95	12,669
26	98,860	61	90,767	96	9,965
27	98,800	62	90,090	97	7,656
28	98,737	63	89,369	98	5,744
29	98,669	64	88,607	99	4,212
30	98,595	65	87,807	100	3,021
31	98,515	66	86,963	101	2,115
32	98,429	67	86,065	102	1,443
33	98,337	68	85,103	103	957
34	98,240	69	84,069	104	615

Table A3. Additional savings needed as life expectancy increases

Life expectancy: years postretirement	Additional accumulation needed at retirement compared to baseline	Additional monthly savings needed over a 35-year career	Additional monthly savings needed over 15 years
13	N/A	N/A	N/A
17	$18,000	$13	$62
20	$29,000	$20	$99
23	$38,000	$27	$131
28	$50,000	$35	$172
33	$59,000	$41	$203

Assumes a 6% earnings rate on assets.

The amounts in the table above are based on an original goal to save $100,000 to fund 13 years of postretirement spending. But if life expectancy at retirement is more than 13 years, a larger accumulation will be needed for the same annual spending.

For example, if you don't realize until retirement that you might need to plan for 23 more years of income versus 13, it may be too late to find an extra $38,000 to fund your annual income need. However, by starting to save early—$27 a month for a full working career—one can achieve this goal. Waiting until there are only 15 years left until retirement would increase the additional required savings to $131 a month.

Table A4. SSA tables—Life expectancy at age 65

Year	Male future life expectancy	Female future life expectancy
1933	12.0	13.2
1943	12.1	13.7
1953	12.9	15.3
1963	12.8	16.0
1973	13.2	17.4
1983	14.3	18.6
1993	15.2	18.9
2003	16.3	19.2
2013	17.7	20.3
2019	18.1	20.7

Note: In addition to the continuing overall improvement in longevity, the difference between males and females has been reduced over the past few decades.

Endnotes

1 Yakoboski, P.J., Lusardi, A., & Hasler, A. (2023). *Financial literacy, longevity literacy, and retirement readiness*: The 2022 *TIAA Institute-GFLEC Personal Finance Index*. TIAA Institute; Global Financial Literacy Excellence Center. TIAA.org/public/institute/publication/2023/financial_literacy_longevity_literacy_and_retirement_readiness

2 National Center for Health Statistics. (2023). *Life expectancy*. Centers for Disease Control and Prevention. cdc.gov/nchs/fastats/life-expectancy.htm

3 Social Security Administration. (2022). *Actuarial Life Table, 2019*. 2022 Trustees Report. ssa.gov/oact/STATS/table4c6_2019_TR2022.html

4 TIAA mortality is based on the 2012 Individual Annuity Mortality Basic Tables for males and females developed by the Society of Actuaries (Tables 2581 and 2582), available at: mort.soa.org/. TIAA merges the male and female tables, and adjusts the resulting table based on our experience over time. As these adjustments are proprietary, this table cannot be shared.

5 Note that throughout this paper when we refer to life expectancy for Social Security or TIAA life tables we use the median life expectancy, the age at which half the people from a starting age - whether at birth or retirement - will be deceased and half still alive. The CDC calculation uses the average number of expected future years. While these numbers are similar, especially at middle age and beyond, they are not exact.

About the author

Benjamin (aka Benny) Goodman is a Fellow of the Society of Actuaries (FSA) and a Member of the American Academy of Actuaries (MAAA).

He is a Vice President at the TIAA Institute, serving as a subject matter expert on lifetime income.

Benny has been with TIAA since 1988, and has served in a variety of actuarial positions, including life insurance pricing, pension plan pricing, product development and dividend setting. For a number of years he managed the Actuarial Consulting Services area with a focus on pension plan design and meeting individual retirement income needs. Benny also has spent time in non-actuarial roles, including Operations and Institutional Sales.

He earned a B.S. in Mathematics and Computer Science from Touro College. Benny has co-authored a number of papers for the TIAA Institute, and has been a featured speaker at college and university seminars and events across the country, as well as industry conferences (Society of Actuaries, LIMRA, SPARK, etc.)

Benny is married to Yvette (a retired actuary currently teaching high school mathematics), and is the proud father of four, and grandfather to the eight most adorable grandchildren in the world (pictures upon request).

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