Bequest Provision Preferences in Commercial Annuities: An Experimental Test of the Role of Mortality Salience

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Recent research demonstrates that personal mortality salience from annuity contemplation generates an avoidance response, reducing interest in purchasing annuities. However, theoretical models of mortality salience also predict an increased desire for investment in the future circumstances of surviving others ("symbolic immortality"), such as that provided by bequest provisions in an annuity contract. An experimental test confirms that those exposed to higher levels of personal mortality reminders exhibit a greater preference for an annuity paying lower income but with a bequest provision. Thus, the effects of mortality salience can drive annuity decisions, not only at the extensive margin (avoidance of any purchase), but also at the intensive margin (purchasing lower income by including a bequest provision).

Keywords: annuities, estate planning, life insurance, mortality salience, terror management theory

Economic analysis suggests that annuities can provide an excellent way for retirees to convert wealth into income while protecting against longevity risk (Finke & Pfau, 2015; Kotlikoff & Spivak, 1981; Milevsky, Moore, & Young, 2006; Spitzer, 2009; Yaari, 1965). However, consumers rarely purchase commercial annuities, a phenomenon dubbed the "annuity puzzle" (Benartzi, Previtero, & Thaler, 2011). In other words, there is a barrier at the extensive margin (yes/no) for the purchase of annuities. Although not separately explored in previous research, there may also be a potential issue with purchase decisions at the intensive margin. An analysis by Lockwood (2012) regarding the types of commercial annuities actually purchased in retirement finds that such annuities typically include a bequest component (i.e., some form of postmortem payments), the cost of which inevitably reduces lifetime income. Thus, annuity purchases appear to be limited both at the extensive margin (failing to purchase) and the intensive margin (reducing annuity income by including a bequest provision when purchasing).

Recent research demonstrated that annuity contemplation generates substantial mortality salience (Salisbury & Nenkov, 2016). Both economic (James, 2016) and psychological (Pyszczynski, Greenberg, & Solomon, 1999) models of mortality salience in decision making predict the following two responses: (a) avoidance of mortality salient topics and (b) increased investment in the circumstances of surviving others. Consistent with the first predicted response, Salisbury and Nenkov (2016) demonstrated that mortality salience results in avoidance of annuity purchases. Avoidance is expressed by an unwillingness to purchase an annuity contract (extensive margin), rather than by a desire to purchase a smaller annuity contract (intensive margin).

We present the first exploration of the second mortality salience response in annuity decisions. The following experiment tests whether mortality reminders will generate increased investment in the circumstances of surviving others as expressed by a desire for bequest provisions in an annuity contract. An increased desire for bequest provisions in an annuity contract would result in reducing annuity income (intensive margin) due to the cost of including a bequest component, even among those who purchased an annuity. The combined effect of these two responses to mortality salience would predict relatively few annuities purchased (avoidance—extensive margin) and those few often

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include bequest provisions (increased investment in surviving others—intensive margin).

Literature Review

The (Missed) Opportunity of Annuities in Retirement Planning

Retirees with defined contribution plans are exposed to longevity and sequence of return risks (Ibbotson, Milevsky, Chen, & Zhu, 2007). Consequently, most individuals lack the knowledge or ability to accurately calculate the optimal savings and spending rates required for retirement (Skinner, 2007). One way individuals can overcome their own limitations at predicting individual risks is to pool risk with others. Annuity purchasers transfer longevity and sequence of return risks to an insurance company by trading financial assets for a steady stream of lifetime income.

Yaari (1965) demonstrated that annuities can maximize welfare by smoothing an individual's consumption. Fully annuitizing would allow a retiree to consume about 15% more during retirement than if they didn't annuitize (Kotlikoff & Spivak, 1981). Annuities also have psychological benefits by reducing the anxiety and risk of having a bear market right before or after retirement (Finke & Pfau, 2015). Fundamentally, annuities provide assurance against the risk of running out of money during retirement (Milevsky et al., 2006).

Despite many benefits annuities provide, only a small fraction of retirees annuitize any of their wealth (Benartzi et al., 2011). For example, using the 2014 wave of the Health and Retirement Study (HRS), we found that only 4% of retired respondents were currently receiving income from a commercial annuity excluding traditional pension plans.

Evidence of Mortality Salience From Annuity Contemplation

An annuity purchase exchanges a fixed sum of money for an income stream of uncertain duration, ending at the death of the annuitant. Thus, death contemplation appears to be logically inherent in the annuity decision-making process. Rather than looking at an annuity as part of a larger risk management plan, retirees may employ a narrow framework (Thaler, 1999), focusing the decision to annuitize by narrowly considering whether they will get their money's worth from it (Hu & Scott, 2007). In such a narrow framework, the annuity purchase is simply a gamble on one's own life (Brown & Warshawsky, 2001), and the wisdom of the purchase depends entirely upon the annuitant's expectation of death timing.

The logical presumption that annuity contemplation generates personal mortality salience, that is, personal death-related thoughts, was demonstrated experimentally by Salisbury and Nenkov (2016). Participants were randomly assigned to contemplate either contributing money to an Individual Retirement Account (IRA) or purchasing an annuity. Next, they listed the thoughts that went through their minds while making the decision. Participants contemplating an annuity purchase were far more likely (40%) to list death-related thoughts, as compared with those contemplating an IRA contribution (1%).

Theory of Mortality Salience in Consumer Decision Making

The evidence that annuity contemplation generates mortality salience suggests the relevance of mortality salience theories. In psychology, "Terror Management Theory (TMT)" proposes that people employ two stages of defenses—avoidance and pursuit of symbolic immortality—to deal with the increased fear and anxiety that arise from death-related thoughts. In economics, James (2016) presents a rational consumer economic model of mortality salience in personal financial decision making which makes similar predictions. This economic model proposes that a consumer maximizes felicity, W, where

$$W = u(c_1, R_1) + \delta u(\hat{c}_2, R_2) + s\beta u(c_2, R_2),$$
$$\hat{c}_2 = \hat{s} \times c_2 \text{ and } \hat{s} = s + d \times (1 - s)$$

Felicity comes from current consumption, $u(c_1)$, and future consumption, $s\beta u(c_2)$; current circumstances of others, $u(R_1)$, and future circumstances of others, $s\beta u(R_2)$; current anticipation of both future consumption, $\delta u(\hat{c}_2)$, and future circumstances of others, $\delta u(R_2)$. Felicity from current anticipation of future consumption, $\delta u(\hat{c}_2)$, depends on the consumer's subjective expectations about surviving to the future period, $\hat{s}$. Simply put, if the consumer thinks she will be dead in the future period, then she can't enjoy the anticipation of future consumption. This can lead to optimism about personal mortality. Brunnermeier and Parker (2005) present an economic model of optimism in general, proposing that consumers will optimistically increase current anticipation of future circumstances whenever this increases felicity, limited by any suboptimal impact of such

beliefs on actual future circumstances. James (2016) identifies optimism about personal mortality as the difference between objective, s, and subjective, $\hat{s}$, survival expectations, labeled as death denial, d. As in Brunnermeier and Parker (2005), such optimism (a.k.a., death denial, d) is limited by any suboptimal impact on actual future circumstances, $s\beta u\,(c_2, R_2)$, resulting from the optimism as well as the time, effort, and expenditures necessary for its creation and maintenance.

Theoretical Implication 1: Avoidance of Annuities (Extensive Margin)

TMT proposes that people employ defenses to deal with the increased fear and anxiety that arise from death-related thoughts. The first of these defenses (the proximal defense) is avoiding thoughts of death or personal mortality-related topics (Pyszczynski et al., 1999). The economic model generates a similar prediction. When reestablishing optimism, d, is costly, the consumer will avoid mortality salient topics reducing death denial (initial avoidance) unless there is some offsetting gain in objective longevity, s, consumption, c_1 or c_2, or social environment, R_1 or R_2 (James, 2016). Where felicity from the current anticipation of future circumstances is subject to diminishing marginal utility, mortality reminders will result in an increased desire to avoid engaging in subsequent mortality salient topics (induced avoidance) because the exogenous reduction of death denial increases its subsequent marginal utility (James, 2016).

The death reminders inherent in annuity purchase contemplation may be particularly likely to reduce death denial. In this context, such optimism generates an immediate financial consequence because an annuity is an explicit financial bet on one's survival. This immediate financial cost justifies the reduction or elimination of death denial for purposes of evaluating this explicit bet. However, this leaves the consumer with subsequent death denial below what is optimal outside of the limited context of the annuity decision, thus requiring future time, effort, or expenditures to rebuild such optimism. This reinforces the idea that—unless there are substantial offsetting gains justifying a purchase—the felicity maximizing approach to the contemplation of mortality salient annuities is to simply avoid their contemplation. This avoidance will be expressed as an unwillingness to contemplate any annuity purchases (extensive margin) rather than a desire to purchase a smaller, rather than a larger, amount of annuity income (intensive margin), because both a smaller and a larger annuity purchase involve similar contemplation of personal mortality. Additionally, the avoidance response would not predict an increased attraction to providing a death-related bequest benefit to heirs, which, in the context of an annuity, would mean accepting a lower income (intensive margin).

Salisbury and Nenkov (2016) presented experimental results demonstrating the impact of mortality salience on annuity avoidance. Participants first exposed to a mortality salience treatment were significantly less likely to put their savings into an annuity (consistent with induced avoidance). In additional experiments the researchers found that both mortality salience and the avoidance of annuities could be modified by increasing or decreasing the death-related language used in describing annuities. Thus, people were more willing to purchase an annuity paying "each year you live" than one paying "each year you live until you die," and this difference in preference was explained by the difference in mortality salience generated by the contrasting descriptions (Salisbury & Nenkov, 2016, p. 420).

Theoretical Implication 2: Investment in Future Social Impact Through Surviving Others (Intensive Margin)

TMT also suggests the secondary or distal defense to mortality salience of pursuing "symbolic immortality" (Pyszczynski et al., 1999, p. 836). The distal defense of pursuing symbolic immortality reflects the desire for an individual to exist in some form after physical death (Martin, 1999). Martin (1999, p. 200) explains, "symbolic immortality takes the form of extensions of the self (e.g., children, achievements) continuing to exist after the person's biological death." Similarly, Pyszczynski et al. (1999, p. 836) explain, "symbolic immortality is provided by enabling individuals to feel a part of something larger, more powerful, and more eternal than themselves, such as the family, church, nation, corporation, or other enduring social entities."

This pursuit of "symbolic immortality" in the psychology model parallels the economic model's prediction of an increased desire to invest in the future circumstances of others. Returning to the economic approach, the consumer may receive felicity from current anticipation of the future circumstance of others, $\delta u\,(R_2)$, even in the absence of a personal expectation of survival to the future period. This contrasts with felicity from anticipated future personal

consumption, δu ($\hat{c}_2$), which is entirely dependent on survival expectations (i.e., if the consumer thinks he will be dead in the future period, then he *can't* enjoy the anticipation of his own future consumption, but he *can* enjoy the anticipation of the future circumstances of surviving others). Decreasing death denial, d, reduces subjective expectations of survival to the future, $\hat{s}$, and thereby reduces the effectiveness of investments in future consumption, c_2 (such as investment in a lifetime annuity), that will generate anticipated personal future consumption, $\hat{c}_2 = \hat{s} \times c_2$. Consequently, investments in future social impact, R_2, become relatively more effective at generating felicity from current expectations about future circumstances than investments in future personal consumption, c_2. This desire for future social impact, R_2, also increases where felicity from the current anticipation of future circumstances as a whole is subject to diminishing marginal utility. The exogenous reduction in such anticipation, due to mortality reminders reducing death denial, will increase the marginal utility of improvements in such anticipation, for example, those brought about by investing in future social impact, R_2. In other words, mortality awareness makes the future seem bleak, but this bleakness increases the enjoyment from making the future a little brighter by investing in improving the future lives of others.

This desire to invest in people or entities that will outlive the self, also known as the pursuit of symbolic immortality, is relevant for the annuity purchase decision. A standard annuity promises a guaranteed lifetime income, removing risk from longevity and returns, but it does so at the cost of eliminating any bequest possibility for the heirs from the invested assets. One possible resolution to this dilemma is to combine a standard annuity, that is, trading an asset for income ending at death, with a bequest benefit, that is, a benefit going to a loved one after the death of the annuitant. Correspondingly, Lockwood (2012) estimates that about three-fourths of commercial annuities owned by recent retirees have some provision that passes money to heirs after death. Combining an annuity purchase with a bequest benefit results in reduced annuity income. Thus, unlike the avoidance response, which results only in a reduced desire to purchase an annuity (extensive margin), an increased desire to invest in future social impact through surviving others could also generate an increased desire for bequest provisions in an annuity contract. Adding such bequest provisions to an annuity contract would result in reduced annuity income (intensive margin) even among those still choosing to purchase an annuity.

Hypothesis

The following experiments explore the possible effects of mortality salience on the intensive margin of annuity income purchases due to increased interest in including a bequest provision.

Hypothesis: Mortality salience reminders will increase interest in a lower-income annuity with a bequest provision relative to a higher-income annuity with no bequest provision.

Method

Experimental participants were recruited through an advertisement to a national online panel using the description "University survey on lifetime personal financial plans," and were paid to complete the experiment. Although experimental participants were varied in their backgrounds, they were not weighted or selected to be nationally representative. In order to ensure that the experimental participants were paying close attention to the text and questions, participants were required to first correctly answer a preliminary question demanding the careful reading of a large block of text. Of 1,396 potential respondents who began the experiment, 1,199 correctly answered the initial question and completed the subsequent questions.

Prior to providing their annuity preferences, experimental participants were randomly assigned to one of four mortality salience treatments: writing a mortality salience induction essay, reading an annuity description using more death-oriented language, both, or neither. Those assigned to write a mortality salience essay were instructed with: "Imagine that you die tomorrow. Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead," followed by, "Also, please briefly describe the emotions that the thought of your own death arouses in you." Those not given this assignment were instructed with: "Imagine that you have a painful dental operation done tomorrow. Jot down, as specifically as you can, what you think will happen to you as you are experiencing the pain," followed by, "Also, please briefly describe the emotions that the thought of dental pain arouses in you." This type of mortality salience induction and dental-pain comparison group is typical of past experimental research (Anaki, Brezniak, & Shalom, 2012; Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997; Routledge & Juhl, 2012).

Following the initial mortality salience or dental pain essay, half of participants in each group were presented with the hypothetical situation,

> Imagine that you are 65 years old and beginning retirement. You have some retirement savings through your employer retirement plan and are deciding how to manage using that money in the coming years. You have the option to put your retirement savings into an annuity that will give you monthly payments each year you live. An annuity is a financial product offered by financial companies. When you put your savings into an annuity, you pay a lump sum of money upfront. In return for that lump-sum investment, you receive a series of regular monthly payments each year you live. There are two types of annuities. One makes higher monthly payments to you, but provides no inheritance to your heirs at your passing. The other makes lower monthly payments to you, but provides an inheritance to your heirs at your passing. Please rate your interest in this type of financial product on the following page.

The other half of participants received an identical description except that the two uses of the phrase "each year you live" were replaced with "each year until you die," thus separating the groups into the "living words" and "death words" description of an annuity. Next, participants were asked:

> "If you had to choose, how likely are you to invest in an annuity that pays higher income but provides no [death] benefit to your heirs *[after your life]* over an annuity that pay lower income but provides some [death] benefit to your heirs *[after life]*." Optional answers were:
>
> 1. Definitely take higher income with no benefit to heirs.
> 2. Probably take higher income with no benefit to heirs.
> 3. Probably take lower income but with benefit to heirs.
> 4. Definitely take lower income but with benefit to heirs.

The italicized bracketed phrasing was used for the "living words" group and the un-italicized bracketed phrasing was used for the "death words" group, although no italics were used in the actual question text. Presuming that writing a complete mortality salience essay would be a stronger treatment than simply changing "living" words to "death" words in the annuity description suggests four different levels of mortality salience treatments:

1. Low mortality salience: Dental essay + annuity living words.
2. Medium-low mortality salience: Dental essay + annuity death words.
3. Medium-high mortality salience: Death essay + annuity living words.
4. High mortality salience: Death essay + annuity death words.

Results

Table 1 shows the characteristics of the survey participants by their assignment to each mortality salience treatment. These demographic characteristics were not significantly ($p < .05$) different between any of the groups. The "Reported MS" variable was the numerical sum (0–15) of responses to the following three questions asked subsequent to the annuity preference questions:

1. To what extent have you been thinking about death in the past several minutes? (0 = Never, 1 = Very Rarely, 2 = Rarely, 3 = Occasionally, 4 = Frequently, 5 = Very Frequently).
2. Please rate your level of agreement with the following phrase: The prior tasks in the survey reminded me of death. (0 = Very Strongly Disagree, 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree, 5 = Very Strongly Agree).
3. To what extent did the prior tasks in this survey evoke thoughts of death? (0 = Never, 1 = Very Rarely, 2 = Rarely, 3 = Occasionally, 4 = Frequently, 5 = Very Frequently).

The results of the "Reported MS" variable are consistent with the presumed effect of the four mortality salience treatments, with higher mortality salience reported for each higher level of treatment. The p-value of the t tests comparing "Reported MS" scores between each treatment group was significant at $p < .05$ for every treatment group comparison.

TABLE 1. MS Treatment Group Mean Characteristics

	(1) Low MS Treatment $n = 305$	(2) Medium-Low MS Treatment $n = 300$	(3) Medium-High MS Treatment $n = 298$	(4) High MS Treatment $n = 296$	Overall $n = 1,199$
Reported MS (0–15)	8.22	8.96	9.86	10.66	9.41
Age	37.0	36.6	36.1	36.4	36.5
Male	38.7%	46.7%	43.6%	44.6%	43.4%
Marital Status					
Married	42.6%	46.0%	42.3%	45.6%	44.1%
Never married	42.3%	42.3%	47.0%	43.2%	43.7%
Divorced	14.1%	10.0%	9.4%	9.8%	10.8%
Widowed	1.0%	1.7%	1.3%	1.4%	1.3%
Income	$44,852	$49,533	$48,339	$50,439	$48,269

Note. MS = mortality salience.

Table 2 reports the mean numerical response for each treatment group to the outcome question measuring relative interest in a bequest benefit as compared with higher current income. Here, a lower number represents a relatively greater preference for higher current income with no bequest while a higher number represents a relatively greater preference for a bequest with lower current income. However, the use of simple means is likely inappropriate for these categorical outcome variables. Although each higher category represents a higher level of interest in a bequest provision, there is no reason to think, for example, that the difference between options one and two is the same as the difference between options two and three. It is more appropriate to remove the strict numerical interpretation, and simply assume that each higher category represents, to some unspecified degree, a higher level of interest in having a bequest provision relative to higher income. We do so by treating this as an ordered categorical variable and analyzing the data using an ordered probit regression. We first test the relationship without using control variables, followed by one including them. Columns one and two of Table 3 show these results.

The initial results without the control variables show a strong positive relationship between being in a higher mortality salience treatment group and preferring a lower income annuity with a bequest provision. The greater the level of mortality salience treatment participants were exposed to, the greater their preference for choosing an annuity with lower annual income but with a bequest provision. This fits with the theoretical prediction that increasing mortality reminders will generate an increased desire for benefiting others who will live beyond the self. This relationship remained significant after including the control variables.

TABLE 2. Mean Annuity Bequest Preference by MS Treatment Group

(1) Low MS Treatment	(2) Medium-Low MS Treatment	(3) Medium-High MS Treatment	(4) High MS Treatment
2.38	2.45	2.54	2.54
	[$p = .34$][1]	[$p = .044$][1]	[$p = .05$][1]
		[$p = .265$][2]	[$p = .279$][2]
			[$p = .998$][3]

Notes. MS = mortality salience.
Bracketed numbers are the *p*-values of a *t* test comparison where superscript numbers 1, 2, and 3 indicate comparison group, 1, 2, or 3, for reported *p*-value of *t* test.

Being married was also associated with a greater desire to choose an annuity with a bequest provision. A spouse is a natural recipient of such a bequest, making this association plausible. In contrast, older age is associated with a decrease in the likelihood of preferring a bequest provision. Given that the outcome question is framed as a hypothetical choice imagining that one is "65 years old and beginning

TABLE 3. Ordered Probit of MS Treatment Level on Preference for Lower Income Annuity With Bequest Provision

	Relative Interest in Lower Income Plus Bequest Provision			
Variable	**(1)**	**(2)**	**(3)**	**(4)**
MS treatment level				
Combined variable (1–4)	0.066 (0.020) [p = .020]	0.061 (0.028) [p = .031]		
Low			- Reference group -	
Medium-low			0.082 (0.083) [p = .324]	0.062 (0.083) [p = .455]
Medium-high			0.181 (0.087) [p = .037]	0.173 (0.086) [p = .046]
High			0.186 (0.090) [p = .039]	0.168 (0.091) [p = .064]
Age		−0.009 (0.003) [p = .001]		−0.009 (0.003) [p = .002]
Married		0.340 (0.070) [$p \leq .001$]		0.341 (0.07) [$p \leq .001$]
Male		0.009 (0.064) [p = .887]		0.009 (0.064) [p = .883]
Income		0.00000109 (0.00000103) [p = .291]		0.00000108 (0.00000103) [p = .293]
Cut point 1		−.815 (.137)	−.711 (.066)	−.867 (.130)
Cut point 2	.078 (.077)	−.058 (.135)	.025 (.064)	−.110 (.128)
Cut point 3	1.218 (.082)	1.097 (.136)	1.17 (.070)	1.046 (.129)

Notes. MS = mortality salience.
Reporting coefficient (standard error) [p-value].

retirement," the reduction in income resulting from adding the bequest provision may seem more immediate, and thus more painful, to respondents who are closer to or beyond the proposed age.

These results show the general relationship between preference for a bequest provision in an annuity and being in a higher mortality salience treatment group. However, because the mortality salience treatments are distinctive it may be useful to explore each treatment separately. Thus, the analyses reported in columns three and four of Table 3 use an ordered probit model where each mortality salience treatment group is tested separately without imposing the proposed sequential ordering.

Without including other control variables and using the low mortality salience treatment level (dental essay + living words) as the reference group, each higher level of mortality salience treatment had a somewhat greater association with an increased preference for a bequest provision. The results are generally consistent with a positive relationship between the probability of desiring a bequest and the mortality salience treatment level. However, the strongest relationship appears to arise resulting from the introduction of the death essay, rather than the addition of death words in the annuity description. Both treatments including the death essay were significantly associated with a greater preference for a bequest provision as compared with the low mortality salience treatment. The statistical significance of the

relationship for these two treatments was modestly reduced by the inclusion of the control variables. Adding the death-related words alone without the death essay resulted in an insignificant positive coefficient. Further, there appears to be little consistent difference between using the life or death words to describe the annuity after employing the death essay. This suggests that once the strong mortality salience treatment is employed there may be little additional impact from slight wording changes.

Finally, Table 4 reports a more detailed investigation of the association between the treatments and control variables at each separate outcome level. Consistent with the previous results, measuring the mortality salience treatments as a continuous variable from 1 to 4 (1 = Low MS: Dental Essay + Living Words, 2 = Med-Low MS: Dental Essay + Death Words, 3 = Med-High MS: Death Essay + Living Words, 4 = High MS: Death Essay + Death Words) resulted in a significant negative relationship between receiving a higher mortality salience treatment and the propensity to definitely (or probably) take higher income with no benefit to heirs, but a positive association with the propensity to definitely (or probably) take lower income with benefit to heirs.

Discussion

Previous research demonstrated that annuity contemplation generates mortality salience and that this mortality salience generates a mortality avoidance response, expressed by a reduced interest in purchasing annuities (extensive margin; Salisbury & Nenkov, 2016). This is consistent with the "annuity puzzle" where consumers rarely purchase commercial annuities, but does not address why bequest provisions are so common within purchased annuities. In addition to the avoidance response, mortality salience theories also predict a second response of increased investment in future social impact through surviving others (pursuit of "symbolic immortality"). This second mortality salience response predicts an increased desire for bequest provisions in an annuity contract, which would result in reduced annuity income (intensive margin) even among those still choosing to purchase an annuity. Consistent with this prediction, the results here provide experimental evidence that increasing mortality salience results in an increased desire for a lower-income annuity with a bequest provision relative to a higher-income annuity with no bequest provision.

Of course, the evidence presented here is subject to a variety of limitations that might be the subject of future explorations. For example, this experiment tests only the immediate effects of mortality salience. These effects might wear off over time or with repeated exposure. Additionally, the choices presented here were narrow. Effects might vary with additional options or where options were considered in separate transactions of life insurance (Forster & Carson, 2000) and annuity purchases, rather than as a combined product. Although participants were randomly assigned to one of the four different mortality salience treatments, it may have occurred by random chance that those assigned to higher mortality salience treatments just happened to have had a higher preexisting bequest motive.

Nevertheless, the potential reality of such a relationship could have significant consequences for the practice of financial planning. Annuities may provide a logical solution to both return and longevity risk when planning retirement spending (Yaari, 1965). They may make life more enjoyable by reducing anxiety over such risks (Finke & Pfau, 2015). They may increase the overall amount of consumption retirees experience (Kotlikoff & Spivak, 1981). Despite these potential benefits, commercial annuities will not benefit clients as they might if mortality salience provides a barrier to annuities at the extensive or intensive margins.

However, understanding the nature of this barrier can allow advisors to frame annuity decisions in such a way that would minimize the impact of these responses. For example, Salisbury and Nenkov (2016) demonstrated that changing from death-oriented ("until you die") to life-oriented ("each year you live") descriptions of annuities increased interest in their purchase. The current results show a similar effect of decreasing the interest in a bequest provision by switching to more life-oriented descriptions. The increased interest in bequest provisions suggests that combining a standard annuity product with a bequest benefit may be particularly important to client acceptance even if there is no logical need to package such products together. This encourages the use of annuities with bequest provisions and is consistent with the finding of Lockwood (2012) that the majority of annuities purchased have some provision that passes money to heirs after death. Separately, this helps to explain the popularity of charitable gift annuities where a charity representing the values of the purchaser is benefitted after death (James, 2018).

TABLE 4. Estimated Partial Effects of MS Treatments on Each Annuity Preference Outcome

	(1) Definitely Take Higher Income with No Bequest	(2) Probably Take Higher Income with No Bequest	(3) Probably Take Lower Income with Bequest	(4) Definitely Take Lower Income with Bequest	(5) Definitely Take Higher Income with No Bequest	(6) Probably Take Higher Income with No Bequest	(7) Probably Take Lower Income with Bequest	(8) Definitely Take Lower Income with Bequest
MS treatment level								
Combined MS (1–4)	−0.017 (0.008) [p = .030]	−0.007 (0.003) [p = .034]	0.010 (0.005) [p = .029]	0.014 (0.006) [p = .032]				
Low MS					- Reference Group -			
Med-Low MS					−0.018 (0.024) [p = .455]	−0.006 (0.008) [p = .454]	0.011 (0.015) [p = .456]	0.013 (0.017) [p = .455]
Med-High MS					−0.049 (0.024) [p = .046]	−0.019 (0.010) [p = .049]	0.029 (0.015) [p = .047]	0.038 (0.019) [p = .048]
High MS					−0.047 (0.025) [p = .062]	−0.018 (0.010) [p = .074]	0.028 (0.015) [p = .062]	0.037 (0.020) [p = .068]
Age	0.003 (0.001) [p = .002]	0.001 (0.000) [p = .001]	−0.001 (0.000) [p = .002]	−0.002 (0.001) [p = .001]	0.003 (0.001) [p = .002]	0.001 (0.000) [p = .001]	−0.001 (0.000) [p = .002]	−0.002 (0.001) [p = .001]
Married	−0.095 (0.020) [p < .001]	−0.037 (0.008) [p < .001]	0.056 (0.012) [p < .001]	0.076 (0.016) [p < .001]	−0.095 (0.020) [p < .001]	−0.038 (0.008) [p < .001]	0.056 (0.012) [p < .001]	0.077 (0.016) [p < .001]
Male	−0.003 (0.018) [p = .887]	−0.001 (0.007) [p = .887]	0.001 (0.010) [p = .887]	0.002 (0.014) [p = .887]	−0.003 (0.018) [p = .883]	−0.001 (0.007) [p = .883]	0.002 (0.010) [p = .883]	0.002 (0.014) [p = .883]
Income	−0.0000003 (0.0000003) [p = .292]	−0.0000001 (0.0000001) [p = .291]	0.0000002 (0.0000002) [p = .291]	0.0000002 (0.0000002) [p = .291]	−0.0000003 (0.0000003) [p = .293]	−0.0000001 (0.0000001) [p = .293]	0.0000002 (0.0000002) [p = .293]	0.0000002 (0.0000002) [p = .293]

Note. MS = mortality salience.
Reporting coefficient (standard error) [p-value].

Yet, this solution is imperfect as such bequest provisions reduce the effectiveness of the annuity in providing retirement income. Although not tested in this experiment, it may be possible to emphasize a positive bequest impact from an annuity purchase that is not through actually combining products, but simply through creative framing. For example, an advisor could point to some assets in the client's portfolio and suggest that the client protect these assets for heirs against the risk of depletion from retirement income needs due to unexpected longevity. A commercial annuity could provide protection for this intended bequest by generating sufficient retirement income regardless of the client's longevity. Without such bequest protection provided by the annuity, the intended bequest would be subject to depletion or complete exhaustion due to the income needs associated with unexpected longevity. This might help guide the client to a financially optimal solution without having to add a potentially unnecessary life insurance or bequest-related provision to address the psychological defenses related to mortality salience.

The use of these strategies might help to encourage the use of annuities as part of a financially optimal solution. However, despite the finding that annuities are underutilized as a retirement planning vehicle in general (Benartzi et al., 2011), this does not mean that annuities are appropriate for every client or every situation. Thus, such communication strategies are suitable only when employed to best serve the client's interest, not simply to sell more of a particular financial product (Bae & Sandager, 1997).

As our society moves away from defined benefit pensions of the past to the free choice paradigm of defined contribution plans (Yuh & DeVaney, 1996), the psychological barriers to optimizing financial choices will continue to grow in importance and impact. Sophisticated advisors who understand and manage these potential barriers may be able to benefit their clients to a higher degree than those who simply present purely financial and mathematical solutions.

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