# People search for meaning when they approach a new decade in chronological age

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**Although humans measure time using a continuous scale, certain numerical ages inspire greater self-reflection than others. Six studies show that adults undertake a search for existential meaning when they approach a new decade in age (e.g., at ages 29, 39, 49, etc.) or imagine entering a new epoch, which leads them to behave in ways that suggest an ongoing or failed search for meaning (e.g., by exercising more vigorously, seeking extramarital affairs, or choosing to end their lives).**

aging | meaning in life | time | decade | life-span development

Although humans age continuously, many societies divide the human life span into 10-year periods, or decades. In the English-speaking world, for example, people describe these periods as "the twenties," "the thirties," "the forties," and so on, which implies that human aging progresses through discrete 10-year epochs. Because the imminent approach of a new decade signals the end of one era and the beginning of another, we examine how adults respond when they enter the final year of a chronological decade (i.e., when they reach the age of 29, 39, or 49 years, and so on, hereafter, "9-ending ages" and the people at those ages, "9-enders").

We expect decades to play an outsized role in human psychology, just as discrete boundaries do in other domains. For example, round numbers occur more often than other numbers in literature (1) and function as behavioral goals (e.g., SAT takers are more likely to retake the SAT if they score just under rather than just over a round number) (2). We confirmed this intuition by asking 100 adults on Amazon's Mechanical Turk platform to indicate, in descending order, which 10 birthdays they considered to be the most significant throughout the human lifespan. Apart from 18 and 21, which are momentous because they signal the beginning of adulthood and the arrival of certain state-sanctioned rights and responsibilities, the most common responses were 30, 40, 60, 50, and 100. Moreover, the most common end-digit for all listed ages was 0 (46.4% of all responses), followed distantly by ages ending in 1 (14.8%), 5 (12.7%), 8 (9.6%), 6 (7.1%), 3 (5.2%), 2 (1.5%), 9 (1.1%), 7 (0.7%), and 4 (0.7%). In contrast to ages 18 and 21, 0-ending ages are momentous because they feel subjectively different from the ages that come before them, rather than because they impose objective changes on people's lives. Because the approach of a new decade represents a salient boundary between life stages and functions as a marker of progress through the life span, and because life transitions tend to prompt changes in evaluations of the self, people are more apt to evaluate their lives as a chronological decade ends than they are at other times (3–5). Consequently, although people may not routinely ponder whether their lives are meaningful, we believe they will be more likely to consider this question when they reach 9-ending ages.

Once they do audit the meaningfulness of their lives, people tend to reach one of two conclusions: Either they conclude happily that their lives are indeed meaningful or they decide that their lives lack meaning in at least one important domain (4, 6). Those domains include, for example, a sense that one has goals or purpose, values that distinguish right from wrong, efficacy and the capacity to enact those deeply held values, and a sense of self-worth driven by meaningful social interactions and mutual respect (7, 8). When people feel their lives lack meaning in one of these domains they either respond adaptively, by adopting behaviors that increase the likelihood of finding meaning, or maladaptively, by choosing to act in ways that further rob their lives of meaning or diminish their chances of finding meaning (9, 10). Because we expect 9-enders to examine their lives for meaning more vigorously than non-9-enders, we also expect them to enact a variety of adaptive and maladaptive behaviors that reflect their quest for meaning.

One marker of adaptive meaning seeking is an attempt to set up significant new life goals that magnify a sense of efficacy, self-worth, and purpose (4, 8). Accordingly, we expect 9-enders to sign up to run and train more vigorously for marathon races than non-9-enders. In contrast to this adaptive behavior, some people might struggle to come to terms with the conclusion that their lives lack meaning. As the folk belief in midlife crises suggests, they might seek socially damaging extramarital affairs or, in extreme cases, to end their lives altogether. Indeed, several researchers have suggested that some people treat escaping from or destroying their lives as the only way to truly avoid the specter of meaninglessness (4, 7, 9, 10).

## Results and Discussion

In studies 1 and 2 we examined whether 9-enders and people who believed they were entering a new era of their lives were more likely to question whether their lives were meaningful. Assuming they responded to this search adaptively or maladaptively, in studies 3–6 we examined how often 9-enders, relative to non-9-enders, behaved in ways that suggested a successful or failed

### Significance

**This paper is the first to demonstrate, to our knowledge, that people audit the meaningfulness of their lives as they approach a new decade in chronological age, further suggesting that people across dozens of countries and cultures are prone to making significant decisions as they approach each new decade. The paper has broad implications for interdisciplinary science, because it demonstrates a striking pattern in human behavior that bears on, among others, the disciplines of psychology, medicine, sociology, economics, and anthropology.**

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attempt to create meaning. In all six studies, unless indicated otherwise, we focused exclusively on adults aged between 25 years and 64 years of age—four full decades that excluded college-aged respondents and retirees, while also ensuring that 9-enders were, on average, no older or younger than non-9-enders.

In study 1 we analyzed responses from 42,063 adults from more than 100 countries who completed the World Values Survey. Participants reported their age and sex, how often they questioned the meaning or purpose of life (1 = never; 4 = often), their marital status, number of children, whether they lived with their parents, and whether they were employed. Most respondents indicated thinking about meaning or purpose quite often, which dovetails with recent research suggesting that most people find life meaningful (11) [median = 3; mean ($M$) = 3.25, SD = 0.84; 4.2% responded with 1; 13.2% responded with 2; 35.8% responded with 3; 46.7% responded with 4]. This was particularly true of 9-enders, who reported thinking about meaning and purpose more often than other respondents [$M_{9\text{-}enders}$ = 3.28, SD = 0.83; $M_{non\text{-}9\text{-}enders}$ = 3.25, SD = 0.84, $t(42{,}061) = 2.04$, $P = 0.041$, Cohen's $d = 0.03$]. Indeed, 9-enders reported questioning the meaning or purpose of life more than respondents whose ages ended in any other digit (3.28 versus, in descending order, 8-enders, 3.27; 7-enders, 3.27; 1-enders, 3.26; 6-enders, 3.25; 5-enders, 3.25; 4-enders, 3.24; 2-enders, 3.24; 0-enders, 3.24; and 3-enders, 3.20). This pattern persisted when we conducted an analysis of covariance (ANCOVA) controlling for participants' age and the remaining demographic variables [$F$ (1, 42,055) = 4.13, $P = 0.042$, Cohen's $d = 0.03$]. In addition, none of those variables interacted significantly with the 9-ending independent variable, all $F$s < 1.02, all $P$s > 0.31. The effects in this study were small, which is not surprising given the nature of the question and the pattern of responses. The question asked participants to report their general, dispositional tendency to question the meaning of life, which is likely to be influenced by a host of factors unrelated to their ages. Responses are also likely to be noisy because participants may have been reflecting on previous years as well, which are both difficult to remember and carry them beyond their present ages. Nine-enders, then, may have responded while remembering how often they sought meaning during other years of their lives. Moreover, most participants tended to use the top two points on the four-point scale, further dampening an already small effect.

Because the evidence in study 1 was correlational, and the effect relatively small, in study 2 we ran a complementary experiment to show that the experience of approaching a new epoch prompts a search for meaning. Three hundred thirty-seven Mechanical Turk users (12) were randomly assigned to one of three conditions: to write about what they would do tomorrow (baseline control), to write about how they would feel the night before their next birthday (birthday control), or to write about how they would feel the night before they entered a new decade (experimental; e.g., 25-year-olds imagined the night before they turned 30). Participants reported their age and sex first and then completed the writing task and a 12-item questionnaire ($\alpha$ = 0.83) that measured the extent to which they were preoccupied with seeking meaning in life (scored from 1: strongly disagree to 7: strongly agree; e.g., "At this moment, I am thinking more deeply about my life than I usually do."). Most of the items were adapted from the so-called Meaning in Life Questionnaire (13), whereas others were prepared for the present study. As expected, meaningfulness varied by condition [$F(2, 334) = 6.07$, $P = 0.003$, $\eta_p^2 = 0.04$], such that participants in the experimental condition were more preoccupied by seeking meaning ($M$ = 4.39, SD = 0.91) than were participants in the baseline control condition ($M$ = 3.99, SD = 0.97, Tukey test: $P = 0.002$) or the birthday control condition ($M$ = 4.08, SD = 0.82, Tukey test: $P = 0.046$). Responses did not differ significantly between the baseline and birthday control conditions (Tukey test: $P = 0.72$). As in study 1, age and sex neither interacted with the 9-ending independent variable ($F$s < 1.26, $P$s > 0.28) nor altered the results when we included them as covariates in an analysis of covariance [$F$ (2, 332) = 7.66, $P = 0.001$, $\eta_p^2 = 0.04$].*

Studies 1 and 2 show that 9-enders and people who imagine they are entering a new decade are more likely to search for meaning in life. In studies 3–6 we examined the correlates of this search for meaning by investigating whether 9-enders were more likely to engage in adapative and maladaptive behaviors that suggest a quest for meaning.

In study 3 we calculated the frequency of male 9-enders aged between 25 and 64 years relative to other males registered on a dating website that caters to people who are seeking extramarital affairs.† We categorized 8,077,820 male users, aged between 25 and 64 years, according to the final digit of their ages. There were 952,176 9-enders registered on the site, 17.88% more than if the frequency of end-digits were randomly distributed [$\chi^2$ (1) = 28,678.64, $P < 0.001$, Cramer's $V = 0.05$]. In contrast, there were between 701,078 users (2-enders: an underrepresentation of 13.21%) and 873,011 users (8-enders: an overrepresentation of 8.08%) with ages ending in the remaining digits.

Extending these results to a second measure, in study 4 we examined the number of suicides per 100,000 individuals between 25 and 64 years of age across the United States from 2000 to 2011. The Centers for Disease Control and Prevention (CDC) classifies the United States into four regions—Midwest, Northeast, South, and West—so we treated the suicide rate of individuals at each year of age within each region during each calendar year as a separate data point (e.g., the suicide rate of 25-year-olds in the Midwest in 2000 was 12.49 per 100,000 individuals). We conducted an analysis of covariance to compare the suicide rate of 9-enders to the suicide rate of non-9-enders and included variables in the model to control for the effects of region, age, and total deaths at that age. (Because the data did not include gender, we were unable to examine whether gender interacted with the 9-ending independent variable.) As expected, the suicide rate was higher among 9-enders ($M$ = 15.05 per 100,000, SD = 3.15) than among non-9-enders ($M$ = 14.71 per 100,000, SD = 3.33) [$F$ (1, 1915) = 4.29, $P = 0.038$, Cohen's $d$ = 0.10]. Indeed, the suicide rate was higher among 9-enders than among people whose ages ended in any other digit (15.05 versus, in descending order, 0-enders, 14.90; 8-enders, 14.89; 7-enders, 14.78; 4-enders, 14.75; 1-enders, 14.73; 5-enders, 14.72; 3-enders, 14.60; 6-enders, 14.56; and 2-enders, 14.47).

Having shown that 9-enders were more likely to engage in two behaviors that suggested a crisis of meaning, we next considered whether 9-enders also tend to engage in productive meaning-seeking behaviors. In study 5 we collected data from Athlinks,

*We also ran a supplemental analysis to address the possibility that experimental participants sought meaning more intently merely because they were focusing on the more distant future. Specifically, whereas the baseline condition asked participants to think about "tomorrow" and the birthday control condition asked them to think about their upcoming birthday (no more than 12 months away), experimental participants imagined the night before they reached a new decade in age (up to 10 years away). We found that, among participants in the experimental condition, there was no significant relationship between how many years until participants reached the next decade in age and the tendency to seek meaning, $r$ (105) = 0.02, $P = 0.87$. This result suggests that the results in study 2 were not driven by differences in how far into the future participants focused across the three conditions.

†We decided to focus on male users of the dating website because biological and evolutionary research suggests that males are more likely than females to assert their sexual prowess by seeking out multiple partners (14). Leading to the same conclusion through a different route, the biopsychosocial construction of sex differences (15) suggests that men and women conform to the gendered roles prescribed by the societies in which they live. Consequently, the act of seeking out an extramarital affair, like purchasing a red sports car, is one of the canonical indicators that a man (but not a woman) has experienced a so-called midlife crisis. In this respect, 9-ending ages prompt end-of-decade crises that resemble midlife crises. Despite focusing on men, we ultimately obtained data on female users and found a similar though less-pronounced pattern of results.

**Table 1. Summary of results from six experiments**

| Study no. | Participants approaching or imagining a new epoch | Control participants | Dependent measure |
|---|---|---|---|
| 1 | 3.28 | 3.25 | Preoccupation with meaningfulness and purpose (1–4) |
| 2 | 4.39 | Baseline: 3.99<br>Birthday control: 4.08 | Self-reported search for existential meaningfulness |
| 3 | +17.88% | −1.99% | Over- or underrepresentation among males using extramarital affair website |
| 4 | 15.05 | 14.71 | Suicide rate per 100,000 individuals |
| 5 | 3:15:18 | 3:18:32 | Mean marathon completion time |
| 6 | +48.00% | −5.33% | Over- or underrepresentation among first-time marathon runners |

a website that compiles running race times. This study addressed one potential concern with study 3: that daters might be tempted to claim they are younger than they actually are, thereby inflating the number of 9-enders on the site. (Although see a supplemental analysis in *Materials and Methods* that suggests this is unlikely.) To minimize this concern, we explored participation rates in a domain where reporting a 9-ending age has distinct disadvantages: athletic events. Nine-enders are the oldest members of athletic age brackets, which divide runners into 5-year brackets (e.g., 35- to 39-year-olds). Consequently, 9-ending runners are incentivized to round their age upward so that it ends in a 0, placing them in a competitive set that includes older (and therefore slower) runners. This analysis therefore represented a conservative test of our hypothesis.

We examined whether nonelite runners completed faster marathons when they were aged 29 and 39, rather than during the 2 years before or after those ages. Controlling for age, faster marathon times tend to suggest that runners have trained harder or are more motivated, so we expected runners to complete faster marathons when they were 29 (relative to their mean fastest times at ages 27, 28, 30, and 31) or at age 39 (relative to their mean fastest times at ages 37, 38, 40, and 41). We analyzed the marathon times of 100 runners who had completed marathons at age 29 or 39 and at least one marathon during the 2 years before and one during the 2 years after that age. We calculated a 9-end speed index by dividing the athletes' fastest times at the ages surrounding the 9-ending age by their fastest times at the 9-ending age. As expected, runners in our sample ran a mean of 2.30% faster at their 9-ending age (SD = 4.84%) than during the 2 years before and after that age [$t(99) = 4.74$, $P < 0.0001$, $\eta_p^2 = 0.19$]. Whereas runners completed their marathons in an average of 3:15:19 (SD = 31:58) when aged 29 or 39, their mean completion times were slower when they were aged 27 or 37 ($M$ = 3:20:14, SD = 27:34), 28 or 38 ($M$ = 3:20:52, SD = 30:59), 30 or 40 ($M$ = 3:16:29, SD = 33:25), or 31 or 41 ($M$ = 3:16:44, SD = 38:10). The central result held for both male ($M$ = 2.13% faster, SD = 4.95%; $t = 3.86$, $P < 0.001$, $\eta_p^2 = 0.16$) and female ($M$ = 2.95% faster, SD = 4.45%; $t = 2.96$, $P < 0.009$, $\eta_p^2 = 0.32$) marathon runners, suggesting that the effect was consistent across male and female marathoners.

Because the sample in study 5 was restricted, we conducted a complementary analysis in study 6 to examine whether 9-enders tend to be overrepresented among first-time marathon runners. We examined the ages of 500 first-time marathon runners randomly drawn from the Athlinks website, aged between 25 and 64 years, who were completing one of five marathons in the United States. Of the 500 runners, 74 were 9-enders, an overrepresentation of 48%. In contrast, there were between 32 runners (3-enders) and 59 runners (7-enders) whose ages ended in the remaining digits, suggesting that 9-enders were significantly overrepresented [$\chi^2$ (1) = 12.28, $P < 0.001$, Cramer's $V = 0.07$].

These results contribute to a growing literature suggesting that, although people age continually, the passage of time is more likely to influence their thoughts and actions at some ages than others. Here, we find that people are significantly more likely to consider whether their lives are meaningful as they approach the start of a new decade.

Across six studies (see Table 1 for a summary) we showed that 9-enders are particularly preoccupied with aging and meaningfulness (studies 1 and 2), which is linked to a rise in behaviors that suggest a search for or crisis of meaning (studies 3–6). Although some of these effects were small, they occur in domains with consequential life outcomes. These results also contribute to recent research on the presence of and search for meaning in people's lives as they move through the adult life span (16–19) and enhance our understanding of the psychological changes that occur in the face of endings and fresh starts.

## Materials and Methods

**Study 1: World Values Survey Data.** We examined data from 42,063 adults who completed the World Values Survey, a large-scale survey administered to participants from more than 100 countries between 2010 and 2014.

We included all respondents aged between 25 and 64 years of age, specifically excluding college-aged respondents, who are generally prone to seeking meaning based on the nature of adolescence and their tendency to be joining the workforce or entering the final years of formal education, and potential retirees. With the remaining participants we examined whether 9-enders reported thinking about meaning and purpose in life more often than other respondents (ranging from 1 = never to 4 = often). Fig. S1 depicts the mean scores on the meaning measure for participants at each age in the sample.

To ensure that the results were not driven by participants' age or sex, marital status, whether they had children, whether they lived with their parents, or whether they were employed, we also ran an ANCOVA controlling for these demographic variables.

Data from the World Values Survey are in the public domain, and all respondents are anonymous. Accordingly, we were not required to seek specific ethics approval beyond the general approval granted to the project at large by New York University's Institutional Review Board.

**Study 2: Entering a New Era and Meaning.** Three hundred seventy-seven adults from the Mechanical Turk participant pool completed the survey for $0.30 (145 women; $M_{age}$ = 35.70, SD = 10.03 years). Forty participants failed an instructional manipulation check (20) in which they were asked their marital status but told to simply choose the box labeled "other" if they were paying attention and were excluded from further analyses, leaving a final sample of 337 participants aged between 25 and 64 years.

After completing a consent form, participants reported their birthdate and sex and were told that they would be completing two brief studies. Mechanical Turk respondents regularly provide demographic details, including their ages, so we were not concerned that asking their birthdates might signal that the study was principally concerned with age effects.

Participants in the baseline control condition were instructed to "imagine what you'll do with your day tomorrow. Please spend a few minutes writing about your thoughts and feelings about the day. Try to imagine, as vividly as possible, what your day will be like. There are no right or wrong answers—just write whatever comes into your head." Those in the birthday control condition were given the same instructions, except that the target date was the day before their next birthday (e.g., 25-year-olds were instructed to imagine that "tomorrow is your 26th birthday"). Those in the birthday experimental condition were given the same instructions but asked to imagine that the target date was the day before they entered a new decade (e.g., 25-year-olds were instructed to imagine that "tomorrow is

your 30th birthday"). We examined participants' responses to confirm that they responded to the prompts as instructed.

After completing this writing task, all participants completed part 2 of the survey, in which they were asked the extent to which they agreed with 12 statements about how much meaning they sought in their lives (each rated from 1 = strongly disagree to 7 = strongly agree). Those statements were as follows: "At this moment, I am thinking more deeply about my life than I usually do"; "At this moment, it feels important to me to understand which aspects of my life have gone well and which ones have gone less well"; "In thinking about my life at this moment, I am taking a very broad view rather than focusing on a few specific moments"; "At this moment, it is important to me to think about how my life has gone so far"; "I feel as though this is a turning point in my life when I can choose to fix things that have not gone well and continue to improve on things that have gone well"; "If I were ever going to write a memoir about my life, this would be a good time to do it"; "It is more important for me to lead a meaningful life than to lead a happy life"; "If I could choose to live either a hard and meaningful life or a happy life without meaning, I would choose the hard and meaningful life"; "Life is hard enough as it is without having to worry about making it meaningful" (reverse-scored); "One important measure of a life well lived is that people remember you when you're gone"; "It is important to me to make a meaningful difference in this world"; and "I measure the quality of my life by how positive an impact I have on other people." Participants then completed standard demographics and exited the survey.

Data collection for this study was approved by the New York University Institutional Review Board.

**Study 3: Extramarital Affairs.** We obtained data from an online dating site that targets people who are already in relationships. The dating site shared aggregate data on all male users' ages as of November 2013. We restricted the sample to those aged 25–64 years (82.8% of users) to (*i*) control for average age between 9-enders ($M = 39$ years) and non-9-enders ($M = 39.56$ years) and (*ii*) work with people who spanned four full decades in age to ensure that the effect was not confined to just one or two decades in age. Fig. S2 depicts the number of users at each age between 25 and 64 years.

Unfortunately, the dating site does not verify the age of its users, so we were concerned that some users may have falsified their ages. Accordingly, we conducted a brief study to examine whether people systematically choose 9-ending ages when lying about their age. We asked a sample of Mechanical Turk users to imagine they were trying to fool a potential dating match into believing they were as young as possible while avoiding obviously fabricated responses because they might later meet that person.

There was no evidence that people preferred 9-ending ages. We analyzed the responses from 259 users who claimed ages between 25 and 64 years of age, which allowed us to compare the distribution of the online dating site data to the distribution of these deliberately fabricated ages. We found that 9-ending ages were less common than all but 1-ending ages. The most frequent responses were, in descending order, 5-ending ages (21.5%), 0-ending ages (12.7%), 2-ending ages (12.5%), 8-ending ages (9.3%), 3-ending ages (9.3%), 4-ending ages (8.5%), 7-ending ages (7.6%), 6-ending ages (6.8%), 9-ending ages (5.9%), and 1-ending ages (5.7%). At least according to this analysis, people are not systematically drawn to 9-ending ages when providing fabricated responses. Rather, we found that the vast majority of people (71.9%) believed they could plausibly claim to be between 2 years and 7 years younger than they actually were, which did not seem to vary by age. Of course, these data are not definitive, but they do suggest that people are not naturally drawn to 9-ending ages when trying to appear as young as possible within the bounds of plausibility.

In our primary analysis of the dating website data we simply computed the percentage of daters whose ages ended with each of the 10 digits from 0 to 9, and conducted $\chi^2$ goodness-of-fit tests to examine whether 9-enders were overrepresented relative to people whose ages ended with other digits.

Because users of the website were anonymous and not associated with any identifying or demographic data at all, we were not required to seek specific ethics approval beyond the general approval granted to the project at large by New York University's Institutional Review Board.

**Study 4: Suicide Rates.** We obtained a dataset from the CDC containing the age of every suicide victim across the United States between 2000 and 2011. We restricted the sample to adults aged 25 and 64 years of age. The dataset included suicide rates per 100,000 individuals for each year and region of the United States (broken down by the CDC into Midwest, Northeast, Southwest, and West).

We calculated a separate suicide rate score for each age during each year and from each region between 2000 and 2011 and then averaged those scores to form a single index for each age-ending digit (e.g., the score of 9-enders represented the average index score for 29-, 39-, 49-, and 59-year-olds during each year between 2000 and 2011 from each of the four regions). Fig. S3 represents the frequency of suicides at each age between 25 and 64.

Because the data were available to the public, anonymous, and absent of identifying or demographic data, we were not required to seek specific ethics approval beyond the general approval granted to the project at large by New York University's Institutional Review Board.

**Study 5: Marathon Race Times.** We collected data from the Athlinks website, which scrapes the internet to collect athletic race times across a variety of events. Specifically, we randomly recorded the marathon completion times of the first 100 athletes listed on the site who ran a marathon at age 29 (or 39) and at least one marathon at the two ages below that age (27 or 28 years for the 29-year-olds; 37 or 38 years for the 39-year-olds) and at least one marathon at the two ages above that age (30 or 31 years for the 29-year-olds; 40 or 41 years for the 39-year-olds). To ensure the results were not particular to any one event we drew 20 athletes from each of five randomly chosen events: the Disneyworld Marathon 2012, the San Antonio Rock 'n Roll Marathon 2012, the Long Island Marathon 2012, the Surf City Marathon USA 2010, and the Carlsbad Marathon 2012.

Having collected these data, we calculated an index that represented how much faster or slower each athlete ran the marathon at the 9-ending age relative to the other ages. We chose ages both above and below the 9-ending age because people tend to run more slowly as they age, and this approach ensured that we included races run before and after each runner was 29 or 39 years old.

Because the data were available to the public on the Athlinks website and we did not publish or store any personal information, we were not required to seek specific ethics approval beyond the general approval granted to the project at large by New York University's Institutional Review Board.

**Study 6: Marathon Sign-Ups.** As in study 5, we collected data from the Athlinks website. We recorded the age at which 500 athletes ran their first marathon, according to the website, and focused on marathons because a marathon represents a particularly meaningful athletic challenge.

To ensure the results were not confined to one particular marathon, we drew 100 athletes from each of the same five randomly chosen events listed in study 5.

We collected data from the first 100 runners whose marathon completion times were greater than 3 hours, recording the age at which each runner completed his or her first marathon. (Runners who complete a marathon in less than 3 hours are often labeled by athletics organizations as "subelite." They tend to be sufficiently competitive that their motivation for running the marathon is unlikely to be driven by the same concerns that drive mainstream athletes to run a marathon.)

Having collected the data, we examined how often runners completed their first marathon at each age-ending digit (i.e., how many runners completed their first marathons at ages ending in 0, 1, 2, etc.). We analyzed these frequencies using a $\chi^2$ goodness-of-fit test.

Fig. S4 depicts the number of runners who ran their first marathons at each age between 25 and 64 years.

Because the data were available to the public on the Athlinks website and we did not publish or store any personal information, we were not required to seek specific ethics approval beyond the general approval granted to the project at large by New York University's Institutional Review Board.

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1. Jansen CJM, Pollman MMW (2001) On round numbers: Pragmatic aspects of numerical expressions. *J Quant Linguist* 8(3):187–201.
2. Pope D, Simonsohn U (2011) Round numbers as goals: Evidence from baseball, SAT takers, and the lab. *Psychol Sci* 22(1):71–79.
3. Demo DH (1992) The self-concept over time: Research issues and directions. *Ann Rev Soc* 18:303–326.
4. Baumeister RF (1990) Suicide as escape from self. *Psychol Rev* 97(1):90–113.
5. Arndt J, Greenberg J, Pyszczynski T, Solomon S (1997) Subliminal exposure to death-related stimuli increases defense of the cultural worldview. *Psychol Sci* 8(5):379–385.
6. Baumeister RF, Vohs KD (2002) The pursuit of meaningfulness in life. *Handbook of Positive Psychology*, eds Snyder CR, Lopez SJ (Oxford Univ Press, New York), pp 608–618.

7. Baumeister RF (1991) *Meanings of Life* (Guilford, New York).
8. Emmons RA (2003) Personal goals, life meaning, and virtue: Wellsprings of a positive life. *Flourishing: Positive Psychology and the Life Well-Lived*, eds Keyes CLM, Haidt J (American Psychological Assoc, Washington, DC), pp 105–128.
9. Edwards MJ, Holden RR (2001) Coping, meaning in life, and suicidal manifestations: Examining gender differences. *J Clin Psychol* 57(12):1517–1534.
10. Heisel MJ, Flett GL (2004) Purpose in life, satisfaction in life, and suicide ideation in a clinical sample. *J Psychopathol Behav Assess* 26(2):127–135.
11. Heintzelman SJ, King LA (2014) Life is pretty meaningful. *Am Psychol* 69(6): 561–574.
12. Paolacci G, Chandler J, Ipeirotis PG (2010) Running experiments on Amazon Mechanical Turk. *Judgm't & Dec Making* 5(5):411–419.
13. Steger MF, Frazier P, Oishi S, Kaler M (2006) The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *J Couns Psychol* 53(1): 80–93.
14. Buss DM (2013) The science of human mating strategies: An historical perspective. *Psychol Inq* 24(3):171–177.
15. Wood W, Eagly AH (2012) Biosocial construction of sex differences and similarities in behavior. *Advances in Experimental Social Psychology*, eds Zanna MP, Olson M (Elsevier, London), pp 55–124.
16. Baumeister R, Vohs KD, Aaker JL, Garbinsky EN (2013) Some differences between a happy life and a meaningful life. *J Posit Psychol* 8(6):505–516.
17. Markman KD, Proulx T, Lindberg MJ (2013) *The Psychology of Meaning* (APA, Washington, DC).
18. Ersner-Hershfield H, Mikels JA, Sullivan SJ, Carstensen LL (2008) Poignancy: Mixed emotional experience in the face of meaningful endings. *J Pers Soc Psychol* 94(1):158–167.
19. Dai H, Milkman K, Riis J (2014) The fresh start effect: Temporal landmarks motivate aspirational behavior. Manage Sci, dx.doi.org/10.1287/mnsc.2014.1901.
20. Oppenheimer DM, Meyvis T, Davidenko N (2009) Instructional manipulation checks: Detecting satisficing to increase statistical power. *J Exp Soc Psychol* 45(4):867–872.