

## Supplemental Materials

Below, we report exploratory analyses, pilot studies, and preregistered analyses that were excluded from the main text. Most of the studies were not powered to find nuanced effects or interactions with demographic variables, and so results should be interpreted with caution. We refrain from discussing these demographic (life history) results for the same reasons given above. We include analyses of moderation by demographic variables and also religiosity. Given that the studies

### Life Stage, Fundamental Motives, and PIL

Life history theory suggests that the motivations linked to PIL might vary in response to the opportunities and challenges germane to a given life stage. This theory presumes that motivations and priorities will vary in response to developmental stages in order to maximize reproductive success (e.g., Kaplan & Gangestad, 2005; Stearns, 1992). For example, the reproductive fitness of young adults is best served by finding a mate, whereas the reproductive fitness of a middle aged adult with children to care for is best served by retaining a mate who can contribute to child care, thus maximizing the chances of those children's' eventual reproduction. Some of the data sets described later in this supplement are analyzed for differences in the motives-PIL relationship along the demographic lines described below.

**Age.** With increasing age comes a change in priorities, so the fundamental motives that predict purpose might change as well. For example, mate acquisition motives are likely stronger in young adulthood than in midlife (Neel, Kenrick, White, & Neuberg, 2016), and so satisfying them might lend more PIL to a young adults than to middle-aged adults, on average.

**Gender.** Reproductive success makes differential demands on each gender (Daly & Wilson, 1983). In particular, mate acquisition and status should be more important to males

because their mate value is increased by high status (Buunk, Dijkstra, Fetchenhauer, & Kenrick, 2002; Kenrick, Sadalla, Groth, & Trost, 1990). However, Krems and colleagues (2017) found that men associate mate acquisition and self-actualization less with increasing chronological age. We might predict that while men will associate status and mate acquisition with PIL more than women will, the association among males will be more steeply attenuated by participant age than the association among women. Thus, there could be a gender X age interaction moderating the links of PIL with status and mate acquisition, such that the gender difference in these traits increases over the life span.

***Relationship Status.*** Among those who do not have a committed life partner, mate acquisition should have a stronger relationship with purpose, but that is not to say it will be positive. Unlike affiliation motives which may remain strong even when one has a healthy social network, mate acquisition motivation is likely to indicate a complete lack of satisfying romantic relations, which might reduce one's sense of purpose through feelings of loneliness (Stillman et al., 2009).

***Presence of Children.*** Kin care motivation should be higher in those who have children because the pressure to do so is necessarily higher when one has a family to look after. In line with inclusive fitness theory (Hamilton, 1963; Smith, 1964), we expect that caring for one's own children exerts more pressure than caring for any other family members, so kin care motivation and its accomplishment should predict more life purpose in parents, and especially in parents of young children who demand more care than older children.

### **Religiosity, PIL, and Fundamental Motives**

Research has linked religiosity and an elevated sense of PIL (Aghababaei & Błachnio, 2014; Aghababaei et al., 2016; Ardel & Koenig, 2007; Byrd, Lear, & Schwenka, 2000; Byron &

Miller-Perrin, 2009; French & Joseph, 1999; Wnuk & Marcinkowski, 2014; Zuckerman, 2009). Religion differentially relates to fundamental motives (e.g., Johnson et al., 2015) such that it promotes some and minimizes others. For example, most religions explicitly promote lifelong marriages (mate retention), conscientious child rearing and respect of elders (kin care), and prosocial behaviors (affiliation). Most religious texts discourage status motivations such as the need for dominance, wealth, or power. They also praise humility, poverty, and cooperation. Indeed, religiosity correlates negatively with endorsement of power, achievement, and self-direction values, but positively with endorsement of benevolence, tradition, and conformity values (Schwartz & Huismans, 1995). Thus, higher religiosity might predict weaker—perhaps even negative—links between status motives and PIL. Significant variance in PIL should be explained by religiosity. Given the theoretical conflict between religious and status-based motives, the presence of religiosity should predict lowered association between status motives and PIL.

## **Pilot Studies**

### **Pilot Study A**

The purpose of this was to establish whether purpose in life and the fundamental motives were associated. As part of a mass undergraduate pre-screening survey, we administered a cross-sectional survey online. This survey did not include any measures of religiosity or any significant age range, so our available hypotheses were limited.

### **Participants**

Participants were psychology students from a large American university ( $N = 1160$ ; 55.9% female, 43.4% male;  $M_{\text{age}} = 19.28$ ,  $SD = 2.69$ ) representing several ethnicities (54.5% Euro-American, 17.4% Latinx, 9.4% East Asian, 18.7% Other categories). Our sample size

relied on the number of students who chose to participate in a large psychology survey administered by multiple researchers. This large sample size provided adequate power to find even small effects.

## **Procedure**

After completing some number of unrelated measures, participants indicated their endorsement of life's purpose and then the fundamental motives, in that order. Space on the collaborative survey was very limited, so we measured each construct with the highest loading item, based on published scale validation factor analyses.

## **Materials**

***Purpose in Life.*** We measured this construct with a single 1 (strongly disagree) to 7 (strongly agree) Likert scale item: *There is a direction in my life*. This was the highest loading item from the validation report for the Brief Measure of Purpose in Life ( $\alpha = .86$  in sample 1,  $.92$  in sample 2; Hill, Edmonds, Peterson, Luyckx, & Andrews, 2016).

***Fundamental Motives.*** We assessed fundamental motives with one item per motive, for which they would indicate agreement level on a 1 (strongly disagree) to 7 (strongly agree) Likert scale. Each item was selected for being the highest-loading item in its respective subscale, according to work by Neel et al. (2016). The items were as follows: *I want other people to accept me* (affiliation), *I am interested in finding a new romantic/sexual partner* (mate acquisition), *It's important to me that others respect my rank or position* (status seeking), *Caring for family members is important to me* (kin care), *I am motivated to protect myself from dangerous others* (self-protection), and *I avoid places that might carry diseases* (disease avoidance). Space was at a premium, so we did not administer a mate retention item given that most students are not in a committed romantic relationship and, if they are, the ultimate connections of those relationships

to evolutionary success are likely weak for the majority, many of whom will go on to raise children with someone else.

## **Results**

### **Main Analyses**

Several correlations were found to exist between our measure of PIL and fundamental motives (Table 1). Among both males and females in college, PIL related positively to self-protection, disease avoidance, status and kin care.

### **Gender Analyses**

In order to look for gender differences between these associations (moderator effects), we regressed purpose in life on gender (0 = Male; 1 = Female), all of the centered fundamental motive variables, and interactions of gender with each centered motive. All regression coefficients are unstandardized and all squared correlations reflect partial effects.

Males reported higher PIL than females ( $b = -.403 [-.578, -.228]$ ,  $p < .001$ ,  $r^2 = .017$ ), and PIL was predicted positively by status motive ( $b = .137 [.041, .233]$ ,  $p < .01$ ,  $r^2 = .007$ ), kin care motive ( $b = .259 [.139, .378]$ ,  $p < .001$ ,  $r^2 = .017$ ), and self-protection motive ( $b = .258 [.141, .375]$ ,  $p < .001$ ,  $r^2 = .016$ ). PIL was predicted negatively by affiliation motive ( $b = -.152 [-.252, -.053]$ ,  $p < .01$ ,  $r^2 = .008$ ).

There were no interactions of motive and gender ( $bs$  for gender-motive interactions: self-protection = .000, disease avoidance = -.002, affiliation = .014, mate acquisition = .018, kin care = -.017, status = .032; all  $ps > .637$ ).

## **Discussion**

Among both males and females in college, purpose in life related positively to self-protection, disease avoidance, status and kin care. When all of the motives and their interactions

with gender were in a single model, PIL related positively to status, kin care, and self-protection, but related negatively to affiliation. No gender x motive interactions were observed. The effect sizes were quite small, but we attributed some of this to the single item measures and possible participant fatigue due to survey length.

### **Pilot Study B**

Given that a purpose in life (PIL) is an overarching network of goals that give life a sense of meaning, and that meaning can come from rather mundane activities, we speculated that the desire to satisfy fundamental motives might contribute to PIL. As an exploratory test, we examined whether self-report measures of PIL and the fundamental motives were correlated. College undergraduates completed the measures as part of a mass pre-screening survey administered online. Based on previous research (Emmons, 1999; Kenrick & Krems, 2017; Krems et al., 2017), we tentatively predicted that affiliation, status, and kin care motives would positively relate to one measure of PIL.

### **Method**

#### **Participants**

Psychology students from a large American university ( $N = 1160$ ; 55.9% female, 43.4% male;  $M_{\text{age}} = 19.28$ ,  $SD = 2.69$ ) representing several ethnicities (54.5% Caucasian/White, 17.4% Latinx, 9.4% East Asian, 18.7% remainder) participated for course credit. This large sample provided .80 power to find correlations as small as ( $r = .073$ ), which seemed to be adequate.

#### **Procedure**

After completing several unrelated measures, participants reported PIL and then fundamental motives.

#### **Materials**

All measures were the highest loading single item from published factor analyses, because of restricted survey length<sup>1</sup>. Scales ranged from 1 (strongly disagree) to 7 (strongly agree).

***PIL.*** *There is a direction in my life* was the highest loading item from the validation report for the Brief Measure of PIL (factor loading = .86 in sample 1, .92 in sample 2; Hill, Edmonds, Peterson, Luyckx, & Andrews, 2016).

***Fundamental Motives.*** Each item was selected for being the highest-loading item in its respective subscale<sup>1</sup>, according to work by Neel et al. (2016; see Supplemental Materials). Space was at a premium, so we did not administer a mate retention item because, presumably, many students are not in a committed romantic relationship.

## **Results**

### **Main Analyses**

PIL related positively to self-protection, disease avoidance, status and kin care (Table 2), partially supporting our hypothesis because affiliation motives did not correlate with PIL, but status and kin care motives did. The observed correlations of both self-protection and disease avoidance with PIL were not predicted.

### **Life History Analyses**

In order to look for gender differences between these associations of motives and PIL (moderator effects), we regressed PIL on gender (0 = Male; 1 = Female), all of the centered fundamental motive variables, and interactions of gender with each centered motive. All regression coefficients are unstandardized and all squared correlations reflect partial effects. All

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<sup>1</sup>The affiliation item was not in the original scale. It was intended to capture the *group* and *exclusion concerns* subscales simultaneously.

variables had VIF statistics of less than three. Only those identifying as male or female were included.

Males reported higher PIL than females ( $b = -.403 [-.578, -.228]$ ,  $p < .001$ ,  $r^2 = .017$ ), and PIL was predicted positively by status motive ( $b = .137 [.041, .233]$ ,  $p < .01$ ,  $r^2 = .007$ ), kin care motive ( $b = .259 [.139, .378]$ ,  $p < .001$ ,  $r^2 = .017$ ), and self-protection motive ( $b = .258 [.141, .375]$ ,  $p < .001$ ,  $r^2 = .016$ ). PIL was predicted negatively by affiliation motive ( $b = -.152 [-.252, -.053]$ ,  $p < .01$ ,  $r^2 = .008$ ).

There were no interactions of motive and gender ( $bs$  for gender-motive interactions: self-protection = .000, disease avoidance = -.002, affiliation = .014, mate acquisition = .018, kin care = -.017, status = .032; all  $ps > .637$ ).

### **Pilot Study C**

This study explored the possible causal relationship between writing about life goals and PIL. We reasoned that motivation to pursue adaptive goals might influence PIL inasmuch as other forms of meaning in life might reflect perceived adaptive outcomes (e.g., Heintzelman & King, 2014a; Kenrick & Krems, 2018; King et al., 2016). Those who regularly act toward goal completion (i.e., are motivated) have higher PIL, and such locomotion is theorized to positively influence PIL (Vazeou-Nieuwenhuis, Orehek, & Scheier, 2017). Locomotion is defined as positive progress toward a goal (Avnet & Higgins, 2003). Accordingly, Study 4 tested whether writing about personal goal progress would boost participants' sense of PIL. We hypothesized that PIL would be higher in the goals writing condition than in the control condition.

### **Method**

#### **Participants**



U.S. adults were recruited through Amazon's Mechanical Turk with the goal of having at least .80 power to detect a medium effect size ( $d = .50$ ) with two different group sizes, based on a published correlation of trait locomotion and PIL ( $r^2 = .25$ ; Vazeou-Nieuwenhuis et al., 2017) and the planned sample size of the larger goals writing group. Importantly, the goal condition data comes from Study 1 (main article) participants. The sample, the goals writing task, and all measures for the goals writing condition are precisely as reported earlier. The control condition is described below. After removing those who did not perform the writing task as requested, our sample contained 497 participants (Goal Condition:  $N = 386$ , Control:  $N = 111$ ;  $M_{\text{age}} = 35.31$ ,  $SD = 11.75$ ; 51.5% Female; 73% Caucasian/White, 9.9% African/Black, 6.2% East Asian, 4.6% Latinx, 6.2% Remaining). The smaller control condition was compared to the Study 1 participants in terms of PIL endorsement.

## **Procedure**

The procedure for the experimental group was described in Study 3. In addition to that protocol, the control participants imagined their favorite material possession, wrote about the sensory impressions of that object that come to mind, and then rated on a 0-100 scale how likely they were to keep this possession for the rest of their lives, though this variable is not included in the current study. Following the writing task, all participants rated their sense of PIL.

## **Measures**

**PIL.** Participants rated their level of agreement with each item from the Brief PIL measure (Hill et al., 2016) on a 1 (Not at all) to 6 (Absolutely) Likert scale ( $\alpha = .89$ ).

## **Results**

### **Main Analyses**

An independent samples t-test revealed that the goal writing group ( $M_{\text{goals}} = 4.61$ ,  $SD = 1.07$ ) endorsed higher levels of PIL than the sensory impressions control group ( $M_{\text{control}} = 4.27$ ,  $SD = 1.17$ ;  $t(495) = 2.90$ ,  $p = .004$ , Cohen's  $d = .30$ ), supporting H1. This effect held controlling for religiosity ( $t(495) = 3.06$ ,  $p = .002$ ).

### **Life History Analyses**

**Age.** The interaction of age with writing condition was not significant ( $p > .50$ ), but it was negative such that the effect of writing was significant for the young ( $b = .406$  [.083, .729],  $p < .05$ ) and the average aged ( $b = .329$  [.098, .561],  $p < .01$ ), but not the older group ( $b = .256$  [-.071, .576],  $p > .12$ )

**Presence of Children.** There was no significant interaction between presence of children and writing condition ( $p > .41$ ), but the writing manipulation only had a significant effect on those without children ( $b = .392$  [.106, .679],  $p < .01$ ; with children:  $b = .193$  [-.189, .576],  $p > .32$ ). The same pattern held when comparing those without at least one child under 18 to those that do not.

**Gender.** There was no significant interaction of gender and writing condition (0 = male, 1 = female). However, the writing manipulation significantly affected men ( $b = .462$  [.149, .775],  $p < .01$ ), but not women ( $b = .223$  [-.123, .569],  $p > .20$ )

**Gender x Age.** There was no three-way interaction of gender, manipulation, and age. Noteworthy simple effects did not emerge.

**Religiosity.** There was a main effect of condition ( $t(493) = 3.09$ ,  $p = .002$ ), a main effect of religiosity ( $b = .179$  [.127, .231],  $p < .001$ ), and a significant interaction between religiosity and writing condition ( $b = -.127$  [-.251, -.004],  $p = .043$ ). The nature of the interaction was such that those of low and mean religiosity were affected by the goals writing, but those of high

religiosity were not significantly affected. (Low:  $b = .571$  [.261, .882],  $p < .001$ ; Mean:  $b = .346$  [.126, .567],  $p = .002$ ; High:  $b = .121$  [-.188, .430],  $p = .44$ ).

## **Discussion**

Participants who wrote about progress toward important life goals endorsed higher life purpose than the control group, providing support for the theorized causal relation between active goal pursuit and PIL (Vazeou-Nieuwenhuis et al., 2017) and supporting the notion that motivation to achieve fundamental evolutionary goals can increase PIL.

## **Pilot Study D**

This experiment was aimed at pilot testing the effects of fundamental social goal locomotion, as distinguished from general goal motivation in Pilot Study B. The primary objective was finding effect sizes. Using a similar writing manipulation, we sought to differentiate locomotion toward different fundamental social goals and compare these to each other and to a control group. The complete methods and analysis plan were pre-registered at the Open Science Framework Registry (OSF; <https://osf.io/3k8y6>). Each condition was to have 25 participants.

## **Hypotheses**

1. PIL will be higher after describing kin care goal locomotion than after describing such for status goals, mate acquisition goals, and mundane low meaning goals (control).
2. PIL will be higher after describing status goal locomotion than after that for mate acquisition and control conditions.
3. PIL will be higher among the aggregated goals conditions than in the control condition.
4. There will be an interaction of the status manipulation and age, such that the effect of status goal locomotion on PIL will decrease with higher participant age.

## Participants

One hundred six MTurk workers (63 Male, 42 Female, 1 Missing; Mage = 33.13, SD = 9.57) from the U.S. participated in exchange for \$.50.

## Procedure

After giving consent, participants were randomly assigned to write a few sentences about locomotion toward kin care goals, status goals, or mate acquisition goals, or to a control condition in which they were asked to write about recent mundane activities. Following this, they responded to a measurement of PIL.

## Materials

***Kin Care Instructions.*** Think for a bit about the actions you take to care for your family, such as attending to the emotional, physical, intellectual, or financial needs of your children, nieces, nephews, and so forth. In a few sentences, describe some of the actions you have recently taken, as well as actions you are currently taking, to care for your family.

***Status Instructions.*** Think for a bit about the actions you might climb the social ladder, such as gaining resources, achieving power, becoming famous, or generally impressing other people. In a few sentences, describe some of the actions you have recently taken, as well as actions you are currently taking, to climb your social ladder.

***Mate Acquisition Instructions.*** Think for a bit about the ways one might attract a romantic partner, such as flirting with others, advertising one's availability, or asking someone to meet for a date. In a few sentences, describe some of the actions you have recently taken, as well as actions you are currently taking, to attract a romantic partner. If you are not currently seeking a romantic partner, imagine that you were and write about what you would be doing to attract one.

**Control Instructions.** Think for a bit about the actions one might take in order to arrive at a given location at a given time, such as setting an alarm, walking to another room, eating a meal before leaving, or getting on a train. In a few sentences, describe some of the actions that you recently took to arrive at your current location, whether that is within your home or somewhere else.

**Purpose in Life.** This was measured with five items along a six-point Likert Scale ( $\alpha = .87$ ): *I have a sense of purpose in my life, I have a sense of direction in my life, I am willing to work in order to achieve long-term plans, I have a good sense of what I am trying to accomplish in life, I choose to live with my long term goals in mind.*

## Results

No significant differences in PIL emerged between any combination of conditions and the pattern of means was precisely opposite of predictions. The highest PIL was found among the control condition ( $M = 4.87$ ,  $SD = .89$ ), followed by mate acquisition ( $M = 4.77$ ,  $SD = .93$ ), status ( $M = 4.72$ ,  $SD = .96$ ), and kin care ( $M = 4.76$ ,  $SD = .95$ ). All planned contrasts ( $ps > .44$ ) and pairwise comparisons (pre-correction  $ps > .39$ ) were nonsignificant. The interaction between the status manipulation and age was very close to zero ( $b = -.004$  [-.051, .042],  $p > .86$ ).

## Discussion

Although this pilot study did not produce the expected results, the non-difference between the fundamental motives conditions supports the main finding that progress in mate acquisition, status, and kin care domains might equally influence levels of PIL, despite the fact that the control condition showed higher PIL in this experiment. If the effect of fundamental motive type is truly null, then the differences between conditions will hover at just above or below zero, so differences in between group means can be expected to vary. Viewed this way,

these findings that the rank order of means among fundamental motive conditions is opposite that in the main article's Study 5, but there were no significant differences, weakly supports the notion of zero difference between them, albeit without statistical power to do so properly.

The control group endorsed slightly higher PIL than each of the fundamental motives groups. In retrospect, writing about mundane activities that are presumably often routine was not a good control condition because recent research shows that people derive meaning in life from their routines (Heintzelman & King, 2018). Potentially compounding this problem, the fundamental motive groups were asked to write about recent progress in a fundamental domain. As mentioned in the main article, some of the participants must have been reminded of their own insecurities in regard to pursuing these goals, and thus not all of them actually felt a sense of accomplishment from the manipulation. Further, we cannot be sure any participant had recently pursued anything in a given domain. Someone unmotivated by status concerns would have no reason to have recently pursued it. Mismatch between participant and condition was much less a problem in Study 4, where participants wrote about pursuing a generally important life goal and the chance of having no authentic response was greatly diminished. For the above reasons, we believe that these results fall in line with the findings of the main article.

### **Pilot Study E**

This experiment was to test whether PIL influences downstream fundamental motives, and thus a causal relationship that differs from that in the article, which focuses on fundamental motives affecting PIL. Since PIL organizes and motivates downstream behaviors (McKnight & Kashdan, 2009), it seemed plausible that it could increase pursuit of fundamental social goals. If there was an effect, we were interested in its magnitude for planning a larger study. All hypotheses, methods, and analyses were pre-registered with OSF (<https://osf.io/mj82b>). Sample

size was pre-determined to be 25 per condition. Data collection stopped when about 100 meaningful responses were obtained.

## **Hypotheses**

**H1.** Kin care motives will be higher among those in the purpose condition than among the no purpose condition.

**H2.** Status motives will be higher among those who wrote about PIL than among the no purpose condition.

**H3.** Grand Motivation will be higher in the purpose condition than in the no purpose condition.

## **Method**

### **Participants**

Ninety-eight (58 Male;  $M_{\text{age}} = 36.46$ ,  $SD = 11.20$ ) from the U.S. were invited to take a short study in exchange for \$.50 through Amazon's MTurk program. Data collection stopped when about 100 meaningful written responses had been collected. As preregistered, participants who spent less than five seconds reading the writing prompts, or who did not address the prompt as asked, were excluded.

### **Procedure**

After consenting, participants were randomly assigned to imagine that their life was entirely purposeless, to imagine that it was full of purpose, or reflect on their own beliefs about their life's purpose. Then, they were asked to imagine the most important aspect of their life through the lens of their assigned purpose condition and to write down their thoughts. Following this, they rated their current levels of seven fundamental motives and, as a manipulation check, their PIL.

## Materials

***No Purpose Condition.*** Some people would say that their life has no purpose. They have no sense of direction, no important goals, and nothing that motivates them to live their best life. Take a moment to imagine (or perhaps remember) that your life is entirely purposeless. You exist day-to-day — going through the motions of life but never feeling that anything you do serves a purpose. Now think about the most important aspect of your life, and thinking as if your life was completely purposeless, describe your viewpoint. What are your thoughts on this most important aspect of your life when you do not see purpose for it?

***Purpose Condition.*** Some people would say that their life has a purpose. They have a strong sense of direction, pursue important goals, and have plenty of motivation to live their best life. Take a moment to imagine (or perhaps remember) that your life is full of purpose. You exist with the future in mind — not just going through the motions of life but feeling that the things you do serve a larger purpose. Now think about the most important aspect of your life, and thinking as if your life was full of purpose, describe your viewpoint. What are your thoughts on this most important aspect of your life when you see lots of purpose for it?

***Control Condition***<sup>2</sup>. Some people would say that their life has a purpose. They have a strong sense of direction, pursue important goals, and plenty of motivation to live their best life. Other people would say that their life has no purpose. They have no sense of direction, no important goals, and nothing that motivates them to live their best life. Take a moment to reflect on your own sense of purpose in life, if any. Now think about the most important aspect of your

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<sup>2</sup> It is possible that this is not really a control condition, as much as a neutral or “wild card” condition, because participants are simply selecting the purpose or no purpose condition. We call it a control condition to faithfully represent the preregistration.



life and describe your viewpoint in terms of your personal sense of purpose in life. How is this most important aspect of your life either full of purpose or completely purposeless?

***Fundamental Motives.*** These items were measured on six-point Likert scales.

Participants saw the following prompt, then were asked to rate each of seven fundamental motives as per previous research (Krems et al., 2017): “*Below you will see a list of basic motives and their definitions. For each motive seen below, indicate how strongly you feel it in general now, not whether you have felt it in the past or will in the future. For each motive, think about how much you sense its presence in your thoughts at the present time.*”

***Purpose in Life.*** As a manipulation check, a single-item PIL measure was randomly interspersed with the fundamental motives items, measured on the same scale. The fundamental motives items and the PIL items were all presented in random order to all participants. Participants indicated how strongly they endorsed having “*Purpose in Life - A sense of life's direction, having important long-term goals, a life aimed at meaningful goals.*”

## **Results**

No positive effects of the PIL manipulation on fundamental motives were found, despite the apparent effectiveness of the manipulation (Table 3). The No Purpose group showed reported higher levels of self-protection and disease avoidance motives than the other two groups, while both the Purpose and the No Purpose groups reported higher levels of affiliation and mate acquisition motives than the control group. The results did not seem to reflect the effect we were investigating, but rather the effect of threatening participants' worldview. While this effect might be an interesting target of future research, it was not germane to the research at hand. It is possible that the control condition mostly encouraged thinking about purpose, rather than a

neutral stance, since few people have a purposeless life. This is evidenced by the equality of PIL scores in the purpose and the control condition.

### **Pilot Study F**

This pre-registered pilot experiment (<https://osf.io/2ufdn>) tested the effects of writing about imagined complete success in three fundamental domains (mate acquisition, status, and kin care) and a control condition. This pre-registered pilot was intended to find an effect size with which to plan the larger experiment. Recruitment, measures, methods, hypotheses, and analyses are identical to those in Study 4, so we do not report them here. Data collection stopped when about 100 meaningful and appropriate responses to the writing prompts were obtained.

### **Participants**

One hundred-five MTurk workers from the U.S. (49 Male,  $M_{\text{age}} = 36.10$ ,  $SD = 11.63$ ) participated in exchange for \$1.00 through Amazon.

### **Results**

There were no significant differences in PIL among the control ( $M = 4.46$ ,  $SD = .96$ ), mate acquisition ( $M = 4.53$ ,  $SD = 1.44$ ), status ( $M = 4.50$ ,  $SD = 1.25$ ), and kin care ( $M = 4.68$ ,  $SD = 1.18$ ) conditions. The non-difference between fundamental motive conditions supports the main article's finding that fundamental goal pursuits influence PIL equally, though their equality with the control condition speaks against the finding that goal pursuit and achievement significantly influence PIL.

### **Supplemental Analyses of Main Studies**

The following section reports the results of several supplementary analyses of the data sets used in the main article. Methods for each study are found in the main article.

### **Study 1**

## Age and Fundamental Motives

Each fundamental motive-PIL relationship was tested for moderation by age using separate multiple regressions that included centered age, centered motive, and their product term. These and all of the following moderation tests (Studies 3-5) were performed with the PROCESS macro for SPSS (Hayes, 2013). The association of status motives and PIL attenuated as participant age increased, though this interaction did not reach statistical significance ( $b = -.006$   $[-.013, .001]$ ,  $p = .083$ ,  $r^2 = .008$ ). Among younger participants who were around age 24 ( $-1$  SD), pursued status motives and PIL were positively related ( $b = .112$   $[.016, .208]$ ,  $p < .05$ ), but these were not related among the average age group ( $b = .041$   $[-.032, .113]$ ,  $p < .27$ ) and the older group ( $b = -.031$   $[-.150, .089]$ ,  $p > .61$ ). This interaction was not changed after controlling for religiosity ( $b = -.006$ ,  $p = .09$ ), which is positively linked to age (Table 3 in main article). Exploratory tests for the interactions of age and other motives turned up a significant result for self-protection. There were no main effects of age or self-protection ( $ps > .24$ ) in this model, but the interaction was significant ( $b = -.006$   $[-.011, -.001]$ ,  $p = .044$ ,  $r^2 = .01$ ). Probing this interaction revealed a positive status-PIL link for young participants ( $-1$ SD;  $b = .097$   $[.010, .184]$ ,  $p = .029$ ), but no link for average (age 35.3) or older ( $+ 1$  SD; age 46.9) participants. No other interactions were discovered (all other interaction  $ps > .44$ ).

## Children and Kin Care

We tested whether having had offspring increased the relation of kin care-motivated action and PIL with a model including centered kin care motivation, a binary offspring variable (0 = no children, 1 = children; 158 had children), and their interaction. Kin care motive was a significant predictor of PIL ( $b = .192$   $[.121, .264]$ ,  $p < .001$ ), having had children was not ( $b = .070$   $[-.167, .307]$ ,  $p > .56$ ), and their interaction was non-significantly negative ( $b = -.056$   $[-.179,$

.068],  $p > .37$ ). Controlling for the other fundamental motives shrank the interaction slightly toward zero ( $b = -.040$ ). A similar analysis comparing those with minor children (121 participants had minor children) to everyone else revealed nearly identical results. A third analysis comparing those with children under age seven ( $n = 82$ ) to everyone else revealed another non-significantly negative interaction between kin care motive and presence of young children ( $b = -.80$ ,  $p = .34$ ). It may be noteworthy that kin care motives did not significantly predict PIL among those with young children ( $b = .109$  [-.051, .269],  $p = .18$ ), even after controlling for age.

### **Relationship Status and Gender**

We tested whether being in a relationship moderated the relationships of mate acquisition and mate retention motives on PIL. No significant interactions emerged. Gender did not moderate these relationships, either, even when controlling for relationship status ( $bs < .04$ ,  $ps > .50$ ). It bears mentioning that being in a romantic relationship did predict PIL in this model, ( $b = .232$  [.011, .454],  $p = .04$ ).

### **Goal Motivation as Moderator**

We explored whether reported motivation to accomplish the goal moderated the links between fundamental motives and PIL. For all but one fundamental motive, there were no interactions of motivation and motive (all  $bs < |.003|$ , all  $ps > .25$ ). There was an interaction of kin care and motivation in predicting PIL ( $b = -.006$  [-.100, -.001],  $p = .014$ ). Kin care predicted PIL at all levels of motivation, but the relationship was smaller at higher levels of motivation. The overall pattern here supports our claim in the main article that raw motivation is less likely than the feeling of adaptive progress to explain the relation of fundamental motives to PIL.

## **Study 2**

We investigated the effect of gender on associations of PIL and fundamental motives using a separate multiple regression for each motive as dependent variable. These included all appropriate fundamental motives, gender, and all interactions of gender and included fundamental motives (all VIFs < 4.54). For these analyses, we included only those participants identifying as male or female for statistical reasons. No gender effects or interactions were present.

As a supplement to partial correlation results in the main article, multiple regression results are reported below (Table 4).

### **Study 3**

Multiple regression results are reported below to supplement the main article findings (Table 4).

### **Study 4**

We preregistered five hypotheses with detailed sample size calculations, methods, and analyses in the OSF repository (<https://osf.io/pr584>) before collecting data. These contrasts were not reported in the main article because the actual results attenuated their meaning. We report them verbatim, even though there is some overlap with the main article's Study 4 report.

### **Hypotheses**

**H1.** PIL will be higher after describing kin care goal enactment than after describing such for status goals, mate acquisition goals, and describing a movie (control).

**H2.** Status goal enactment will induce higher PIL relative to the mate acquisition and control conditions.

**H3.** The difference between the status condition and the control condition will be negatively moderated by participant age. The effect of status goal enactment on PIL will have a

linear, negative interaction with participant age. Put differently, higher age should predict a less positive effect of status pursuit on PIL.

**H4.** The participants' level of a given fundamental motive will positively moderate the effect of the corresponding condition on PIL, relative to the control condition. As pretest levels of a given motive increase, the effect of imagining satisfaction of that motive on PIL should increase.

**H5.** Religiosity will moderate the effects of the writing manipulations. Specifically, the effect of imagined status achievement on PIL should decrease as religiosity increases. No specific interaction effects are expected for kin care and mate acquisition, but these are explored.

## **Results**

### **H1**

A planned contrast supported our first prediction that PIL in the kin care condition would be higher than that in the other three conditions combined,  $t(405) = 2.63, p < .01$ . However, PIL among the three fundamental motive conditions appeared to be quite similar, so we conducted post-hoc Tukey's HSD tests. These revealed that there were no significant differences in PIL between the kin care ( $M = 4.64, SD = 1.15$ ), status ( $M = 4.46, SD = 1.22$ ), and mate acquisition conditions ( $M = 4.40, SD = 1.21$ ; all  $ps > .50$ ). An exploratory contrast confirmed that PIL was higher in the combined motives conditions than in the control condition,  $t(405) = 3.94, p < .001$ , meaning that all three motive conditions increased PIL by the same amount relative to the control condition.

### **H2**

A planned contrast of the status condition to the mean of the mate acquisition and control conditions was close to reaching statistical significance,  $t(405) = 1.91, p = .057$ , such that PIL in

the status condition was marginally higher than in the combined mate acquisition and control conditions.

### **H3**

The difference between the status condition and the control condition was not significantly moderated by participant age. A multiple regression containing dummy-coded group, mean-centered age, and their interaction showed a main effect of status condition ( $b = .25$ ,  $p < .01$ ), no effect of age ( $b = .0006$ ,  $p = .93$ ), and a non-significant interaction ( $b = -.008$ ,  $p = .23$ ).

### **H4**

We tested whether participants' level of a given fundamental motive positively moderated the effect of the corresponding condition on PIL, relative to the control condition, with separate multiple regressions for each containing dummy-coded groups, mean-centered corresponding motive endorsement, and the interaction term. Though these analyses were planned, the effect sizes of the interactions were unexplored, so the sample size was not planned to find these effects.

The effect of the status condition was somewhat stronger among those high in status, as evidenced by a marginal interaction term ( $b = .201$  [-.028, .429],  $p = .09$ ). The effect of the status manipulation was insignificant at low status motivation ( $b = .167$  [-.303, .637],  $p > .48$ ), but was significant at mean ( $b = .460$  [.127, .793],  $p < .01$ ) and at high ( $b = .753$  [.280, 1.227]  $p < .01$ ) motives. The effect of the mate acquisition condition was not moderated by pre-existing mating motivation ( $b = -.04$ ,  $p > .71$ ), but the effect at low ( $b = .480$  [.053, .907],  $p < .05$ ), mean ( $b = .433$  [.091, .776],  $p < .05$ ), and high ( $b = .370$  [-.117, .857],  $p > .13$ ) levels of pre-existing mate acquisition motives showed a surprising interaction in that the effect was larger at lower levels of

motive. The effect of the kin care condition was somewhat stronger among those high in pre-existing kin care motivation, as evidenced by a marginally significant interaction term ( $b = .258$   $[-.017, .533]$ ,  $p < .07$ ). The effect of the kin care manipulation was not significant at low kin care motivation ( $b = .308$   $[-.169, .785]$ ,  $p > .20$ ), but was significant at mean ( $b = .626$   $[.297, .954]$ ,  $p < .001$ ) and high ( $b = .842$   $[.445, 1.240]$ ,  $p < .001$ ) levels of pre-existing kin care motivation.

## **H5**

We tested whether religiosity moderated the effect of the manipulations with a multiple regression containing dummy-coded writing condition, the mean-centered religiosity measure, and their interaction terms (Figure 2). Compared to the control condition, there were main effects of mate acquisition ( $b = .33$ ,  $p = .05$ ), status ( $b = .39$ ,  $p = .019$ ), and kin care ( $b = .54$ ,  $p < .01$ ) writing, as well as a main effect of religiosity ( $b = .23$ ,  $p < .001$ ). None of the interactions between religiosity and writing condition were significant (all  $ps > .35$ ).

## **Moderation Analyses**

We performed separate multiple regressions with dummy coded experimental condition, centered interval variables or dummy coded categorical variables, and their interactions to test for moderation of the writing manipulation effect on PIL.

**Gender.** A multiple regression of PIL on writing condition, gender, and their interaction terms showed that the mate acquisition ( $b = .441$ ,  $p = .12$ ) and kin care ( $b = .308$ ,  $p > .25$ ) manipulation effects were no longer significant and there was a marginal interaction of kin care writing and gender ( $b = .65$ ,  $p = .06$ ). Importantly, this experiment was not sufficiently powered to test these interactions, so all interpretations should include high levels of caution. Probing this interaction revealed the effect of kin care writing on PIL was significant for women ( $b = .963$   $[.519, 1.407]$ ,  $p < .001$ ), but not for men ( $b = .308$   $[-.221, .836]$ ,  $p > .25$ ). A smaller gender



difference in the mate acquisition affect emerged as well. The interaction term was not significant ( $p > .80$ ), but imagining mate acquisition achievement increased PIL for women ( $b = .527$  [.097, .958],  $p < .05$ ), and not men ( $b = .441$  [-.111, .993],  $p = .12$ ). Lastly, the status and gender interaction term was not significant ( $p > .93$ ), and the status manipulation affect men and women about equally.

**Age.** When age was included as a moderator of the experimental effect, nonsignificant interaction terms emerged. All effects remained significant except for at two intersections. Among young participants (-1 SD), mate acquisition achievement did not significantly affect PIL ( $b = .308$  [-.184, .803],  $p > .21$ ). Among older participants (+1 SD), the status achievement manipulation was no longer a significant cause of PIL ( $b = .271$  [-.228, .770],  $p > .28$ ). This nonsignificant result is in the direction of the preregistered hypothesis (H3). Sample sizes were not calculated for power to find, so we suggest interpreting these findings with caution.

## Study 5

In line with previous theorizing, we investigated whether age, gender, relationship status, and presence of children might be associated with different experimental effects.

### Status

Status motives should feel more imperative as a function of young adulthood and of being male. Thus, males should get a larger PIL boost from status motives, and the effect should be stronger among younger participants. In fact, there was no effect in either gender ( $ps > .76$ ), and there was no interaction of status motive and age ( $p > .283$ ).

### Mating

Being in a committed romantic relationship made no difference in the experimental effect of mating motives (interaction  $p$ -value  $> .85$ ). There was no significant interaction of the

manipulation and gender ( $p > .23$ ), but only males showed increased PIL ( $b = .55$  [.09, 1.01],  $p = .02$ ); female  $b = .18$  [-.22, .58],  $p > .38$ ). There was no significant interaction with age ( $p > .49$ ), though the mating effect was insignificant at plus one SD (late 40s). A test for a gender X age interaction showed nothing significant, but a noteworthy trend emerged. Specifically, the mating effect was remarkably stable across all age groups in males, but the  $b$ s declined by more than 0.3 for each additional standard deviation of age among females.

### **Kin Care**

There was no interaction of the kin care condition with age ( $p > .58$ ), though the effect was slightly higher in association with higher age. There was no significant interaction with gender ( $p > .44$ ), but the kin care condition only significantly moved PIL in males ( $b = .53$  [.05, 1.01],  $p = .03$ ), not females ( $b = .29$  [-.111, .69],  $p > .15$ ). Looking at the associations of relationship status and presence of children, there was a marginally significant interaction of having children and the kin care manipulation ( $b = .57$  [-.03, 1.18],  $p = .06$ ). Having children was associated with nearly twice the effect of kin care motives on PIL (No children:  $b = .68$  [.23, 1.12],  $p = .003$ ; Have children:  $b = 1.25$  [.27, 2.23],  $p < .05$ ).

### **Unpublished Studies**

Two preregistered studies—a survey and an experiment—are similar to Studies 3 and 5 but are not included in the main text. The survey is identical to Study 3 in the main article, but regulatory focus were not measured. Therefore, this study could not possibly test its preregistered hypotheses. The experiment is identical to Study 5, except that pre-test measures of confounding variables revealed “unhappy randomization” (i.e., significant pre-manipulation group differences in potential confounds). While random assignment is no guarantee of group similarity, large group differences of potentially confounding variables call the experiment’s

results into question (Shadish, Cook, & Campbell, 2002). Simply controlling for these variables in an ANCOVA is a suboptimal strategy, at the very least because ANCOVA assumes that covariates are measured without error (Keppel & Wickens, 2004).

### **Unpublished Study 1**

Details for this survey are identical to those for Study 3, so we offer a fast methodological recap here. This cross-sectional survey examined associations of fundamental motives and PIL, controlling for Big Five personality traits, approach-avoidance motivation, and promotion/prevention regulatory focus. Measures of positive/negative affect and mate acquisition motives were missing due to programming errors.

### **Method**

#### **Participants**

The final sample included 420 U.S. MTurk participants (52.6% Male;  $M(SD)_{\text{age}} = 36.47(11.57)$ ; 69.8% White, 13.3% Black, 6.4% Latinx, 4% East Asian, 2.4% South Asian, 4% Remainder) who participated for \$1.00.

#### **Procedure**

After giving informed consent, participants indicated their relationship and offspring status, and then received the measures in random order, with items randomized within each scale. Upon completion, all participants were debriefed, thanked, and paid.

#### **Measures**

Reliability was low on some Study 2 measures, so we preregistered a rule that items with item-scale correlation less than  $r=.5$  would be removed. Performing this action sometimes resulted in additional items falling below threshold, so a new rule was instituted to maximize scale reliability (which is partially a function of more items). When removing a weakly

correlated item resulted in all remaining items reaching the  $r=.5$  threshold, it stayed removed. If removing an item resulted in an additional item not reaching threshold when it had before, we used the full scale.

**Fundamental Motives.** The Fundamental Social Motives Inventory (Neel et al., 2016) measured current levels of concern with self-protection ( $\alpha=.89$ ), disease avoidance ( $\alpha=.86$ ), affiliation (group,  $\alpha=.85$ ), status ( $\alpha=.80$ )<sup>3</sup>, and kin care ( $\alpha=.88$ ). In addition, those in a relationship responded to the mate retention (general,  $\alpha=.71$ )<sup>4</sup> and mate retention (breakup concern,  $\alpha=.94$ ) subscales. Those with children also responded to the kin care (children;  $\alpha=.78$ ) subscale. Participants endorsed items on a 1(strongly disagree) to 7(strongly agree) scale.

**Regulatory focus.** We measured regulatory focus with the Promotion/Prevention Scale (Promotion  $\alpha=.92$ , Prevention  $\alpha=.91$ ; Lockwood, Jordan, & Kunda, 2002) on a scale from 1(strongly disagree) to 7(strongly agree).<sup>5</sup> Example items include “I am focused on preventing negative events in my life” (prevention) and “When I see an opportunity for something I like, I immediately get excited” (promotion).

**Personality.** The Big Five Inventory measured personality traits (BFI-44; extraversion  $\alpha=.89$ ; agreeableness  $\alpha=.83$ ; openness  $\alpha=.85$ ; neuroticism  $\alpha=.90$ ; conscientiousness  $\alpha=.88$ ; John & Srivastava, 1999). Participants indicated agreement with 44 “I see myself as someone who...” statements on a scale of 1(strongly disagree) to 5(strongly agree). Example items include “Tends to find fault with others” (agreeableness, reverse-coded) and “Perseveres until the task is finished” (conscientiousness).

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<sup>3</sup> Two items were removed for having low item-scale correlations (.34 and .40), as per the preregistration.

<sup>4</sup> Four of the six items had low item-total correlations. We decided not to remove any items. The gatekeeping question for this subscale asked whether participants are seeking a new partner.

<sup>5</sup> As per the preregistration, items which correlated with the total scale at less than  $r = .5$  were removed. The last prevention item had an item-total correlation of .234, and was removed.

***Approach and avoidance motivations.*** The 12-item Approach-Avoidance Temperament Questionnaire (Approach  $\alpha=.85$ , Avoidance  $\alpha=.90$ ; Elliot & Thrash, 2010) measured approach and avoidance motivations. Items include “Thinking about the things I want really energizes me” (approach) and “I react very strongly to bad experiences” (avoidance).

***Purpose in Life.*** Given that a life directed at goals was the precise construct of interest, and that no existing scale measuring this without inciting meaning were found, a three-item original scale was used ( $\alpha=.93$ ). Participants responded to the following statements on a scale from 1(not at all) to 7(extremely strongly): “I feel a sense of my life’s purpose,” “I feel a sense of my life’s direction,” and “I know what I am trying to accomplish in life.”

## **Results**

Affiliation, status, mate retention, and kin care motives predicted higher amounts of PIL by zero-order correlations. After controlling for all covariates, affiliation and kin care motives predicted higher amounts of PIL, disease avoidance predicted lower PIL, and status weakly predicted higher PIL ( $p = .078$ ). Results are displayed in *Table 5*.

## **Unpublished Study 2**

This pre-registered (<https://osf.io/v2my9>) experiment was methodologically identical to that of Study 5 in the main article, though some minor issues were resolved in Study 5. Importantly, pre-test measures showed major group differences in potentially confounding variables, and so random assignment did not equalize confounding variables as expected. Therefore, this experiment was prone to alternative explanations.

## **Method**

### **Participants**

Adults in the United States were recruited to complete a writing task and survey through Amazon's MTurk. A post-hoc power analysis of Study 4 suggested a sample of 364. We aimed to collect 400 participants. *A priori* rules for inclusion required that responses meaningfully addressed the writing prompt and that an attention check was passed. Meaningful responses were crucial indicators that participants had thought about achieving their goals. Thirty-three were removed for inappropriate responses and twenty-four for failed attention checks. The final sample included 412 participants ( $M(SD)_{\text{age}}=35.75(12.23)$ ; 40.8% male, 57.8% female; 65.8% White, 9.5% Black, 6.3% Latinx, 6.3% East Asian, 3.9% South Asian, 8.3% Remaining)

## **Procedure**

After giving informed consent, participants answered whether they were in a committed romantic relationship, then they responded to a ten-item personality measure, a ten-item positive affect measure, an eight-item promotional regulatory focus measure, and a 7-item approach motivation measure in random order. Following this, participants were randomly assigned to one of four writing conditions identical to Study 5. After writing for at least two minutes, participants answered a three-item PIL scale, manipulation checks, and then demographic items. All participants were debriefed, thanked, and paid.

## **Measures**

*Positive affect.* This was measured with the positive items from the Positive and Negative Affect Scale (PANAS;  $\alpha=.92$ ; Watson, Clark, & Tellegen, 1988).

*Regulatory focus.* We measured regulatory focus with the promotion subscale of the Promotion/Prevention Scale ( $\alpha=.94$ ; Lockwood, Jordan, & Kunda, 2002).

*Personality.* The Ten Item Personality Inventory measured Big 5 personality traits with brevity (TIPI; extraversion  $\alpha=.72$ ; agreeableness  $\alpha=.50$ ; openness  $\alpha=.57$ ; neuroticism  $\alpha=.70$ ; conscientiousness  $\alpha=.57$ ; Gosling, Rentfrow, & Swann Jr., 2003).

*Approach motivation.* This was measured with the seven approach items from the Approach Temperament Questionnaire (ATQ;  $\alpha=.87$ ; Elliot & Thrash, 2010).

*PIL.* The same three-item scale from previous studies was used, although with slightly altered descriptors on the Likert scale (1=not at all, 6=an extremely large amount;  $\alpha=.91$ ).

## **Hypotheses**

**H1.** The combined fundamental motive conditions would report higher PIL than the control condition. This preregistered hypothesis was to be tested with a comparison of the control (-3) to the three motive conditions (1, 1, 1).

**H2.** PIL would be statistically equal in the three fundamental motive conditions. This preregistered hypothesis was to be tested with Bonferroni-adjusted pairwise comparisons.

**H3.** Each motive condition would report higher PIL than the control condition. This hypothesis was conceived after preregistration to clarify the results. Hypothesis 1 leaves open the question of individual motive effects on PIL. This was to be tested with Bonferroni-adjusted pairwise comparisons.

## **Results**

Randomization checks showed major group differences on promotion regulatory focus,  $F(3,408)=6.57, p=.001, \eta_p^2=.040$ , positive affect,  $F(3,408)=1.77, p=.037, \eta_p^2=.021$ , and approach motivation,  $F(3,408)=3.53, p=.013, \eta_p^2=.026$ . Weaker group differences in extraversion, conscientiousness, and neuroticism ( $ps < .13, \eta_p^2s > .14$ ) also reflected “unhappy randomization.” A non-significant Levene’s test indicated homogeneity of variance across the

four groups,  $F(3,408)=1.77$ ,  $p=.153$ . The overall effect of condition on PIL was significant,  $F(3,408)=2.77$ ,  $p=.041$ ,  $\eta_p^2=.020$ .

**H1.** A planned comparison of the three combined motive conditions to the control condition turned up non-significant results in the expected direction,  $\text{contrast}=.39$ ,  $t(408)=1.03$ ,  $p=.31$ . Follow up simple comparisons showed that the status condition endorsed higher PIL than the control condition,  $\text{contrast}=.37$ ,  $t(408)=2.35$ ,  $p=.019$ , but the other conditions did not ( $ps > .67$ ).

**H2.** Bonferroni-adjusted pairwise comparisons showed no significant differences between motive conditions, though the difference between status and kin care was marginally significant ( $p = .059$ ).

**H3.** Bonferroni-adjusted pairwise comparisons showed no significant differences between control and each motive condition (status:  $p=.12$ ; mating:  $p>.99$ ; kin care:  $p>.99$ ). Of course, Bonferroni adjustments are notoriously conservative, effectively constraining the current alpha to .016 and thus rejecting potentially significant effects. Unadjusted pairwise comparisons showed a significant effect of status, Cohen's  $d=.33$ ,  $p=.019$ .

## Discussion

In this study, unlike Study 5, there was an effect of status, but not of mating or kin care. Results should be interpreted with great caution since random assignment did not equalize confounding variables across groups.



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Table 1.

## Pilot Study A Means, Standard Deviations, and Correlations

	1	2	3	4	5	6	
1. Self Protect.	5.84 (1.15)						
2. Dis. Avoid.	.310 <sup>†</sup>	4.75 (1.53)					
3. Affiliation	.203 <sup>†</sup>	.115 <sup>†</sup>	5.39 (1.30)				
4. Mate Acq.	.015	.047	.163 <sup>†</sup>	4.38 (2.06)			
5. Status	.266 <sup>†</sup>	.276 <sup>†</sup>	.333 <sup>†</sup>	.123 <sup>†</sup>	4.96 (1.43)		
6. Kin Care	.318 <sup>†</sup>	.120 <sup>†</sup>	.174 <sup>†</sup>	.078 <sup>**</sup>	.218 <sup>†</sup>	6.31 (.99)	
7. PIL	<b>.258<sup>†</sup></b>	<b>.160<sup>†</sup></b>	<b>-.018</b>	<b>.031</b>	<b>.189<sup>†</sup></b>	<b>.215<sup>†</sup></b>	4.85 (1.54)

\* $p < .05$ ; \*\*  $p < .01$ ; <sup>†</sup> $p < .001$ ; N = 1160; All items scored from 1 (strongly disagree) to 7 (strongly agree); Mean (SD) on diagonal. Correlations of motives and purposes in bold. P-values regard a two-tailed distribution; SelfProtect=Self-Protection, Dis. Avoid=Disease Avoidance, Mate Acq.=Mate Acquisition, PIL=Purpose in Life.

Table 2.

## Pilot Study B Means, Standard Deviations, and Correlations

	1	2	3	4	5	6	
1. SelfProtect	5.84 (1.15)						
2. Dis. Avoid.	.310 <sup>†</sup>	4.75 (1.53)					
3. Affiliation	.203 <sup>†</sup>	.115 <sup>†</sup>	5.39 (1.30)				
4. Mate Acq.	.015	.047	.163 <sup>†</sup>	4.38 (2.06)			
5. Status	.266 <sup>†</sup>	.276 <sup>†</sup>	.333 <sup>†</sup>	.123 <sup>†</sup>	4.96 (1.43)		
6. Kin Care	.318 <sup>†</sup>	.120 <sup>†</sup>	.174 <sup>†</sup>	.078 <sup>**</sup>	.218 <sup>†</sup>	6.31 (.99)	
7. PIL	<b>.258<sup>†</sup></b>	<b>.160<sup>†</sup></b>	<b>-.018</b>	<b>.031</b>	<b>.189<sup>†</sup></b>	<b>.215<sup>†</sup></b>	4.85 (1.54)

\* $p < .05$ ; \*\*  $p < .01$ ; <sup>†</sup> $p < .001$ ; N = 1160; All items scored from 1 (strongly disagree) to 7 (strongly agree); Mean (SD) on diagonal. Correlations of motives and purposes in bold. P-values regard a two-tailed distribution; SelfProtect=Self-Protection, Dis. Avoid=Disease Avoidance, Mate Acq.=Mate Acquisition, PIL=Purpose in Life.

Table 3.

## Pilot Study E Means, Standard Deviations, and Effect Sizes

<u>Group</u>	<u>Fundamental Motive</u>							
	SP	DA	AFF	ST	MA	MR	KC	PIL
No Purpose	4.55(.96)	4.27(1.42)	4.27(1.35)	2.73(1.42)	3.18(1.18)	3.82(.65)	4.27(1.32)	4.36(1.56)
Control	4.19(1.26)	3.78(1.48)	3.58(1.32)	2.56(1.50)	2.53(1.75)	3.97(1.99)	4.36(1.78)	4.97(1.23)
Purpose	3.93(1.46)	3.75(1.58)	4.10(1.26)	2.65(1.69)	3.03(1.67)	3.98(1.72)	4.38(1.61)	5.00(1.16)
<u>Effect Size</u>								
$\eta^2$	.034	.020	.048	.002	.029	.001	.001	.041

*Note:* Confidence intervals and p-values omitted due to small sample size. SP=Self-Protection, DA=Disease Avoidance, Aff=Affiliation, St=Status, MA=Mate Acquisition, MR=Mate Retention, PIL=Purpose in Life.



Table 4.

## Multiple Regression Results for Studies 2 and 3

		<u>Study 2</u>				Model Statistics		
		b	95% C. I.		sig	R <sup>2</sup>	Δ R <sup>2</sup>	sig. Δ
Model 1	Self-Protection	.212	.086	.338	.001	.214		<.001
	Disease Avoid.	-.120	-.238	-.003	.045			
	Affiliation	.244	.093	.396	.002			
	Status	.324	.170	.478	.000			
	Mate Acquisition	-.088	-.177	.002	.056			
	Mate Retention	.396	.104	.688	.008			
	Kin Care	.270	.132	.408	.000			
<hr/>								
Model 2	Agreeableness	.042	-.128	.211	.631	.322	.109	<.001
	Extraversion	.078	-.057	.214	.258			
	Openness	.026	-.159	.212	.780			
	Conscientiousness	.291	.137	.445	.000			
	Neuroticism	.060	-.097	.217	.454			
	Positive Affect	.334	.185	.483	.000			
	Negative Affect	-.190	-.388	.008	.060			
	Self-Protection	.177	.057	.298	.004			
	Disease Avoid.	-.134	-.248	-.021	.020			
	Affiliation	.149	-.002	.299	.052			
	Status	.264	.115	.413	.001			
	Mate Acquisition	-.091	-.177	-.005	.039			
	Mate Retention	.322	.027	.618	.033			
	Kin Care	.181	.047	.316	.008			
<hr/>								
		<u>Study 3</u>				Model Statistics		
		b	95% C. I.		sig	R <sup>2</sup>	Δ R <sup>2</sup>	sig. Δ
Model 1	Self-Protection	.000	-.120	.121	.997	.256		<.001
	Disease Avoid.	-.105	-.224	.013	.082			
	Affiliation	.304***	.163	.446	.000			
	Status	.339***	.227	.451	.000			
	Mate Acquisition	-.098**	-.179	-.018	.017			
	Mate Retention	.027	-.127	.181	.728			
	Kin Care	.160**	.048	.272	.005			
	Child Care	.051	-.153	.255	.620			
<hr/>								
Model 2	Agreeableness	-.079	-.297	.139	.475	.536	.28	<.001
	Extraversion	.109	-.041	.259	.456			
	Openness	-.109	-.273	.056	.153			

Conscientiousness	.077***	-.125	.279	.000
Neuroticism	-.530	-.725	-.335	.195
Positive Affect	.282	.133	.432	.732
Negative Affect	.085*	-.101	.271	.024
Approach	.030***	-.141	.200	.000
Avoidance	.169*	.022	.315	.032
Promotion	.444***	.286	.602	.000
Prevention	-.134	-.257	-.012	.371
Self-Protection	.025	-.082	.131	.648
Disease Avoid.	-.061	-.156	.035	.214
Affiliation	.062	-.069	.193	.351
Status	.121*	.018	.224	.022
Mate Acquisition	-.067	-.136	.002	.056
Mate Retention	-.019	-.162	.123	.789
Kin Care	.113*	.013	.214	.028
Child Care	.001	-.202	.205	.991

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Note: Mate retention results reflect only mated participants (Study 2: N = 129; Study 3: N = 293); Child care results reflect only participants with offspring (N = 213); Disease Avoid. = Disease Avoidance; Model statistics based on full samples without mate retention or child care items included; Dependent variable is PIL (Purpose in Life).

Table 5.

## Zero-Order and Partial Correlations of Motives and PIL in Survey 1

	Zero-order	Partial
SelfProtect	.057	.038
Dis. Avoid	-.024	-.105*
Affiliation	.366 <sup>Δ</sup>	.145**
Status	.291 <sup>Δ</sup>	.087 <sup>†</sup>
Mate Ret.	.217**	.063
Kin Care	.256 <sup>Δ</sup>	.101*
Child Care	.076	.006

\*  $p < .05$ ; \*\*  $p < .01$ ; <sup>Δ</sup> $p < .001$ ; <sup>†</sup> $p = .078$ ; Correlations reflect statistical controlling of promotion/prevention regulatory focus, approach/avoidance motivation, and Big Five personality traits.. Total N = 420; Mate retention N=150; Child care N=100; SelfProtect=Self-Protection, Dis. Avoid=Disease Avoidance, Mate Ret.=Mate Retention, PIL=Purpose in Life.

Figure 1. Purpose in Life (PIL) in each writing condition of Experiment 1.

