

World Benevolence Beliefs and Well-Being Across the Life Span

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Do people's worldviews change across the life course? Beliefs in the benevolence (goodness) of the world and their relations with age and well-being were examined in a 2-year study of a nationally representative sample ($N = 2,138$) ranging in age from 18 to 101 years. Multilevel modeling analyses controlling for demographics, mental health history, prior experience with stressful life events, and other key beliefs indicated that benevolence beliefs were positively associated with well-being and that these associations were stronger with increasing age. Analyses also demonstrated that individuals' benevolence beliefs increased during the study, were positively associated with age, and increased with the experience of bereavement, although they declined with the experience of other negative events. Age-related worldview change may be a part of life-span adaptation.

Keywords: worldviews, well-being, benevolence, meaningfulness, emotion regulation

Q: What is your current state of mind?

A: Benevolent—astonishingly so. It's one of the few perks of old age when it's there.

—Norman Mailer, in *Vanity Fair* (January 2007)

People's well-being is intertwined with their beliefs about the world. The set of such beliefs, including ideas about the social world, the natural world, and religious or spiritual beliefs, among others, compose a person's *worldview* (Koltko-Rivera, 2004). Although people's worldviews are complex and multifaceted, only some of them, such as religious beliefs (e.g., Myers & Diener, 1995; Pargament, 1997) or beliefs about justice (e.g., Dalbert, 2001; Furnham, 2003), are likely to be important for well-being. Several theoretical perspectives within psychology suggest that one crucial component of worldviews is the extent to which the world is seen as *benevolent*—that is, as more good than bad. Both Erikson (1968) and Bowlby (1969) asserted that developing a

sense of basic trust in their caregivers and the world is a fundamental developmental task for infants. Epstein (1973) argued that, across the life span, humans are motivated to view the world as more good than bad and to view other people as generally trustworthy. Similarly, Stevens and Fiske (1995) identified the need to find the world benevolent as one of five key social motives. Finally, Janoff-Bulman's (1989a, 1992) research on responses to traumatic life events led her to propose that people desire to believe that there is more good than bad in the world and that other people are generally good and trustworthy—together, beliefs she referred to as assumptions about the *benevolence of the world*. Empirical research supports the notion that benevolence beliefs are important for well-being (e.g., Barefoot et al., 1998; Deneve, 1995; Feist, Bodner, Jacobs, Miles, & Tan, 1995; Janoff-Bulman & Hecker, 1988; Solomon, Iancu, & Tyano, 1997).

Insights from the field of life-span development on age-related changes in values and motivations suggest that benevolence beliefs may be particularly important for well-being among older adults. For example, midlife brings with it an increased concern with generativity, or the desire to contribute to others beyond the self (e.g., Erikson, 1959; McAdams & de St. Aubin, 1998). To the extent that aging includes a greater concern with others' welfare, viewing the world as benevolent rather than malevolent should be increasingly conducive to well-being as one ages. In addition, research on socioemotional selectivity theory (SST; e.g., Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999) suggests that as individuals age and perceive their lifetime running out, they base their well-being less on instrumental activities such as knowledge acquisition and more on the quality of their emotional experiences. Beliefs that the world is benevolent should be more predictive of well-being with age if older adults are indeed more concerned with viewing their experiences in positive rather than negative terms. Finally, research by Ryff (1982) and Ryff and Baltes (1976) indicates that, with age, adults endorse fewer instrumental values and more terminal ones, to use Rokeach's (1973) typology. This is especially interesting in light of the above-mentioned research on generativity and SST because the instrumental-to-terminal shift can incorporate both patterns. That

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is, terminal values include both concern with one's own emotional satisfaction (e.g., inner harmony, pleasure) as well as concern with the welfare of others (e.g., equality, a world at peace). If aging entails a shift from instrumental to terminal values, it is likely that it also involves an increased role for benevolence beliefs in well-being.

The possibility that benevolence beliefs may become more important for individuals' well-being with age also suggests that individuals may come to view the world as more benevolent as they age. Some empirical research supports this conjecture. Calhoun, Cann, Tedeschi, and McMillan (1998) compared the worldviews of adults in three different age groups and found that members of the youngest group tended to view the world as being less benevolent than did the others. In addition, Zhang and Labouvie-Vief (2004) found that attachment security, which is linked to a sense of trust, increased in older adults over a 6-year period.

It is important to note that aging itself need not be the only factor leading to increased generativity, an increased focus on emotional experience, or a shift toward terminal values. Research, particularly on SST, has shown that a general sense of finitude can function similarly, whether induced by aging, by national disasters (Fung & Carstensen, 2006), by progression of a terminal illness (Carstensen & Fredrickson, 1998), or experimentally (Fredrickson & Carstensen, 1990). Thus, a potential corollary to the above is that certain kinds of life experiences that lead to a sense of finitude could also lead to increased benevolence beliefs. This possibility is especially intriguing given that negative life events are increasingly common for older adults (e.g., Aldwin, 1990; Rook, 2000), and such events have previously been found to result in less benevolent views of the world (e.g., Gluhoski & Wortman, 1996; Janoff-Bulman, 1989a; Magwaza, 1999; Schwartzberg & Janoff-Bulman, 1991). Nonetheless, negative events that highlight the finitude of one's life and experiences may lead one to perceive the world as more—rather than less—benevolent.

The Present Study

Our goals in the present study were to evaluate whether benevolence beliefs and their associations with well-being increase with age and to examine how negative life events may shape benevolence beliefs across the life span. To pursue these aims, we examined data from a nationally representative sample of individuals who were surveyed as part of a larger longitudinal study of adjustment to stressful events (Silver et al., 2006). Using these data, we tested three hypotheses. The first two relate to age and benevolence beliefs:

Hypothesis 1: Benevolence beliefs should be more strongly predictive of well-being with increasing age.

Hypothesis 2: Benevolence beliefs should increase with age and thus should both (a) be more positive among older adults than among younger adults and (b) increase with the passage of time (i.e., the 2-year period of the present study).

The third hypothesis relates to our aim regarding negative life events and benevolence beliefs. As noted above, certain negative events make finitude salient. In the present study, we assessed

individuals' experiences of the loss of loved ones—which mark the ending of a relationship and frequently engender thoughts of one's own mortality—among other negative events. We hypothesized that

Hypothesis 3: Although the experience of negative events in general should predict decreased benevolence beliefs, benevolence beliefs should increase with the experience of bereavement.

Along with age, benevolence beliefs, negative life events, and well-being, this study included assessments of several important control variables. Two other aspects of individuals' worldviews, which we expected to be associated with benevolence beliefs, were examined: beliefs in the meaningfulness of the world (justice and controllability; see Janoff-Bulman, 1992) and religiosity. In addition, to rule out age effects on benevolence beliefs owing to personality change in other dimensions (e.g., agreeableness; McCrae et al., 1999), we examined personality traits from the five-factor model (Costa & McCrae, 1992). Finally, several contextual factors were assessed, including gender, race and ethnicity, socioeconomic status, and mental health status.

Method

Participants and Procedure

Data collection for the present study took the form of Internet-based surveys of a large, nationally representative sample originally recruited after the terrorist attacks of September 11, 2001 (9/11; see Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002; Silver et al., 2006). All data were collected in collaboration with Knowledge Networks Inc. (KN), a survey research organization that maintains a nationally representative, Web-enabled research panel of potential respondents. The KN panel was developed using traditional probability methods for creating national survey samples and was recruited using stratified random-digit-dial telephone sampling. To ensure sample representativeness, KN provides households who do not already have Internet access with free Web access and an Internet appliance that uses a telephone line to connect to the Web and the television as a monitor. In return, panel members participate in brief Internet surveys three to four times a month. Participation in surveys also earns participants bonus points that they can redeem for merchandise, and participants earn cash incentives for certain surveys. For the present study, participants earned the equivalent of approximately \$10 per survey. Individuals recruited into the KN panel whose households are already Web-enabled can choose to use their own connection and are compensated with extra bonus points. Members may leave the KN panel at any time, and receipt of the Web TV and Internet access is not contingent on completion of any specific survey. KN maintains the anonymity of panel participants by not providing clients with any data that could potentially be used to identify respondents in their panel personally. Data indicate that the KN panel does not respond significantly differently over time to surveys than do more naive survey respondents (Dennis, 2001).

Participants in the present study were selected at random from the KN panel to take a survey focused on their acute stress and coping responses to 9/11. A total of 3,496 adults age 18 years and over were invited to participate in this survey, which was fielded

in the 3 weeks following 9/11, and 2,729 completed it (a 78% participation rate). Those who completed this initial survey were subsequently invited to participate in Wave 1 of the present study, fielded approximately 12 months post-9/11 (between September 20, 2002, and November 3, 2002), and 2,138 (78%) participated.¹ Wave 1 participants were invited to complete surveys at each of three subsequent waves: Wave 2, from March 13 to April 6, 2003 ($n = 1,666$, 78% response rate); Wave 3, from September 12 to October 31, 2003 ($n = 1,571$, 73% response rate); and Wave 4, from September 12 to November 2, 2004 ($n = 1,771$, 83% response rate). At each wave, panel members were notified that a survey was available for completion in their password-protected e-mail accounts. Surveys were confidential, self-administered, and accessible any time of day for a designated 3–4 week period. Panel members could complete a survey only once. Completion times varied between 30 and 45 min for the four surveys.

Because some panelists (e.g., 17.5% at Wave 1) chose to leave the KN panel prior to the end of the project, those who did so were offered the opportunity to complete follow-up surveys via either a paper-and-pencil version by mail or online via a password-protected link. Completion rates for Waves 1–4 include between 32% and 55% of respondents who had already withdrawn from the KN panel; they were also paid \$10 for completing each survey.

Measures

Demographic characteristics. KN administers several surveys to their national panel, including a demographic questionnaire on panel entry and a health questionnaire administered periodically. The demographic information includes gender, age, race and ethnicity, education, and household income.

Lifetime mental health history. KN's health questionnaire was completed by approximately 95% of respondents between June 2000 and September 9, 2001. In this survey, respondents reported whether they had ever received a diagnosis of an anxiety disorder or depression from a physician. An index of mental health problems was created with values of 0 (*no diagnoses*), 1 (*depression or anxiety*), or 2 (*both depression and anxiety*). These data were missing for approximately 8–9% of respondents. As the Little and Rubin missing completely at random tests for these data were nonsignificant ($p > .10$), missing data were imputed within age groups using the expectation maximization method (Little & Rubin, 1987).

9/11-related exposure. Even though the present report does not focus on 9/11, it is possible that the nature of the study, in addition to the time frame in which it was conducted, shaped its findings. Therefore, all analyses presented in this report controlled for the role of exposure to 9/11. During their first survey, participants answered several questions with regard to their experiences of the 9/11 attacks, including how they learned of the attacks and whether they experienced a loss. On the basis of these data, individuals were categorized as belonging to one of three categories of exposure: *direct exposure*, including being in the World Trade Center or Pentagon, seeing or hearing the attacks in person, or having a close relationship with someone in the targeted buildings or planes during the attacks; *live media exposure*, that is, watching the attacks unfold live on television; and *no live exposure*, or only seeing or learning of the attacks after they had occurred.

Lifetime and recent negative events. During their first survey, participants completed a checklist of 37 negative events they may have experienced at some point in their lives (e.g., natural disaster, death of a friend, child abuse). To reflect the fact that some events could have occurred more than once in an individual's lifetime, respondents were able to list up to four separate occasions on which each specific event had happened to them. This measure was modified from the Diagnostic Interview Schedule section on trauma (Robins et al., 1981), was expanded using open-ended coding of lifetime traumas reported by a primary care sample (Holman, Silver, & Waitzkin, 2000), and has provided rates of specific events in this sample comparable to surveys conducted on other community samples (e.g., Breslau et al., 1998). From the negative event checklist, three variables were created: a summed variable representing the total number of lifetime negative events, a variable representing the total number of bereavement (e.g., death of spouse, death of parent) events specifically, and a variable representing the total number of nonbereavement events.

At all subsequent waves of data collection, respondents were again presented with the negative events checklist and asked to report those negative events that had occurred since the prior survey. From this information, three variables were computed for each wave representing the same groupings of events used for lifetime negative events: total number of recent events, number of recent bereavement events, and number of recent nonbereavement events.

Personality. Personality traits from the five-factor model of personality (Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness) were assessed at Waves 2 and 4 using the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), which measures each trait using a two-item subscale. Each item consists of a pair of descriptor words or phrases (e.g., "extraverted, enthusiastic" for Extraversion; "calm, emotionally stable" for Neuroticism [reverse scored]). Respondents rate how much they agree that the items describe them using a 7-point scale (1 = *disagree strongly*, 4 = *neither agree nor disagree*, 7 = *agree strongly*). The Ten-Item Personality Inventory has been shown to exhibit very good convergent validity with longer five-factor scales and has good test-retest reliability (Gosling et al., 2003).

Worldviews. Benevolence and meaningfulness beliefs were assessed at all waves using Janoff-Bulman's (1989a) World Assumptions Scale (WAS). The benevolence dimension of the WAS contains two subscales: benevolence of the world (e.g., "There is more good than evil in the world") and benevolence of people (e.g., "Human nature is basically good"). The WAS also assesses a worldview dimension called *world meaningfulness*, which is composed of two subscales: controllability (e.g., "If people took preventive actions, most misfortune could be avoided") and justice (e.g., "Generally, people deserve what they get in this world"). Because of space limitations, a shortened version of the WAS (12 items) was used that included the three (out of four in the original

¹ Other reports from this data set (e.g., Silver et al., 2002) focus on variables (e.g., coping strategies, acute stress symptoms) assessed by KN at a time prior to the data collections reported herein (i.e., in the 6 months post-9/11). For simplicity, we exclude those prior waves, which are not of interest to the present set of analyses.

version) items that correlated most highly with each of the subscale means in another study (Poulin & Silver, 2007).

Study participants responded to items on the WAS using a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). At each wave, an index of benevolence beliefs was computed as the mean of all benevolence items, and an index of meaningfulness beliefs was computed as the mean of all meaningfulness items. These scales demonstrated good internal consistency at all waves (α s for benevolence between .83 and .87; α s for meaningfulness between .79 and .85).

Also at each wave, respondents reported their self-rated religiosity. To do so, participants answered the question "How religious or spiritual do you consider yourself to be?" using a 10-point scale (1 = *not at all*, 10 = *exceptionally*).

Well-being. Psychological well-being was assessed using two scales that measured positive affect and life satisfaction. Positive affect was measured by asking respondents to rate the frequency with which they had experienced each of eight different positive emotions (affection, joy, love, happiness, contentment, caring, pride, and fondness) within the past week (Diener, Smith, & Fujita, 1995). Life satisfaction was assessed using the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Using the mean of both scales, we computed a composite measure of well-being; it had very good internal consistency at all waves (α s between .91 and .92).

At each wave, the order of questions respondents received was designed to minimize potential contamination of the worldview measure on well-being and potential contamination of the negative life events checklist on either worldviews or well-being. Thus, respondents were first presented with the well-being measures, then with the worldview measure, and finally with the negative life events checklist.

Analytic Strategy

Multilevel modeling. The longitudinal study design made it possible to establish relations among variables over time, as well as to observe how individuals changed over time with respect to assessed variables. To estimate both kinds of longitudinal phenomena correctly, we used multilevel modeling, also known as mixed-effects modeling or hierarchical linear modeling. Multilevel modeling is a statistical technique that can be used to estimate regression coefficients for both within-person differences (i.e., over time) and differences between people (Singer & Willett, 2003). All analyses were conducted using Stata 9.0 (StataCorp, 2005). Multilevel models were built using Stata's xtreg module with maximum likelihood estimation, which allows for evaluation of both within- and between-person effects.

In the present study, multilevel modeling allowed for two kinds of within-person analyses. First, it provided estimates of within-person change in benevolence beliefs over the 2 years of the study. Second, it also gave estimates of the degree to which within-person differences in benevolence beliefs over time were associated with the recent occurrence of negative events, as well as other beliefs that might change over time (i.e., meaningfulness beliefs and religiosity). Similarly, multilevel modeling also made it possible to estimate within-person associations over time between benevolence beliefs and well-being. Finally, within the same models, multilevel modeling also provided estimates of between-person

factors. This allowed for estimates of the associations between age and benevolence beliefs, among other associations.

Treatment of missing data. The only time point when all respondents in the present study participated was Wave 1; varying patterns of attrition characterized the other time points. In multilevel modeling, this type of missing data is acceptable because individuals contribute to estimation of the model at particular time points even if they cannot at all time points (Singer & Willett, 2003). Missing data on particular measures within a wave were managed by listwise deletion of cases with missing data on a given variable. This resulted in only small reductions in sample sizes, because each variable had missing data on fewer than 2% of cases.

Results

Sample Demographics and Characteristics

In prior analyses, the sample from which the present report was derived has been shown to closely match U.S. Census demographic benchmarks (Silver et al., 2006). The total sample for the present study ($N = 2,138$) was 74.5% White, 8.9% African American, 10.0% Hispanic, and 6.7% other ethnicities. Females composed 51.1% of the sample, and ages at the beginning of the study ranged from 18 to 101 years ($M = 49.17$ years). Education ranged from 8.5% who had not finished high school to 27.8% with a college degree; another 35.3% percent had only completed high school, and 28.5% had attended only some college. Median annual household income was between \$40,000 and \$49,000, with approximately 25% of households making less than \$25,000 and approximately 25% making over \$60,000. Income data were missing for 0.2% of the sample.

A prior physician diagnosis of an anxiety disorder or depression was reported by 10.2% of the sample, with an additional 4.8% reporting both. Only 4.2% of the sample was directly exposed to the 9/11 attacks, but 63.2% watched them on live television, whereas 32.7% had no live exposure.

Analysis of Nonparticipants

A logistic regression analysis compared those who were recruited but did not participate at Wave 1 ($n = 591$) with those in the Wave 1 sample ($N = 2,138$) on the basis of demographic variables and lifetime mental health history. Results indicated that nonparticipants were younger ($M = 40.9$ years) than participants ($M = 49.2$ years; odds ratio [OR] = 0.97, $p < .001$) and were more likely to be African American (13.5%) than were participants (8.7%; OR = 1.51, $p < .01$). Additionally, nonparticipants had less education (24.3% holding a college degree) than did participants (27.8% with a college degree; OR = 0.93, $p < .05$). All of these differences were extremely small when sample size was taken into account, however (all η^2 s $< .01$).

To determine what variables predicted patterns of nonresponse after Wave 1, we constructed a multilevel model with participation at each wave (yes or no) as the time-varying dependent variable. The model was fit using generalized estimating equations and Stata's xtgee module (rather than xtreg) because this dependent variable was dichotomous. Because respondents could leave the sample at one wave (e.g., Wave 2) and return subsequently (e.g., at Wave 4), this strategy better reflects predictors of nonparticipa-

tion than does fitting separate models for nonparticipation at each wave. All demographic, mental health, and negative life event history variables were screened for inclusion in this model. In addition, lagged variables for well-being, worldviews, and recent negative event categories from prior waves were used to predict subsequent nonparticipation. Results from this model indicated that at each wave, nonrespondents tended to be younger (M age = 43.1 years) than respondents (M age = 50.4 years; $OR = 1.003$, $p < .001$), and nonrespondents, on average, reported fewer lifetime negative events (7.37) than did respondents (8.76; $OR = 1.003$, $p < .001$). There were no differences based on well-being, worldviews, or recent negative events.

Characteristics of the Benevolence Beliefs Measure

Two sets of analyses were conducted to establish the independence of benevolence beliefs from other traits and the reliability of the benevolence beliefs measure across the life span. First, the pairwise correlation of world benevolence beliefs with each of the five assessed personality traits was examined to determine the independence of benevolence beliefs from these traits. Benevolence beliefs correlated positively with Agreeableness ($r = .27$), Conscientiousness ($r = .20$), Openness ($r = .15$), and Extroversion ($r = .14$) and negatively with Neuroticism ($r = -.25$; all $ps < .001$). Given the relatively small effect sizes of these associations, benevolence beliefs appeared to be a distinct construct from any five-factor trait. Nonetheless, all analyses reported below were also rerun to test for significant contributions by personality traits (and, in the case of analyses predicting well-being, by the interaction of each personality trait with age); all findings remained substantively identical.

Second, the internal consistency for the benevolence beliefs measure was examined separately for individuals below 35 years of age, those between 35 and 65 years, and those above age 65. Among these groups, alphas ranged from .79 to .82. In addition, items that made up the benevolence beliefs measure were factor analyzed separately for these three age groups. A principal components analysis with oblique oblimin rotation (to allow for correlated factors) showed that benevolence of people and benevolence of the world emerged as separate factors for those below 35 years of age but not among those above that age. All analyses were thus examined excluding individuals below 35 years of age; results remained the same.

Descriptive Statistics for Age, Life Events, Benevolence Beliefs, and Other Worldviews

Descriptive statistics for and correlations among age, worldviews, and well-being at Wave 1 are shown in Table 1. Lifetime negative events, not shown in the table, were reported by almost all individuals in the study (93.7%), with a mean number of events of 8.51 and a median of 7. Lifetime bereavement was reported by 86.6% of the sample, with a mean number of 3.12 losses and a median of 3. In addition, approximately one third to one half of the sample reported experiencing some kind of recent negative event at each wave, with individuals who experienced negative events reporting a mean of 1.78 events. Recent bereavement was reported by about a fifth of the sample at each wave, with bereaved individuals reporting one loss on average.

Table 1

Descriptive Statistics and Correlations Among Age, Life Events, Benevolence Beliefs, and Other Worldviews

Variable	1	2	3	4	5
1. Age (in years)	—				
2. Benevolence W1	.24***	—			
3. Meaningfulness W1	.07**	.37***	—		
4. Religiosity W1	.13***	.10***	-.02	—	
5. Well-being W1	.14***	.36***	.31***	.17***	—
<i>M</i>	49.17	3.65	3.07	5.31	4.06
<i>SD</i>	16.20	0.69	0.69	2.45	0.98

Note. W1 = Wave 1.

** $p < .01$. *** $p < .001$.

Hypothesis Testing

Hypothesis 1: Age and the benevolence–well-being association. To test the hypothesis that benevolence beliefs would more strongly predict well-being among older adults than among younger adults, we built a multilevel model predicting levels of well-being over time. This model included several control variables that were screened for inclusion in three stages: age and other demographics (gender, ethnicity, education, and income), mental health and negative events (mental health history, 9/11 exposure, and both lifetime and recent negative events), and other key beliefs (meaningfulness beliefs and religiosity). Ethnicity was used as a dummy-coded variable with four categories: White, the reference group; African American; Hispanic or Latino; and other ethnicity. At each stage, variables that were significantly associated with the outcome variable ($p < .05$) were retained for the next stage.

To maximize information about the causal direction of the benevolence–well-being association, we tested this model with several predictors entered as lagged variables (see Singer & Willett, 2003, for information on the utility of lagging for causal inference). This included benevolence and meaningfulness beliefs and religiosity. In addition, lagged well-being was also entered as a predictor to most strongly rule out reverse causation (i.e., well-being causing benevolence beliefs). The possible moderating role of age on the benevolence–well-being association was tested by computing a product-term interaction between age and lagged benevolence beliefs, both assessed as continuous variables.

Results from the resulting model are shown in Table 2. As indicated in the table, benevolence beliefs significantly predicted subsequent-wave well-being, controlling for concurrent well-being. This association was significantly moderated by age. To interpret this interaction, we used values from the multilevel model to plot the association between benevolence and well-being for the mean age in the sample (49.17 years), as well as for values one standard deviation below (32.97 years) and above (65.37 years) the mean. This graph, shown in Figure 1, revealed that benevolence was more strongly predictive of well-being as age increased. Fitting the multilevel model separately among those above and below the mean age of 49.17 years indicated that benevolence beliefs did not significantly predict well-being among younger adults ($B = 0.01$, $p = .81$, $n = 821$) but did so among older adults ($B = 0.10$, $p < .001$, $n = 911$).

Hypothesis 2: Aging and benevolence beliefs. To test the hypothesis that age and aging (as indexed by change over the 2 years

Table 2

Multilevel Model for Levels of Well-Being With Age, World Benevolence, and Their Interaction (N = 1,732)

Variable	Without interaction			With interaction		
	<i>B</i>	<i>z B</i>	<i>SE B</i>	<i>B</i>	<i>z B</i>	<i>SE B</i>
Well-being (lagged)	0.67***	57.74	0.01	0.67***	57.76	0.01
Age	0.02**	2.87	0.001	0.01	-1.68	0.004
Hispanic ethnicity	-0.08*	-2.19	0.04	-0.08*	-2.14	0.04
Income	0.01***	5.59	0.003	0.02***	5.73	0.003
History of psychological diagnoses	-0.09***	-4.23	0.02	-0.08***	-4.19	0.02
Recent negative events	-0.05***	-5.44	0.01	-0.05***	-5.49	0.01
Benevolence beliefs (lagged)	0.06***	3.67	0.02	0.06	-1.05	0.06
Religiosity (lagged)	0.02***	4.97	0.004	0.02***	5.02	0.004
Age × Benevolence interaction				0.002*	2.24	0.001

Note. Overall models were significant. Without interaction, for 4,385 observations, $\chi^2(8) = 3,380.84$, $p < .001$; with interaction, for 4,385 observations, $\chi^2(9) = 3,385.86$, $p < .001$. Well-being, benevolence, religiosity, and recent negative events were assessed as time-varying (within-person) variables. Prior-wave well-being, benevolence beliefs, and religiosity were lagged one wave behind ($t - 1$) well-being as a dependent variable.

* $p < .05$. ** $p < .01$. *** $p < .001$.

of the study) would predict more positive beliefs about the benevolence of the world, we fit a multilevel model for levels of benevolence beliefs over time. This model included both age and time in years as predictors and was built with control variables screened for entry, as described above.

Results of this model are displayed in Table 3. Time and age, both assessed in years, were positively associated with benevolence beliefs, adjusting for controls. Follow-up analyses indicated that these associations were identical for benevolence of people and benevolence of the world. Figure 2 shows the positive association between age and benevolence beliefs broken down by age groups across the life span. Female gender, greater household income, and both other categories of worldviews (meaningfulness beliefs and religiosity) were also positively associated with benev-

olence beliefs. By contrast, being of other ethnicity (not White, African American, or Hispanic) and experiencing greater numbers of recent negative events both were associated with lower levels of benevolence beliefs.

Hypothesis 3: Bereavement and benevolence beliefs. We examined the hypothesis that the experience of bereavement, adjusting for other negative events, would predict more positive benevolence beliefs by building on the model described above. Recent negative events were dropped from the model, and four variables, representing nonbereavement and bereavement events for both the lifetime and the recent periods, were entered. This model revealed that the experience of nonbereavement negative events predicted less benevolent views of the world, both over the lifetime ($B = -0.01$, $p < .01$) and in recent months ($B = -0.02$, $p < .01$). By

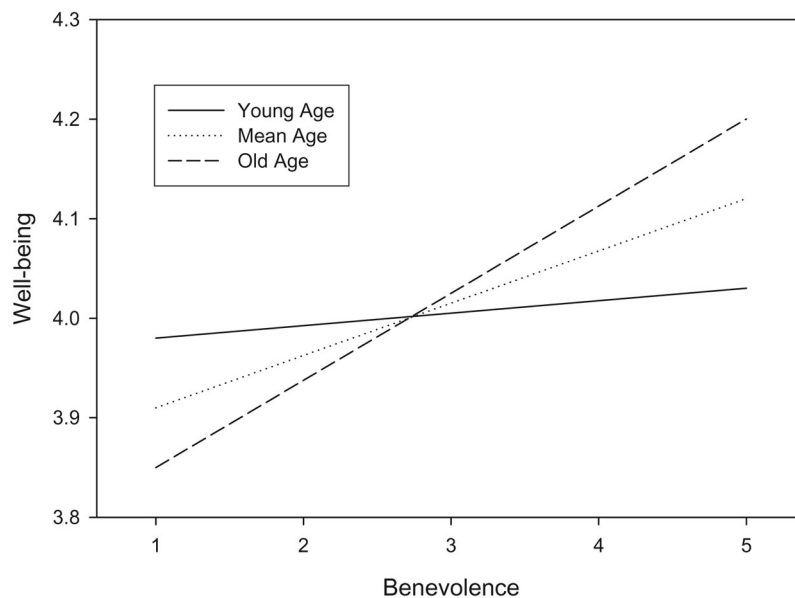


Figure 1. Graph of the interaction of age with levels of benevolence beliefs for well-being. For the graph, young and old age values are 1 standard deviation below (32.97 years) and above (65.37 years) the sample mean (49.17 years), respectively. Ranges for displayed variables: age, 18–101; benevolence, 1–5; well-being, 1–6.

Table 3
Multilevel Model for Levels of Perceived World Benevolence
($N = 2,126$)

Variable	<i>B</i>	<i>z B</i>	<i>SE B</i>
Time (years)	0.05***	6.67	0.01
Age	0.01***	11.01	0.001
Female gender	0.10***	4.38	0.02
Other ethnicity	-0.09*	-2.12	0.04
Income	0.02***	7.54	0.003
Meaningfulness beliefs	0.24***	21.86	0.01
Religiosity	0.03***	6.88	0.004
Recent negative events	-0.03***	-4.57	0.01

Note. Overall model was significant: For 6,997 observations, $\chi^2(8) = 736.92$, $p < .001$. Benevolence, meaningfulness, religiosity, and recent negative events were assessed as time-varying (within-person) variables.
* $p < .05$. ** $p < .01$. *** $p < .001$.

contrast, lifetime bereavement events predicted positive benevolence beliefs ($B = 0.02$, $p < .01$). Recent bereavement was not significantly associated with benevolence, however.

To get more information about why lifetime but not recent bereavement predicted more positive benevolence beliefs, we fit a second model in which the time elapsed between recent bereavement and reports of benevolence beliefs was lengthened. Bereavement was entered into the model in lagged form (reported at time point $t - 1$), predicting benevolence beliefs at time t . When this model was fit, lagged recent bereavement predicted more positive benevolence beliefs ($B = 0.04$, $p < .05$), whereas lifetime bereavement was no longer significant (see Table 4).²

A follow-up analysis tested whether the experience of bereavement moderated the benevolence–well-being association in the same manner as age. Because bereavement predicted benevolence beliefs when bereavement was lagged and because benevolence beliefs were lagged in the model predicting well-being, this effect was tested using recent bereavement and nonbereavement events lagged two waves behind well-being. These variables were entered into the well-being model described above in place of the recent negative events variable, along with the product-term interaction

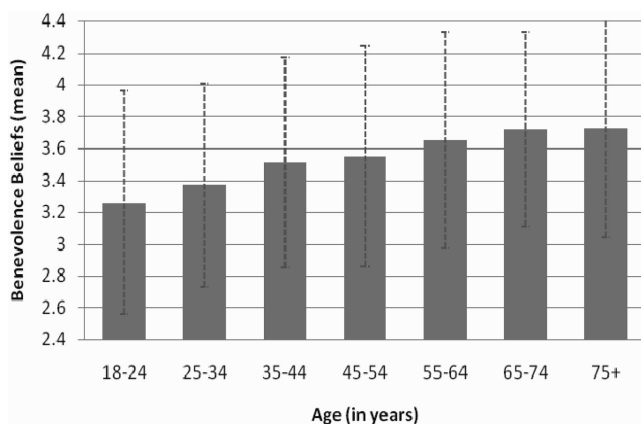


Figure 2. Graph of levels of benevolence beliefs across seven age groups. Ranges for displayed variables: age, 18–101; benevolence, 1–5. Error bars depict 1 standard deviation above and below the mean for each age group.

Table 4
Multilevel Model for Levels of Perceived World Benevolence
With Bereavement and Nonbereavement Negative Events
($N = 1,749$)

Variable	<i>B</i>	<i>z B</i>	<i>SE B</i>
Time (years)	0.21***	18.22	0.01
Age	0.01***	6.58	0.00
Female gender	0.08**	3.33	0.02
Income	0.02***	5.53	0.00
Meaningfulness beliefs	0.21***	15.45	0.01
Religiosity	0.03***	5.63	0.00
Lifetime nonbereavement negative events	-0.01***	-3.54	0.00
Lifetime bereavement events	0.01	1.72	0.01
Recent (lagged) nonbereavement events ^a	-0.01	-1.32	0.01
Recent (lagged) bereavement events ^a	0.04*	2.00	0.02

Note. Overall model was significant: For 4,403 observations, $\chi^2(10) = 690.52$, $p < .001$. Benevolence, meaningfulness, religiosity, and recent negative events were assessed as time-varying (within-person) variables.
^a Recent events were lagged one wave behind ($t - 1$) benevolence beliefs.
* $p < .05$. ** $p < .01$. *** $p < .001$.

of (lag - 2) bereavement and benevolence beliefs. Results indicated that this interaction only approached significance ($B = 0.07$, $p < .10$), although in the predicted direction: When individuals reported no bereavement events, benevolence beliefs only marginally predicted well-being ($B = 0.04$, $p = .09$, $n = 1,316$), but when individuals did report bereavement, benevolence more strongly predicted well-being ($B = 0.14$, $p < .01$, $n = 440$).

Discussion

Our aims in the present study were to examine the relations of world benevolence beliefs and well-being across the life span and to examine how negative life events may also shape benevolence beliefs. To do so, three hypotheses were tested using data from a longitudinal survey of a large, nationally representative sample; each hypothesis was supported. First, benevolence beliefs were found to be more strongly associated with well-being among older individuals than among younger individuals, even when prior levels of well-being were controlled. Second, older adults perceived the world as being more benevolent than did younger adults, and benevolence beliefs increased as individuals aged across the 2-year duration of the study. Finally, the experience of bereavement, increasingly common with age, predicted stronger benevolence beliefs, although not for very recent loss. Below, we discuss our interpretations of these results, along with their implications for adaptation across the life span.

² This model was also tested controlling for postbereavement perceived emotional support—an index of two items (“In the past week, how often did the following people help you understand or sort things out?” and “In the past week, how often did the following people provide you with encouragement?”) assessed for three targets (romantic partner, family, and close friends). Results remained the same controlling for this variable.

Benevolence and Well-Being

Our finding that benevolence beliefs were more strongly related to well-being for older adults than for younger adults suggests that such beliefs are an increasingly important source of well-being with age. As noted previously, there are changes in values and motivations across the life span that would make a benevolent view of the world more desirable, including increased concern for others in the form of generativity (Erikson, 1959; McAdams & de St. Aubin, 1998) and a heightened focus on emotional experiences as highlighted by research on socioemotional selectivity theory (Carstensen, 2006; Carstensen et al., 1999). Both changes also find parallels in the age-related shift from instrumental to terminal values (e.g., Ryff, 1982; Ryff & Baltes, 1976). Although this study cannot specify definitively which, if any, of these mechanisms is responsible for the role of aging in benevolence beliefs and well-being, thinking more broadly about age-graded motivational processes leads to a different approach to how worldviews might be associated with well-being than previous research has documented. Although prior studies have merely reported that benevolence beliefs are associated with well-being without reference to the life span, our data indicate that, in fact, there is no association between benevolence beliefs and well-being for younger adults. The present findings suggest that the importance of these beliefs may only emerge in midlife and beyond.

Of course, other interpretations of our findings are possible. First, because this is a correlational study, we cannot demonstrate that greater benevolence beliefs cause greater well-being. However, given that our analyses controlled for prior-wave well-being, we are fairly confident that the associations we documented are not due to causation in the reverse direction—that is, we believe that well-being is not causing benevolence beliefs. More plausible is the possibility that a third variable associated with aging led to both increased benevolence beliefs and greater well-being. Our prediction that aging would be associated with an increased benevolence–well-being association was based on age-graded changes in values and motivations; other phenomena associated with aging could also be invoked to explain our findings. For example, increasingly selective social networks (e.g., Lang & Carstensen, 1994) could lead to both enhanced well-being and greater benevolence beliefs. Although we find the mechanism of change in values or motivations to be more compelling—in part because the loss of a loved one, which could elicit a sense of finitude, also marginally predicted a greater benevolence–well-being association—we acknowledge that we cannot rule out alternate explanations.

Life-Span Change in Benevolence Beliefs

Findings from the present study not only suggest that aging leads benevolence beliefs to be more important for well-being, but they also suggest that aging leads to an increase in benevolence beliefs. As hypothesized, older adults perceived the world as being significantly more benevolent than did younger adults. Moreover, individuals' benevolence beliefs generally increased over the 2-year course of the study. These effects were admittedly relatively small—over the course of 50 years, our analyses suggest an increase in benevolence beliefs of about 0.50 point on a 5-point scale (based on age differences; see Table 3 and Figure 1),³ and the

increases associated with bereavement were small as well. Nonetheless, together these findings may indicate that age-graded changes in values and motivations influence worldviews over time.

The aging-related increase in benevolence beliefs was unlikely to be due to negative effects of the 9/11 terrorist attacks on worldviews. First, data were collected for the present article beginning at 12 months post 9/11—a length of time that minimized the impact of any temporary fluctuations in worldviews following this national event (cf. Fung & Carstensen, 2006). In addition, it is important to note that 9/11 exposure was not associated with any of the outcomes examined in this study (well-being, benevolence beliefs) at any time point.

Our finding that the recent experience of bereavement predicted an increase in benevolence beliefs is also consistent with predictions from SST that a sense of finitude should lead to increased focus on emotional experiences (e.g., Carstensen & Fredrickson, 1998; Fredrickson & Carstensen, 1990; Fung & Carstensen, 2006). However, other interpretations are possible. Perhaps the most compelling alternative explanation is that the outpouring of support many—although not all—people receive after experiencing a loss (Lehman, Ellard, & Wortman, 1986) results in their perceiving the world as being more benevolent than they did before. However, when we conducted our analyses controlling for perceived emotional support assessed postbereavement, we still found a significant bereavement–benevolence association, making this explanation somewhat less likely. In addition, such expressions of support are not limited to the experience of bereavement (Lehman & Hemphill, 1990), and yet it was bereavement and not other negative events that were positively associated with benevolence beliefs. In fact, nonbereavement negative events predicted decreased benevolence beliefs, in line with past research (e.g., Gluhoski & Wortman, 1996; Janoff-Bulman, 1989a; Magwaza, 1999; Schwartzberg & Janoff-Bulman, 1991).

Broader Implications

Our findings may also help shed light on other phenomena associated with aging and worldviews. Although we have focused on benevolence beliefs as being adaptive and a source of well-being, an increase in such beliefs may have drawbacks as well. Interpersonal trust, one part of world benevolence beliefs, carries with it the negative consequence of increased susceptibility to fraud and exploitation. If, as findings from the present study indicate, a general sense of trust increases with age, it may contribute to older adults' susceptibility to financial fraud—a common and growing form of elder abuse (Hafemeister, 2003).

³ It is interesting that within-person change over the 2 years of the study was estimated to be much larger (about 0.05 point per year). Given that the age-related change depicted in Figure 2 did not appear to be linear, however (specifically, change appeared to level off after age 65), we examined this pattern separately in those above and below 65 years of age. Results indicated a much reduced pattern of within-person increase for those over 65 years of age ($B = 0.02$), suggesting that different rates of increase may be partially responsible for the discrepancy. However, given that the discrepancy was not completely resolved, it may be due in part to the relatively short time period sampled; thus, future researchers may benefit from locating indicators of benevolence beliefs that span greater time periods.

To the extent that the changes in world benevolence reported herein are attributable to a sense of finitude, our findings may also have implications for other aspects of people's worldviews. For example, research on terror management theory indicates that subtle reminders of death lead people to cling firmly to cultural worldviews—that is, beliefs expressive of a cultural identity, often at the expense of other cultures (e.g., Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Rosenblatt, Greenberg, Solomon, & Pyszczynski, 1989). The present study suggests that cultural worldviews are not the only beliefs implicated by a sense of one's mortality: It would seem that benevolence beliefs, reflecting a globally positive view of the world and humanity, also increase. Determining whether these worldview changes are complimentary or at odds (e.g., by contrasting ingroup favoritism with a broadly prosocial view) may be an interesting avenue for future research.

A more specific way in which our findings may relate to other aspects of worldviews is in the relations of benevolence beliefs with religious beliefs. In the present study, religiosity was consistently positively associated with world benevolence beliefs. An increase in religiosity with age is common (e.g., Hunsberger, 1985; Princeton Religion Research Center, 1985), although by no means universal (McCullough, Enders, Brion, & Jain, 2005). Although it is possible that there is no direct connection between increases in both of these types of beliefs, it is also possible that they influence one another across the life span. For example, increasing trust could lead individuals to place more faith and confidence in religious authorities and religious systems of meaning. Another possibility, compatible with the first, is that the increasing association between benevolence and well-being found in the present study makes it important for older adults to engage in efforts to preserve their benevolence beliefs. Religious beliefs provide one means of reinterpreting information that could call the world's benevolence into question, for example, by seeing negative events as the workings of God or as leading to a greater good in the future (e.g., Janoff-Bulman, 1992; McIntosh, Silver, & Wortman, 1993).

Limitations and Future Directions

Despite the advantages of a large, diverse sample and a longitudinal design, the present study lacked several features that would be present in an ideal investigation of world benevolence beliefs and aging. First, although a 2-year span allowed us to examine within-person change in benevolence beliefs on a small scale, a longer time span and a multicohort design would allow for a better estimation of the effects of aging, per se, on benevolence beliefs. Second, even though our hypotheses were based on likely age-graded changes in values or motivations, we were not able to directly manipulate or assess these variables. In future research on the aging-benevolence association, specific mechanisms for age effects on benevolence beliefs and their association with well-being should be tested.

In addition, a limitation of many psychological studies, including the present investigation, is that even if it is representative of a nation such as the United States, it is not necessarily representative of humanity as a whole. In the case of research on benevolence beliefs, this may be an important consideration. The changes in values and motivations we have suggested lead to change in benevolence beliefs may be overcome by historical and

cohort differences in some societies. In the United States, there are historical factors that may lead to cohort differences in benevolence beliefs in the same direction as the aging effects we predicted (i.e., declining social capital; Putnam, 2000). However, in other nations with different histories, the opposite may be true. Therefore, cross-cultural research that documents patterns of associations between aging and worldviews in different nations could be helpful for understanding exactly what factors shape world benevolence beliefs.

An additional possible direction for future research is suggested by the seeming paradox that, as demonstrated in our data, older adults have increasingly benevolent views of the world despite the fact that they experience an ever-increasing number of events that challenge the world's benevolence. This paradox, which parallels to a degree the age-well-being paradox (e.g., Kunzmann, Little, & Smith, 2000), may be resolved if older adults develop worldviews that are more complex than those of younger persons. That is, older adults may believe that the world is generally benevolent while recognizing that in many specific instances negative, unpleasant events occur. Other researchers have speculated that such worldviews might characterize individuals who have experienced negative events in the past and might be uniquely adaptive (e.g., Epstein, 1990; Janoff-Bulman, 1989b), but to our knowledge this proposition has not yet been empirically tested. Future research should specifically assess the complexity of individuals' worldviews and whether such complexity is associated with age and prior experience of negative life events. Research on the related construct of affective complexity (e.g., Labouvie-Vief & Medler, 2002) suggests that this may indeed be the case.

In sum, our research implies that a positive view of the world may not be crucial for the young, but seeing the world as more good than bad and people as more trustworthy than not is a source of well-being for older adults. As people age and their values and motivations change—and as they come to terms with the reality that their lives and those of loved ones are finite—believing in a benevolent world may become both more prevalent and more adaptive. Future research should expand knowledge of how worldviews relate to aging and to aging well.

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