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Trajectories of change in dimensions of forgiveness among older adults and their association with religious commitment

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Abstract

Forgiveness is a complex construct with an important role in religious traditions worldwide, and is associated with mental and physical health outcomes. This seven-year longitudinal study examined changes within individuals during, and differences based on birth cohort, in forgiveness during late life. Growth curve analysis was used to analyze the general pattern of change across the course of older adulthood in eight dimensions related to forgiveness. Increases over time were observed in forgiveness of others, conditionality of forgiveness of others, forgiveness of self, feelings of being forgiven by God, and feelings of being forgiven by others. Decreases over time were observed in difficulty forgiving oneself, and perceptions of conditionality in God's forgiveness. Religious commitment was related to reporting more a more forgiving attitude on seven of these dimensions, but also to more perceived conditionality in God's forgiveness. Finally, differences in mean levels of forgiveness emerged between birth cohorts.

Forgiveness is a subject addressed in the teachings of all major world religions (Farhadian & Emmons, 2010; Rye et al., 2000). Moreover, recent research has shown that forgiving others is associated with a range of beneficial health outcomes including better mental health (Maltby, Day, & Barber, 2004), better physical health on dimensions including cardiovascular reactivity (Friedberg, Suchday, & Shelov, 2007), and lower mortality risk (Toussaint, Owen, & Cheadle, in press). Findings like these have generated considerable interest in understanding the factors that promote greater forgiveness. The focus of this study is one such factor which has received relatively little empirical attention: age. A number of studies have found cross-sectional evidence suggesting that older people are more willing to forgive others, compared with younger people (Cheng & Yim, 2008; Mathias, 2008; Mullet, Houdbine, Laumonier, & Girard, 1998; Subkoviak et al., 1995; Toussaint, Williams, Musick, & Everson, 2001). But whether these differences exist because people become more forgiving as they get older, or because values have shifted between generations, remains unclear. Furthermore, forgiveness is a complex construct, entailing many facets that have not been examined in the context of aging at all. The present study addresses these gaps in the literature, examining change over the course of older adulthood in an array of variables related to forgiveness of others, forgiveness of the self, and perceptions of forgiveness by God.

Forgiveness Within Late Life

Previous cross-sectional research on forgiveness among older adults has focused on its relationship with outcomes important to successful aging. Hantman and Cohen (2010) found that the extent of forgiveness of others for a specific transgression was correlated with a sense of existential meaning among older adults, but also that this relationship was fully

explained by demographic factors and characteristics of the transgression. Lawler-Row (2010) examined the hypothesis that religion influences health in late life by increasing forgiveness of others, the sense of being forgiven, and forgiveness of self, and found evidence of partial or full mediation across an array of religious constructs and health outcomes. Another study examined the mediating relationship of rumination on the relationship between lack of forgiveness and late-life depression (Ingersoll-Dayton, Torges, & Krause, 2010).

While studies like these provide important insight into the ways that forgiveness functions in older adults, they share a design limitation with studies of forgiveness in the general population in that they group everyone older than 65 together for comparison with younger adults. Current demographic projections provide an important point of departure for exploring the process of aging and forgiveness *among* people who are 65 and older. Research reveals that the oldest old (i.e., people age 85 and older) are the fastest growing demographic group worldwide (United Nations, 2010). In the United States alone, the number of centenarians is expected to grow from 79,000 in 2010 to 601,000 by 2050 (U. S. Census Bureau, 2008). Thus, a sizeable number of people who have reached the age 65 may live for another 35 years or more. By collapsing all people age 65 and over into a single group, researchers are implicitly assuming that psychosocial development ceases beyond midlife. However, this assumption flies in the face of theories that propose that human development is continuous and ongoing throughout the entire life course (Goldhaber, 2000). Significant changes are likely to occur during the decades that many will live after age 65, and these changes may in turn have an impact on patterns of developing needs for mental health care over the course of late life. Furthermore, identifying the antecedents of improving versus worsening trajectories of forgiveness over time may contribute to the ability to predict these changes and to develop interventions to proactively encourage beneficial development.

An additional complicating factor regarding development in late life is the aged heterogeneity hypothesis (Nelson & Dannefer, 1992). According to this perspective, there is a general tendency toward greater differentiation among people with advancing age, because diverging experiences build up cumulatively throughout the life course, and thus individuals become steadily more differentiated from one another, with the greatest variety appearing in older adulthood. This pattern has been found with respect to a wide array of constructs, including feelings of personal control, self-esteem, and the size of social networks. The same logic holds in the case of forgiveness, since it is likely to be influenced by the experiences of forgiving and being forgiven that accumulate through one's life experiences. If the aged heterogeneity hypothesis holds for forgiveness, then making a simple statement about the nature of change in forgiveness through late life will be challenging. Sophisticated statistical procedures are required to evaluate this perspective properly. This issue is addressed in this study by estimating a series of individual growth curve models that are designed specifically to detect individual variation in forgiveness as well as overall trends in the sample as a whole.

Dimensions of Forgiveness

Forgiveness is a complex and nuanced process (Enright & Fitzgibbons, 2000), involving not only the act of forgiving or the feeling of being forgiven, but also notions about the conditions under which forgiveness can take place. Although research has found that various dimensions of are correlated in samples of older people, they are not affected uniformly by psychosocial constructs, such as race (Krause, 2011). Thus, findings that emerge regarding age differences in one type of forgiveness (e.g., forgiving others) might not necessarily mimic those that emerge with a different dimension of forgiveness (e.g., forgiveness by

God). Moreover, there is some evidence that one dimension of forgiveness may be a prerequisite for the attainment of a different type of forgiveness. For example, research by Krause and Ellison (2003) suggests that some older people may not forgive themselves unless they first believe they have been forgiven by God. Further research has found support for a structural relationship between dimensions of forgiveness on rumination and depression in older adulthood, with perceptions of forgiveness by God and by others contributing to forgiveness of the self (Ingersoll-Dayton et al., 2010). Given that different dimensions of forgiveness may operate in different ways, one goal of this study was to incorporate a range of these dimensions in assessing age differences during late life. Although a number of factors undoubtedly shape the forgiveness process, we focus on three that have received relatively little attention in the literature, in addition to the relatively straightforward dimensions of forgiveness of others and feeling forgiven by God.

First, some people report that they forgive others unconditionally, while other people require transgressors to perform acts of contrition, such as apologizing or providing restitution (Krause & Ellison, 2003; Krause & Ingersoll-Dayton, 2001). This dimension has been shown to be a potentially important determinant of well-being in late life, as Krause and Ellison (2003) report that older adults who forgive unconditionally tend to enjoy a greater sense of well-being than those who require that transgressors to perform acts of contrition. Religious teachings may have an important influence on how the process of interpersonal forgiveness is perceived. For example, Jewish tradition invokes rituals of atonement both by which individuals seek forgiveness for their own sins, and by which individuals are enjoined to forgive those who have transgressed against them (Rye et al., 2000). Whether older adults tend to become any more or less unconditional in their forgiveness as they age has not yet been examined, however.

A second dimension, also related to the conditionality of forgiveness, is the question of whether people believe that God grants unconditional forgiveness, or whether acts of contrition are necessary. The Christian Bible, for example, is replete with stories about transgressors who ask for God's forgiveness and promise not to commit an offensive act in the future. In fact, specific requests for God's forgiveness are explicitly contained in the Lord's prayer. Yet, the concept of salvation by grace may imply that God forgives sin unconditionally. Hence, this dimension may be both salient and ambiguous for religious believers. It may also have implications for whether people feel they must perform acts of contrition, whether they feel they have been forgiven, and by extension whether they feel that contrition is important for interpersonal forgiveness. Furthermore, as religiousness tends to increase in late life, views in this domain may also change and deepen over time.

A third key dimension is forgiveness of oneself. The challenges posed by self-forgiveness have been elaborated by Dillon (2001). In summary, the transgressor must (1) recognize that he or she is a valuable human despite their wrongdoing, (2) they must take responsibility for the transgression, (3) they must acknowledge that the victim is worthy of respect, (4) they must fully experience the negative feelings that are associated with acknowledging the wrongdoing, (5) they must make a concerted effort to eliminate the attitudes, behaviors, or character traits that led to the transgression, and, whenever possible, (6) they must make amends. Although this dimension has received less empirical evaluation compared with other dimensions of forgiveness (Hall & Fincham, 2005), it has been linked with mental health (Toussaint, Williams, Musick, & Everson-Rose, 2008) physical health (Lawler-Row, 2010) and mortality (Krause & Hayward, in press; Toussaint et al., in press) and is included in the present study to round out our understanding of the forgiveness in late life.

Forgiveness and Age: Individual Change or Generational Change?

Although there are relatively few studies examining the relationship between forgiveness and age, those that exist have found that older people are generally more likely to forgive than younger people. This pattern holds both in comparing young adults with those in mid-life (Subkoviak et al., 1995), and in studies of the broader population showing that members of the oldest age groups are the most forgiving of others (Mullet et al., 1998; Toussaint et al., 2001). Toussaint et al. (2001) additionally examined age differences in self-forgiveness and forgiveness by God, finding that older adults felt more forgiven by God, compared with young adults, but did not differ in terms of the extent to which they had forgiven themselves. As interest in these age differences in forgiveness has grown, researchers have become more concerned with explaining how they arise. Although the literature is still under-developed, two plausible perspectives have emerged.

The first is derived from socioemotional selectivity theory (Carstensen, Isaacowitz, & Charles, 1999). According to this perspective, as people move through late life, they realize they have relatively little time left to live. Consequently, they re-evaluate their priorities in life, placing a greater emphasis on relationships that are emotionally close and disengaging from more peripheral social ties. Although these investigators do not mention forgiveness explicitly, it is easy to see why people who are more focused on emotionally close social relationships would be more forgiving. Two recent studies have explicitly tested this view of aging and forgiveness, each finding both that older adults are more forgiving than younger adults, and that time perspective plays a role in this relationship (Cheng & Yim, 2008; Mathias, 2008).

The second perspective on age differences in forgiveness focuses on the relationship between forgiveness and religion. Although the issue has not been resolved conclusively, research indicates that people may become more involved in religion as they grow older (Krause, 2008). This is noteworthy because virtually every major faith tradition in the literature places an emphasis on the importance of forgiving others (Farhadian & Emmons, 2010; Rye et al., 2000). So if people become more religious as they grow older, and if all religions extol the virtue of forgiveness, then it follows that older people are likely to be more forgiving.

There is a further potential explanation for age differences in forgiveness that has not been previously explored: namely the possibility of enduring differences between cohorts. The classic social theorist, C. Wright Mills (1959), quipped that, "Neither the life of an individual nor the history of a society can be understood without understanding both" (p. 3). When researchers talk about the influence of history on individual lives, they are often referring to cohort effects. Although cohorts are notoriously difficult to operationally define (Alwin & McCammon, 2007), the fact that late life can encompass a period of 35 years suggests that more than one cohort may be found in the group age 65 and older. While the issue of cohort differences in forgiveness has not been directly examined in the existing literature, indirect evidence suggests that this may be an important issue to investigate. Specifically, research by Bellah et al. (1985) and by Putnam (2000) supports the idea that sweeping social changes in the latter half of the 20th century have weakened community ties, leading to an ongoing decline in prosociality in more recent birth cohorts. Since forgiveness is a form of prosocial behavior, it follows that there are likely to be cohort differences in forgiveness as well. But whether cohort differences occur specifically in late life remains an unknown issue. Fortunately, individual growth curve modeling procedures make it possible to simultaneously assess the influence of age and cohort effects.

The Present Study

Although significant theoretical and empirical strides have been taken in the literature on age differences in forgiveness, significant gaps still exist in this research. The purpose of the current study is to contribute to the knowledge base in four potentially important ways. First, previous research has treated all people age 65 and over as a single undifferentiated group. As a result, potentially important age differences *within* late life have yet to be examined. This limitation is addressed by focusing on trajectories of forgiveness solely within the course of late life. Second, previous studies on age differences in forgiveness have been concerned almost exclusively with forgiving others. However, researchers have known for some time that forgiveness is a multidimensional conceptual domain that includes forgiving one's self as well as being forgiven by God. This study expands the scope of inquiry by assessing whether people are more likely to forgive themselves and whether they are more likely to believe they have been forgiven by God as they go through late life. Third, all existing research in this area has relied on cross-sectional data to see if older people are more forgiving than individuals who are presently younger. This study re-evaluates this issue using four waves of data from a longitudinal survey that spans seven years. Fourth, researchers have shown for decades that age-related changes in a range of psychosocial constructs can be confounded with historical differences in the experiences shared by members of the same birth cohorts (Palmore, 1978). This study takes preliminary steps toward addressing this problem by simultaneously testing for age and cohort differences in forgiveness. By bringing cohort differences to the foreground, the aim is to provide yet another theoretical reason for why people in different age groups may be more willing to forgive.

Given the ambiguities in the existing literature regarding the causes, scope, and timing of age effects on forgiveness, it is not possible to specify a comprehensive set of hypotheses with respect to change during late life, and thus this study is largely exploratory. Based on previous cross-sectional findings in support of the role of a time perspective effect the tendency to forgive other people (Cheng & Yim, 2008; Mathias, 2008), it is hypothesized that older adults will show a trajectory of increasing forgiveness of others across the course of the study. Furthermore, based on the centrality of forgiveness as an element of religious teaching across a variety of traditions (Farhadian & Emmons, 2010), it is expected that older adults reporting a greater sense of personal religious commitment will show more rapid changes in forgiveness. The analyses of trajectories of other dimensions of forgiveness, as well as the possibility of cohort differences, are pursued in an exploratory fashion, with the aim of inductively building a wider perspective on forgiveness in late life.

Method

Sample

Data came from four waves of an ongoing longitudinal survey of religion, aging, and health. The sample was drawn from the Centers for Medicare and Medicaid Services beneficiary list, and was designed to be representative of the population of older adults (aged at least 66 in the year 2001) living in the coterminous 48 states of the US. For reasons related to measurement and hypothesis testing in the survey as a whole, the sample was further screened by race and religious background, so that all participants were (a) either White or African American, and (b) either currently practicing Christians, previously Christian but no longer practicing any religion, or had never practiced any religion. These religious limitations were applied to the sample to allow for measurement of measures including theological content specific to Christian doctrine, and therefore of uncertain validity when applied to individuals with other backgrounds. Complete details regarding the population and sampling procedures have been reported previously (Krause, 2002a).

Data collection for all four waves was conducted by Harris Interactive (New York), via interviews conducted in-person at participants' homes. Wave 1 was conducted in 2001, comprising 1,500 completed interviews, including 748 White respondents and an oversample of 752 black respondents, with a response rate of 62%. Subsequent waves of the survey were conducted in 2004 (N = 1,024; 80% re-interview rate excluding attrition due to mortality), 2007 (N = 969; 75% re-interviews), and 2008 (N = 718; 88% re-interviews).

Measures

This study examines growth in nine constructs related to forgiveness, some of which are measured with single items, and some of which are composed of multiple-item scales. These constructs include: (1) extent of forgiveness of others, (2) difficulty forgiving others, (3) conditionality of forgiveness of others, (4) extent of forgiveness of self, (5) difficulty forgiving, (6) extent of perceived forgiveness by God self, (7) conditionality of forgiveness by God, and (8) extent of perceived forgiveness by other people. Religious commitment was measured using a three-item scale. All scales, item wording, and response categories are described in Table 1, along with descriptive statistics and reliability estimates. All questions were asked in all waves. All questions were also asked of all respondents, with the exception of the item measuring difficulty in forgiving others, which was only asked of those who said that they forgave others at least once in a while. Details regarding the development of these survey measures have been described by Krause (Krause, 2002b).

Demographics, reported in wave 1 of the survey, include age, race (0 = Black, 1 = White), sex (0 = Male, 1 = Female), and years of education. Birth cohort membership was defined by 5-year intervals. The difficulties inherent in defining cohorts, particularly in the absence of clear theoretical expectations regarding the timing of social change, has long been discussed (Mason, Mason, Winsborough, & Poole, 1973). However, the 5-year interval provides a good fit with the distribution of birth years in the present sample, and is similar to those adopted in previous growth curve analyses of cohort data (Price, 1997; Raudenbush & Chan, 1993; Yang, 2007). Because the number of participants born before 1910 or after 1935 was very small, these individuals were grouped with first and last cohorts, respectively, resulting in the following set of birth cohorts: 1900 – 1914, 1915 – 1919, 1920 – 1924, 1925 – 1929, 1930 – 1936.

Missing Value Imputation

Because of a moderate amount of missing data on the forgiveness measures, ranging between 7.5% and 17.4% depending on the item, multiple imputation was used for all observations missing due to item non-response (but not for data missing due to attrition from the study, or because the item was not asked based on responses to other survey items). Multiple imputation using the Markov Chain Monte Carlo (MCMC) method was conducted with the SAS 9.2 PROC MI function, based on an imputation model that included all key study variables at each wave. The MCMC method uses the observed joint distributions of non-missing model variables to simulate a series of randomly-drawn values to replace each missing value (Horton & Lipsitz, 2001). Consistent with recommendations based on multiple imputation theory (Graham, Olchowski, & Gilreath, 2007), five sets of imputed values were independently drawn, and all analyses were conducted separately on each of the resulting datasets. After imputation, there were 4,209 observations from 1,499 individuals.

Model Specification

Hierarchical linear modeling was used to analyze within-individual change in forgiveness over time (West, Welch, & Galecki, 2007). In this approach, each participant is treated as a cluster within which individual observation points are nested. Using this method, a growth curve model expressing average age-related change within individuals is derived based on

weighted composites of the trajectories of all participants, including those who left the study prior to wave 4. Analyses were conducted using the SAS 9.2 MIXED procedure, applying a variance components covariance matrix, with random intercept and age effects at the participant level. For each forgiveness measure, a model including fixed and random effects was specified using the following general form:

$$\begin{aligned} \text{Forgive}_{ij} = & \beta_0 + \beta_1 \text{Age}_{ij} + \beta_2 \text{Race}_i + \beta_3 \text{Sex}_i + \beta_4 \text{Education}_i \\ & + \beta_5 \text{Commitment} \\ & + \beta_6 [\text{Commitment}_{ij} \times \text{Age}_{ij}] + \beta_7 \text{Cohort1900}_i \\ & + \beta_8 \text{Cohort1915}_i \\ & + \beta_9 \text{Cohort1920}_i \\ & + \beta_{10} \text{Cohort1925}_i \\ & + u_{0i} + u_{1i} \text{Age}_{ij} + \varepsilon_{ij} \end{aligned}$$

In this model, *Forgive_{ij}* is any of the eight forgiveness measures for individual *i* at time *j*, predicted by age and demographic fixed factors, and allowing for random variation between individuals in both initial forgiveness and (*u_{0i}*) and rate of change in forgiveness over time (*u_{1i}Age_{ij}*). The primary focus of this study is on the model term $\beta_1 \text{Age}_{ij}$, which estimates the mean rate of within-person growth in forgiveness, expressed in units per year, and on the series of cohort effects, which estimate the mean differences between birth cohorts in forgiveness¹. Religious commitment is treated as a time-varying covariate (i.e., one that varies within individuals between observations). Its association with the intercept for forgiveness is given by the term $\beta_5 \text{Commitment}$, and its association with the age slope is given by the interaction term $\beta_6 \text{Commitment} \times \text{Age}_{ij}$. The dummy variable representing membership in the 1930 – 1936 birth cohort is excluded, making this the comparison group. In each case, analyses were re-run rotating the excluded cohort dummy variable, to determine differences among all pairs of birth cohorts. Race, sex, and education are treated as time-invariant covariates (i.e., assumed to be constant within individuals throughout the study). Age and education are each centered on the grand mean of all observations (77.46 and 11.46, respectively).

Results

Three sets of results are discussed in this section. First, mean growth curves for forgiveness are examined, based on the fixed effects for age in the mixed models specified as described above. Second, cohort effects are examined, based on the same mixed models. Finally, supplementary analyses demonstrate problems arising when a relationship involving both age and cohort effects is analyzed using cross-sectional data. Mixed model results are presented in Table 2. Schwarz's Bayesian Information Criteria (BIC) allow for comparison of model fit between the full model and the unconditional model, including the effect of age alone. For all variables, the full model reduced the BIC, indicating that a significant proportion of the variance was explained.

¹Preliminary analyses examined two elaborations of this general model. First, the possibility of curvilinear growth was tested using quadratic fixed and random effects for age. This effect was not significant in the full model of any forgiveness measure. Second, interaction terms between age and each other fixed effect were added, to test for group differences in the rate of change in forgiveness. No significant cohort by age effects were detected. Demographic factors did show significant interactions with age in several cases, but did not change the substance of the primary results. These effects are omitted from the final analyses to simplify the presentation and interpretation of the results.

Age-Related Change in Forgiveness

After controlling for demographics and birth cohort, significant age-related change was detected all eight forgiveness measures examined. With respect to forgiveness of others, participants tended to become more prone to forgive others ($b = 0.03$, 95% CI [0.02, 0.05], $p < .001$), and found it less difficult to do so ($b = -0.009$, 95% CI [-0.02, -0.001], $p = .02$), while also coming to view forgiveness as more conditional ($b = 0.05$, 95% CI [0.03, 0.08], $p < .001$) across the course of older adulthood. Factors related to self-forgiveness also exhibited change, as older adults reported forgiving themselves to a greater extent ($b = 0.03$, 95% CI [0.02, 0.04], $p < .001$), and found self-forgiveness less difficult ($b = -0.03$, 95% CI [-0.04, -0.02], $p < .001$) as they got older. Regarding perceptions of God's forgiveness, participants tended to feel more forgiven by God over time ($b = 0.01$, 95% CI [0.005, 0.02], $p < .001$), while also coming to view that forgiveness as less conditional ($b = -0.04$, 95% CI [-0.06, -0.01], $p = .004$). Finally, the perception of having been forgiven by other people tended to increase during late life ($b = 0.10$, 95% CI [0.08, 0.13], $p < .001$).

Religious Commitment

Religious commitment was related to the intercept for all eight of the forgiveness measures, but was related to the age slope for only three of them. Greater religious commitment was associated with greater reported forgiveness of others ($b = 0.18$, 95% CI [0.15, 0.21], $p < .001$), less difficulty in forgiving ($b = -0.08$, 95% CI [-0.08, -0.06], $p < .001$), and less conditionality in that forgiveness ($b = -0.31$, 95% CI [-0.35, -0.27], $p < .001$). It was also related to more self-forgiveness ($b = 0.08$, 95% CI [0.06, 0.09], $p < .001$), and less difficulty with forgiving oneself ($b = -0.02$, 95% CI [-0.04, -0.006], $p = .006$). More religiously committed older adults perceived greater forgiveness from God ($b = 0.16$, 95% CI [0.14, 0.17], $p < .001$), but also thought that divine forgiveness was more conditional ($b = 0.17$, 95% CI [0.13, 0.22], $p < .001$). Finally, religious commitment was related to a greater sense of having been forgiven by others ($b = 0.21$, 95% CI [0.16, 0.25], $p < .001$). On the other hand, religious commitment was also related to slower increase with age in forgiveness of others ($b = -0.005$, 95% CI [-0.009, -0.001], $p = .01$), slower decrease in difficulty forgiving others ($b = 0.003$, 95% CI [0.0005, 0.005], $p = .01$), and slower increase in self-forgiveness ($b = -0.003$, 95% CI [-0.005, -0.0001], $p = .04$).

Cohort Differences

Significant mean differences between birth cohorts were detected on six of the eight forgiveness measures. These differences are summarized in Table 2; cohort coefficients with different superscripts in the same model indicate that the means differ, $p < .05$. In all cases in which differences are present, birth cohort effects are the direction countervailing the corresponding age effects. That is, earlier cohorts tend to be less conditional in their forgiveness of others, to be less forgiving of themselves, to have more difficulty forgiving themselves, to perceive themselves to be less forgiven by God, to view God's forgiveness as more conditional, and to perceive themselves as less forgiven by others. The magnitude and timing of these contrasts varies, but in general the most marked changes appear to occur either between the 1920 and 1925 cohort, or between the 1925 and 1930 cohort. The only measures for which no cohort effects were detected were forgiveness of others and difficulty forgiving others.

Supplementary Analysis

The countervailing effects observed for age and birth cohort in this study raise some questions regarding fit with previous findings of age differences in forgiveness. Depending on the relative magnitude of the effects, it is possible that differences between earlier and later birth cohorts could partially or completely obscure the effect of within-person growth

over time, if one or both of these factors were left out of the analysis. To partially address these concerns, a supplementary set of analyses was performed to assess differences in the age effect that would be estimated if the same data were analyzed differently. First, using data from wave 1 only, linear regression was used to assess the cross-sectional relationship between age and each forgiveness measure (controlling for the same demographic factors included in the growth model). Second, a growth model similar to the model tested above, but excluding cohort effects, was analyzed.

Table 3 presents confidence intervals for age coefficients estimated using each of these procedures, and compared with those for the full model presented above, including both age and cohort effects. For five of the six of the measures exhibiting cohort differences, all except for the conditionality of God's forgiveness, there were significant differences between the age effect estimated in the full growth model, and the age effect estimated by cross-sectional re-analysis of the same data. The most dramatic difference was for perceived forgiveness by God, which appears to decrease with age in the cross-sectional model ($b = -0.006$, 95% CI $[-0.01, -0.0003]$, $p = .04$), but increases with age in the full growth model ($b = 0.01$, 95% CI $[0.005, 0.02]$, $p < .001$). The age effects for conditionality of forgiveness of others, self-forgiveness, and difficulty in forgiving the self were each non-significant in the cross-sectional analysis, but changed as described above in the full growth analyses. While there were fewer differences in interpretation between the growth models with and without cohort effects, comparison of confidence intervals indicated that the age coefficients were of significantly greater magnitude for both self-forgiveness and perceived forgiveness by other people. Taken together, these results suggest that unanalyzed cohort effects substantially confound the relationship between age and forgiveness in cross-sectional analysis. Modeling growth longitudinally within individuals largely addresses these shortcoming, even when cohort effects are not controlled, but including cohorts in the model offers additional significant improvements in some cases.

Discussion

The results of this study expand upon previous findings regarding aging and forgiveness in three key ways. First, by tracking the same individuals through time, they help to substantiate the hypothesis that people become more forgiving as they get older. This supports the results of previous studies that found older groups were more forgiving of others when compared to younger groups (Mullet et al., 1998; Toussaint et al., 2001), while addressing some of the limitations of their cross-sectional designs. Second, by focusing on change over the course of older adulthood, these findings extend the temporal scope of this relationship. Finally, this study shows some of the first evidence that, in addition to changes due to getting older, birth cohort may also play a role in at least some elements of forgiveness.

Over the course of older adulthood, participants in this study tended to change, both becoming generally more forgiving of others, and also coming to see themselves as more forgiven. This trajectory is consistent with, though not directly supportive of, the socioemotional selectivity perspective (Carstensen et al., 1999), which suggests that older adults focus increasingly with age on building and maintaining a smaller network of close relationships. This provides strong motivation both to try to forgive others in that network, and to make amends in order to feel forgiven by them. This perspective may help to account for the different trajectories observed for several elements of forgiving others. While it did not become any easier on average to forgive others, people reported forgiving more over time, suggesting that they were applying more effort to the process. At the same time, the conditionality of forgiving others tended to increase with age. It is possible this shift reflects a deepening engagement with the process of forgiveness, resulting in more thought and

reflection on what is necessary for forgiveness to occur. Religious commitment was associated with all dimensions of forgiveness assessed in this study, including a greater reported propensity to forgive both others and oneself, less difficulty with both forms of forgiveness, and greater perception of having been forgiven by others which is consistent with Lawler-Row's (Lawler-Row, 2010) recent findings, and thus suggestive of a potential pathway for connection with various well-being outcomes. Contrary to hypotheses, religious commitment was not found to be related to more rapid change in forgiveness over the course of older adulthood. In some cases it appeared to be related to slower change, although it is likely that this reflects the fact that more religious committed individuals tended to start out with higher levels of forgiveness, leaving them less room for increase.

Regarding specifically religious elements of forgiveness, older adults also came to feel that God had forgiven them for their past deeds, and that this divine forgiveness was more unconditional. This trend may be partly a reflection of the general tendency for religion to develop an increasing importance during older adulthood. Engaging in a greater amount of religious activity, and thinking more carefully about religious matters in general, may help older adults to feel reconciled with God for past wrongs. The results of this study are consistent in this respect with the single previous study to examine this issue (Toussaint et al., 2001), although in that case older adults as a whole were compared with younger adults. Thus the trend within older adulthood may reflect the continuation of a longer term trajectory; more research is needed to substantiate this possibility. It is noteworthy that religious commitment was related to a greater sense of being forgiven by God, but was also linked with a greater sense that God's forgiveness was conditional on acts of contrition. This stands in contrast to the association of religious commitment with the conditionality of interpersonal forgiveness. One possible interpretation is that engagement with religious teachings about forgiveness contributes to a more complex perception of the rules governing divine forgiveness.

While no hypotheses were specified regarding the prevalence or direction of cohort differences in forgiveness, some general observations can be drawn from these results. First, members of earlier cohorts tended to view themselves as less forgiven, in comparison to those born later. This applies to feelings of being forgiven by oneself, by God, and by other people. By contrast, members of earlier cohorts were comparatively less conditional in their forgiveness of others, and there were no cohort differences in either the overall tendency to be forgiving of others, or difficulty experienced in forgiving others. Second, differences emerged in all cases between those born in the 1930s and those born before 1925 (with the 1925 – 1929 cohort varying in terms of which group it more closely resembled). A second major split appeared for four of the forgiveness measures for those born in 1914 or earlier and those born later. While any account of cohort differences must remain tenuous, these apparent turning points correspond with major historical events – the first World War and the Great Depression – which may have contributed to distinct early childhood experiences that had enduring implications for views of forgiveness.

It is important to note that the cohort effects observed in this study would all tend to obscure the effects of aging – rather than generate spurious effects – if the data were analyzed cross-sectionally, as demonstrated by the supplementary analyses. Thus they do not contradict previous findings. Interpretation of these birth cohort differences must remain somewhat speculative, given the novelty of the finding and the truncated nature of the sample. Nevertheless, it is instructive that many of these differences appear to distinguish those who were young children during the Great Depression from those born earlier. It has been suggested that early experiences of economic deprivation and war contributed to making a strong sense of social interdependence a defining psychological characteristic of members of this generation (Rogler, 2002). Overall, these results indicate that those born in the early part

of the 20th century remained fairly stable in terms of mean levels of forgiveness of others, while becoming more forgiving of themselves over successive cohorts. That is, children of the Depression found it easier to forgive themselves, felt more forgiven by God and by others, and felt that God's forgiveness was less conditional, compared with those who grew up earlier. At the same time, they were also more conditional in their own forgiveness of others. This could be interpreted as evidence of an increasing emphasis on the self, without a corresponding increase in prosociality, at least partly congruent with the narrative of a cultural shift towards self-centeredness (Bellah et al., 1985; Putnam, 2000), with successive generations coming to view judge their own actions less harshly (and to believe that God does the same) while placing greater moral responsibility on others for their transgressions. However, the lack of subsequent birth cohorts in this sample makes it impossible to fully test this hypothesis.

Other limitations include the inherent difficulty of separating age, cohort, and period effects, even with a longitudinal design. In particular, the possibility that social change across all age groups, rather than individual development, accounts for some of the changes observed within individuals cannot be controlled. Additionally, while the time between waves 1 and 4 was relatively long, at seven years, it covers only a fraction of the entire course of older adulthood. Change in each individual was tracked only across a subset of the total range of ages covered, so that change at the oldest ages is disproportionately estimated by members of the earliest cohorts, and vice versa. Thus, it is impossible to fully evaluate the possibility of complex age by cohort interactions. Collecting data across a longer period, and with more frequent observations, would help to address this limitation, as well as allowing for more better evaluation of the possibility of curvilinear change over time. Furthermore, the measures of forgiveness used in this study were based on self-reported disposition, rather than on behavior related to specific acts of forgiveness, and thus may be biased by positive self-perception and self-presentation. Some key items were worded in terms of frequency of forgiving, which could cause responses to be influenced by the total extent of social contact, since individuals who interact with more people have more opportunities to be hurt and thus to forgive. Additional research using alternative approaches to measuring forgiveness could help to address these issues.

As the population of the oldest age cohorts grows, it becomes ever more important to understand the diversity of this group, as well as the trajectories of change that happen in late life. Forgiveness processes, closely tied to both social and health outcomes, demonstrate a clear pattern of developmental change, which may help to shed light on other socioemotional changes in late life as well. Yet these results also point to enduring differences between birth cohorts, built up by years of shared historical experiences. Because of the relationship of forgiveness with mental and physical health outcomes (Friedberg et al., 2007; Maltby et al., 2004), these findings may have some practical implications for late life caregiving. Since growth of forgiveness appears to follow a linear and cumulative pattern, it may be particularly important to pay attention to issues that could inhibit these changes early on in the span of older adulthood in order to maximize the possible benefits of forgiveness in later years. The cohort effects detected in this study also call for attention to potential generational differences in forgiveness that may have implications for strategies for providing counseling and other forms of mental health care to older adults from different birth cohorts. The methodological challenges in disentangling these influences are significant, but mapping the changing dynamics of forgiveness as they unfold in late life makes it a goal worth pursuing.

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Table 1**Measures of forgiveness and religious commitment**

A. Forgiveness of Others ^a , M = 10.27, SD = 1.66, Cronbach's α = .632
A.1. How often do you feel resentful toward others for things they have done? (R)
A.2. How often do you hold a grudge? (R)
A.3. How often do you forgive other for things they have done to you?
B. Difficulty Forgiving Others ^b , M = 1.59, SD = 0.83
B.1. How hard is it for you to forgive others?
C. Conditionality of Forgiveness ^c , M = 8.14, SD = 2.48, Cronbach's α = .831
C.1. Before I can forgive others, they must apologize to me for the things they have done.
C.2. Before I can forgive others, they must promise not to do the same thing again.
C.3. Before I can forgive others, they must repay me or compensate me for what they have done.
C.4. Others do not have to do anything before I forgive them. (R)
D. Forgiveness of Self ^b , M = 4.00, SD = 1.17
D.1. I forgive myself for the things I have done wrong.
E. Difficulty Forgiving Self ^d , M = 2.03, SD = 0.98
E.1. How hard is it for you to forgive yourself for things you have done wrong?
F. Perceived Forgiveness by God ^d , M = 4.43, SD = 0.78
F.1. I believe God forgives me for the things I've done wrong.
G. Conditionality of God's Forgiveness ^d , M = 12.15, SD = 2.35, Cronbach's α = .661
G.1. In order to be forgiven by God, I must ask God to forgive me.
G.2. In order to be forgiven by God, I must promise God I will not make the same mistake again.
G.3. In order to be forgiven by God, I must correct what I have done wrong.
G.4. God forgives me right away for things I have done; there is nothing I must do first. (R)
H. Perceived Forgiveness by Other People ^d , M = 10.80, SD = 2.58, Cronbach's α = .744
H.1. As far as I know, other people have forgiven me for things I have done.
H.2. I know there are people who still hold a grudge about things I have done in the past. (R)
H.3. I know there are people who still blame me for things I have done in the past. (R)
I. Religious Commitment ^c , M = 9.97, SD = 1.99, Cronbach's α = .939
I.1. My faith shapes how I think and act each and every day.
I.2. I try hard to carry my religious beliefs over into all my other dealings in life.
I.3. My religious beliefs are what lie behind my whole approach to life.

NOTES: R indicates reversed scoring for scale computation

^aResponses (scores): never (1), once in a while (2), fairly often (3), very often (4)

^bResponses (scores): I forgive others (myself) easily (1), just a little hard (2), somewhat hard (3), extremely hard (4)

^cResponses (scores): strongly disagree (1), disagree (2), agree (3), strongly agree (4)

^dResponses (scores): strongly disagree (1), disagree (2), not sure (3), agree (4), strongly agree (5)

Table 2

Growth curve model results showing age change and cohort effect on forgiveness variables

	Forgiveness of Others <i>b</i> (SE)	Difficulty Forgiving <i>b</i> (SE)	Conditional Forgiveness <i>b</i> (SE)	Forgiveness of Self <i>b</i> (SE)
Intercept	10.44 *** (0.09)	1.58 *** (0.04)	8.72 *** (0.13)	4.17 *** (0.05)
Age	0.03 *** (0.008)	−0.009 * (0.004)	0.05 *** (0.01)	0.03 *** (0.004)
Race (White)	−0.45 *** (0.06)	0.15 *** (0.03)	−0.15 (0.09)	−0.13 *** (0.03)
Sex (Female)	0.25 *** (0.06)	−0.10 ** (0.03)	−0.23 ** (0.09)	0.11 ** (0.03)
Education	0.002 (0.009)	−0.001 (0.005)	−0.10 *** (0.01)	−0.004 (0.005)
Religious Commitment	0.18 *** (0.01)	−0.07 *** (0.007)	−0.31 *** (0.02)	0.08 *** (0.008)
x Age Slope	−0.005 ** (0.002)	0.003 * (0.001)	0.003 (0.003)	−0.003 * (0.001)
Born 1901 – 1914	−0.29 ^a (0.19)	−0.02 ^a (0.10)	−0.97 ^b (0.30)	−0.63 ^d (0.11)
Born 1915 – 1919	−0.24 ^a (0.15)	0.01 ^a (0.08)	−0.72 ^b (0.23)	−0.39 ^c (0.08)
Born 1920 – 1924	−0.19 ^a (0.11)	0.02 ^a (0.06)	−0.50 ^{a, b} (0.16)	−0.29 ^c (0.06)
Born 1925 – 1929	−0.07 ^a (0.08)	−0.02 ^a (0.04)	−0.37 ^b (0.13)	−0.12 ^b (0.05)
Born 1930 – 1936	. ^a	. ^a	. ^a	. ^a
<i>Model BIC</i> Unconditional	15,883	10,123	19,487	10,781
Full	15,599	9,992	19,191	10,609

	Difficulty Forgiving Self <i>b</i> (SE)	Perceived Forgiveness by God <i>b</i> (SE)	Conditional Forgiveness by God <i>b</i> (SE)	Perceived Forgiveness by Others <i>b</i> (SE)
Intercept	1.88 *** (0.06)	4.48 *** (0.04)	12.06 *** (0.13)	10.70 *** (0.14)
Age	−0.03 *** (0.005)	0.01 *** (0.003)	−0.04 ** (0.01)	0.10 *** (0.01)
Race (White)	0.24 *** (0.04)	−0.05 (0.03)	−0.17 (0.10)	0.33 ** (0.10)
Sex (Female)	−0.12 ** (0.04)	0.13 *** (0.03)	0.005 (0.09)	0.59 *** (0.10)
Education	0.02 ** (0.006)	−0.008 * (0.004)	−0.04 ** (0.01)	0.008 (0.02)
Religious Commitment	−0.02 ** (0.008)	0.16 *** (0.007)	0.17 *** (0.02)	0.21 *** (0.02)
x Age Slope	0.0006 (0.001)	−0.0005 (0.001)	0.001 (0.003)	−0.003 (0.003)

	Difficulty Forgiving Self <i>b</i> (SE)	Perceived Forgiveness by God <i>b</i> (SE)	Conditional Forgiveness by God <i>b</i> (SE)	Perceived Forgiveness by Others <i>b</i> (SE)
Born 1901 – 1914	0.30 ^b (0.13)	–0.34 ^c (0.09)	0.54 ^{a,b} (0.31)	–1.66 ^c (0.33)
Born 1915 – 1919	0.32 ^b (0.12)	–0.14 ^b (0.07)	0.33 ^{a,b} (0.23)	–1.14 ^d (0.25)
Born 1920 – 1924	0.19 ^b (0.08)	–0.16 ^b (0.05)	0.38 ^b (0.17)	–0.69 ^c (0.18)
Born 1925 – 1929	0.07 ^a (0.05)	–0.11 ^b (0.04)	0.13 ^{a,b} (0.13)	–0.37 ^b (0.14)
Born 1930 – 1936	. ^a	. ^a	. ^a	. ^a
Model BIC	11,612	9,542	18,899	19,737
Unconditional				
Full	11,552	8,849	18,785	19,578

NOTE: BIC, Schwarz's Bayesian Information Criterion

Superscripts on cohort effects indicate homogeneous subsets

*
 $p < .05$

**
 $p < .01$

 $p < .001$

NOTE: BIC, Schwarz's Bayesian Information Criterion

Superscripts on cohort effects indicate homogeneous subsets

*
 $p < .05$

**
 $p < .01$

 $p < .001$

Table 3

Comparison of age effects estimates

	Cross-sectional <i>b</i> [95% CI]	Longitudinal <i>b</i> [95% CI]	Longitudinal With Cohorts <i>b</i> [95% CI]
<i>Dependent Variable</i>			
Forgiveness of Others	0.03 *** [0.01, 0.04]	0.02 *** [0.01, 0.03]	0.03 *** [0.02, 0.05]
Difficulty Forgiving Others	-0.01 *** [-0.02, 0.005]	-0.008 *** [-0.01, -0.004]	-0.009 * [-0.02, -0.001]
Conditional Forgiveness of Others	0.008 [-0.009, 0.02]	0.02 * [0.003, 0.03]	0.05 *** [0.03, 0.07]
Forgiveness of Self	-0.001 [-0.008, 0.006]	0.01 *** [0.005, 0.02]	0.03 *** [0.02, 0.04]
Difficulty Forgiving Self	-0.007 [-0.02, 0.003]	-0.01 *** [-0.02, -0.008]	-0.03 *** [-0.04, -0.02]
Forgiveness by God	-0.006 * [-0.01, -0.0003]	0.002 [-0.002, 0.006]	0.01 *** [0.005, 0.02]
Conditional Forgiveness by God	-0.02 [-0.03, 0.0007]	-0.02 * [-0.03, -0.003]	-0.04 ** [-0.06, -0.01]
Perceived Forgiveness by Others	0.02 ** [0.006, 0.04]	0.05 *** [0.03, 0.06]	0.10 *** [0.08, 0.13]

NOTE: All models include the covariates listed in Table 2, excluding cohort effects. Cross-sectional estimates based on multiple linear regression on dependent variable at Wave 1. Longitudinal (without cohorts) estimates based on growth curve model

*
 $p < .05$

**
 $p < .01$

 $p < .001$