

## CHAPTER 9

# Change and Stability During the Third Age

## *Longitudinal Investigations of Self-Rated Health and Religiousness with the Terman Sample*<sup>1</sup>

Michael E. McCullough and Emily Polak

One can conceptualize the Third Age variously as a distinct age range (nominally, ages 65–79 years), a discrete developmental stage (i.e., the temporal nexus of a variety of interesting developmental challenges and opportunities), or the years following the occurrence of a distinct developmental event (i.e., reduced or terminated engagement in the world of paid work). When one asks questions about how a distinct age, a distinct stage, or a distinct developmental event influences people's characteristics—their personality, their

---

<sup>1</sup> Michael E. McCullough and Emily Polak, Department of Psychology, University of Miami. Correspondence regarding this article should be sent to Michael E. McCullough, Department of Psychology, University of Miami, P. O. Box 248185, Coral Gables, FL 33124 - 0751, E-mail: mikem@miami.edu. For this research we used *The Terman Life Cycle Study of Children with High Ability 1922–1986* data set (made accessible 1990, machine-readable data files and microfiche data). These data were collected by L. Terman, R. Sears, L. Cronbach, and P. Sears and are available through the archive of the Henry A. Murray Research Center of the Radcliffe Institute for Advanced Study at Harvard University, 10 Garden Street, Cambridge, Massachusetts (Producer and Distributor). This research was generously supported by grants from the John Templeton Foundation and the Metanexus Institute, and funds given by the John D. and Catherine T. MacArthur Foundation to the Murray Research Center. We are grateful to the helpful staff of the Murray Research Center, Al Hastorf, Eleanor Walker, Sharon Brion, and Andrea Jain for their assistance.

## 176 ANNUAL REVIEW OF GERONTOLOGY AND GERIATRICS

relationships, their health, their income, or their well-being—one inevitably confronts questions about how best to describe and measure change and stability in those characteristics.

One approach to studying change and stability in psychosocial constructs in light of the Third Age is to make use of long-term longitudinal studies that allow us to examine development within individuals as they approach, enter, and leave the Third Age. As one of the longest running longitudinal studies in history, the Terman Life Cycle Study of Children with High Ability (Terman & Oden, 1947) is a remarkable resource for studying psychosocial and social development before, during, and after the Third Age (i.e., the years from age 65–79) and can shed light on some of the unique psychosocial processes that might take place during this stage of life. Begun in 1921–1922, the Terman study comprises data from 1,528 gifted boys and girls (all the students had IQs of 135 or more) from the state of California. The average birth year for children in the original sample was 1910.

By early adulthood, the Terman participants were extremely well-educated. By 1940, approximately 99% had high school diplomas; 89% had at least some college experience, 70% had at least a bachelor's degree; 45% had at least a master's degree, and 8% had one or more doctoral degrees. By 1986, about 90% of participants had been married at some point in their lives, and nearly two-thirds of those who married managed to stay married well into old age or until their spouses died. Socioeconomic status was generally high and individuals were remarkably long-lived. Nearly all of them were White and from middle-class backgrounds.

Since the sample was assembled in 1922, the members of the Terman cohort have been re-contacted for over a dozen follow-up surveys (as recently as 1999). Attrition has been remarkably low. In addition, Howard Friedman at the University of California, Riverside, and his colleagues have worked assiduously to obtain death certificates for the aging Terman participants so that the timing and causes of their deaths could be ascertained (Friedman, Tucker, Schwartz, Tomlinson-Keasey, Martin, Wingard, & Criqui, 1995). Taken together, the work of Louis Terman and his successors, along with work with the data by scholars including Friedman, as well as Leslie Martin, Carol Tomlinson-Keasey, Glen Elder, Carole Holahan, George and Caroline Vaillant, and many others, has made the Terman study a truly extraordinary resource for studying the Third Age.

The work we have done with the Terman Study that might be of interest in developing a scientific understanding of the Third Age has focused on two sets of issues related to stability and change in the Terman participants' psychosocial development. First, we have been trying to understand the longitudinal

development of self-rated health over the life course. Many researchers have noted that self-rated health appears to decline with age (Idler, 1993; Roberts, 1999) but the field has not given enough attention to 1) the shape and timing of those changes or 2) individual differences in how self-rated health changes as people age. In addition, we have been trying to understand how the Terman participants' religious lives unfolded. Few researchers have tried to examine the Terman participants' religious lives and how their religious development might have influenced, or been influenced by, other aspects of their psychological, relational, and physical functioning (but see Clark, Friedman, & Martin, 1999; Holahan, Sears, & Cronbach, 1995 for some analyses involving religious variables in the Terman data set). To some extent, the neglect of religious development in the Terman sample is unsurprising because the methodological challenges associated with studying religious development in this sample are formidable, although as we describe presently, not insurmountable.

The longitudinal development of self-rated health and religiousness among the Terman participants are interesting and useful lenses through which to understand the Third Age. Studying the development of self-rated health and religiousness enables us to examine two questions about the Third Age that are centerpieces of this volume: 1) To what extent do self-rated health and religiousness change during the Third Age, relative to previous decades of adulthood; and 2) to what extent can we view the Third Age as a continuation of developmental processes that were already in place before the Third Age began?

## TWO APPROACHES TO CONCEPTUALIZING STABILITY AND CHANGE

Modern developmental scientists often make questions about stability and change more tractable by distinguishing rank-order stability from mean-level stability. As a prelude to the following discussion of how our work with self-rated health and religiousness in the Terman sample can shed light on the Third Age, it is useful to define these two aspects of stability.

*Rank-order stability* reflects the tendency for individuals to maintain their rank on a given construct relative to their peers over a given period of time (Roberts & DelVecchio, 2000). For traits or psychosocial constructs that have a high degree of rank-order stability over a period of time—say, 20 years—individuals who score, for example, at the 90th percentile on a given trait will tend to obtain a similarly high rank on the trait relative to peers 20 years later. Conversely, traits or psychosocial constructs that have low rank-order stability reflect a high degree of reshuffling among individuals as time passes. Roberts

and DelVecchio (2000) showed that traits do not become “set like plaster.” Rather, individuals continue to change their ranks on most personality traits relative to their peers well into the Third Age, although rank-order stability does increase throughout life (approaching a maximum test-retest correlation of approx.  $r = .70$  late in life).

In contrast, *mean-level stability* reflects the tendency for the mean of individuals’ absolute values on a trait or construct to stay the same over time. When traits are mean-level stable, a population’s mean score on the trait does not change over time. Modern personality research has shown that the mean-level stability of personality traits can no more be taken for granted than can the rank-order stability of personality traits (Helson, Jones, & Kwan, 2002; Roberts, Helson, & Kohnen, 2002; Srivastava, John, Gosling, & Potter, 2003). People show evidence of considerable mean-level change even for many personality traits well into late life. With the distinction between rank-order stability and mean-level stability in mind, we now turn to a review of some of the issues we have been exploring regarding the development of self-rated health and religiousness in the Terman sample and what these findings tell us about change and stability during the Third Age.

#### CHANGE AND STABILITY IN SELF-RATED HEALTH: A VIEW FROM THE THIRD AGE

Self-rated health is one of the commonest ways of studying health-related quality of life in fields such as epidemiology, sociology, and demography. To study self-rated health, investigators typically instruct participants to respond to questions such as, “How has your health been recently?” by choosing among perhaps five options (e.g., “very poor,” “poor,” “fair,” “good,” or “very good”). Despite their simplicity, ratings of health predict how long people will live (Benyamini & Idler, 1999; Idler & Benyamini, 1997) and how much health care they will consume (Hansen, Fink, Frydenberg, & Oxhøj, 2002). Even in representative studies using stringent statistical control, the odds of dying for people with “poor” self-rated health are typically 50%–100% higher than are those for people with “very good” or “excellent” self-rated health (Benyamini & Idler, 1999; Idler & Benyamini, 1997).

Self-ratings of health may derive their predictive utility from the fact that people consider many factors when they assess their general health. Self-rated health is related, of course, to disability and morbidity (Ferraro & Yu, 1995), but it is also associated with many psychological, behavioral, social, and environmental factors that hasten death. Low psychological well-being and negative emotional states are associated with lower self-rated health (Benyamini,

Idler, Leventhal, & Leventhal, 2000). Moreover, behavioral risk factors such as obesity, smoking, and alcohol use are associated with low self-rated health (Ferraro & Yu, 1995; Meurer, Layde, & Guse, 2001), as are social conditions such as living in an area with low social capital (Kawachi, Kennedy, & Glass, 1999) or in a deteriorated neighborhood (Krause, 1996).

To think about how self-rated health during the Third Age is similar to or different from self-rated health during other eras of the adult life course, one might ask the same sorts of questions that investigators have been asking about personality development over the life course in general—questions about mean-level stability and about rank-order stability.

### **Measures of Self-Rated Health and Their Rank-Order Stability**

In 11 different surveys (1940, 1945, 1950, 1960, 1972, 1977, 1982, 1986, 1991, 1996, and 1999), participants in the Terman study completed a five-point Likert-type item (e.g., “General health since 1940:”) to indicate their perceptions of their own health (where 1 = very poor, 2 = poor, 3 = fair, 4 = good, and 5 = very good). Throughout most of the life course, the 5-year to 10-year test-retest correlations for self-rated health are never very far above  $r = .60$ , and there is no evidence that these rank-order stabilities become any stronger as people enter the Third Age. Instead, people’s rankings on self-rated health continue to reshuffle well into the Third Age and beyond. This, of course, is what one would expect from a dynamic construct like self-rated health, which seems to be so sensitive to subtle changes in people’s physiological functioning, functional ability, and psychosocial well-being.

### *Mean-Level Stability of Self-Rated Health*

But the rank-order stability of self-rated health tells us nothing about its mean-level stability. A variable with perfect rank-order stability (i.e., a variable for which the test-retest correlation is unity) could still show evidence of systematic change over the life course, if every persons’ scores change with age in exactly the same way as do the scores of every other person. Thus, we have tried to look at mean-level change in self-rated health explicitly, and this is where we have found the developmental findings that have most interested us. Prior to beginning this work, we were surprised to learn how little is known about the typical trajectory or *natural history* of self-rated health across the adult life course. Some researchers have noted a curvilinear relationship between age and self-rated health, but this finding was based on cross-sectional rather than longitudinal data (Ferraro & Yu, 1995). Some investigators have conducted studies in which they followed adult participants for as many as three or

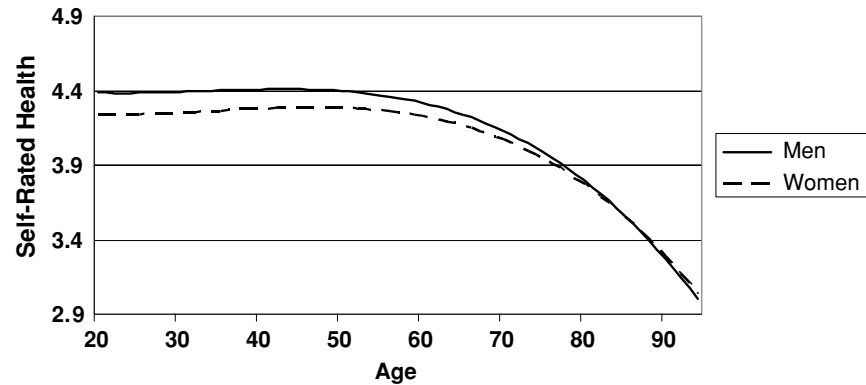


FIGURE 9.1: Typical developmental trajectories of self-rated health for men and women.

four decades (Clipp, Pavalko, & Elder, 1992; Ferraro & Kelley-Moore, 2001; Strawbridge & Wallhagen, 1999), but neither these nor any other studies of which we are aware were designed to describe the normative age trajectory of self-rated health across the adult life course.

To address this gap in the literature, we used multilevel growth curve models (Hedeker, in press) to look at mean-level changes in self-rated health over the life course (McCullough & Laurenceau, in press[a]). Using the 11 repeated assessments of self-rated health described above, we estimated third-order polynomial growth curves for each individual, with individuals possessing different parameter estimates for the intercept, linear change, and quadratic change parameters.

#### *Typical Mean-Level Changes in Self-Rated Health Before and During the Third Age*

The best-fitting trajectories can be interpreted a bit more easily by examining Figure 9.1. This figure depicts the expected longitudinal trajectories of self-rated health for men and women from age 20 to age 94. We have placed two vertical dotted lines in this figure to highlight when the Third Age begins (age 65) and ends (age 79). One way to interpret these figures is to note that self-rated health across the life span actually seems to consist of two different phases. The first phase, which extends from about age 20 to age 50, is a period of mean-level stability. For men and women both, the typical person maintains a relatively favorable impression of his or her health for the first three decades of adulthood, with relatively little mean change. However, around age 50, a second phase seems to begin: For men and women alike, self-rated health

Fig. 9.1

begins to cascade, in an accelerating fashion, into their mid-90s. Presumably this cascade continues until death. Interestingly, the cascade of self-rated health was a bit more extreme for men than it was for women. As a result, the gender difference in self-rated health was nonexistent by the time people were in their 90s, even though men had higher self-rated health from age 20 until age 80.

What can one deduce from these results regarding self-rated health during the Third Age? One clear conclusion is that the Third Age occurs in the middle of an ongoing cascade of self-rated health. For typical individuals, self-rated health entered a period of cascading decline 15 years before they reached their 65th birthdays. We might conclude from this fact that the Third Age does not appear, in any sense, to usher in declines in self-rated health for either men or women, although the Third Age does take place in the middle of a cascade in self-rated health.

We can put the so-called cascade in perspective by interpreting it in light of the anchoring points for the scale. Although self-rated health clearly declined in an accelerating fashion from age 50 until the end of life (i.e., the rate of change itself was changing), the net amount of change in self-rated health for men and women both was really quite small: Self-rated health dropped, on average, from approximately 4.3 or 4.4 at age 20 to approximately 3.0 at age 94. Using the descriptions of the anchors of the self-rated health measure as a guide, this suggests that self-rated health went from somewhere between “good” and “very good” at age 20 to “fair” by age 94. Self-ratings of health do not come crashing down during or even after the Third Age, although the reductions are of course substantial. Still, the typical man and woman leave the Third Age still perceiving themselves to be in “fair” health. Other researchers have found similarly modest changes in self-rated health into the Third Age (Case & Deaton, 2003), so it seems reasonable to conclude that people typically maintain moderately favorable impressions of their health into the Third Age and beyond.

A second point about the Third Age that we can make from these data is that the gender gap in self-rated health closes during the Third Age. It is precisely the phase of life beginning around age 65 in which the gender difference in self-rated health—with men having better self-rated health than women—begins to narrow and eventually closes completely. This is also consistent with what Case and Deaton (2003) found in their analyses of men’s longitudinal trajectories of self-rated health over the life course using the National Health Interview Survey: In those data, the gender difference between men’s and women’s average self-rated health seemed to disappear around age 65.

*Religiousness As a Protective Factor Against Declines in Self-Rated Health Before and During the Third Age*

In recent work, we have been examining the associations of religiousness with self-rated health (McCullough & Laurenceau, in press[b]). Other investigators have found a positive relationship between religiousness and self-rated health in random samples of adults from the United States (Ferraro & Albrecht-Jensen, 1991) and in samples of adults from Canada (Veenstra, 2000), Finland (Hyypä & Mäki, 2001), and Japan (Krause, Ingersoll-Dayton, Liang, & Sugisawa, 1999), so we wondered if religiousness might protect people from the declines in self-rated health that seem to take place before, during, and after the Third Age.

Using a measure of religiousness that we constructed from four self-report items that participants completed in early adulthood (the items measured participants' engagement in public religious activities, as well as their own attitudes about religion and the personal importance they ascribed to religion), we found that religiousness indeed was useful for explaining developmental changes in self-rated health. Even after controlling for 1) the four "Big Five" personality traits for which we were able to construct indices (i.e., conscientiousness, extraversion, agreeableness, and neuroticism), 2) health behaviors (e.g., alcohol use, body mass, psychological adjustment problems), and 3) six measures of social support and social activity, religiousness helped to predict the longitudinal course of self-rated health during the life course—but only for women. Among the women in the sample, religiousness in early adulthood was associated not only with higher mean self-rated health over the life span, but also, highly religious women had 1) less linear decline in self-rated health over the life course; and 2) less extreme cascades (that is, downward curvature) in self-rated health as they aged. As a result, women who were highly religious in early adulthood enjoyed better self-rated health, particularly during the years immediately preceding, during, and after the Third Age.

Fig. 9.2

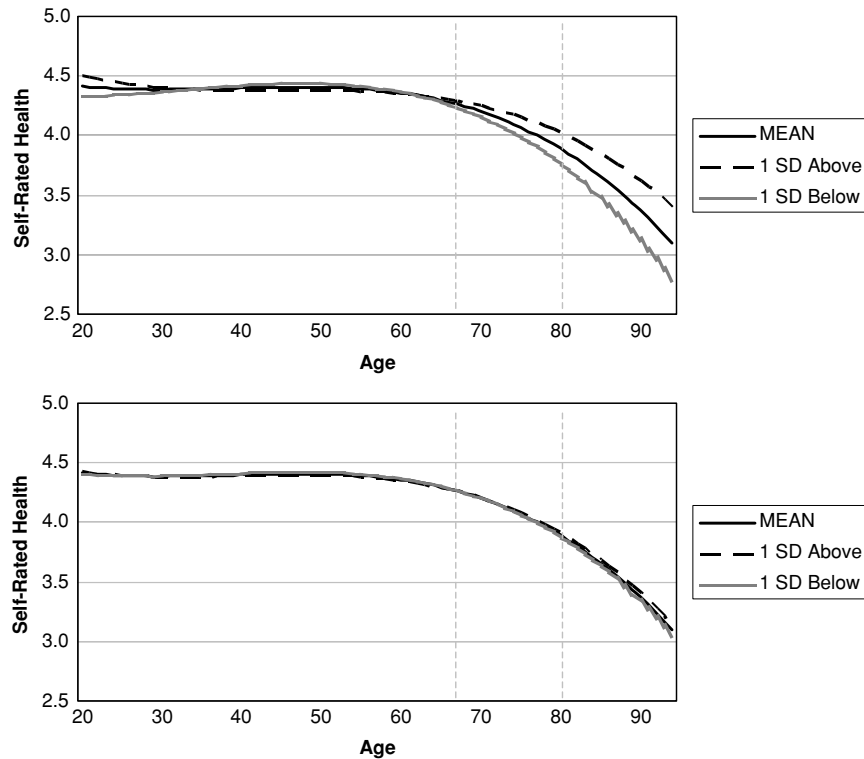
We were surprised that religiousness predicted the longitudinal trajectories of self-rated health for women, but not for men. As Figure 9.2 shows, men who differed on religiousness in 1940 (when the men themselves were in their 20s and 30s) did not have different life course trajectories of self-rated health. The association of religiousness with more favorable life course trajectories of self-rated health appears, at least in the Terman sample, to be a phenomenon of women's adult development.

**Summary: Self-Rated Health During the Third Age**

Our work with the Terman data (McCullough & Laurenceau, in press[a], in press[b]) suggests that self-rated health during the Third Age is unique in



Change and Stability During the Third Age 183



**FIGURE 9.2:** Typical developmental trajectories of self-rated health for men and women as a function of their scores (i.e., one standard deviation above the mean, at the mean, and one standard deviation below the mean) on a measure of religiousness from 1940.

some ways, but it also involves continuations of developmental phenomena that began well before the Third Age. Rank-order stability did not change notably during the Third Age, suggesting that self-ratings of health are no more fixed or stable in a rank-order sense during this period than they were in previous decades. However, in terms of mean-level stability, the Third Age does appear to fall in the middle of a period of cascading self-rated health. These cascades begin well before the Third Age and continue well after the Third Age. Therefore, it seems unlikely that the psychological or social processes that take place during the Third Age itself are responsible for these cascades. The cascades are less marked for women than they are for men, and among women in particular, they are less marked for women who were highly religious in early adulthood. Moreover, it is during the Third Age that the religious differences in self-rated health become most prominent (for women). These latter findings

point to the possibility that some psychosocial variables that are related to the longitudinal unfolding of health and well-being during the Third Age and beyond may differ for men and women.

### **CHANGE AND STABILITY IN RELIGIOUSNESS: A VIEW FROM THE THIRD AGE**

Social science has revealed surprisingly little about religious development during the Third Age. However, given the changes in social priorities and, particularly, increases in free time that occur when people enter the Third Age (Grafova, McGonagle, & Stafford, this volume; Wink, this volume), it seems reasonable to expect that some aspects of religious involvement will increase in or around the Third Age. The best evidence to date—drawn from a nationally representative probability sample of married adults in the U. S. population—suggests that men and women both tend to become slightly more religious with age, at least until age 65 (Argue, Johnson, & White, 1999). But even Argue et al.'s (1999) findings cannot tell us about religious development during the Third Age because their analyses leave off at age 65.

Although it complicates matters, one should also keep in mind that religiousness manifests considerable rank-order stability. Test-retest reliability estimates for measures of religiousness often exceed .80 (Wink & Dillon, 2001), which rivals the degree of rank-order stability expected for personality traits in general during and beyond the Third Age (Roberts & DelVecchio, 2000). Still, we have conducted analyses on religious development with the Terman data that can shed new light on religious stability and change during the Third Age in particular.

#### **Measures of Religiousness and Their Rank-Order Stability**

As in other recent work on religious development (Wink & Dillon, 2001, 2002), we used a “recasting” method (Elder, Pavalko, & Clipp, 1993) to develop a five-point rating scale for measuring the salience or importance of religion to participants. This measure is conceptually similar to other measures of religious salience that have been used in previous longitudinal research on religious development among adults (e.g., Argue et al., 1999; Wink & Dillon, 2001). To use these rating scales, trained raters read all information that participants provided regarding their religiousness for follow-up surveys that Terman and his associates conducted in 1940, 1950, 1960, 1977, 1986, and 1991. After reading the religious information on a given participant for a given year, raters then provided a single numeric rating of their perceptions of the participant's religiousness at that point in the participant's life. Scores

on this scale ranged from 0 = religion has no importance in subject's life, as noted by no religious interest, no religious inclinations, and total lack of life satisfaction gained from religion to 4 = religion has very high importance in subject's life, as noted by very high interest in religion, very high religious inclination, or very high degree of life satisfaction gained from religion.

As other investigators have found, our measures of religiousness showed good rank-order stability (McCullough, Enders, Brion, & Jain, in press). Even in 1940, when participants' ages ranged from 20 to 40, religiousness manifested considerable 10-year rank-order stability ( $r = .59$ ). By the time participants entered their 60s and 70s, test-retest reliabilities consistently exceeded  $r = .70$ . Thus, religiousness was quite rank-order stable in early adulthood but may have become slightly more stable in a rank-order sense as people entered the Third Age.

### **Mean-Level Stability of Religiousness: A Single-Class Growth Model**

But, as noted several times earlier in the present chapter, the fact that religiousness was moderately rank-order stable does not mean that it did not change. Indeed, we found considerable evidence that the typical individual's religiousness changed considerably over the life course. These changes were complex, and they were not the same for everyone.

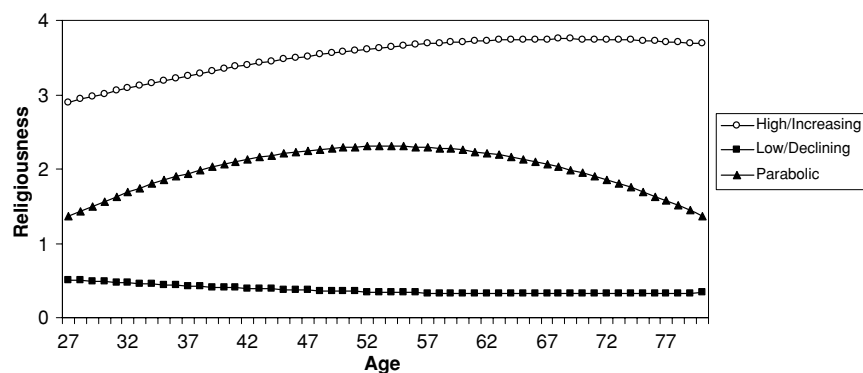
Our initial look at mean-level stability in religiousness came from conducting a one-class multilevel growth curve model—the same sort of model we applied to the self-rated health data. These analyses showed that, for the typical individual in the Terman sample, religiousness increased relatively quickly during early adulthood, but these religious increases slow to a complete stop around age 56. Following midlife, we were somewhat surprised to find, the sizeable increases in religiousness during the first half of adulthood were completely reversed.

These data seemed surprising in part because this sort of longitudinal trajectory of religious development differs substantially from the sorts of growth trajectories that appear to describe the U.S. population at large. Recall that Argue et al. (1999) reported that the typical trajectory for religious salience until age 65 had a positive slope, although the slope became increasingly shallow. The fact that this typical trajectory in the Terman sample is so different from the typical trajectory of the general population up to age 65 may reflect the unique characteristics of the Terman sample (recall that they were not only intellectually gifted but also much less religious than the general public). In particular, for the typical individual in the Terman sample, the Third Age was characterized by declines in religiousness that began a decade earlier (i.e., around age 56) and continued throughout the remainder of the life course.

**Mean-Level Stability of Religiousness: A Growth Mixture Model**

We were so puzzled by how much the typical trajectory of religiousness in the Terman sample varied from the typical trajectories in the U. S. population at large that we were prompted to ask some further questions about mean-level change and stability: What if individual differences in religious development are not caused simply by the fact that some people have slightly different growth trajectories than do other people? What if the inter-individual differences in development are caused instead by the fact that discrete developmental pathways exist for religious development? To address such questions, we used a statistical method called *growth mixture modeling*. Growth mixture modeling allows one to identify discrete classes of developmental trajectories, with individuals within any discrete trajectory class by definition more developmentally similar to each other than they are to individuals within other discrete trajectory classes (Muthen, in press; Muthen et al, 2002). These models, which are essentially a marriage of latent growth modeling and latent class analysis, allow investigators to determine whether several distinct pathways of development underlie the heterogeneity in individuals' development over the life course. People who are classified as belonging to a single trajectory class can be considered to follow the same pathway of development, although some within-class heterogeneity is permitted. Having established these qualitatively distinct trajectory classes, it then becomes possible to predict trajectory class membership on the basis of background variables.

Using growth mixture models, we eventually discovered three discrete trajectory classes. These trajectory classes can be thought of as fuzzy categories, whose prototypical features are summarized in the three growth trajectories depicted in Figure 9.3. The parabolic trajectory, which is characterized by

**Fig. 9.3****FIGURE 9.3:** Developmental trajectories of religious salience derived from a multilevel growth mixture model.

moderate religiousness in early adulthood, increases in religiousness into mid-life, and declines in religiousness following age 56, is obviously similar to the trajectory for the one-class growth model described previously: Forty percent of the people in the sample were categorized as members of this trajectory class, which we have called the “parabolic class.” As Figure 9.3 shows, this class is associated with declines in religiousness during the Third Age, although these declines preceded the Third Age.

Forty-one percent of participants appeared to be better described by another trajectory prototype altogether. For these people, religiousness early in early adulthood was much lower than it was for individuals in the “parabolic” class, with shallow declines in religiousness throughout the remainder of adulthood. People in this “low/declining” trajectory class reported that their home lives as children were much less religious than did people in the parabolic class. In addition, people in the “low/declining” class had slightly fewer children, on average, as adults than did their counterparts in the normative class ( $p < .053$ ). They also scored lower, on average, on a measure of Agreeableness in early adulthood than did their counterparts in the normative class. For people in this largely nonreligious trajectory class, the Third Age was not associated with unique changes in religious development. Instead, the Third Age involved a continuation of the low and declining levels of religiousness that had been seen earlier in life.

We discovered a third trajectory of religious development: For approximately 19% of the sample, religiousness was quite high during early adulthood, increasing and finally reaching a sort of plateau in the Third Age. This trajectory is remarkably similar to the typical trajectory found in the general U.S. population for individuals up to age 65 (Argue et al., 1999). Toward the end of life (in the late 80s), religiousness began to decrease slightly for this group of individuals, but not much. People in this third trajectory class, which we have called the “high/increasing” trajectory class, could be identified with four background characteristics. First, they were more likely to be women than were people in the parabolic trajectory class. Of course, gender is perhaps the most robust correlate of religiousness that social scientists have ever discovered (Stark, 2002). Second, they reported that they had had much more strict religious home lives as children than did their counterparts in the parabolic class. Third, they were, on average, more agreeable than were their counterparts in the parabolic class. Fourth, people in the high/increasing class were slightly less likely than were their counterparts in the parabolic class to get married at some point during their lifetimes. We have tried to explain these predictors of trajectory class membership using the rational choice theory of religion

(Iannaccone, 1998; Stark & Finke, 2000) and, although space here does not permit us to discuss this theory, we have been impressed with its scope and explanatory power (for more details see McCullough, Enders, Brion, & Jain, 2004).

### **Summary: Religiousness During the Third Age**

Religiousness is quite rank-order stable throughout adulthood, and it may become slightly more rank-order stable during the Third Age. In terms of mean-level stability, the Third Age appears to portend different religious outcomes for different individuals. For about 40% of the people in the Terman sample, the Third Age is characterized by declines in religiousness that began prior to the Third Age and continued well throughout the Third Age. For about 41%—people from very weak religious backgrounds who were less agreeable and slightly less likely to have large families—the Third Age was characterized by a continuation of the same low and declining trajectory of religiousness that they had experienced in previous phases of adulthood. Finally, for a very small, highly religious proportion of people who were more agreeable and slightly less likely to get married, the Third Age was characterized by a leveling off of religiousness at very high levels and, toward the end of the Third Age, the beginnings of small declines in religiousness. This latter trajectory looks much like the trajectory that one finds in the U.S. general population (Argue et al., 1999).

## **CONCLUSION**

### **How Is the Third Age the Same? How Is It Different?**

Our work on self-ratings of health and religiousness in the Terman sample has a few implications for the efforts to understand how the Third Age is similar to, and different from, other phases in the adult life course. First, in some respects, the development of self-rated health and religiousness during the Third Age can be thought of as continuous with the decades that came before. We see evidence of mean-level changes during the Third Age: For example, it is a period in which self-rated health and religiousness alike were on the decline for the typical man and woman, but these declines began well before the Third Age. In other words, in terms of self-rated health, things changed during the Third Age, but they were already changing before the Third Age began.

In other respects, our findings point to unique developmental features of the Third Age. The Third Age is a time in which the gender differential in

self-rated health finally closed completely for men and women in our sample, as others have found (Case & Deaton, 2003). It is the phase of life in which the positive associations of women's religiousness with the growth parameters underlying self-rated health begin to manifest themselves. And it is the phase of life in which, for very religious people in the sample, religiousness development slows and eventually reaches a plateau. In these ways, the Third Age appears to usher in novel psychosocial developments.

We think the implication of these results for theorizing about the Third Age can be stated in the following way: Although one should not presume that the Third Age is qualitatively different from the phases of life that have come before, we should not presume that it is exactly the same either. Finally, we must stay open to the very real possibility that people are changed by the Third Age in their own unique ways—that there may be no “main effects” for the Third Age, but rather, unique effects for unique individuals. For some people, the Third Age appears to be a time of religious stability; for others, it is a time of religious change. For some people, it is a time of relatively shallow declines in self-rated health; for others, it is a time when self-rated health declines quite rapidly. Modern methods of the study of inter-individual differences in intra-individual change, such as multilevel growth curve models and growth mixture models, give us a set of concepts and tools for studying the unique developmental effects of the Third Age on unique people. With the right types of longitudinal data and the right types of statistical methods, researchers in this new field will be able to examine the unique effects of the Third Age on unique individuals. This seems to us like an exciting frontier for future work.

In closing, we should reiterate an important point about the Terman participants—they themselves are quite unique in many ways from the general population. They are part of the cognitive elite—individuals scoring in the highest 1% or 2% of the population in terms of intellectual abilities. Even the youngest of them was born and raised in the State of California over seven decades ago. They were long-lived and, for the most part, well-off financially. They were, on average, not very religious. For all these sources of non-representativeness, it is perhaps best to view the findings we have presented here as illustrations of the sorts of questions one might ask about the Third Age using modern methods for the analysis of change rather than expositions of replicable facts about the Third Age that one would expect to find in the general population. We look forward to future explorations, using the Terman study and other data sets, of how individuals are influenced by the Third Age.

## REFERENCES

- Argue, A., Johnson, D. R., & White, L. K. (1999). Age and religiosity: Evidence from a three-wave panel analysis. *Journal for the Scientific Study of Religion*, 38, 423–435.
- Benyamini, Y., & Idler, E. L. (1999). Community studies reporting association between self-rated health and mortality: Additional studies, 1995 to 1998. *Research on Aging*, 21(3), 392–401.
- Benyamini, Y., Idler, E. L., Leventhal, H., & Leventhal, E. A. (2000). Positive affect and function as influences on self-assessments of health: Expanding our view beyond illness and disability. *Journal of Gerontology: Psychological Sciences*, 55B(2), P107–P116.
- Case, A. C., & Deaton, A. (2003). *Broken down by work and sex: How our health declines*. NBER Working Paper No. w9821.
- Clark, K. M., Friedman, H. S., & Martin, L. R. (1999). A longitudinal study of religiosity and mortality risk. *Journal of Health Psychology*, 4(3), 381–391.
- Clipp, E. C., Pavalko, E. K., & Elder, G. H., Jr. (1992). Trajectories of health: In concept and empirical pattern. *Behavior, Health, and Aging*, 2(3), 159–179.
- Elder, G. H., Jr., Pavalko, E. K., & Clipp, E. C. (1993). *Working with archival data: Studying lives*. Newbury Park, CA: Sage.
- Ferraro, K. F., & Albrecht-Jensen, C. M. (1991). Does religion influence adult health? *Journal for the Scientific Study of Religion*, 30, 193–202.
- Ferraro, K. F., & Kelley-Moore, J. A. (2001). Self-rated health and mortality among black and white adults: Examining the dynamic evaluation thesis. *Journal of Gerontology: Social Sciences*, 56B(4), S195–S205.
- Ferraro, K. F., & Yu, Y. (1995). Body weight and self-ratings of health. *Journal of Health and Social Behavior*, 36, 274–284.
- Friedman, H. S., Tucker, J. S., Schwartz, J. E., Tomlinson-Keasey, C., Martin, L. R., Wingard, D. L., et al. (1995). Psychosocial and behavioral predictors of longevity: The aging and death of the “Termites.” *American Psychologist*, 50, 69–78.
- Hansen, M. S., Fink, P., Frydenberg, M., & Oxhøj, M. L. (2002). Use of health services, mental illness, and self-rated disability and health in medical patients. *Psychosomatic Medicine*, 64(4), 668–675.
- Hedeker, D. (in press). An introduction to growth modeling. In D. Kaplan (Ed.), *Handbook of quantitative methodology for the social sciences*. Thousand Oaks, CA: Sage.
- Helson, R., Jones, C., & Kwan, V. S. Y. (2002). Personality change over 40 years of adulthood: Hierarchical linear modeling analyses of two longitudinal samples. *Journal of Personality and Social Psychology*, 83(3), 752–766.
- Holahan, C. K., Sears, R. R., & Cronbach, L. J. (1995). *The gifted group in later maturity*. Stanford, CA: Stanford University Press.
- Hyypä, M. T., & Mäki, J. (2001). Individual-level relationships between social capital and self-rated health in a bilingual community. *Preventive Medicine*, 32, 148–155.
- Iannaccone, L. R. (1998). Introduction to the economics of religion. *Journal of Economic Literature*, 36, 1465–1496.



- Idler, E. L. (1993). Age differences in self-assessments of health: Age changes, cohort differences, or survivorship? *Journal of Gerontology: Social Sciences*, 48(6), S289–S300.
- Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior*, 38, 21–37.
- Kawachi, I., Kennedy, B. P., & Glass, R. (1999). Social capital and self-rated health: A contextual analysis. *American Journal of Public Health*, 89(8), 1187–1193.
- Krause, N. M. (1996). Neighborhood deterioration and self-rated health in later life. *Psychology and Aging*, 11, 342–352.
- Krause, N. M., Ingersoll-Dayton, B., Liang, J., & Sugisawa, H. (1999). Religion, social support, and health among Japanese elderly. *Journal of Health and Social Behavior*, 40, 405–421.
- McCullough, M. E., Enders, C. K., Brion, S. L., & Jain, A. R. (in press). The varieties of religious development in adulthood: A longitudinal investigation of religion and rational choice. *Journal of Personality and Social Psychology*.
- McCullough, M. E., & Laurenceau, J. P. (In press[a]). Gender and the natural history of self-rated health: A 59-year longitudinal study. *Health Psychology*.
- McCullough, M. E., & Laurenceau, J. P. (In press[b]). Religiousness and the trajectory of self-rated health across adulthood. *Personality and Social Psychology Bulletin*.
- Meurer, L. N., Layde, P. M., & Guse, C. E. (2001). Self-rated health status: A new vital sign for primary care? *Wisconsin Medical Journal*, 100(7), 35–39.
- Muthen, B. O. (in press). Statistical and substantive checking in growth mixture modeling. *Psychological Methods*.
- Muthen, B. O., Brown, C. H., Masyn, K., Jo, B., Khoo, S., Yang, C., et al. (2002). General growth mixture modeling for randomized preventive interventions. *Biostatistics*, 3(4), 459–475.
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126, 3–25.
- Roberts, B. W., Helson, R., & Klohnen, E. C. (2002). Personality development and growth in women across 30 years: Three perspectives. *Journal of Personality*, 70, 79–102.
- Roberts, G. (1999). Age effects and health appraisal: A meta-analysis. *Journal of Gerontology: Social Sciences*, 54B(1), S24–S30.
- Srivastava, S., John, O. P., Gosling, S. D., & Potter, J. (2003). Development of personality in early and middle adulthood: Set like plaster or persistent change. *Journal of Personality and Social Psychology*, 84, 1041–1053.
- Stark, R. (2002). Physiology and faith: Addressing the “universal” gender difference in religious commitment. *Journal for the Scientific Study of Religion*, 41, 495–507.
- Stark, R., & Finke, R. (2000). *Acts of faith: Explaining the human side of religion*. Berkeley: University of California Press.
- Strawbridge, W. J., & Wallhagen, M. I. (1999). Self-rated health and mortality over three decades. *Research on Aging*, 21(3), 402–416.

192 ANNUAL REVIEW OF GERONTOLOGY AND GERIATRICS

- Terman, L. M., & Oden, M. H. (1947). *Genetic studies of genius IV: The gifted child grows up*. Stanford, CA: Stanford University Press.
- Veenstra, G. (2000). Social capital, SES and health: An individual-level analysis. *Social Science and Medicine*, 50, 619–629.
- Wink, P., & Dillon, M. (2001). Religious involvement and health outcomes in late adulthood: Findings from a longitudinal study of women and men. In T. G. Plante & A. C. Sherman (Eds.), *Faith and health* (pp. 75–106). New York: Guilford.
- Wink, P., & Dillon, M. (2002). Spiritual development across the adult life course: Findings from a longitudinal study. *Journal of Adult Development*, 9, 79–94.