

Up and Down in Middle Age: Monotonic and Nonmonotonic Changes in Roles, Status, and Personality

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It is proposed that personality (conceptualized in terms of motives and psychological resources) changes normatively not only from young adulthood to middle age but also within middle age and that these changes take place in relation to social and biosocial change over the same period. Data from 123 women studied at ages 27, 43, 52, and 61 largely supported hypotheses about change in social roles, status, health, motives, personality characteristics, emotion regulation, and relationships. Noteworthy aspects of the findings were substantial curvilinear change within middle age and associations of work involvement and physical health with personality change during late middle age.

Keywords: adult development, personality change, personality development

In recent years, personality inventories have been administered to thousands of Internet users and to people of all adult ages in many countries. These large studies, primarily cross-sectional (e.g., Labouvie-Vief, Diehl, Tarnowski, & Shen, 2000; McCrae et al., 2000; Srivastava, John, Gosling, & Potter, 2003; Warr, Miles, & Platts, 2001; Yang, McCrae, & Costa, 1998) but also longitudinal (e.g., Helson, Jones, & Kwan, 2002; Mroczek & Spiro, 2003; Small, Hertzog, Hulstsch, & Dixon, 2003), have opened up previously undreamt of possibilities for examining personality development in adulthood. Though results show variation from study to study, all find significant change across adulthood. The evidence indicates that personality changes with age across cohort and culture in many similar ways, although there are also differences in change between individuals and between cohorts (Helson, Kwan, John, & Jones, 2002).

However, opinions differ as to when change occurs and what factors influence it. For example, McCrae et al. (2000) maintained that personality is largely stable between age 30 and late adulthood. If life experience is important, asked Yang et al. (1998), why is change so small and so similar across widely differing cultures and cohorts? Addressing these questions seems to us to require

more attention to biosocial factors as they operate over specific parts of the life course than inventory studies usually provide as well as more kinds of personality data about samples than are usually obtained.

In this article, we examine personality change over the period of life often considered the most stable: middle age. We define personality as the individual's relatively enduring organization of motivations and psychological resources. Though aspects of this organization show impressive rank-order consistency (Roberts & DelVecchio, 2000), our guiding conception is that mean levels of personality characteristics change in adaptive interaction with a social and biosocial environment that also changes not only in the early and late parts of the life course but also during middle age.

Change in the Environment

Does the social and biosocial environment change over middle age? Demographers, sociologists, and developmentalists agree that modern middle age, roughly between ages 35 and 65, is not static (see Brim, Ryff, & Kessler, 2004; Lachman, 2001; Willis & Reid, 1999). Middle age is often regarded in terms of gradual physical decline, though this is much affected by social contexts (Merrill & Verbrugge, 1999), and self-reported health may decrease only slightly or even increase during early middle age before declining more sharply after the mid-50s (Cleary, Zaborski, & Ayanian, 2004; Spiro, Aldwin, Mroczek, & Levenson, 2004). In terms of social roles, middle age is described generally as a time when the individual is a responsible member of society under pressure to coordinate multiple roles (e.g., spouse, worker, parent). However, during middle age, both the number and the nature of these roles change systematically. For example, one's children grow to independence and one's parents weaken and die (Bumpass & Aquilano, 1995).

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Middle age is the time during which most people attain their maximum status and widest responsibilities, but it also includes a time when they move toward this status and then a time when they lessen their responsibilities or prepare for retirement (Moen & Wethington, 1999). There are many individual and cultural variations in status seeking and status relinquishment, and there are disadvantaged subgroups. But the aging of family members through time and the movement in and out of formal participation in society are among the most general features of social life.

Change in Personality

If personality adapts to changes in the biosocial environment, we would expect personality change over middle age. Indeed, the personality and adult development literatures provide much evidence of change in both motivations and psychological resources over the adult years.

Change in Motivation

Scholars over many decades (e.g., Carstensen, 1995; Erikson, 1950; Havighurst, 1972; Kuhlen, 1968; Ogilvie & Rose, 1995; Staudinger, Marsiske, & Baltes, 1995) have conceptualized adult development as involving a shift from expansionist motives, such as achievement, identity development, and self-actualization, to motives involving security or threat avoidance.

In diverse samples, Stewart and her colleagues (Miner-Rubino, Winter, & Stewart, 2004; Stewart, Ostrove, & Helson, 2001; Zucker, Ostrove, & Stewart, 2002) have described change in motivational patterns from young adulthood through middle age. Identity concern decreases, whereas confident power and generativity increase. Awareness of aging also intensifies, which suggests that depressive, anxiety-laden thoughts increasingly need to be integrated or defended against.

Specific motivational themes vary with changes in the nature of roles and the level of status. Staudinger and Bluck (2001) argued that middle age needs to be differentiated, because the preoccupations of a 40-year-old (perhaps children's schooling or getting a better job) are quite different from those of a 60-year-old (perhaps one's high blood pressure or retirement alternatives). Researchers have also classified goals as directing a person's resources into carrying out growth functions, maintenance functions, or the management of loss (Staudinger et al., 1995). They suggested that a higher proportion of resources goes into growth functions in early middle age and into the management of loss in late middle age.

Levinson, Darrow, Klein, Levinson, and McKee (1978) directed attention to motivational complexes in early middle age that were related to the pressure to fit into the system and compete. Either success or frustration in relationships or work may lead to self-scrutiny, identity conflicts, and a search for deeper meanings. Levinson et al. conceptualized the early 60s as an extremely important period during which the individual needs to conclude the tasks of middle adulthood and prepare for later life. Levinson's ideas were stated in a universalistic way that led to much criticism and rebuttal. But the concept of *midlife crisis* refuses to die (e.g., Wethington, Kessler, & Pixley, 2004), and much subsequent research examines motivational change in late middle age (e.g., Baltes, 1997; Ekerdt & DeVinney, 1993; Wrosch & Heckhausen, 1999).

Change in Psychological Resources

We classify psychological resources as personality traits, cognitive capacities, and strategies for emotion regulation.

Personality traits. Resources directly related to doing one's job, fitting in, and getting along include personality traits assessing aspects of norm adherence (Gough & Bradley, 1996), or, in the language of the Big Five taxonomy, Agreeableness, Conscientiousness, and Emotional Stability. The most consistent evidence regarding personality change in adulthood is that these characteristics increase throughout young adulthood and middle age (e.g., Helson, Kwan, et al., 2002; Roberts, Robins, Caspi, & Trziesniewski, 2003).

Resources related to status attainment include measures of social assertiveness. Here, the evidence is more conflicting for various reasons. According to Twenge (2001a, 2001b), cohorts are becoming increasingly extraverted and women in particular more dominant. If so, cross-sectional studies may be misleading. Also, if social assertiveness increases in middle age and then decreases, as some studies show, smaller correlational studies may miss the curvilinear pattern and report no change (Helson, Jones, & Kwan, 2002).

Cognitive capacities. According to Schaie's Seattle studies (Willis & Schaie, 1999), perceptual speed begins to decline in the mid-20s. Number ability declines over middle age and afterward. But the interval from the 40s to the early 60s is the period of maximum performance on some of the higher order abilities, such as inductive reasoning and spatial orientation. These abilities then begin to show reliable decline in the mid-60s, though with many individual differences. A number of studies over several decades (Cameron, 1970, 1973; Lachman, Lewkowicz, Marcus, & Peng, 1994; Neugarten, 1968; Schaie, 1977–1978) have found that middle-aged people, in comparison with younger and older adults, perceive themselves and are perceived by others as having not only more status and responsibility but also more effective intelligence and integrative skill. The demands of status may encourage the development of these intellectual skills.

Emotion regulation. Middle-aged adults are expected to be socializers, mentors, and to have control of their impulses and affects. Labouvie-Vief and Márquez (2004) describe two independent principles of affect regulation, affect optimization, and affect complexity, each with a different relation to age. Affect optimization is the tendency to constrain affect to positive values. Labouvie-Vief's own work (e.g., Labouvie-Vief & Medler, 2002) and that of other investigators (e.g., Carstensen, Pasupathi, Mayr, & Nesselrode, 2000; Charles, Reynolds, & Gatz, 2001; Mroczek & Kolarz, 1998) support the idea that this tendency increases until old age. There are gender and cohort differences, but a number of studies have found that positive affect increases or remains stable over middle age and that negative affect goes down. Negative affect overlaps with the trait of Neuroticism, which is also often found to be higher in young people than in older people, sometimes with sex differences in timing and amount (e.g., Cramer, 2003; McCrae et al., 2000; Srivastava et al., 2003).

Labouvie-Vief's second principle of emotion regulation, affect complexity, is defined as the amplification of affect in the search for differentiation and objectivity. In a cross-sectional study, Labouvie-Vief and Medler (2002) rated affect complexity from participants' self-descriptions and found that it peaked in middle

age. They also used scales that measure coping mechanisms such as tolerance of ambiguity and intellectuality (Haan, 1977; Joffe & Naditch, 1977) to assess affect complexity and found the same pattern. Affect complexity has much in common with the trait of Openness. The fact that the relation of Openness to age has varied with sample and research design (Helson, Kwan, et al., 2002) may be attributable in part to an underlying pattern of curvilinear change. Labouvie-Vief and Márquez (2004) believe that change in emotion regulation is related to both biological and social factors. They believe that it is desirable for a person to integrate affect optimization and affect complexity, but that many older people emphasize affect optimization because it often works well and makes less cognitive and emotional demands.

Testing Hypotheses in the Mills Longitudinal Study

In this brief and partial review of the literature on change in motives and resources from young adulthood through middle age, we have focused on factors that might help explain why the same kind of personality change is found quite commonly across modern societies. The findings we have described were based on both men and women in many different kinds of samples. However, most studies used cross-sectional data, not longitudinal data. Furthermore, most were studies of change over all of adulthood and were not fine-tuned for middle age.

We have tested hypotheses drawn from this literature with data from the women of the Mills Longitudinal Study. The women of our study were first tested as 21-year-old seniors at Mills College in Oakland, CA, in 1958 or 1960 (Helson, 1967). Follow-ups have been conducted at ages 27, 43, 52, and 61, times that afford a good opportunity to study change from young adulthood to early middle age and between three points in middle age. The sample is heterogeneous in personality, interests, income, and career emphasis. It is homogeneous in that it primarily consists of White women whose fathers were businessmen or professionals, whose mothers were homemakers, and who attended the same west coast private college in the late 1950s and graduated from it into the social ferment of the 1960s. Nevertheless, personality change in Mills women has been found to be quite similar to that of more representative samples from earlier cohorts (Helson, Jones, & Kwan, 2002) and samples of college alumnae from other regions of the country (Stewart et al., 2001).

The Mills Study, like other longitudinal studies, builds on previous work using the same participants and at least some of the same measures. There have been several studies of normative change, most recently Roberts, Helson, and Klohnen (2002). What is especially new in our article is the examination of the pattern of change from age 27 through three points in middle age, made possible by the recent collection of data at age 61. We refer to particular previous Mills articles in later contexts when they are most relevant.

We began with an examination of role and health variables. Did the experience of the Mills sample conform to the description of middle age in the literature (e.g., Bumpass & Aquilano, 1995; Moen & Wethington, 1999) as a time during which the number of social roles peaks and declines, roles change in character, most people attain their highest level of status and then begin to decrease their levels of formal social participation and a time when health begins to decline?

Next, we examined whether selected personality traits changed from young adulthood through the three points in middle age. We hypothesized that, from young adulthood to early middle age, if many women were increasing in number of roles and status, they would increase also in social assertiveness and norm adherence, but that later, as many decreased in level of labor force participation, they would decrease in these same personality characteristics. Reports of the curvilinearity we predicted are not absent from the literature, but findings are mixed (Cramer, 2003; Warr et al., 2001; Yang et al., 1998).

Next, we examined how emotion regulation changed. We hypothesized on the basis of Labouvie-Vief's work (e.g., Labouvie-Vief & Márquez, 2004) that affect optimization increased from young adulthood through middle age, whereas affect complexity (responsive to demands of multiple roles and status attainment) increased from young adulthood to age 52 and then declined by age 61. As affect optimization increased, we expected to find increased satisfaction with couple relationships and social networks.

Turning to motives, we tested the hypothesis derived from Staudinger and Bluck (2001) that the pattern of concerns changed from an emphasis on growth functions (e.g., achieving maximum status for oneself and one's family) in early middle age to an emphasis on security or management of loss (e.g., maintaining a positive attitude in the face of increased concern with old age and death) in late middle age.

Finally, we tested for direct relationships of changing social and biological factors to change in personality. Previous work has examined associations between social roles, physical health, and personality change in Mills women over various periods between ages 21 and 52 (e.g., Helson & Picano, 1990; Mitchell & Helson, 1990; Roberts, 1997; Roberts et al., 2002; Wink & Helson, 1993). Therefore, in this article, we confined attention to the period from ages 52–61. We assumed that an important change in the social environment from ages 52 to 61 was an actual or anticipated reduction in work pressure, and that the women most affected by this change were those who were most involved in work at age 52. We therefore hypothesized that high involvement in work at age 52 was related to normative personality change from 52 to 61, not only to the decrease in resources allocated to social assertiveness and norm adherence, but also, as life became simpler, to the predicted increase in affect optimization and decrease in affect complexity.

We also tested the relation of poor health to normative personality change. In a previous Mills study, Mitchell and Helson (1990) found that subjective well being was strongly tied to concurrent health for women in their early 50s. Here, we hypothesized that those women who had to manage the stress of poor physical health in their 50s came to rely more than did other women on the support and simplification of emotion regulation obtained through increase in affect optimization and decrease in affect complexity from 52 to 61.

Summary

We examined changes in social roles and health over three intervals from ages 27 to 61, then changes in personality traits, emotion regulation (including relational satisfaction), and motives over all or parts of this age range. Then, for the interval from 52

to 61, we tested whether work and health variables at age 52 were correlated with the amount of change in personality traits and emotion regulation from 52 to 61.

Method

Participants and Procedure

The Mills Study of Women's Adult Development began in 1981 with a sample of women in their early 40s who had participated in a different study at age 21 (when they were seniors at Mills College in 1958 or 1960). The earlier study investigated personality characteristics related to creativity, leadership, and the life plans of young women. The sample was representative of the Mills student body in terms of SAT scores and grades. No follow-up had been planned, but additional data were obtained in 1963–1964, when the women were approximately age 27, to find out what was happening to the women's talents in the social context of early marriage and child rearing (Helson, 1967).

In 1981, invitations were extended to 135 (of the original 142) participants to join in a longitudinal study of women's adult development. Of the 135 women, 123 (91%) have participated in at least one follow-up study and constitute our core longitudinal sample. Of these 123 women, the number of participants at each time of testing is as follows: 119 at age 21 (97%), 94 at age 27 (76%), 108 at age 43 (88%), 106 at age 52 (86%), and 110 at age 61 (89%). Between ages 43 and 61, 5 women died and 2 were lost. Nevertheless, 102 of the women (83%) provided data in at least three of the four follow-ups, and 74 (60%) provided data in all four.

Most of the women married and started families in their 20s, during the 1960s. Many of them entered or reentered the labor force in their 30s (in the 1970s), after their children began to attend school. Forty percent obtained advanced degrees, mostly master of arts degrees. Many women were teachers; careerists high in status were likely to be entrepreneurs, executives, psychotherapists, or in artistic fields. The participants had an average of 2.2 children, most of whom had left home by the women's early 50s. At age 61, 70% lived in a stable couple relationship, about half of the women either had retired or were expecting to retire within a few years, and the median household income was \$70,000.

For analyses of inventory data, the sample in this article consists of the 74 four-time follow-up responders. There were no more than trivial differences between the personality change shown by these 74 women and that shown by the maximum number of women who participated in each pair of adjacent follow-ups. These participation figures are based on completion of the California Psychological Inventory (CPI; Gough & Bradley, 1996). *Ns* for other measures vary somewhat.

Measures of Roles, Status, and Health

Number of social roles. Data were available to code whether 105 of the Mills participants were occupying each of three major social roles at the ages of 27, 43, 52, and 61. The participants were coded as a spouse if they were married or in a marriage-like relationship. They were coded as a parent if they had a child living in the house. They were coded as a worker if they did at least 10 hr per week of paid work.

Status level in work. Status level in work was rated reliably on a 7-point scale at ages 27, 43, and 52. These ratings were based on a job description, postgraduate education, and responses to questions about responsibilities, recognition, and rewards for work (Helson, Elliott, & Leigh, 1989; Roberts, 1997). Status level in work was not rated at age 61, because many of the participants had retired by this age; however, at ages 52 and 61, they were asked to describe themselves as building their careers, maintaining their careers, retired, or in other terms.

Work involvement at age 52. Three measures of work involvement at age 52 were used in analyses of individual differences in personality change from ages 52 to 61. First, the women rated the importance of work

to their sense of identity on a 4-point scale. Second, they rated their level of investment in work, in terms of time and energy, on a 5-point scale. Third, they described themselves as either retired or not retired at age 52.

Physical health. The Mills women rated their overall level of physical health on a 5-point scale, at ages 27, 43, 52, and 61. In the current study, the pattern of health ratings over time was examined and health ratings at age 52 were used to predict individual differences in personality change from ages 52 to 61.

Measures of Psychological Resources: Personality Traits

The CPI (Gough & Bradley, 1996) was developed to assess personality variables that predict criteria of general social importance. The inventory yields 23 scales associated with a broad range of interpersonal and intrapersonal behavior and outcomes. The Mills participants completed the CPI at all times of testing. For this study, we selected two pairs of CPI scales relevant to social assertiveness and norm adherence in middle age. The members of each pair of scales have opposite implications, though they apply to somewhat different aspects of social life.

The first pair consists of Dominance and Femininity/Masculinity. High scorers on the Dominance scale are typically confident, assertive, and task-oriented, whereas high scorers on the Femininity/Masculinity scale are sympathetic, sensitive to criticism, prone to feeling vulnerable, and lacking in confidence. The second pair of scales consists of Achievement via Conformance and Flexibility. Individuals high on the Achievement via Conformance scale tend to have a strong drive to do well and prefer work settings where tasks and expectations are clearly defined. In contrast, high scorers on the Flexibility scale like change and variety and are easily bored by everyday experience (Gough & Bradley, 1996). In our data, none of the CPI intercorrelations exceeded .50 at any age.

Measures of Psychological Resources: Emotion Regulation

Haan defense and coping scales. These measures are based on Haan's (1977) taxonomy of coping and defense processes, and are scored from the CPI (Joffe & Naditch, 1977). Labouvie-Vief and Medler (2002) performed a principal components analysis to separate 10 of the scales into those related to coping or defending via affect optimization and those related via affect complexity. Using Labouvie-Vief and Medler's analysis as a guide, we selected two sets of three scales for the current study. The first set of scales had the three strongest loadings on the affect optimization factor (Regression and Doubt loaded negatively, and Denial loaded positively), whereas the second set of scales (Intellectuality, Intellectualization, and Tolerance of Ambiguity) had the three strongest positive loadings on Labouvie-Vief and Medler's affect complexity factor.¹

Adjective Check List and Emotionality scales. The Adjective Check List (ACL; Gough & Heilbrun, 1983) is a 300-item personality instrument with a check–no-check response format. The Mills participants completed the ACL at ages 27, 43, 52, and 61. Gough, Bradley, and Bedeian (1996) selected 20 ACL adjectives to assess Positive Emotionality and Negative Emotionality as conceptualized by Tellegen (1985). Here, we used these two scales as measures of affect optimization. Indicative items for Positive Emotionality are active, enthusiastic, and imaginative; items for Negative Emotionality include irritable, pessimistic, and worrying. (For further

¹ The Repression scale had a strong negative loading (–.85) on the affect complexity factor, but Labouvie-Vief and Medler (2002) had not expected this result, and Joffe and Naditch (1977) did not include the Repression scale among those that met acceptable standards of reliability and validity with female participants. Therefore, we did not include it in the analyses reported here.

information regarding these scales and their use in the Mills sample, see Helson & Klohnen, 1998.)

Measures of Satisfaction With Relationships

Marital satisfaction. At ages 43, 52, and 61, the Mills participants rated overall satisfaction in marital or marriage-like relationships using a 5-point scale.

Social network satisfaction. Information about the size and quality of the women's social networks, based on a procedure developed by Jones and Fischer (1978), was obtained at ages 43 (see Moane, 1985) and 61. Each participant rated up to 10 members of her social network on a variety of relational dimensions. The mean rating of relationship satisfaction (on a 4-point scale) across the network members was used as a measure of overall social network satisfaction.

Measures of Motives

At ages 43, 52, and 61, the Mills participants rated sets of statements that described their feelings about life on a 3-point scale, ranging from *not at all descriptive* to *very descriptive*. The items were taken from theories about adult development (e.g., Gould, 1972; Levinson et al., 1978). A total of 31 Feelings About Life items were rated at all three middle-age assessments.

On the basis of conceptual relevance, as well as patterns of interitem correlations, six core thematic clusters were identified: Identity and Status Concerns, Interest in Sex, Attention to Inner Life, Investment in Relationships, Awareness of Aging, and Positive Attitude. Scores for each theme were calculated for the Mills participants at ages 43, 52, and 61 by taking the mean rating of the items identified as most central to the theme.

"Very much interested in sex" was the only item for the Interest in Sex theme, but the two or three items comprising the other themes were as follows: "Excitement, turmoil, confusion about my impulses and potential," "Anxiety that I will not live up to opportunities," and "Searching for a sense of who I am" (Identity and Status Concerns); "Intense interest in inner life" and "Religious and philosophical interests" (Attention to Inner Life); "Feeling needed by people," "Appreciation and awareness of older people," and "Effort to ensure that younger people get their chance to develop" (Investment in Relationships); "Looking old" and "Thinking a lot about death" (Awareness of Aging); and "Feeling secure and committed" and "Feeling my life is moving well" (Positive Attitude).

Analyses

We have conducted multivariate analyses of variance (MANOVAs) using age as a within-subject factor to test for change across the young adulthood and middle age assessment times. Multivariate rather than univariate analyses of variance (ANOVAs) procedures were used because the sphericity assumption of the latter is not met in our longitudinal data (for a discussion of ANOVAs, MANOVAs, and the sphericity assumption, see Keppel, 1991). Paired-sample *t* tests were used to examine differences between specific pairs of ages.²

To test for direct links between importance of work at age 52 and personality change from 52 to 61, we correlated each of the three work investment variables described above with change scores from 52 to 61 on each of the 12 personality trait and emotion regulation variables used in the current study. To test for associations of physical health with change in affect optimization and affect complexity from ages 52 to 61, we correlated level of physical health at age 52 with change scores from 52 to 61 on each of the eight emotion regulation variables.³

All results described below as significant were statistically significant against an omnidirectional alternative at the $\alpha = .05$ level. All results described as marginally significant were statistically significant at the $\alpha = .10$ level. Also note that all figures report means using the percent of maximum possible score metric (POMP; Cohen, Cohen, Aiken, & West,

1999). The POMP metric represents scores obtained on a scale as percentages of that scale's maximum possible score; POMP scores therefore range from 0 to 100.

Results

Change in Roles and Status

We hypothesized (a) that the number of roles (from the basic set of spouse, parent, and worker) would increase from young adulthood to early middle age, then decline as children left home and the women began to retire and (b) that status level in work would peak during middle age, and that career activity and momentum would decline by age 61.

Change in number of roles is illustrated in Figure 1A. A within-subject MANOVA suggested significant change in the number of social roles occupied across the age 27, 43, 52, and 61 assessment times, $F(3, 105) = 53.53$. Paired-sample *t* tests indicated that there was a significant increase in the number of roles from age 27 to 43, $t(107) = 6.28$, and significant decreases from age 43 to 52, $t(107) = 7.96$, and from 52 to 61, $t(107) = 4.82$. Further inspection of the data suggested that these differences were primarily due to changes in the proportion of women who had children in the household (48%, 75%, 23%, and 5% at the four assessment times) and who worked at least 10 hr per week (62%, 85%, 79%, and 65%, respectively).

A second MANOVA indicated significant change on status level in work across the age 27, 43, and 52 assessment times, $F(2, 118) = 28.26$ (Figure 1B). Paired-sample *t* tests indicated significant increases both from age 27 to 43, $t(119) = 5.80$, and from 43 to 52, $t(119) = 2.04$. For 106 women at ages 52 and 61, a chi square test indicated that there was a significant change in the number of women who reported that they were continuing to build their careers (more at age 52), had retired (more at age 61), or described their work in other ways that differed little between the two ages (e.g., maintaining careers, not really a careerist), $\chi^2(2, N = 106) = 8.92$. Thus, the pattern of roles changed at each point from ages 27 to 61; age 43 showed the peak number of roles, and age 52 showed peak status in work.⁴

Change in Health

A within-subject MANOVA indicated significant change in ratings of health across the age 27, 43, 52, and 61 assessments, $F(3, 65) = 4.68$. The average health rating remained above 4 on its 5-point scale at all ages, with scores significantly lower at ages 43 ($M = 4.22$, $SD = 0.91$) and 61 ($M = 4.15$, $SD = 0.82$) than at 27

² When appropriate, latent growth curve analyses were also conducted. The results from these analyses agree well with the MANOVA results reported here. Analysis of variance, rather than growth curve, results are reported because of our desire to compare specific pairs of ages rather than only describing the patterns of change as a whole.

³ Another approach would have been to correlate change in work involvement and health with change in personality from ages 52 to 61. We did not do this because we lacked comparable measures of work involvement at ages 52 and 61, and, in the case of health, because large decreases in self-rated health were nonexistent (despite the onset of serious, chronic conditions for many women).

⁴ In the smaller sample ($N = 74$) of women who provided inventory data at all times of testing, number of roles and status level in work changed in the same ways that we describe here, although the increase in status level from age 43 to 52 was no longer significant.

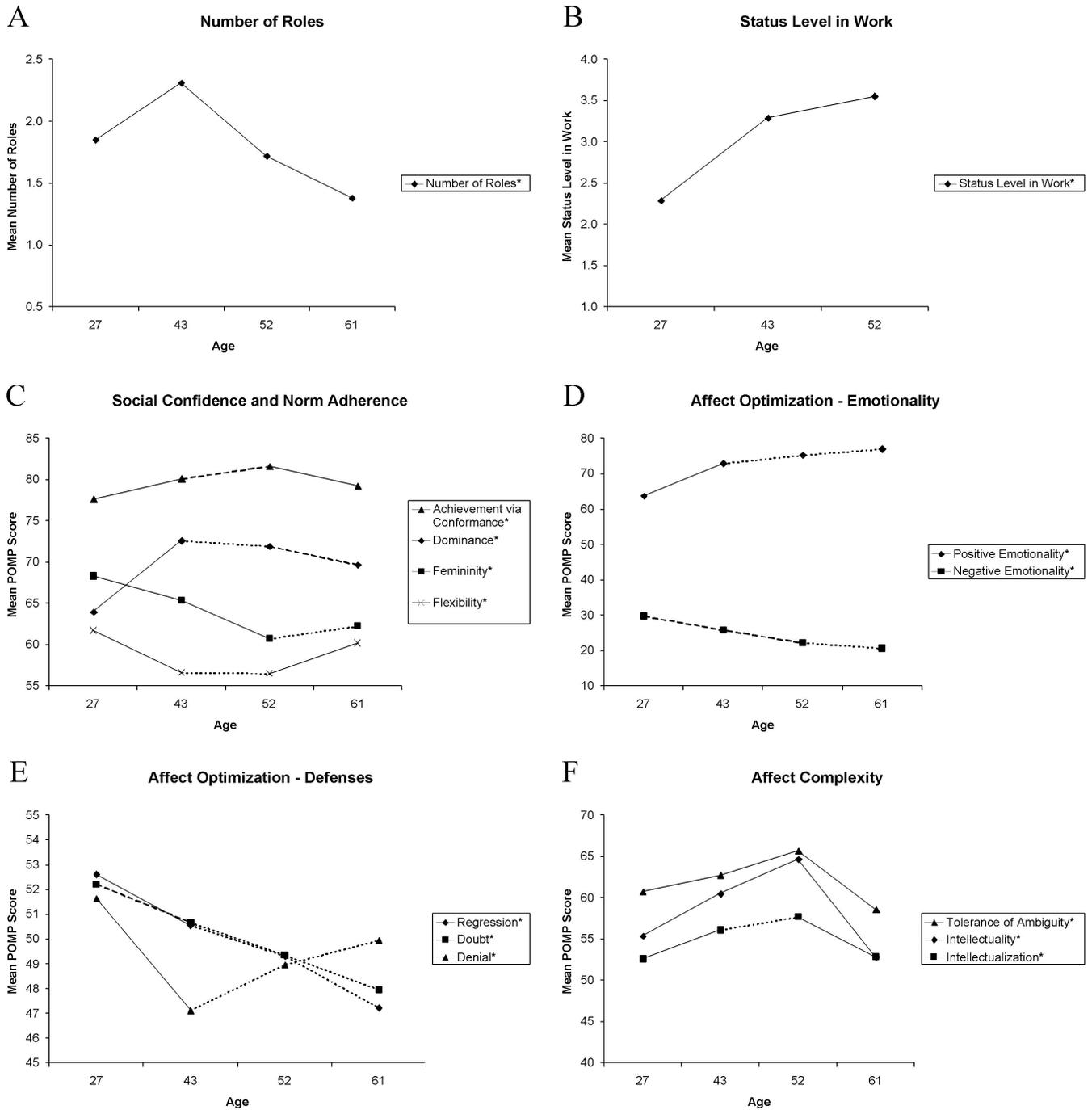


Figure 1. Change in social roles, personality, and emotion regulation. Decreases in Regression and Doubt should be interpreted as increases in affect optimization. Solid lines indicate significant change ($p < .05$), dashed lines indicate marginally significant change ($p < .10$), and dotted lines indicate no significant change ($p > .10$). Asterisks indicate significant omnibus F tests ($p < .05$). POMP = percent of maximum possible score metric.

($M = 4.41$, $SD = 0.80$) and 52 ($M = 4.44$, $SD = 0.63$). The dip at age 43 may reflect the strain of multiple roles, whereas the decline from 52 to 61 may be the first of the consistent and sharper declines found in other studies from the 50s on (Cleary et al., 2004; Spiro, et al., 2004).

Change in Resources

Traits related to changing role patterns. We hypothesized that personality change in the Mills women from young adulthood to early middle age would reflect an increase in resources relevant to

status-related striving and the management of multiple roles. We also hypothesized a decrease in these resources by age 61 as the women were reducing their formal social involvement.

We chose the Dominance scale of the CPI to assess social assertiveness (confidence, competence, and objective focus), and the Femininity/Masculinity scale to assess a nurturant, personal orientation along with vulnerability in confidence and self-esteem, a pattern that can be considered as a negative resource for success in the workplace. We chose the Achievement via Conformance and Flexibility scales to assess norm adherence and the scheduling of life. Within-subject MANOVAs suggested significant change across ages 27, 43, 52, and 61 on all four scales (Figure 1C): Dominance, $F(3, 71) = 14.57$; Femininity, $F(3, 71) = 13.36$; Achievement via Conformance, $F(3, 71) = 4.69$; and Flexibility, $F(3, 71) = 5.49$.

Paired-sample t tests indicated that Dominance, as predicted, increased significantly from age 27 to 43, $t(73) = 6.65$, remained stable from 43 to 52, $t(73) = .69$, then exhibited a marginally significant decline from 52 to 61, $t(73) = 1.79$, $p < .08$. Change on the Femininity/Masculinity scale showed the expected opposite pattern, with significant decreases from age 27 to 43, $t(73) = 3.19$, and from 43 to 52, $t(73) = 5.01$, followed by a nonsignificant increase from 52 to 61, $t(73) = 1.62$.

The norm adherence measures, as predicted, also exhibited curvilinear patterns of change. A significant increase in Achievement via Conformance from age 27 to 43, $t(73) = 2.40$, and a marginally significant increase from 43 to 52, $t(73) = 1.67$, $p < .10$, were followed by a significant decrease from 52 to 61, $t(73) = 2.62$. The reverse pattern was shown by the Flexibility scale, which decreased significantly from age 27 to 43, $t(73) = 3.06$, did not change from 43 to 52, $t(73) = .11$, and increased significantly from 52 to 61, $t(73) = 2.87$.

Emotion regulation: Affect optimization and affect complexity. Here, we tested the hypothesis of Labouvie-Vief and Márquez (2004) that affect optimization increases throughout adulthood, whereas affect complexity peaks in middle age and then declines. Within-subject MANOVAs suggested significant change on all five of the affect optimization measures: Positive Emotionality, $F(3, 71) = 8.11$; Negative Emotionality, $F(3, 71) = 4.47$; Regression, $F(3, 70) = 8.64$; Doubt, $F(3, 70) = 3.61$; and Denial, $F(3, 70) = 3.59$. As Figures 1D and 1E show, these changes were primarily linear in form. Change on four of the five optimization measures was gradual; paired-sample t tests indicated that, from ages 27 to 61, Positive Emotionality increased significantly, $t(73) = 4.94$, and that Negative Emotionality, $t(73) = 3.39$, Regression, $t(72) = 4.79$, and Doubt, $t(72) = 3.25$, all decreased significantly. Contrary to prediction, Denial did not show this linear pattern of change. Instead, Denial decreased from age 27 to 43, $t(72) = 3.23$, then increased from 43 to 61, $t(72) = 2.23$. It may be relevant that in the Labouvie-Vief and Medler (2002) analysis, Denial showed less difference between loadings on affect optimization (positive) and affect complexity (negative) than did the other scales used.

For the three affect complexity measures, MANOVAs also indicated significant change: Intellectuality, $F(3, 70) = 83.08$; Intellectualization, $F(3, 70) = 14.53$; and Tolerance of Ambiguity, $F(3, 70) = 23.51$. The pattern of change for these measures was, as hypothesized, markedly different from that of the optimization

measures. Intellectuality, Intellectualization, and Tolerance of Ambiguity all increased to a peak at age 52, then declined dramatically by age 61 (Figure 1F). Paired-sample t tests confirmed that these three measures increased from age 27 to 43, $t(72) = 4.43$, $t(72) = 3.17$, and $t(72) = 1.89$, $p < .07$, respectively; they increased again from 43 to 52, although the change in Intellectualization was not statistically significant, $t(72) = 5.11$, $t(72) = 1.63$, $p < .11$, and $t(72) = 3.42$, then decreased significantly from 52 to 61, $t(72) = 15.92$, $t(72) = 5.41$, and $t(72) = 8.30$.

Relational satisfaction. We predicted that changes in affect optimization would be expressed in increases in self-reported satisfaction with couple and social network relationships over middle age. Elsewhere in this article, we used listwise case deletion to ensure that the same participants were included at each age. Here, to maintain sample size, we performed separate paired-sample t tests for ratings of marital satisfaction obtained from all women who provided them at each pair of ages (whether or not the partner was the same). There were no significant differences between ratings of marital satisfaction at ages 43 and 52 or 52 and 61, but the overall increase from age 43 ($M = 3.96$, $SD = 1.08$) to 61 ($M = 4.22$, $SD = 1.08$) was significant, $t(57) = 2.16$. Ratings of social network satisfaction also increased significantly from age 43 ($M = 3.21$, $SD = 0.47$) to 61 ($M = 3.34$, $SD = 0.38$), $t(72) = 2.15$.

Change in Motives: Feelings About Life

Our hypothesis, developed from Staudinger and Bluck (2001), was that the women's motivational concerns would change over middle age in ways that would support growth functions in early middle age, maintenance functions at age 52, and security or management of loss in late middle age. To measure concern with growth functions, we used items from the Feelings About Life instrument assessing Identity, Status Concerns, and Interest in Sex (seen as an expansionist motive in biological, evolutionary terms), expected to be rated highest at age 43. We lacked good items describing concern with maintenance functions, but Inner Life and Investment in Relationships were both expected to be rated relatively low at age 52, when the women were absorbed in their demanding work responsibilities, children had left home, and care for parents had not yet become a major concern for many women. Awareness of Aging and Positive Attitude were expected to be rated highest at age 61 and in combination to suggest the management of loss.

Change in the Feelings About Life thematic clusters are illustrated in Figure 2. Within-subject MANOVAs suggested significant or marginally significant change on all five of the clusters: Identity and Status Concerns, $F(2, 80) = 11.21$; Interest in Sex, $F(2, 80) = 15.23$; Attention to Inner Life, $F(2, 80) = 2.63$, $p < .08$; Investment in Relationships, $F(2, 80) = 14.80$; Awareness of Aging, $F(2, 80) = 4.38$; and Positive Attitude, $F(2, 80) = 9.53$. Paired-sample t tests indicated that Identity and Status Concerns decreased significantly from age 43 to 52, $t(81) = 4.26$, then remained stable from 52 to 61, $t(81) = 0$. Interest in Sex decreased both from ages 43 to 52, $t(81) = 4.13$, and from 52 to 61, $t(81) = 1.79$, $p < .08$. Attention to Inner Life and Investment in Relationships both decreased from age 43 to 52, $t(81) = 2.07$ and $t(81) = 5.45$, respectively; both then increased from 52 to 61, $t(81) = 1.72$,

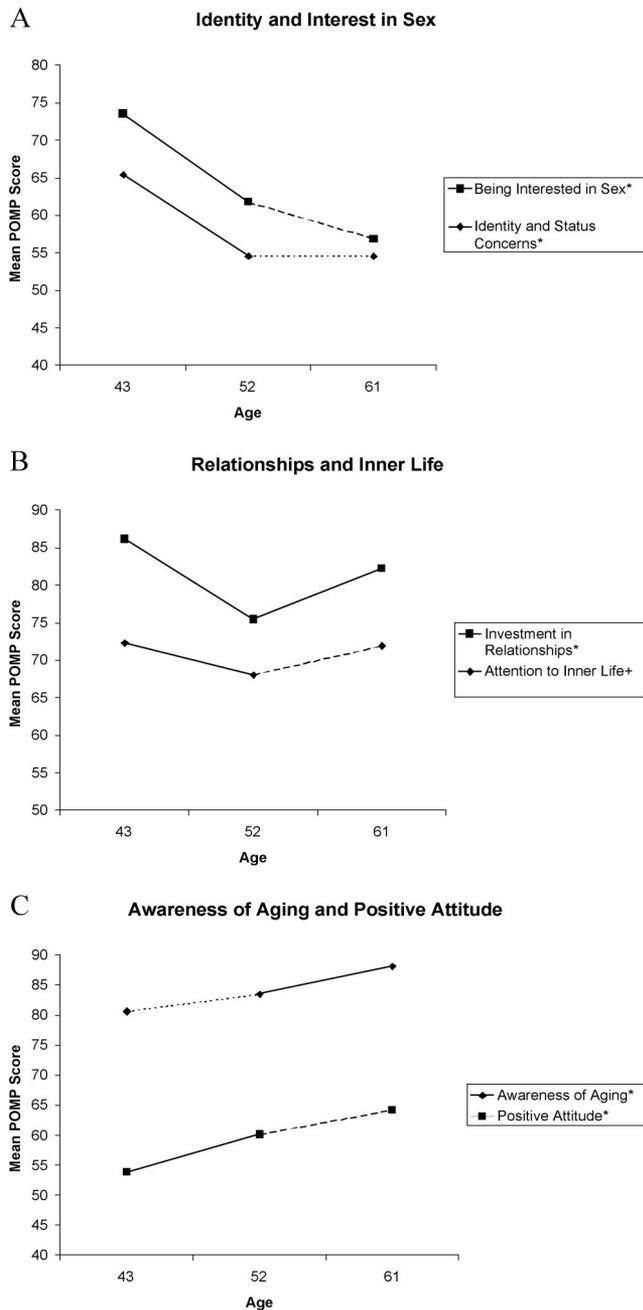


Figure 2. Change in social and emotional motives. Solid lines indicate significant change ($p < .05$), dashed lines indicate marginally significant change ($p < .10$), and dotted lines indicate no significant change ($p > .10$). Asterisks indicate significant omnibus F tests ($p < .05$). The plus sign indicates a marginally significant omnibus F test ($p < .10$). POMP = percent of maximum possible score metric.

$p < .08$, and $t(81) = 3.70$). Awareness of Aging did not change significantly from age 43 to 52, $t(81) = 1.27$; it did, however, increase significantly from 52 to 61, $t(81) = 1.99$. Lastly, Positive Attitude increased significantly from 43 to 52, $t(81) = 2.80$, and marginally from 52 to 61, $t(81) = 1.82$, $p < .08$.

Social and Health Links to Personality Change From Ages 52 to 61

We hypothesized that the changes in personality traits and emotion regulation from ages 52 to 61 described above would be especially pronounced among those women who were highly invested in their work at age 52. It is these women whose lives would change most as they retired or prepared for retirement in late middle age. Indeed, change scores for 7 of the 12 personality inventory variables tested (the trait measures of Dominance and Flexibility and the emotion regulation measures of Regression, Doubt, Denial, Intellectuality, and Intellectualization) were significantly correlated with at least one of the three indices of importance of work at age 52. These correlations ranged in magnitude from .21 to .37. Supporting our hypothesis, greater importance of work at age 52 was associated in all seven cases with more personality change in the normative direction from ages 52 to 61.

We also hypothesized that worse health at age 52 would be associated with greater change in emotion regulation from ages 52 to 61, because women coping with poor health during their 50s would experience more stress and shift to greater reliance on optimization strategies. We found that change scores on three of the five affect optimization variables (Doubt, Denial, and Negative Emotionality) and one of the three affect complexity variables (Tolerance of Ambiguity) were significantly correlated with level of physical health at age 52. These correlations ranged in magnitude from .20 to .35. Supporting our hypothesis, in all four cases, worse physical health at age 52 was associated with greater increase in affect optimization or greater decrease in affect complexity from age 52 to age 61.

Discussion

The Mills women changed in the number and nature of social roles and in physical health from young adulthood through three points within middle age. These longitudinal findings, scarce in the literature, are consistent with descriptions of typical biosocial changes during middle age (Merrill & Verbrugge, 1999; Moen & Wethington, 1999; Spiro et al., 2004). The women's personality resources and motivations also changed, in hypothesized relation to this changing biosocial experience. We evaluate the findings in each of three areas: personality traits, emotion regulation, and motives.

Personality Traits Related to Changing Role Patterns

The patterns of change on Dominance, Femininity/Masculinity, Achievement via Conformance, and Flexibility (Figure 1C) supported our hypothesis that nonmonotonic personality change accompanied nonmonotonic patterns of social role experience (Figure 1A, 1B). Some cross-sectional studies of adulthood show increase followed by decrease on Dominance, as we did, but they find continuity in the direction of change on the other scales, especially continued decrease in Flexibility (e.g., Warr et al., 2001; Yang et al., 1998). The increase in Flexibility that the Mills women showed at age 61 may have been part of a retirement or preretirement "honeymoon" experience that will not endure. On the other hand, now that older people remain fit, travel, and engage in new activities, perhaps Flexibility will decline less and later.

Because evidence of direct relation between role experience and personality change in the Mills women over periods of adulthood before age 61 has been provided by previous research, we focused on such associations in late middle age. Identifying decline in work pressures as an important aspect of the period from 52 to 61, we hypothesized that the women most affected by reduction in work pressure would be those who were experiencing the most such pressure at age 52. We showed that heavy work involvement at age 52 was related to greater decrease in Dominance and increase in Flexibility from ages 52 to 61.

Emotion Regulation

Affect optimization increased from ages 27 to 61 and affect complexity increased to age 52 and then decreased (Figures 1D, 1E, 1F), supporting the hypotheses and cross-sectional findings of Labouvie-Vief.⁵ We assumed that both biological and social factors affected these changes, and indeed both women in poor health and women reducing heavy work loads increased in affect optimization and decreased in affect complexity more than other women did. As we expected from the increase in affect optimization, satisfaction with couple relationships and social networks increased from ages 43 to 61.

Motives

Motivational concerns changed over middle age from peak interest in identity, status, and sex at age 43 to peak awareness of aging and positive attitude at age 61 (Figure 2A, 2C). The women at age 52 had less interest in relationships and inner life than they had earlier or later in middle age, a pattern we attributed to their relatively light relational responsibilities at this time and their strong work commitment. This set of findings may be interpreted as supporting the Staudinger and Bluck (2001) hypothesis that growth concerns are strong in early middle age and then decline, whereas concerns with management of loss increase through middle age.

This view of the findings assumes that Positive Attitude is a defense against Awareness of Aging and Death. An alternative interpretation of the findings at age 61 might be that no defense was involved, that Awareness of Aging and Death merely registered what the women saw in the mirror and experienced with aging relatives, and that Positive Attitude came from easing schedules, more health and vigor than previous cohorts had, and the satisfaction of seeing long-term enterprises (especially their children) turning out well. In other words, contrary to earlier data (Heckhausen, Dixon, & Baltes, 1989), developmental gains in late middle age may have equaled or even exceeded losses for many women.

Also, though personal growth concerns have been found to decrease after midlife (e.g., Ryff, 1991), in this study, the increase in interest in inner life (Figure 2B) and the increase in Flexibility (Figure 1C) suggest that the potential for some kinds of growth may have actually increased from 52 to 61. More research is needed, but there are clearly motivational changes over middle age.

The Shape of Change

Figures 1 and 2 show much normative change in social roles and personality from young adulthood through middle age. Some

change was monotonic, but much was nonmonotonic. Nonmonotonic change characterized not only number of social roles, but also social assurance, norm adherence, and affect complexity (in Big Five terms, Extraversion, Conscientiousness, and Openness), as well as some motivational concerns. Although there is much to be understood about the factors and processes that affect the shape of change, this article shows that the frequent assumptions of little change or primarily monotonic change are not tenable.

Generality

The homogeneity of the Mills sample in gender, background, and distinctive cohort experience may have provided a sharper and more coherent pattern of change over middle age than many other samples would show. However, many aspects of our findings are supported by the results of cross-sectional studies drawing from very different populations. Furthermore, though there are few longitudinal studies of middle age, a recent study adds longitudinal evidence for the generality of the pattern of change over middle age that we found in the Mills Study.

Cramer (2003) described personality change in 155 men and women of the Berkeley and Oakland samples studied at the Institute of Human Development (IHD) at average ages in the mid-30s, mid-40s, and late 50s. These men and women constitute a more representative sample than do the Mills women in terms of social background, and having been born in the early or late 1920s, they had a different cohort experience. The IHD women, for example, had less education, more children, and many fewer years in the labor force than did the Mills women (Helson, Jones, & Kwan, 2002).

Cramer (2003) used observer Q-sort data scored on the Big Five dimensions and a MANOVA design. The pattern of change found was similar to that shown by the Mills sample. From their mid-30s to late 50s, both men and women increased on Agreeableness and decreased on Neuroticism (a pattern resembling the changes we have shown on affect optimization), and on Openness, they both increased from their mid-30s to mid-40s and then decreased by their late 50s (which resembles our findings on affect complexity). The women increased and then decreased on Extraversion and Conscientiousness, as the Mills women did on Dominance and Achievement via Conformance. On both of these scales, the men showed the same initial increase as the women from their mid-30s to mid-40s, but did not change significantly from their mid-40s to late 50s, perhaps because they were still fully invested in work. One would like to have information about roles and status, but this is about as much similarity in personality change across sample and cohort as is reasonable to expect.

The IHD women had patterns of roles and status quite different from the Mills women, yet their personality change seems to have been similar. If roles and status are important, how can this similarity in findings be explained? Though samples differ in specifics of adult experience that are linked to gender, class, cohort, and culture, there remains much similarity at a more

⁵ The one discrepancy in the findings was that scores on Denial showed the nonmonotonic change of measures of affect complexity rather than the monotonic change of measures of affect optimization. From ages 43 to 61, however, change was monotonic.

general level. The number and nature of roles change in similar ways as children and parents age and as the individual increases in social experience. There are broad timing norms or stereotypes (Krueger, Heckhausen, & Hundertmark, 1995; Neugarten, 1977) about appropriate behavior and goals for people of different ages. These norms are internalized, and people in a variety of situations may find objectively distinct but functionally equivalent ways to respond to them. Modern society has moved in the direction of increased diversity of lifestyles and schedules, but age remains a major factor in determining adults' lifestyle choices and personalities.

Conclusion

Broad-level similarities in biosocial trends and age-related norms may help explain why different studies of personality change have found similar normative patterns across widely varying samples. At the same time, differences in these norms and trends between more specific groups and between persons help explain why studies have also found individual differences in personality change. The current study, in demonstrating direct links of social and health variables to personality change in late middle age, has shown that the extent to which an individual exhibits normative change depends on the particulars of their social and biosocial experience. Nevertheless, our primary contribution is to the neglected topic of normative change in middle age: the demonstration that our longitudinal participants changed in social role experience from young adulthood through three points in middle age, and that as they did so, they changed systematically in motives, personality characteristics, and emotion regulation.

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