Americans' psychological health trajectories: analyses of survey data from the intergenerational studies

Jones, Constance J.; Peskin, Harvey

Americans' Psychological Health Trajectories: Analyses of Survey Data from the Intergenerational Studies

Constance J. Jones & Harvey Peskin [*]

Abstract: *»Trajektorien der psychischen Gesundheit von Amerikanern: Analyse von Umfragedaten aus intergenerationellen Studien«*. Survey data from the Intergenerational Studies are used here to examine two American generations' trajectories of psychological health. Original Intergenerational Studies members were born in either 1921 or 1929; their children were born between 1938 and 1982. Psychological health, measured via the self-report California Psychological Inventory, was assessed between 1954 and 2006 for the older generation and between 1983 and 2006 for the younger generation. We ask: What is the developmental path of psychological health for the older and younger generation, when data are analyzed separately?, and What are the additional advantages of analyzing the two generations' data simultaneously? Application of longitudinal hierarchical linear modeling indicates that while data analyzed separately by generation are provocative, the additional advantages of analyzing data from both generations simultaneously are impressive: a more complex form of change was extracted, and valuable empirical estimates of generational differences in intercept, slope, and quadratic term were obtained.

Keywords: longitudinal data, hierarchical linear modeling, family-level analyses.

Introduction

Individuals do not live their lives in an historical vacuum. Individuals' entire physical and emotional life trajectories are impacted by numerous overarching societal variables which may either enhance or impede natural development.

Often these impacts are studied using "snap shot" cross-sectional data; individuals of different ages are compared. This approach gives interesting preliminary views, but cohort and developmental differences cannot be disentangled with such data. Longitudinal studies allow comparisons of the same individuals at different ages and provide a more holistic view of lives as they are genuinely lived. However, they often focus on a single cohort, and thus cannot provide direct evidence regarding the differential impacts of changing

[*] Address all communications to: Constance J. Jones, Department of Psychology, California State University, 2576 E. San Ramon St 11, Fresno, CA 93740, USA;
e-mail: conniej@csufresno.edu.
Harvey Peskin, Institute of Human Development, University of California, Berkeley, USA.

historical context. Multi-cohort longitudinal designs (e.g., the cohort sequential design, Schaie, 1965) are often a preferred but unrealized ideal. Here we use data from the Intergenerational Studies, a long-term longitudinal study of multiple cohorts: individuals born in 1921 or 1929, and their children, born between 1938 and 1982.

Data from the Intergenerational Studies have been used, and continue to be used, by researchers of various disciplines, including psychologists, sociologists, and historians. Commonly-used theories, research approaches, and statistics often vary by discipline; psychologists tend to use parametric statistics to describe individuals' personal characteristics with relatively little regard for historical or other contextual variables. Thus, with respect to psychological health, the construct of focus here, classic questions posed by psychologists might be: What individual-level variables predict psychological health?, and How do individuals change in psychological health with age? The current study moves beyond such simple classic questions to incorporate examination of cohort and family as a context for level of and change in psychological health.

Psychological health is an element important, if not crucial, for a positive human life experience. Those employing multi-cohort cross-sectional designs, with the goal of illuminating cohort differences in psychological health, tend to find less healthy younger cohorts. For example, Twenge (2000) conducted two meta-analyses of American studies of anxiety performed between 1952 and 1993, and found significant differences in anxiety by cohort, with each subsequent cohort more anxious. In fact, across a 30-40 year period, anxiety increased approximately one standard deviation. Others have found similar results (e.g., Swindle, Heller, Pescosolido, & Kikuzawa, 2000), with less positive and more negative psychological health characteristics seen in more recent cohorts. On the other hand, some researchers have argued that the Women's Movement may have allowed for increased psychological health in younger generations, at least for women (Markson, 1984; Srole & Fischer, 1980).

Those employing single-cohort longitudinal designs, with the goal of illuminating developmental trajectories of psychological health, tend to see modest increases in psychological health, at least until older age. For example, Neuroticism, one of the five personality characteristics included in the "Big Five" (e.g., McCrae & Costa, 1999), has been found by several to show a quadratic trend: decreasing until approximately age 70, then slightly increasing (Mroczek & Spiro, 2003; Robins, Fraley, Roberts, & Trzesniewki, 2001; Small, Hertzog, Hultsch, & Dixon, 2003; Steuneberg, Twisk, Beekman, Deeg, & Kerkhof, 2005; Terracciano, McCrae, Brant, & Costa, 2005). Our own previous work with smaller portions of the Intergenerational Studies data than analyzed here shows a parallel general increase in psychological health measured via the California Psychological Inventory v3 scale, although four empirically-derived subtypes of development (stable high psychological health, stable low psychological health, increasing psychological health, and decreasing psychological

health) can also be shown to exist despite an overall sample-wide pattern of increase (Jones, Livson, & Peskin, 2006).

The currently study employs a multi-cohort longitudinal design to examine cohort differences in developmental trajectories. In this way, we can not only determine if those born in different birth years differ from one another with respect to psychological health at a single point in time, but also if the lifetime developmental path of psychological health found differs for those from different cohorts. We enter this exploration with a focused eye on possible gender differences not only in level of psychological health, but also trajectory of psychological health, given previous literature suggesting the profoundly differential impacts of cohort on men versus women (e.g., Elder, 1981).

Sociologists have noted that the family is the window through which cohort most often influences individual development (e.g., Hagestad, 1984, 1987). Due to the unique nature of the Intergenerational Studies data, we are able to examine cohort differences in psychological health trajectory within the context of family. Thus, here we use longitudinal data to focus on late-life parents and mid-life children, to portray the connection between cohort, family role, and psychological health. We posit no directionality (and in fact, can model no directionality) with respect to parent-child impact; Bell (1968) long ago cogently argued for the mutual influence of one upon the other.

Research Aims

Using multi-cohort longitudinal data from the Intergenerational Studies: (1) What is the developmental path of psychological health for the older and younger generation, when data are analyzed separately?, and (2) What are the additional advantages of analyzing the two generations' psychological health data simultaneously?

Methods

Participants

The Intergenerational Studies are comprised of three originally separate studies: The Berkeley Growth Study (BS), the Berkeley Guidance Study (BGS), and the Oakland Growth Study (OGS). All three studies were begun at the Institute of Human Development, University of California, Berkeley in either 1929 or 1931 and are still on-going. Designed at a time when little empirical data were available to describe normal child development, the Intergenerational Studies can be best described as broad, atheoretical, and descriptive. A rich array of data were collected from the parents of the target children, the target children, and eventually, the children of original members, including sociocul-

tural data, medical data, photographic data, objective and projective personality data, cognitive assessments, and in-depth clinical interviews.

Original Members

Original members of the BS and BGS were infants in 1929; original members of the OGS were 5th graders in 1931 (see Eichorn, 1981 for more details). The older generation of participants thus were born in either 1921 or 1929, and are part of a cohort that has been called in America "the long civic generation" (Putnam, 2000) or the "Greatest Generation." Deeply impacted by the Great Depression and World War II, they have been described, as a group, as valuing and exhibiting civic involvement, thrift, self-denial, obedience, and modesty (while at the same time showing racism and sexism common to that time period) (Rogler, 2002).

Children of Original Members

When the original participants reached an age to marry and have children of their own, if they did so, these spouses and children were included in the studies (hence the name Intergenerational Studies). The Intergenerational Studies members' children of focus here were born between 1938 and 1982, with a mean birth year of 1954. These are termed "Baby Boomers" in America, and most were more strongly impacted by more recent American watershed events, including the Vietnam war, the Civil Rights Movements, and the Women's Movement, than their parents. As a group, this cohort has been generally described as more individualistic, materialistic, and self-focused (as well as less racist and sexist) than earlier cohorts (Roberts & Helson, 1997).

Measures

The measure of psychological health used here is from the California Psychological Inventory (CPI), a commonly-used self-report measure of personality, designed to assess "normal" populations. Several versions of the CPI have been administered to the Intergenerational Studies members, but scores have all been converted to the most recent version, the CPI-434, which contains 434 "true-false" items. The instrument, overall, is well-regarded, with good reliability and validity (Gough & Bradley, 1996; Groth-Marnat, 1984).

The measure of psychological health is the "v3" scale, a measure of "the respondent's own view of fulfillment, the degree to which the person has realized his or her own potentialities" (Gough & Bradley, 1996, p. 29). The CPI-434 version of the v3 contains 58 items. Example items representing good health are: "*I do not dread seeing a doctor about a sickness or injury*" (True) and "*I am sometimes cross and grouchy without a good reason"* (False). The v3 has

been shown to be a reliable and valid measure of psychological health (Jones, Livson, & Peskin, 2006; Weiser & Meyers, 1993).

Research Design

CPI data were collected from the older generation a maximum of 5 times and from the younger generation a maximum of 3 times, with the first assessment in 1954, and the most recent assessment in 2006. CPI questionnaires were completed at home; participants could take as much time as needed to provide their answers.

With regards to available CPI data, for the older generation, the sample size is 327, with a total of 962 data points provided. Approximately 20% of this sample has complete CPI data; another 21% is missing a single point of data. For the younger generation, the sample size is 362, with a total of 508 data points provided. Approximately 14% of this sample has complete CPI data; another 30% is missing a single point of data.

Individuals in the combined sample come from a total of 339 different families. Across the combined sample, it is important to note that families can contain a parent only (approximately 45%), a child or children only (approximately 3%), or both a parent and a child or children (approximately 51%).

Statistics

Recent advances in statistical techniques have allowed researchers to move from description of longitudinal change roughly averaged across a group to a detailed examination of not only group-averaged change but also of interindividual differences in change. For example, latent growth models (e.g., Meredith & Tisak, 1990) portray latent variables' change with time. Hierarchical linear models (also termed multilevel models) (e.g., Bryk & Raudenbush, 1992) portray manifest variables' change with time. The relative advantages of latent growth models versus hierarchical linear models are still under active discussion (e.g., Kashy & Donnellan, 2008), but each clearly has its place as a tool for the developmental researcher.

Here we use hierarchical linear modeling (HLM), which allows researchers to examine manifest variable data hierarchically, modeling intra- and inter-individual variability more commonly regarded as error. Two-level and three-level HLM procedures are available. For example, used with cross-sectional data, two-level HLM could model children's reading ability scores, with children grouped by school; three-level HLM could model children's reading ability scores, with children grouped by school and neighborhood. Used with longitudinal data, two-level HLM could model children's reading ability scores across time; three-level HLM could model children's reading ability scores across time, with children grouped by school.

Analyses presented here are from application of two-level and three-level longitudinal HLM, with individuals' v3 scores examined across time (two-level; older generation only), and with individuals' v3 scores examined across time, with individuals grouped together by family (three-level; younger generation only, and both generations simultaneously).

The first step in longitudinal HLM involves finding the correct overall pattern of change for the sample as a whole. Change can be modeled as non-existent (intercept only), linear, quadratric, cubic, etc. In equation form, to model change in v3 for individual i across time t, these choices could be indicated as:

$$v3it = P0 + E$$
$$v3it = P0 + P1(age) + E$$
$$v3it = P0 + P1(age) + P2(age2) + E$$
$$v3it = P0 + P1(age) + P2(age2) + P3(age3) + E$$

For our analyses the time variable is chronological age, but it would be possible to use year of data collection, age since a marker event (e.g., birth of first child), etc. Within HLM, chronological age can be centered at the mean age for the sample, at the first age of data collection for the sample, or some other meaningful age (e.g., Biesanz, Deeb-Sossa, Papadakis, Bollen, & Curran, 2004). Here we choose to center age at 33, because this is the youngest age at data collection shared by the younger and older generation samples.

An important element of longitudinal HLM is that while P0, P1, etc. are estimated for the sample as a whole, individual differences in P0, P1, etc. are also estimated. Thus, for example, if a quadratic first-order model of change is selected, such that $v3_{it} = P0 + P1(age) + P2(age2) + E$, the "unconditional" second-order model would include the following equations:

$$P0 = B00 + R0$$
$$P1 = B10 + R1$$
$$P2 = B20 + R2$$

The second-order model can be further refined, with the "effect" of various individual level characteristics included. For example, consider the following equations:

$$P0 = B00 + B01(female) + B02(BG\ member) + B03(BGS\ member) + R0$$
$$P1 = B10 + B11(female) + B12(BG\ member) + B13(BGS\ member) + R1$$
$$P2 = B20 + B21(female) + B22(BG\ member) + B23(BGS\ member) + R2$$

Thus, if significant individual-level variability is seen in the unconditional second-order model in P0, P1, and P2, the researcher can determine if that variability is predicted, at least in part, by such characteristics as gender and study membership.

Further understanding of the data can be gleaned by a third-level HLM model. Here, given an overall quadratic pattern of change, equations might be:

$$
\begin{aligned}
&\text{If } v3_{it} = P0 + P1(\text{age}) + P2(\text{age}^2) + E \quad \text{with} \\
&P0 = B00 + R0 \\
&P1 = B10 + R1 \\
&P2 = B20 + R2 \quad \text{and} \\
&B00 = G000 + U00 \\
&B10 = G100 + U10 \\
&B20 = G200 + U20
\end{aligned}
$$

with a similar expansion possible for conditional third-order equations, for example:

$$
\begin{aligned}
&B00 = G000 + G001(\text{number of children}) + G002(\text{SES}) + U00 \\
&B10 = G100 + G101(\text{number of children}) + G102(\text{SES}) + U10 \\
&B20 = G200 + G201(\text{number of children}) + G202(\text{SES}) + U20
\end{aligned}
$$

Previous two-level longitudinal HLM work with the Intergenerational Studies older generation only, without data obtained in 2006, indicates a rich patterning of personality change throughout adulthood (Jones, Livson, & Peskin, 2003). With respect to change in psychological health, previous study indicates that while the average older generation individual increases in v3 with age, there are significant individual differences in the extent to which individuals increase (and, in fact, some actually decrease in psychological health with age) (Jones, Livson, & Peskin, 2006).

Here, longitudinal HLM is applied to the full set of data now available for the older generation, including data collected in 2006. The 2006 data collection added a third data point for the younger generation, and therefore allows for the first time application of HLM to these data.

Results

Inspection of Table 1 indicates older generation individuals have a maximum of 5 points of v3 data; mean v3 scores show a rough increase with age. Younger generation individuals have a maximum of 3 points of v3 data; their mean v3 scores also show a rough increase with age. However, interpretation is difficult given the different samples sizes at the different ages.

Table 1: CPI v3 Data: Means, Standard Deviations, Ages, and Sample Sizes by Year

Year	Older generation			Younger generation		
	BS	BGS	OGS	BS	BGS	OGS
1954			38.79 (6.82) 33 N=123			
1963		39.34 (6.82) 35 N=101				
1964	40.51 (7.59) 36 N=39					
1970		39.88 (7.34) 42 N=109	37.91 (7.82) 49 N=87			
1983	41.58 (6.57) 55 N=38	39.95 (7.19) 55 N=111	39.15 (7.80) 62 N=81		34.05(9.04) *28* N=148	35.09 (7.41) *33* N=35
1996	41.66 (6.79) 68 N=29	41.02 (6.82) 68 N=84	40.19 (6.31) 75 N=52	41.50 (5.07) *39* N=30	40.90 (7.58) *41* N=63	40.29 (7.21) *46* N=84
2006	41.33 (6.40) 78 N=18	41.18 (6.85) 78 N=61	41.21 (6.18) 85 N=29	43.21 (6.19) *49* N=19	42.40 (7.39) *51* N=70	40.92 (6.56) *56* N=59

BS: Berkeley Growth Study. BGS: Berkeley Guidance Study. OGS: Oakland Growth Study. Older generation BS and BGS members were born in 1929; older generation OGS members were born in 1921. Younger generation individuals were born in varying years; italicized numbers are average age in years by year.

Application of two-level longitudinal HLM to older generation individuals, with age centered at 33, gave a most reasonable solution as a linear path of change:

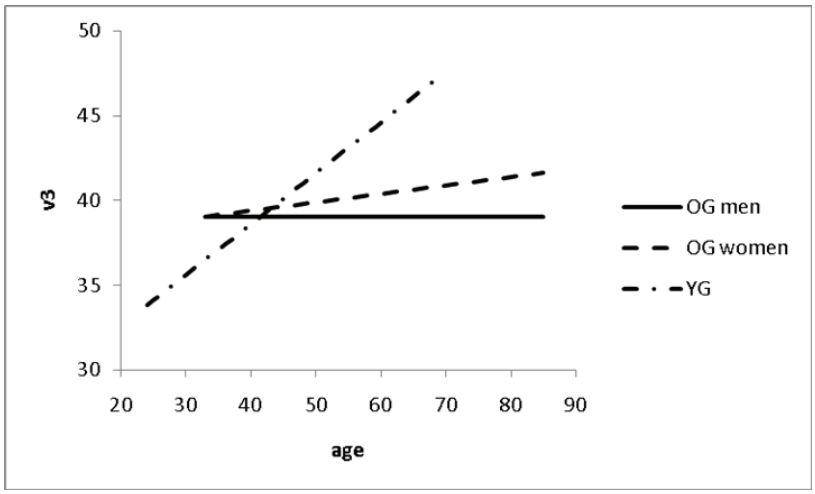
$$v3 = 39.06 + .03(age-33)$$

Both the averaged intercept, 39.06, and the averaged slope, .03, significantly differ from 0. In addition, both the intercept and the slope show significant individual-level variability. When gender and study (BG membership, BGS membership) are entered as possible predictors of individual-level variability in intercept and slope, gender emerges as a predictor for slope only:

$$v3 = 39.05 + .00(age-33) + E \text{ for men}$$
$$v3 = 39.05 + .05(age-33) + E \text{ for women}$$

For the older generation, it appears that men do not change in v3 with age (average slope is .00), while women significantly improve in v3 with age (average slope is .05).

Figure 1: Change in v3 with Age for the Older and Younger Generations, Data Analyzed Separately



In order to correctly analyze v3 data for the younger generation, three-level longitudinal HLM is necessary; multiple children from the same family appear in the data set. Thus, the first order variable is time, the second order variable is individual, and the third order variable is family. With v3 younger generation data first modeled with respect to overall pattern of change, age centered at 33 so the younger generation solution could be most clearly compared to the older generation solution, once again a linear model emerges:

$$v3 = 36.54 + .30(age-33)$$

The averaged intercept, 36.54, and the averaged slope, .30, are both significantly different from 0. In addition, both the intercept and the slope show significant individual-level variability. Interestingly, only the intercept shows significant family-level variability. When gender differences in intercept and slope are explored (study differences become meaningless for the younger generation, given the Intergenerational Studies were effectively combined across the original three studies in 1970), no significant differences emerge.

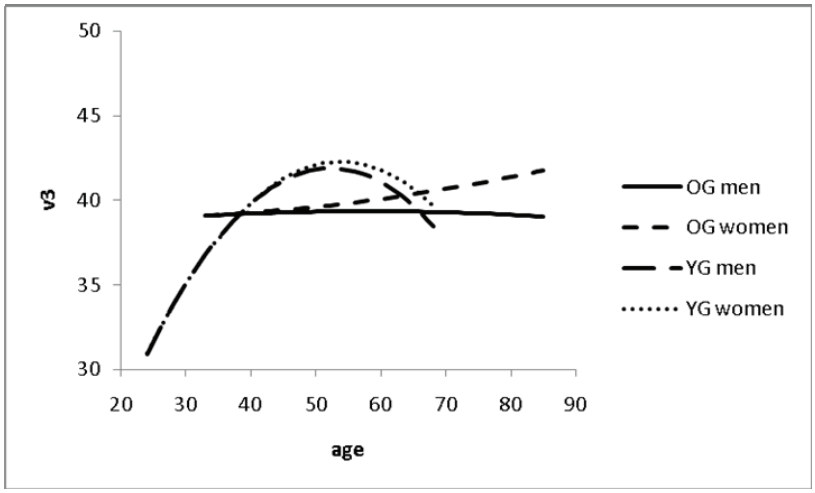
The final result discussed here illustrates the power of the application of three-level longitudinal HLM to both generations simultaneously. Once again, first the overall pattern of change is determined; age is once again centered at 33. With the additional power of an increased sample size and number of data points, a quadratic pattern of change is seen:

$$v3 = 37.84 + .21(age-33) - .004(age-33)^2$$

Both the averaged intercept, slope, and quadratic term are significantly different from 0. In addition, the intercept, slope, and quadratic term show significant individual-level variability. There is significant family-level variability for the intercept only. When gender and generation (parent versus child) are added as possible predictors of individual-level variability in intercept, slope, and quadratic term, gender remains significant for the quadratic term only, but generation is a significant predictor for the intercept, slope, and quadratic terms all:

v3 = 39.08 + .02(age-33) -.0004(age-33)2 + E for older generation men
v3 = 39.08 + .02(age-33) +.0006(age-33)2 + E for older generation women
v3 = 36.80 + .53(age-33) -.0138(age-33)2 + E for younger generation men
v3 = 36.80 + .53(age-33) -.0128(age-33)2 + E for younger generation women

Figure 2: Change in v3 with Age for the Older and Younger Generations, Data Analyzed Simultaneously



Discussion

Summary of Results

Overall, it appears psychological health, at least as measured via the California Psychological Inventory v3 scale, does show important cohort differences in single points of time, and developmental change in single cohorts. Evidence of gender by cohort differences in lifetime paths of psychological health also appears quite strong. When grouped together by family, three-level longitudinal HLM indicates that families change in psychological health in a similar

manner, but do significantly differ with respect to their initial level of psychological health. Thus, the phrase "Happy families are all alike; every unhappy family is unhappy in its own way" from Tolstoy's *Anna Karenina* could be rewritten, less poetically, as "Families' developmental paths are all alike; every family begins its path in its own way."

More specifically, with respect to the first research question – What is the developmental path of psychological health for the older and younger generation, when data are analyzed separately? – we find that for the older generation, a linear pattern of change is seen, with gender differences: older men appear stable with respect to v3 score, while older women significantly and linearly increase from approximately age 33 to 85. At age 33 both men and women begin their path with a fairly high level of psychological health (39.05 is above Gough and Bradley's (1996) recommended cut-off of 36 for good health). The possible impact of more liberal and generous gender roles for women may be contributing to the differential change in psychological health for the two groups.

For the younger generation, when their data are analyzed alone, while again a linear pattern of change is seen, there are no gender differences: both men and women significantly and linearly increase from approximately age 24 to 68. Interestingly, at age 33, both daughters and sons begin their path with a v3 of 36.54, a more moderate (although not low) level of psychological health, as compared to their parents.

With respect to the second research question – What are the additional advantages of analyzing the two generations' psychological health data simultaneously? – we find a more complex pattern of change emerges. Although linear paths of change were all that could be reasonably fit with the older and younger generation samples separately, analysis of the two samples combined allowed portrayal of quadratic change, perhaps not unexpected given the increased number of participants and number of data points obtained with a combined larger sample. A quadratic trend of psychological health fits with others' previous work, and examination of the form of change (∩ versus U shape), pitch of change (modest versus extreme), and point of inversion, as they vary by gender and generation, is instructive. With both generations' data in the same analysis, it is possible to explicitly empirically examine generational differences in intercept, slope, and quadratic term. While the older generation individuals show an initial level of psychological health in their 30s that is higher than their children, they show less change overall. Older generation women are unique in demonstrating a nadir rather than peak in psychological health at an (extrapolated) age of 16. In contrast, the older generation men, younger generation women, and younger generation men show peaks at ages 58, 54, and 52, respectively. Note these peaks are significantly younger than the approximate age 70 found by others, for Neuroticism, with similar longitudinal data.

Given the nature of the fact that the older and younger generation individuals are members of the same family, we can also perform an explicit statistical examination of family differences in intercept, slope, and quadratic term. Had family-level differences in change (slope or quadratic term) been found, additional work to find subtypes of family (stable versus growth-oriented, for example) could have been done.

Weaknesses of the Study

Clearly this study is not without some fairly significant weaknesses. Although the Intergenerational Studies' research design is rare and intriguing, the number of people included in the sample is not particularly large. At the same time, while the number of follow-ups of participants is more than most, more frequent follow-ups would have allowed development to be seen in more detail. In a related vein, more separate families included in the study might have been helpful. Although fairly representative of individuals living in the Berkeley/Oakland, California area in the late 1920s, this sample is predominately Caucasian, and therefore results are possibly not representative of other ethnicities. In the same way, members of long-term longitudinal studies tend to be more physically and psychologically healthy than the "average" citizen; massive generalization to all American citizens is most unlikely unwarranted. Although a quadratic pattern of change was extracted from the combined generation sample, given the fact that the younger generation individuals have at maximum three points of data, a more conservative solution might be a linear one. And given the fact that not all families contained both a parent and a child (in fact, only 51% did), a more conservative reanalysis might use data from only those older generation individuals who provided CPI data along with at least one child. Note that although nearly all older generation individuals had children, not all did, so a very small number of older generation individuals included in the analysis are not actual mothers or fathers. Some researchers may also take exception to the atheoretical, exploratory nature of this study. Given there is not much theory to guide even exploration of single-cohort longitudinal study of psychological health, it seemed appropriate to take an inductive approach to these data, but other researchers may have wished for us to posit more specific hypotheses for cohort differences or developmental changes.

Strengths of the Study

Despite the weaknesses given above (and no doubt others left unlisted), the current study still provides us with useful ideas and evidence with respect to change in psychological health in a family and historical context. The ability to examine long-term change in adult psychological health using a well-regarded standardized measures from two important cohorts in American history is pow-

erfully compelling. That family-level differences and similarities may also be examined is an additional, unusual advantage of this study. Also noteworthy is the use of a statistical technique that appropriately measures not only group-level change, but also intra- and inter-individual differences in change.

Results from this study, naturally, generate further questions. We list a small number here: Will results differ once data from spouses are incorporated? Will patterns of psychological health change after additional points of data, taking the older generation into late old age, and the younger generation into later middle age, are collected? Given the significant family-level differences in initial level of psychological health, can relevant predictors of that variability be found (e.g., socioeconomic status, family dynamic variables)? Fortunately, given the rich nature of the Intergenerational Studies data set as a whole, many of these questions can be addressed in the future.

References

Bell, Richard (1968): A Reinterpretation of the Direction of Effects in Studies of Socialization. In: Psychological Review 75. 81-95.

Biesanz, Jeremy/Deeb-Sossa, Natalia/Papadakis, Alison/Bollen, Kenneth/Curran, Patrick (2004): The Role of Coding Time in Estimating and Interpreting Growth Curve Models. In: Psychological Methods 9. 30-52.

Bryk, Anthony/Raudenbush, Stephen (1992): Hierarchical Linear Models. Newbury Park: Sage.

Eichorn, Dorothy (1981): Samples and Procedures. In: Eichorn, Dorothy/Clausen, John/Haan, Norma/Honzik, Marjorie/Mussen, Paul (Eds.) (1981): Present and Past in Middle Life. New York: Academic Press. 33-51.

Elder, Glen (1981): Social History and Life Experience. In: Eichorn, Dorothy/Clausen, John/Haan, Norma/Honzik, Marjorie/Mussen, Paul (Eds.) (1981): Present and Past in Middle Life. New York: Academic Press. 3-31.

Gough, Harrison/Bradley, Pamela (1996): CPI Manual (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

Groth-Marnat, Gary (1984): Handbook of Psychological Assessment. New York: Van Nostrand Reinhold Company.

Hagestad, Gunhild (1984): The Continuous Bond: A Dynamic, Multigenerational Perspective on Parent-Child Relations between Adults. In: Perlmutter, Marion (Ed.) (1984): Minnesota Symposia on Child Development (vol. 17). New York: Lawrence Erlbaum Associates.

Hagestad, Gunhild (1987). Parent-Child Relations in Later Life: Trends and Gaps in Past Research. In: Lancaster, Jane/ Altmann, Jeanne/ Rossi, Alice/Sherrod, Lonnie (Eds.)(1987): *Parenting across the Life Span.* New York: Aldine De-Gruter. 129-158.

Jones, Constance/ Livson, Norm/Peskin, Harvey (2003): Longitudinal Hierarchical Linear Modeling Analyses of California Psychological Inventory Data from Age 33 to 75: An Examination of Stability and Change in Adult Personality. In: Journal of Personality Assessment 80. 294-308.

Jones, Constance/ Livson, Norm/Peskin, Harvey (2006): Paths of Psychological Health: Examination of 40-Year Trajectories from the Intergenerational Studies. In: Journal of Research in Personality 40. 56-72.

Kashy, Deborah/Donnellan, M. Brent (2008): Comparing MLM and SEM Approaches to Analyzing Developmental Dyadic Data: Growth Curve Models of Hostility in Families. In: Card, Noel/Selig, James/Little, Todd (Eds.) (2008): Modeling Dyadic and Interdependent Data in the Developmental and Behavioral Sciences. New York: Routledge. 165-190.

Markson, Elizabeth (1984): Family Roles and the Impact of Feminism of Women's Mental Health across the Life Course. In: Marriage and Family Review 7. 215-232.

McCrae, Robert/Costa, Paul (1999): A Five-Factor Theory of Personality. In: Pervin, Lawrence/John, Oliver (Eds.) (1999): Handbook of Personality: Theory and Research (2nd ed). New York: Guilford. 139-153.

Meredith, William/Tisak, John (1990): Latent Curve Analysis. In: Psychometrika 55. 107-122.

Mroczek, Daniel/Spiro, Avron (2003): Modeling Intraindividual Change in Personality Traits: Findings from the Normative Aging Study. In: Journal of Gerontology: Psychological Sciences 50B. P153-P165.

Putnam, Robert (2000). Bowling Alone: The Collapse and Revival of American Community. New York: Simon & Schuster.

Roberts, Brent/Helson, Ravenna (1997): Changes in Culture, Changes in Personality: The Influence of Individualism in a Longitudinal Study of Women. In: Journal of Personality and Social Psychology 72. 641-651.

Robins, Richard/Fraley, R. Chris/Roberts, Brent/Trzesniewki, Kali (2001): A Longitudinal Study of Personality Change in Young Adulthood. In: Journal of Personality 69. 617-640.

Rogler, Lloyd (2002): Historical Generations and Psychology: The Case of the Great Depression and World War II. In: American Psychologist 57. 1013-1023

Schaie, K. Warner (1965): A General Model for the Study of Developmental Problems. In: Psychological Bulletin 64. 92-107.

Small, Brent/Hertzog, Christopher/Hultsch, David/Dixon, Roger (2003): Stability and Change in Adult Personality over 6 Years: Findings from the Victoria Longitudinal Study. In: Journal of Gerontology: Psychological Sciences 58B. P166-P176.

Srole, Leo/Fischer, Anita (1980): The Midtown Manhattan Longitudinal Study vs. "The Mental Paradise Lost" Doctrine: A Controversy Joined. In: Archives of General Psychiatry 37. 209-221.

Steuneberg, Bas/Twisk, Jos/Beekman, Aartjan/Deeg, Dorly/Kerkhof, Ad (2005): Stability and Change of Nneuroticism in Aging. In: Journal of Gerontology: Psychological Science 60B. P27-P33.

Swindle, Ralpha/Heller, Kenneth/ Pescosolido, Bernice/ Kikuzawa, Saeko (2000): Responses to Nervous Breakdowns in America over a 40-Year Period. In: American Psychologist 55. 740-749.

Terracciano, Antonio/McCrae, Robert/Brant, Larry/Costa, Paul (2005): Hierarchical Linear Modeling Analyses of the NEO-PI-R Scales in the Baltimore Longitudinal Study of Aging. In: Psychology and Aging 20. 493-506.

Twenge, Jean (2000): The Age of Anxiety? Birth Cohort Change in Anxiety and Neuroticism, 1952-1993. In: Journal of Personality and Social Psychology 29. 1007-1021.

Weiser, Nicole/Meyers, Lawrence (1993): Validity and Reliability of the Revised California. Psychological Inventory's Vector 3 Scale. In: Educational and Psychological Measurement 53. 1045-1054.