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A Big Five Approach to Self-Regulation: Personality Traits and Health Trajectories in the Hawaii Longitudinal Study of Personality and Health

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Abstract

Self-regulatory processes influencing health outcomes may have their origins in childhood personality traits. The Big Five approach to personality was used here to investigate the associations between childhood traits, trait-related regulatory processes, and changes in health across middle age. Participants (N = 1,176) were members of the Hawaii longitudinal study of personality and health. Teacher assessments of the participants' traits when they were in elementary school were related to trajectories of self-rated health measured on 6 occasions over 14 years in middle age. Five trajectories of self-rated health were identified by latent class growth analysis: Stable Excellent, Stable Very Good, Good, Decreasing, and Poor. Childhood Conscientiousness was the only childhood trait to predict membership in the Decreasing class versus the combined healthy classes (Stable Excellent, Stable Very Good, and Good), even after controlling for adult Conscientiousness and the other adult Big Five traits. The Decreasing class had poorer objectively assessed clinical health measured on one occasion in middle age, was less well-educated, and had a history of more lifespan health-damaging behaviors compared to the combined healthy classes. These findings suggest that higher levels of childhood Conscientiousness (i.e., greater self-discipline and goal-directedness) may prevent subsequent health decline decades later through self-regulatory processes involving the acquisition of lifelong healthful behavior patterns and higher educational attainment.

Keywords

Conscientiousness; self-rated health; health trajectories; health behaviors

Self-regulation refers to processes by which individuals behave in goal-directed ways to achieve desired outcomes. Good health is a highly valued goal that is achieved, in part, by the self-regulation of thoughts, emotions, and behaviors(Hooker, Choun, Mejía, Pham, & Metoyer, 2013). Personality traits are drivers of self-regulation processes (Hooker & McAdams, 2003). Individuals with higher levels of traits related to self-regulation, such as

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conscientiousness, are more likely to value their health and engage in actions (self-regulation processes) that support the goal of staying healthy. Because health is a dynamic concept and self-regulation processes unfold over time, trait-driven self-regulation is best investigated longitudinally. In the present 40-year prospective study, we examined whether self-regulatory processes over the lifespan originate in childhood personality traits and affect patterns of self-rated health assessed over time in middle age.

We examined self-regulatory processes and health using the Big Five approach to personality description and measurement (Goldberg, 1992). We expected self-regulation processes to be driven primarily by the Big Five trait of Conscientiousness. This trait refers to the tendency to be self-disciplined and goal-directed. It is manifested in planful, careful, and organized behaviors, all of which depend on the ability to control impulses and delay gratification. Conscientiousness and its facets are positively associated with health-enhancing behaviors and negatively associated with health-damaging behaviors and morbidity (Bogg & Roberts, 2004; Bogg & Roberts, 2013). The most compelling evidence for the influence of Conscientiousness on health comes from longitudinal studies. Childhood Conscientiousness and related self-regulatory traits predict better self-reported and objectively assessed health (measures of physiological dysregulation) assessed decades later in adulthood (Hampson, Goldberg, Vogt, & Dubanoski, 2006; Hampson, Edmonds, Goldberg, Dubanoski, & Hillier, 2013; Moffitt et al., 2011). Moreover, child and adult Conscientiousness predict longevity (Friedman et al., 1993; Kern & Friedman, 2008). Although there is less evidence for the other Big Five traits (Extraversion, Agreeableness, Emotional Stability, and Intellect/Openness), these too have been related to health outcomes (Turiano, Chapman, Gruenewald, & Mroczek, 2013) and so may also be involved in health-related self-regulation processes. Moreover, the Big Five are not completely independent dimensions of personality (Goldberg, 1992), so it is important to evaluate the effects on any one Big Five trait while controlling for the effects of the others.

Self-rated health, which is often assessed by only a single item, is a surprisingly valid indicator of health status. It has been found repeatedly to predict mortality above and beyond objective health status in both community and patient samples (Benyamini & Idler, 1999; Idler & Benyamini, 1997; Lee, 2000), and the predictive validity of this association has increased over time (Schnittker & Bacak, 2014). Despite the dynamic nature of health status, previous studies (including ours) have typically studied self-reported health assessed at only one (Hampson et al., 2006; Hampson, Goldberg, Vogt, & Dubanoski, 2007) or at best two time points (Letzring, Edmonds, & Hampson, 2014; Takahashi, Edmonds, Jackson, & Roberts, 2013). However, chronic diseases such as diabetes and heart disease take years or decades to develop. Accordingly, health change is best studied over more than two assessments to avoid mistaking measurement error for genuine change, and to identify patterns of change.

For this report, we investigated dynamic health outcomes in the form of self-rated health trajectories among participants in the Hawaii longitudinal study of personality and health. This is an ongoing study of a sample of elementary school children, now middle-aged adults, who were first assessed on their personality traits 40–50 years ago. The first aim of the study was to determine whether the Big Five personality traits assessed in childhood

prospectively predict membership in midlife health trajectory classes, with the specific prediction that lower childhood Conscientiousness will predict lower levels of health, and declining health over time. The second aim was to characterize differences among trajectory classes in terms of trait-driven self-regulatory mechanisms. One set of self-regulatory processes leading to good health involves developing and maintaining health-enhancing behaviors over the lifespan. Health behaviors provide a partial explanation for the association between personality traits and health outcomes (Turiano et al., 2013), but studies examining lifespan patterns of health behaviors in relation health change are lacking. Hampson, Edmonds, Goldberg, Dubanoski and Hillier (2015) demonstrated indirect pathways from childhood Conscientiousness to physiological dysregulation measured on one occasion in the Hawaii cohort that involved a retrospective measure of lifespan health-damaging behavior. The present study differs from that report by relating this measure of lifespan health-damaging behavior to trajectories of self-rated health. We predicted higher levels of these behaviors would be associated with declining health. We also examined differences in educational attainment among trajectories as another indicator of self-regulatory processes related to personality (Duckworth, Quinn, & Tsukayama, 2012). Those in declining health were predicted to be characterized by lower levels of educational attainment. We examined gender differences on all study variables and included gender in initial model testing on an exploratory basis.

Methods

Participants and Design

The Hawaii longitudinal study of personality and health is a 40+ year follow-up of 2,418 elementary school children on two Hawaiian islands who were assessed on their personality traits between1959–1967. Subsequently, 84% of those children, now middle-aged adults, have been located, and 73% of those located and still living have agreed to participate in follow-up studies (N = 1,387). Participants (N = 1,176, 592 women and 584 men) were included in this study if they responded to the self-rated health question on at least two of the six questionnaires, We chose to exclude those with only one self-rating of health because of the focus on health change (0 ratings = 1, 1 rating = 172, 2 ratings = 183, 3 ratings = 180, 4 ratings = 213, five ratings = 256, 6 ratings = 344).

They ranged in age from 40–49 at Q1 and 54–62 at Q6. They represented diverse ethnic ancestry including Japanese Americans (34%) and Native Hawaiians (20%), as well as those of European descent (20%). The majority of participants (n = 823) also attended a half-day clinical assessment of their health at mean age 51, on average 2.9 years after completing Q1. Participants were sent the questionnaires over 14 years to complete at home and return, with one resend for non-responders: Q1 in November 1999 (1,350 returns); Q2 in August, 2002 (936 returns); Q3 in March, 2005 (801 returns); Q4 in May, 2007 (857 returns); Q5 in June, 2008 (848 returns); Q6 in June, 2013 (849 returns).

Measures

Childhood Big Five personality measures were derived from teacher assessments. Teachers rank-ordered the children in their classrooms (Grades 1, 2, 5, or 6; M age = 10 years) on

each of a comprehensive set of 43–49 personality attributes, which included 39 items common to all classrooms, using a 9-step quasi-normal distribution. Definitions for each attribute, developed by teachers, were provided. Factor scores (standard scores) for the Big Five were obtained for subgroups of children who were rated on the same set of attributes (Goldberg, 2001). Factor scores were not available for 12 children who were assessed on a markedly different set of traits (see Goldberg, 2001 for details). Mean alpha reliabilities across subgroups for these factor scores (Ten Berge & Hofstee, 1999) were as follows: .75 (Extraversion), .62 (Agreeableness), .77 (Conscientiousness), .68 (Emotional Stability), and .60 (Intellect/Imagination) (Edmonds, Goldberg, Hampson, & Barckley, 2013). Adult personality traits were assessed on Q1 using the Big Five Inventory (John, Naumann, & Soto, 2008). Participants rated the self-descriptiveness of each item (1 = very inaccurate, 5 = very accurate). Alpha reliabilities for this measure for the Hawaii cohort are as follows: .84 (Extraversion), .78 (Agreeableness), .80 (Conscientiousness), .82 (Emotional Stability), and .79 (Intellect/Openness) (Edmonds et al., 2013).

Self-rated health was assessed by a single-item measure included in every questionnaire: “Compared to others of your same age and sex, would you say that in general your health is poor, fair, good, very good, or excellent?” with higher scores indicating better health.

Physiological dysregulation was assessed at the clinic visit by a combination of systolic and diastolic blood pressure (means of two assessments), total cholesterol/HDL ratio, HDL (reversed), fasting triglycerides, fasting blood glucose, and urine protein (log transformed). Participants lacking more than two of these measures were treated as missing on this variable. A participant’s dysregulation score was derived by standardizing each measure across men and women and summing the standard deviations from the mean (Hampson, Goldberg, Vogt, Hillier, & Dubanoski, 2009). Higher scores indicate more dysregulation. Body mass index (BMI; kg/m2) was assessed by height and weight measured at the clinic visit. Self-reported disease history was assessed on Q1 by asking whether they had ever been told by a doctor that they had any of 10 conditions (heart attack, other heart disease, stroke, thyroid diseases, high blood pressure, high cholesterol, migraine headaches, diabetes, cancer, chronic fatigue syndrome) and summing the number of diseases reported.

Lifespan health-damaging behaviors was measured by a combination of histories of smoking, physical inactivity, and weight (corrected for height) using variables from Q1, Q3 and Q4 (for details, see Hampson et al., 2014). Life-time smoking history was coded as 0 = ≤100 cigarettes, 1 = previously smoked < 8 pack-years, 2 = previously smoked ≥8 pack-years, 3 = currently smoke (in last year) ≤½ pack a day, 4 = currently smoke (in last year) ≥1 pack a day. A pack year was defined as the equivalent of smoking one pack a day for one year. Cumulative physical inactivity over the lifespan (broken into two 10 time periods) was assessed by asking participants to check the time periods when they “engaged in no exercise and were quite inactive,” and to check the time periods when they “engaged in sports or were otherwise quite physically active.” The sum of periods of physical inactivity minus the sum of periods of activity was calculated to create a cumulative physical inactivity score (maximum score = 10). The sum of self-reported Body Mass Index (BMI; kg/m2) across ages 20, 30 and 40 was used as a cumulative measure of weight. Scores on the three components were standardized and summed to form an index of accumulated exposure to

health-damaging behaviors across the lifespan (higher scores indicate more unhealthy behavior). Participants checked their highest level of educational attainment ranging from 1 = eighth grade or less to 9 = postgraduate or professional degree.

Data Analysis

Trajectories of self-rated health were identified using latent class growth analysis (LCGA; Nagin, 2005), which is a person-centered approach that identifies distinct groups of individuals who share a similar trajectory of continuity or change on a variable over time (Jung & Wickrama, 2008). LCGA was used to determine classes of participants with similar trajectories of self-rated health across six assessments using Mplus Version 7.0 (Muthén & Muthén, 1998–2012) with maximum likelihood estimation for missing data. The time interval between each questionnaire varied, depending on both when the questionnaire was administered and when participants actually responded. To provide a common time metric, the average time between each assessment was calculated across participants, and then scaled proportional to the Q1 to Q2 interval (i.e., time 1 = 0, time 2 = 1, time 3 = 1.90, time 4 = 2.65, time 5 = 3.02, time 6 = 4.76). The determination of the number of classes was informed by parsimony and interpretability, guided by three statistical criteria (Nylund, Asparouhov, & Muthén, 2007). On the Baysian information criterion (BIC), lower values indicate better fit; for entropy (E), higher values indicate better fit; and a nonsignificant adjusted Lo-Mendell-Rubin test (adj. LMRT) indicates that fit is not improved by an additional class. Logistic regression was used to predict trajectory class membership from the Big Five traits assessed in childhood and adulthood. Differences between classes on study variables were evaluated using *t* tests.

Results

Descriptive statistics are shown in Table 1 separately for women and men. There were no gender differences on age, education, and ethnicity. On their childhood personality traits, women were less extraverted, more agreeable, more conscientious and less emotionally stable than men. On their adult traits, women were more extraverted, more agreeable, more conscientious, less emotionally stable, and less intellectual/open. Although the means for men's self-rated health were consistently lower women's, these differences were small and nonsignificant.

The LCGA was conducted for two- through six-class solutions. The statistical criteria indicated that each increase in the number of classes (n versus n+1) was an improvement over the previous solution, up to five classes. The five-class solution had a higher E than the six-class solution, although the BIC was unchanged, and the LMRT remained significant for the six-class solution (five classes: BIC = 11358, E = .788, adj. LMRT = 67.43, $p = .000$; six classes: BIC = 11357, E = .750, adj. LMRT = 20.8, $p = .012$). The five-class solution was chosen on the grounds of parsimony and interpretability because the additional class created by the six-class solution consisted of only 42 members. The inclusion of the 172 individuals with only one self-rating of health did not make any appreciable difference to the LCGA.

The mean intercepts and slopes for these five classes are shown in Table 2. As shown, the proportion of men and women in each class (approximately 50:50) did not differ across

classes (χ^2 = 3.15, *N* = 1176, *df* = 4, *p* = .53). Figure 1 depicts the five trajectories using mean self-rated health at each assessment. A relatively small group rated their health as excellent initially and continued to rate it highly across the next five assessments (Stable Excellent class, n = 141). The two largest hence most normative classes consisted of those who initially rated their health as very good and remaining at that level (Stable Very Good, *n* = 405), or as good but decreasing very slightly over time (Good, *n* = 426). Those who started out as only fair decreased at a steeper rate (Decreasing, *n* = 186), and those who viewed themselves initially in poor health continued to do so across assessments (Poor, *n* = 18). Participants were assigned to the trajectory class for which they had the highest posterior probability of membership.

Table 3 shows the means for each class on three health indicators, child Big Five traits, educational attainment, and lifespan health-damaging behaviors. These health measures indicated a fairly consistent pattern of increasingly poor health across the trajectory classes. The Stable Excellent class had the lowest dysregulation, BMI, and number of self-reported diseases, and the Decreasing class had the highest dysregulation and BMI. The Poor class had comparatively low dysregulation but had the highest number of self-reported doctor-diagnosed diseases, suggesting that they were being treated for their blood pressure, blood glucose, and high cholesterol. Together, these patterns of health measures provide support for the validity of the self-reported health trajectory classes as measures of physical health. Educational attainment was lower and lifespan health-damaging behaviors were higher for the classes in less good or declining health.

To investigate trait-related self-regulatory processes leading to declining health, for the remaining analyses we compared the Decreasing class against the combined Stable Excellent, Stable Very Good, and Good classes, and excluded the small class already in stable poor health. In a logistic regression predicting membership in the Decreasing class versus the three classes of relatively stable good health from the childhood Big Five, childhood Conscientiousness was the only significant predictor: those who were less conscientious as children were more likely to be in the Decreasing health class (see Table 4). When the adult Big Five were added to this model, child Conscientiousness remained the only significant child trait predictor. We also ran these models including gender as a main effect and the interactions between gender and each adult trait and child Conscientiousness. None of these gender effects were significant. Compared to the combined classes with relatively stable good health, the Decreasing class had significantly more dysregulation, higher BMI, and reported more diseases on Q1. They also had lower levels of educational attainment and higher levels of lifespan health-damaging behaviors (see Table 5). We tested for gender differences within the Decreasing and the Stable Healthy classes on mean levels for these two hypothesized mechanisms. For the Decreasing class, there were no differences between men and women on lifespan health-damaging behaviors (*t* = −.62, *df* = 82, *p* = .54, 95% CI = −1.00, .53) or educational attainment (*t* = −.80, *df* = 183, *p* = .42, 95% CI = −.82, .35). For the Stable Healthy Class, there was no difference between men and women on lifespan health-damaging behaviors (*t* = .01, *df* = 554, *p* = .99, 95% CI = −.28, .29), but men had higher levels of education than women (*t* = 2.27, *df* = 941, *p* = .02, 95% CI = .04, .48).

These findings suggest that educational attainment may contribute to a self-regulation process of particular importance for maintaining men's health.

Discussion

The Hawaii cohort demonstrated a wide range of self-rated health that, for the majority, remained relatively stable across this period in late middle age (mid-40's to late 50's/early 60's), but for a minority showed significant declines. Conscientiousness was the only childhood trait to be associated with trajectories of self-rated health. Lower childhood Conscientiousness was associated with decreasing health across midlife relative to stable good health. This association remained even after controlling for adult Conscientiousness and the other adult Big Five traits, and there were no differences between women and men.

The results of this study are consistent with trait-related self-regulatory processes involving health behaviors and educational attainment that unfold from childhood to late middle age. Children who are less conscientious tend to have less impulse control and self-discipline. As a result, they are less likely to develop health-enhancing habits that require exertion of self-control and planning, such as healthy eating and exercising, and refraining from smoking. Supporting this proposed mechanism, the Decreasing class had higher levels of lifespan health-damaging behaviors than combined Stable Healthy classes: those who believed their health to be decreasing over late middle age reported greater exposure to an accumulation of health-damaging behavior over their lives. Men and women did not differ on their levels of lifespan health-damaging behaviors in either of these classes, suggesting that this self-regulatory process applied similarly to both genders.

Children who are less conscientious are also less likely to achieve high levels of educational attainment. In the Hawaii cohort, educational attainment is related to both childhood Conscientiousness and better clinical health (Hampson et al., 2015). Higher levels of educational attainment are achieved through a combination of ability and application, which requires self-regulatory skills. Education levels were higher for those in the Stable Healthy classes than the Declining class. Within the Stable Healthy classes, men's educational attainment was higher than women's, suggesting that men benefited more than women from health-related advantages of education such as health literacy (Institute of Medicine, 2004).

The influence of personality traits on self-regulatory processes may depend on personality stability over the life course. However, as reported by Edmonds et al. (2013), the correlations between the child teacher assessments and adult self-reports on Q1 indicated only moderate stability for Extraversion (.22), Conscientiousness (.20) and Intellect/Openness (.24), although these were higher than for Agreeableness (.08) and Emotional Stability (−.04). It appears that low childhood Conscientiousness may have an enduring influence on self-regulatory processes leading to later health decline regardless of changes in Conscientiousness in adulthood.

The primary limitation of this study was that self-regulatory mechanisms operating over the lifespan could only be studied indirectly through retrospective reports because the Hawaii cohort was not studied in the intervening years between childhood and middle age. Future

studies of trait mechanisms that include more frequent measurement of intervening self-regulatory processes would be valuable additions to the field. The primary strength of this study was the ability to study changing patterns of self-rated health over middle age, and the notable finding that childhood Conscientiousness appears to exert an influence on health change in late middle age.

These findings from this study support a self-regulation process resulting in better health that originates in childhood Conscientiousness and is associated with higher educational attainment and an accumulation of fewer health-damaging behaviors across the lifespan. It advances the field of self-regulation by relating two processes that unfold over time to health status assessed also assessed as a dynamic variable across late midlife. These findings provide further confirmation of the importance of teaching self-discipline and goal-directedness in young children to promote the beneficial consequences of self-regulation for health.

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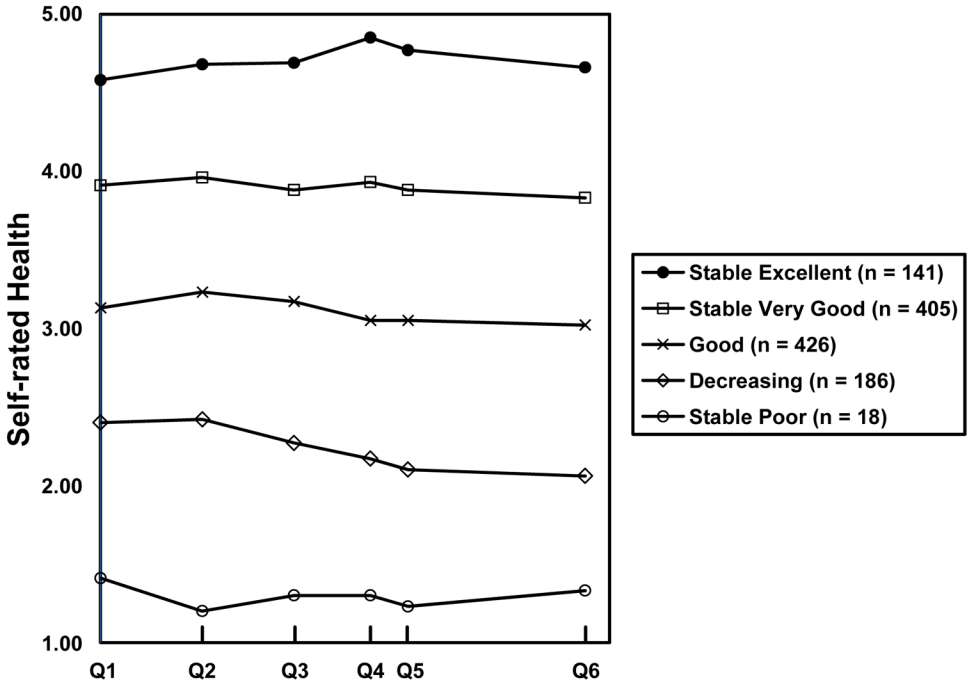

Figure 1.

Trajectory Classes Identified by Latent Class Growth Analysis of Self-rated Health Assessed on Six Occasions Between 1999–2013.

Table 1

Means and Standard Deviations or Frequencies for Men and Women

	Women (n = 592)		Men (n = 584)				
	M	***SD***	***M***	***SD***	***t* value**	***p* value**	**Cohen's *d***
Age at Q1	44.5	1.99	44.7	1.90	.69	.49	.10
Age at Q6	58.3	1.96	58.4	1.94	.70	.48	.05
Age at clinic	51.4	2.84	51.5	2.70	.44	.66	.04
Educational attainment[a]	6.9	1.8	6.8	1.9	1.67	.10	.05
Ethnicity							
Japanese American	31.3%		36.1%				
Hawaiian/Pacific Islander	22.1%		18.8%				
European	21.5%		18.2%				
Other	25.2%		26.9%		$\chi^2 = 5.58$	.13	
Childhood personality[b]							
Extraversion	−.11	.99	.12	1.01	4.04	.00	.23
Agreeableness	.10	.99	−.06	.98	2.65	.01	.16
Conscientiousness	.40	.89	−.23	1.01	11.30	.00	.66
Emotional Stability	−.08	1.04	.12	.98	3.55	.00	.20
Intellect/Openness	.06	.96	.05	1.04	.18	.86	.01
Adult personality[b]							
Extraversion	.15	1.04	−.13	.95	4.87	.00	.28
Agreeableness	.23	.96	−.19	.97	7.42	.00	.44
Conscientiousness	.07	.99	−.06	.98	2.20	.03	.13
Emotional Stability	−.09	1.00	.11	.99	3.43	.00	.20
Intellect/Openness	−.10	.99	.09	1.00	3.31	.00	.19
Self-rated health[c]							
Q1	3.48	.94	3.39	.94	1.59	.06	.10
Q2	3.51	.96	3.47	.92	.62	.07	.04
Q3	3.49	.91	3.41	.88	1.35	.06	.09
Q4	3.51	.96	3.39	.94	1.72	.07	.13

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	Women (*n* = 592)		Men (*n* = 584)				
	M	***SD***	***M***	***SD***	***t* value**	***p* value**	**Cohen's *d***
Q5	3.41	.93	3.35	.95	.85	.07	.06
Q6	3.40	1.00	3.32	1.00	1.08	.07	.08

[a] Educational attainment was assessed on a 9-point scale: 1 = eighth grade or less to 9 = postgraduate or professional degree.

[b] Child and adult personality traits were measured in standard scores (mean= 0, SD = 1); negative scores indicate values below the sample mean and positive indicate values above the sample mean expressed in standard deviations.

[c] Self-rated health was measured on a 5-point scale: 1 = Poor, 5 = Excellent

Table 2

Mean Intercepts and Slopes for the Five Trajectory Classes

	M intercept	*p* of intercept	*M* slope	*p* of slope	*N*	Men	Women
Stable Excellent	4.62	.00	.02	.20	141	61	80
Stable Very Good	3.92	.00	−.02	.19	405	200	205
Good	3.17	.00	−.03	.03	426	219	207
Decreasing	2.48	.00	−.10	.00	186	94	92
Stable Poor	1.40	.00	−.00	.94	18	10	8

Table 3

Means and Standard Deviations for Each Trajectory Class on Measures of Health, Child Big Five, Educational Attainment and Lifespan Health-damaging Behaviors

	Stable Excellent		Stable Very Good		Good		Decreasing		Stable Poor	
	M	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Health										
Dysregulation[1]	−.26	.41	−.10	.54	.05	.51	.22	.71	−.14	.40
BM1[1]	−.47	.76	−.22	.75	.09	.80	.49	.93	.44	.82
Diseases[2]	.47	.70	.65	.90	.93	1.03	1.60	1.51	2.67	1.91
Child Personality[1]										
Extraversion	.13	1.06	.04	.97	−.03	1.01	−.06	1.05	−.12	.80
Agreeableness	.10	.92	.00	.10	.02	.97	.06	1.02	−.58	1.27
Conscientiousness	.22	.93	.06	1.02	.13	.96	−.07	1.09	−.03	1.08
Emotional Stability	−.08	1.08	.09	1.01	.04	.96	−.04	1.10	−.32	.92
Openness/Intellect	.28	1.00	.09	1.04	−.03	.97	.06	.97	−.29	.72
Educational Attainment[3]	7.65	1.58	7.18	1.69	6.68	1.76	6.06	2.02	5.31	1.99
Lifespan Health-damaging Behaviors[1]	−1.12	1.38	−.63	1.54	.31	1.64	1.29	1.76	2.54	.47

Note. N's differed across variables. There was little missing data was for diseases (n = 1173), child personality (n = 1164), adult personality (n = 1165), and educational attainment (n = 1144). There was more missing data for dysregulation (n = 689), BMI (n = 738) and lifespan health-damaging behaviors (n = 647). The proportion of participants with missing data in each trajectory class (Stable Excellent, Stable Very Good, Good, Decreasing, Poor) for each of these three variables, respectively, was for dysregulation 42%, 40%, 41%, 45%, and 67%; for BMI 41%, 35%, 37%, 39%; and 67%, and for lifespan health-damaging behaviors 42%, 42%, 44%, 55%, and 61%.

[1]Measured in standard scores; higher scores indicate more dysregulation, higher trait level and more lifespan health-damaging behaviors

[2]Sum of self-reported, doctor-diagnosed diseases (maximum 10)

[3]1 = eighth grade or less to 9 = postgraduate or professional degree

Table 4

Results of Logistic Regression Predicting Membership in the Decreasing Class vs. the Combined Stable Healthy Classes (Stable Excellent, Stable Very Good, Good) from Childhood Big Five Traits

Predictors	***OR***	***p***	***95% CI***
Child Big Five			
Extraversion	.91	.25	.78, 1.06
Agreeableness	1.03	.74	.87, 1.21
Conscientiousness	.83	.02	.71, .97
Emotional Stability	.92	.26	.78, 1.07
Openness/Intellect	1.00	.95	.85, 1.16

Table 5

Means and Standard Deviations for the Decreasing Class and the Combined Stable Healthy Classes (Stable Excellent, Stable Very Good, Good)

	Decreasing			Stable Healthy						
	M	***SD***	***n***	***M***	***SD***	***n***	***t***	***df***	***p***	***95% CI***
Dysregulation	.22	.71	103	−.06	.52	580	4.65	681	.00	.16, .39
BMI	.49	.94	114	−.12	.80	618	7.29	730	.00	.45, .78
Diseases	1.60	1.51	186	.74	.95	969	10.11	1153	.00	.69, 1.02
Educational Attainment	6.06	2.02	185	7.02	1.74	943	6.69	1126	.00	.68, 1.24
Lifespan Health-damaging Behaviors	1.29	1.76	84	−.30	1.65	556	8.18	638	.00	1.21, 1.98

Note. All means differed significantly, $p < .001$; 95% CI is for the difference between the means.