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Perceived Control and Self-Rated Health from Young Adulthood to Midlife: Findings from the Longitudinal Youth Development Study

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Abstract

Grasping the factors that shape self-rated health (SRH), also known as subjective health, is critically important, given its strong association with objective health outcomes and mortality risk. Extensive prior research has explored the correlates, precursors, and potential drivers of SRH, typically assessed at a single point in time or as an outcome measure. In this investigation, we assess whether personal mastery—a key measure of personal agency—exerts a beneficial influence on SRH across an extended period of the adult life course. Using longitudinal data from the Youth Development Study (n = 741), we analyze the effects of mastery on SRH across 24 years (spanning ages 21–22 to 45–46). Results from fixed effects regression, which account for time-varying factors such as educational attainment, unemployment experiences, age, obesity, serious medical diagnoses, and time-invariant individual characteristics, indicate that mastery consistently predicts SRH positively from early adulthood through midlife. These findings demonstrate that psychological resources shape people's subjective evaluations of their health, independent of objective physical health measures and socioeconomic factors.

Keywords: Self-rated health, Subjective health, Physical health measures, Longitudinal data

Introduction

This research examines whether personal mastery, a central marker of agency, affects self-rated health (SRH) over a wide segment of the life course, while adjusting for physical and mental health issues, socioeconomic position, and other known predictors of SRH. By doing so, the study probes the connection between subjective and objective health, the internal psychological processes that may foster a positive sense of health, and the consistency of agency's effects on perceived health from early adulthood into midlife.

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Self-rated health and actual health

Self-rated health (SRH) measures are commonly employed in public health research due to their simplicity (often a single question) and strong predictive validity. Multiple investigations have identified robust links between SRH and chronic illnesses [1, 2], diagnosed conditions such as cancer, cardiovascular disease, hypertension, and diabetes, along with irregularities in clinical markers like blood pressure and glucose levels [3]. SRH has also been connected to various health-related factors, including functional limitations, dependency, pain, and psychological distress [1, 2]. Additionally, health-promoting behaviors—such as regular exercise, eating breakfast, and abstaining from smoking—correlate with SRH [1-3]. Participation in these activities (e.g., running or swimming) might even serve as personal evidence of robust health. Yamada et al. [3] highlight SRH's comprehensive nature, arguing it provides greater insight into overall health than many objective metrics alone, particularly in cases involving

simultaneous declines and improvements in clinical indicators and habits (p. 461).

Moreover, numerous studies demonstrate that SRH forecasts mortality timing, even after adjusting for objective health indicators like physical exam results, functional impairments, healthcare use, and other risk factors [4-6].

The evidence reviewed indicates that SRH strongly reflects a broad array of health experiences, behaviors, and mortality risks. Obesity, recognized as a health risk and disease precursor, similarly shows an inverse relationship with SRH [7-9]. Aligning with Link and Phelan's [10] foundational cause framework, where socioeconomic status (SES) drives health disparities, higher education and income are tied to superior SRH [2]. Body mass index has been shown to partially explain links between early-life SES and adult health outcomes [11].

SRH likely mirrors awareness of actual disease processes and behaviors, as individuals often know their diagnoses, symptoms, and limitations. It is plausible that the emergence of chronic conditions as people approach midlife would markedly worsen SRH. Indeed, sustaining positive SRH may prove difficult after early adulthood. Yet, beyond illnesses and related factors, SRH can be shaped by broader influences, such as evolving cultural definitions of health, social comparisons, and personal psychological factors. The latter, especially those tied to self-perception, are the primary focus here. We argue that SRH merits attention not solely for its ties to disease and mortality but also as a meaningful cognitive evaluation in its own right.

Agency and self-rated health

Given that health holds profound personal significance and is universally prized, self-rated health (SRH) can be viewed as a core and persistent element of the self-concept, intertwined with other aspects of self-image. Predictably, SRH correlates positively with self-esteem, which reflects an overall appraisal of one's worth and value [2]. The self-concept serves as a powerful motivator, driving people to bolster and safeguard its central components [12]. Considering the wide range of valued pursuits—such as activities, relationships, goals, and future plans—that poor health can jeopardize, individuals reporting high SRH are likely motivated to safeguard their health, while those with low SRH strive to enhance it.

This motivation and accompanying actions align with what Emirbayer and Mische [13] term "projective agency," defined as "the imaginative generation by actors of possible future trajectories of action, in which received structures of thought and action may be creatively reconfigured in relation to actors' hopes, fears, and desires for the future" (p. 971). Projective agency encompasses thoughts and behaviors aimed at advancing positive outcomes and mitigating negative ones, including beliefs about one's capacity for effective action. Although a general agentic orientation and its behaviors can be seen as fundamental human traits, social psychology literature treats agency as a key individual difference, manifested through varying psychological resources or traits that facilitate agentic behavior. These resources often overlap conceptually and empirically [14, 15] but are typically examined separately. Distinct bodies of work explore constructs such as self-efficacy [16], internal (versus external) locus of control [17], self-perceived ability [18], aspirations and planning [19], optimism [14, 20], grit [21], and related traits.

Here, we center on one such dimension, termed mastery by Pearlin and colleagues: "Mastery refers to the extent to which people see themselves as being in control of the forces that importantly affect their lives" ([22], p. 340; see also [23]). The Pearlin Mastery Scale has proven sensitive to life experiences [24, 25] and linked to numerous beneficial outcomes, including socioeconomic success, well-being, and health [14]. A sense of mastery, or personal control, can be regarded as a vital motivational asset for managing age-related and other life difficulties [26]. It is reasonable to propose that individuals who perceive themselves as in control would feel greater confidence in sustaining their SRH compared to those who view outcomes as dictated by chance or external powers. People with higher mastery would likely respond more readily when critical self-aspects, like SRH, are threatened, and would be better equipped to maintain this prized element of their identity.

In seminal work, Pearlin et al. [22] showed that mastery reduced the impact of a severe stressor (job loss) on mental health (measured by depressive symptoms). Subsequent research by Pearlin's group [24] revealed that mastery partially mediated the link between earlier economic strain and depression in older adults, while also buffering the effects of later economic hardship on depression, anxiety, and physical symptoms. The authors noted, "High mastery may lead to anticipatory coping (i.e., taking preventive steps to avoid a stressor or curb its

development in the very beginning)" [24] (p. 639). Likewise, Pearlin and Bierman [27] (p. 327) discuss "anticipatory stressors, those that are anticipated or apprehended rather than operant." When facing potential health threats (e.g., early signs of disease vulnerability), such anticipatory coping could play a crucial role in preserving actual health and, consequently, SRH.

Reflecting the influence of Pearlin's foundational contributions (e.g., over 12,218 citations for [23] as of now), mastery has remained a focal point in research on stress, health, and coping [27, 28]. Studies show mastery predicts objective physical and mental health outcomes even after adjusting for socioeconomic status, race, and other factors [29, 30]. Although Taylor and Carr [31] found that resilience exerted stronger influences on later-life health than mastery (or other resources), their resilience measure incorporated two mastery items.

Building on Pearlin's initial evidence, accumulating studies affirm mastery as an important coping resource that mediates and moderates stressor effects on mental health. For instance, mastery fully mediated the impact of skin tone on depression in Black adolescents [32]. It partially mediated unemployment's effect on depression in a young Australian cohort (ages 20–24) followed for 8 years [33]. Among employed Canadian adults (18+), mastery moderated the link between financial strain and distress in a fixed-effects analysis of three survey waves over four years [34].

Although substantial evidence links mastery to physical and mental health, no prior work, to our knowledge, has explored its influence on SRH specifically. We hypothesize that higher mastery bolsters the perception of good health. While the underlying pathways are not examined here, mastery may enhance SRH by promoting higher educational attainment, mitigating stressor impacts (e.g., unemployment), or encouraging health-promoting behaviors like exercise [35], nutritious diet, weight management, and similar actions. In cases of illness, greater mastery may drive stronger adherence to treatment to restore this valued self-dimension. Mastery could also indirectly support SRH via improved objective health resulting from these behaviors.

Life course perspective on mastery and self-rated health

The life course perspective [36] encourages a comprehensive understanding of human development. Its core principles—life-span development (ongoing change throughout life), agency (individuals as active shapers of their biographies), and timing (developmental effects varying by life stage)—highlight potential shifts in personal dynamics across ages. These principles suggest that influences, whether internal or external, may not remain constant over time. Applying life-span development, agency, and timing, we investigate whether mastery's effect on SRH remains consistent or fluctuates as people progress from early adulthood to midlife. Existing research on health, stress, and coping across diverse age groups (some cited above) supports expecting mastery to safeguard health (including SRH) regardless of life stage. Yet, it is also plausible that agency becomes more salient for SRH when health faces greater threats, such as the onset of chronic conditions (e.g., back issues, obesity, diabetes) in middle age, compared to the relative robustness of youth.

Prior studies have tracked trajectories of SRH and mastery separately over the life course but, to our knowledge, not their longitudinal interplay. SRH exhibits considerable stability in adolescence [37], young adulthood [7], and adulthood [1], though it typically declines in later life amid serious health declines [2, 38]. Mastery responds to life events during adolescence and the transition to adulthood [25]. In older adults from the Health and Retirement Study, mastery decreased alongside rising functional limitations and depressive symptoms [39]. However, Idler and Cartwright [40] observed that disease impacts mastery less in the elderly (especially those 65+) than in younger groups, possibly due to protective social comparisons where older individuals gauge their health against peers who are worse off (or deceased). The flexibility of both agency and SRH underscores the value of examining how mastery changes relate to SRH across the life course.

Sargent-Cox et al. [35] explored the consistency of mastery's effects on physical health. They found that within-person mastery changes over eight years corresponded to shifts in grip strength, pain, functional status, and distress. Notably, these associations showed no variation across cohorts starting in their 20s, 40s, or 60s, suggesting stable health influences across stages. While this work links mastery fluctuations to physical and emotional outcomes, it does not address whether mastery's impact on subjective health persists or evolves over the life course.

Overview of the current investigation

This study investigates the direct effects of psychological mastery on self-rated health (SRH) by tracking a cohort of individuals over more than 20 years, spanning from

young adulthood into middle age. Through this approach, it sheds light on the internal psychological processes by which personal agency shapes SRH. While prior research has frequently connected mastery to measurable health outcomes, its association with subjective health perceptions has received little attention. Furthermore, to our knowledge, no earlier long-term prospective studies have explored whether the effects of mastery—or similar psychological strengths related to agency—on SRH differ across these life stages. Thus, the work offers two key advancements: it first evaluates the extent to which mastery influences SRH throughout this extended period of adulthood, and second, it determines if these influences change between young adulthood and midlife. In contrast to many studies examining factors affecting self-rated health, the analysis accounts for various potential confounding factors that change over time, in addition to those that remain constant. It adjusts for fluctuating levels of education and chronological age, both known to strongly predict SRH [38], as well as periods of unemployment, which represent a significant stressor posing risks to SRH [41, 42]. An additional model incorporates changing household income, yet another marker of socioeconomic position linked to SRH [38]. The models also include evolving measures of obesity and major diagnosed medical conditions. By employing fixed-effects regression to assess the relationship between mastery and self-rated health—while simultaneously addressing unmeasured stable traits—the results offer robust support that agency fosters better SRH across the transition from young adulthood to middle age. Given the established reliability of SRH as a proxy for actual health status and its predictive power for mortality timing, meaningful effects of mastery on SRH may carry substantial implications extending far beyond mere perception.

Materials and Methods

Study dataset

The analysis draws on long-term panel data from the Youth Development Study (YDS). The project began in 1988 with a group of approximately 1,000 ninth-grade students from schools in St. Paul, Minnesota. These teenagers completed annual questionnaires administered in school, retaining about 93% through the fourth year. Participants were then surveyed repeatedly (by mail or online) from 1992 through 2019, yielding 16 post-high-school data collections. The YDS dataset can be accessed at: https://www.icpsr.umich.edu/web/ICPSR/studies/24881. For this investigation, attention was restricted to 10 data waves between 1995 and 2019 that contained the key variables and spanned young adulthood to middle age: wave 8 (ages 21–22), wave 10 (ages 24–25), wave 12 (ages 26–27), wave 13 (ages 28–29), wave 14 (ages 29–30), wave 15 (ages 30–31), wave 16 (ages 31–32), wave 18 (ages 35–36), wave 19 (ages 37–38), and wave 20 (ages 45–46). The sample includes only those who remained in the study through wave 8 (roughly 78% retention by ages 21–22), the starting point for these analyses. Earlier work has indicated that this continuing group resembles the initial cohort in terms of family socioeconomic status, household structure, and immigrant background, although it has higher proportions of White participants and women [43]. Crucially, the ongoing panel shows no differences from the baseline sample in early measures of mastery, factors related to later success (like grades and school involvement), or paid work during adolescence.

Measures that vary over time

Self-rated health

The outcome of self-rated health was captured via a single question: “Overall, how would you describe your health?” Answers were given on a 5-point scale, ranging from 1 (poor) to 5 (excellent), at every included wave.

Mastery (measured from the prior wave)

Sense of mastery was measured using the Pearlin Mastery Scale [22]. Participants indicated their level of agreement (from strongly agree to strongly disagree, on four points) with seven statements, such as “I can accomplish almost anything I truly commit to,” “My future outcomes largely depend on my own actions,” and “I often feel I have limited influence over events in my life.” Responses were averaged per wave (with reliability coefficients between 0.78 and 0.85), where higher values reflect greater mastery. This variable was taken from the previous wave to align with the assumed direction of influence.

Education level and unemployment experience (measured from the prior wave)

Highest education achieved was categorized as 1 (high school diploma or equivalent or less), 2 (partial college attendance), 3 (vocational/associate's degree), 4 (bachelor's degree), or 5 (advanced graduate/professional

degree). Unemployment duration was derived from a calendar of life events, capturing months in the preceding year spent job-seeking while not working (0 to 12 months). Both were drawn from the prior wave to match the proposed temporal sequence, treating socioeconomic factors as antecedents of subsequent SRH.

Obesity and serious diagnosed health conditions

Obesity was determined by a BMI of 30 or above in each survey wave [44], calculated using the equation: weight in pounds divided by (height in inches) squared, multiplied by 703. Serious health diagnoses were identified if participants reported ever being informed by a physician of any of the following conditions: (1) high blood pressure; (2) ischemic heart disease or heart attack; (3) stroke; (4) hepatitis or jaundice; (5) diabetes; (6) prolonged anxiety, depression, or other mental health issues; (7) cancer; (8) chronic lung disease (including emphysema, asthma, or chronic bronchitis); (9) fractures or broken bones; (10) chronic digestive disease (such as ulcer, colitis, or liver problems); (11) epilepsy or seizure disorder; (12) chronic back problem; or (13) any other significant disease, disability, or handicap. For each condition, participants were assigned a code of 1 if they reported "yes" in the current wave and in every later wave. For the three waves where these measures were unavailable (waves 12, 13, and 14), obesity and diagnosis data were drawn from wave 10 responses.

Incorporating obesity and these health conditions allows the analysis to isolate the effects of mastery on the aspects of self-rated health (SRH) that are independent of these objective health measures. Notably, obesity is assessed at the same time as SRH, whereas the health condition measures encompass a wide timeframe before each survey wave. This approach permits exploration of how participants perceive their overall physical and mental health in light of both ongoing and historical diagnoses.

Analytic approach

Fixed effects regression models [45] were employed to evaluate how intra-individual changes in mastery affect intra-individual changes in SRH across panel data spanning 24 years (from ages 21–22 to 45–46). These models account for all unchanging individual characteristics by demeaning the data: each participant's longitudinal average is subtracted from their values on the dependent variable (SRH) and independent variables (such as mastery) at every wave [45]. The resulting person-specific deviations in SRH are then modeled as a function of deviations in mastery, alongside age and other covariates that vary over time, including educational attainment, unemployment status, obesity, and health diagnoses. Since time-invariant individual factors are eliminated through this process, there is no requirement to control for observed unchanging predictors.

Models were estimated using the "xtreg, fe" command in STATA Version 17 [46], with robust standard errors to account for clustering within individuals. The sample included 741 participants across 4,850 observations. Attrition reduced the number with SRH data at ages 45–46 (434 participants) relative to ages 24–25 (614 participants). Nonetheless, the fixed effects approach allows participants with incomplete data across waves to contribute to estimates; on average, each provided data from more than 6 waves.

Results and Discussion

Descriptive findings

Table 1 presents descriptive statistics from the combined dataset. Across the 9 waves, mean SRH falls between "good" and "very good." **Figure 1a** displays average SRH trends by year (and corresponding age), showing an expected gradual decline in higher SRH ratings as participants aged over the 24 years. However, these aggregate trends in **Figure 1a** might mask individual-level fluctuations in SRH. Variance decomposition in the combined data (between-person SD = 0.685; within-person SD = 0.556) reveals substantial intra-individual variability in SRH from ages 24–25 to 45–46.

Table 1. Descriptive statistics

Variable	Mean	SD	Max	Min
Outcome				
Self-rated health	3.688	0.850	5	1
Time-Varying Predictors				
Mastery (lagged one wave)	3.181	0.462	4	1
Educational attainment (lagged one wave)	2.666	1.262	5	1
Months unemployed (lagged one wave)	0.639	2.185	12	0
Obesity	24%	-	1	0
Ever-Diagnosed Health Conditions				
High blood pressure	18%	-	1	0
Ischemic heart disease or heart attack	5%	-	1	0

Diabetes	4%	-	1	0
Prolonged anxiety, depression, or other mental health problems	21%	-	1	0
Cancer	3%	-	1	0
Chronic lung disease (e.g., emphysema, asthma, chronic bronchitis)	10%	-	1	0
Fractures or broken bones	31%	-	1	0
Chronic digestive disease (e.g., ulcer, colitis, liver problems)	8%	-	1	0
Epilepsy or seizure disorder	1%	-	1	0
Chronic back problem	18%	-	1	0
Any other major disease, disability, or handicap	9%	-	1	0

N = 4,850 person-waves (741 individuals)

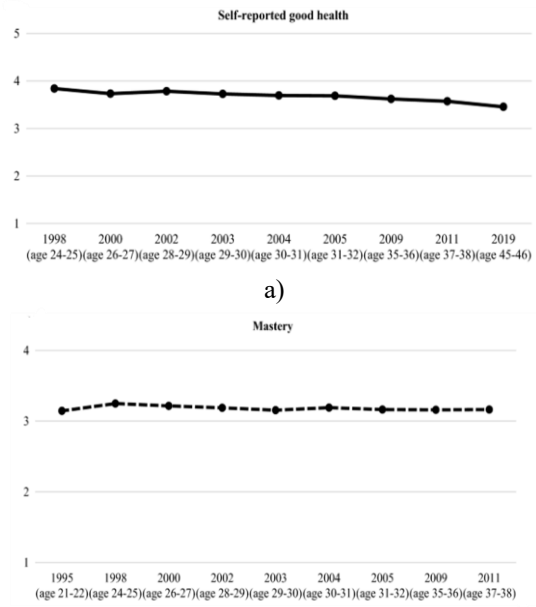

Figure 1. (a) mean self-rated health by year (age) and (b) mean mastery by year (age).

On average, mastery levels in this sample stayed comparatively high (mean = 3.18; SD = 0.462) **(Table 1)** and showed little change from ages 21–22 through ages 37–38 (illustrated) **(Figure 1b).** Nevertheless, the apparent stability in average mastery depicted in **Figure 1b** could obscure individual-level fluctuations across time. Variance decomposition of mastery in the combined dataset (between-person SD = 0.374; within-person SD = 0.286) similarly revealed considerable intra-individual variability in mastery throughout the study period.

As indicated in **Table 1**, average educational attainment across the waves fell between "some college" and a vocational/associate's degree, while participants reported, on average, fewer than one month per wave of unemployment during active job search. Over the course of the study, obesity was present in about 24% of person-waves. In 18 percent of waves, participants had ever been diagnosed with high blood pressure; in 21% with prolonged anxiety or depression; in 31% with fractures or broken bones; and in 18% with chronic back problems. On average, the panel reported ever having a chronic lung disease diagnosis in 10% of waves and a chronic digestive disease diagnosis in 8 percent of waves. Diagnoses of ischemic heart disease, diabetes, and cancer were recorded in 5 percent, 4 percent, and 3 percent of waves, respectively.

Table 2 presents these descriptive statistics stratified by age, highlighting relative constancy in unemployment alongside marked rises in educational attainment, obesity rates, and the incidence of serious health conditions from young adulthood into midlife. For example, the prevalence of obesity in the sample rose from 15 percent at ages 24–25 to 42 percent at ages 45–46, aligning with national trends [44]. Over the same lifespan interval, ever-diagnosed high blood pressure increased from 11 percent to 38 percent, diabetes from 1 percent to 11 percent, cancer from 1 percent to 7 percent, and chronic back problems from 10% to 29%.

Table 2. Descriptive statistics (mean, proportion) by age

Age	SRH	MA	ED	UN	OB (%)	HBP (%)	IHD (%)	D (%)	AD (%)	C (%)	CLD (%)	BB (%)	CDD (%)	E (%)	CBP (%)	O (%)
21–22		3.14	1.84	0.50												
24–25	3.84	3.25	2.54	0.34	15	11	3	1	10	1	7	23	4	1	10	4
26–27	3.73	3.22	2.68	0.46												

28–29	3.78	3.19	2.76	0.30												
29–30	3.73	3.15	2.74	0.93												
30–31	3.70	3.19	2.77	0.89	26	18	5	5	21	2	9	29	7	1	18	8
31–32	3.69	3.16	2.83	0.75	27	20	6	6	27	4	11	34	9	2	22	11
35–36	3.62	3.16	2.96	0.74	32	22	7	6	33	3	12	41	13	2	24	13
37–38	3.57	3.16	3.07	0.87	31	26	7	7	38	4	14	42	13	2	26	17
45–46	3.46				42	38	7	11	40	7	15	43	14	2	29	23

SRH=self-reported health, MA=mastery, ED educational attainment, UN=months unemployed, OB obesity, HBP= high blood pressure, IHD=ischemic heart disease, D=diabetes, AD=prolonged anxiety, depression, C=cancer, CLD= chronic lung disease, BB=broken bones, CDD=chronic digestive disease, E=epilepsy, CBP=chronic back problems, O other serious problems

The average values observed at each age are displayed for the three time-varying predictors (MA, ED, and UN) included in our fixed-effects models, with these predictors lagged by one wave.

Fixed-effects results

Table 3 reports coefficient estimates from three fixed-effects models examining changes in self-reported health. To establish proper temporal sequencing, mastery, educational attainment, and unemployment are lagged by one wave. Note that obesity and diagnosed health conditions are not lagged in these models, as the aim is to assess the influence of mastery on perceived health independent of current obesity status or specific diagnosed conditions. Furthermore, incorporating these health conditions as simultaneous predictors of self-reported health imposes a particularly rigorous control when evaluating the lagged effects of mastery, given that contemporaneous associations tend to be stronger than lagged ones.

Table 3. Fixed-effects models predicting self-reported health
(N = 4,850 person-waves; 741 individuals)

Time-Varying Predictors	**Model 3**		**Model 2**		**Model 1**	
	Estimate	SE	Estimate	SE	Estimate	SE
Sense of mastery (lagged by 1 wave)	0.084**	(0.030)	0.094**	(0.030)	0.096**	(0.030)
Educational attainment (lagged by 1 wave)	0.054**	(0.020)	0.060**	(0.020)		
Months unemployed (lagged by 1 wave)	0.0001	(0.006)	−0.001	(0.006)		
Obesity	−0.214***	(0.041)				
High blood pressure	−0.115*	(0.053)				
Ischemic heart disease	0.059	(0.158)				
Diabetes	−0.211**	(0.082)				
Prolonged anxiety or depression	−0.030	(0.049)				
Cancer	−0.295**	(0.109)				

Chronic lung disease	−0.048	(0.078)				
Broken bones	0.041	(0.053)				
Chronic digestive disease	−0.030	(0.080)				
Epilepsy	−0.151	(0.234)				
Chronic back problem	−0.145*	(0.060)				
Other serious health problem	−0.191**	(0.065)				
Wave (reference = 1998, ages 24–25)						
2000 (ages 26–27)	−0.161***	(0.036)	−0.165***	(0.036)	−0.124***	(0.033)
2002 (ages 28–29)	−0.109**	(0.039)	−0.115**	(0.039)	−0.065	(0.035)
2003 (ages 29–30)	−0.162***	(0.039)	−0.168***	(0.039)	−0.114***	(0.035)
2004 (ages 30–31)	−0.121**	(0.044)	−0.186***	(0.043)	−0.130***	(0.037)
2005 (ages 31–32)	−0.116**	(0.045)	−0.204***	(0.043)	−0.148***	(0.038)
2009 (ages 35–36)	−0.150**	(0.047)	−0.260***	(0.045)	−0.202***	(0.039)
2011 (ages 37–38)	−0.182***	(0.050)	−0.318***	(0.047)	−0.253***	(0.041)
2019 (ages 45–46)	−0.245***	(0.056)	−0.448***	(0.049)	−0.380***	(0.042)
Constant	3.543***	(0.104)	3.427***	(0.105)	3.532***	(0.097)
Within-person R^2	0.060		0.036		0.033	

*p < .05, **p < .01, ***p < .001

In Model 1, increases in respondents' sense of mastery were associated with improvements in self-reported health in the subsequent wave, after adjusting for age and all time-invariant unobserved individual characteristics. The coefficient for mastery (0.096) in this fixed-effects model is statistically significant and equates to roughly an 11% standard deviation increase in subsequent self-rated health. Notably, every older age group reported significantly poorer self-rated health compared to the reference group (ages 24–25). The age coefficients remained relatively stable up to ages 29–30, then declined fairly steadily through ages 37–38, before dropping sharply at ages 45–46.

Adding lagged educational attainment and months unemployed in Model 2 resulted in a modest reduction in the lagged mastery effect on changes in self-reported health (estimate = 0.094), yet it remained statistically significant. This held true even after controlling for the beneficial lagged impact of rising educational attainment on health, age effects, and time-invariant individual factors. Lagged months unemployed showed no significant association with subsequent self-rated health. Interestingly, the age coefficients became substantially more negative upon inclusion of educational attainment. Since educational attainment—which is known to benefit health [47]—generally increases with age **(Table 2)**, it appears to partially mask the adverse effects of aging on self-rated health.

In Model 3, the lagged effect of changes in mastery on changes in self-reported health continued to be statistically significant (estimate = 0.084), even after adjusting for changes in educational attainment, unemployment, obesity, and diagnosed serious conditions, alongside age and time-invariant unobserved individual characteristics. Respondents indicated markedly poorer health when obese and, predictably, when diagnosed with high blood pressure, diabetes, cancer, chronic back problems, or other serious conditions. Comparing Models 2 and 3 reveals substantial attenuation in the age coefficients; their magnitude decreases across the board, with particularly pronounced reductions from the mid-thirties onward, coinciding with the emergence of significant disease-related predictors of self-rated health. This suggests that age primarily serves as a proxy for accumulating serious health conditions, which largely explain the decline in self-rated health over time.

These analyses demonstrate the importance of mastery for self-rated health across a wide range of life stages, from early adulthood through midlife. We next address our second research question: does the influence of mastery on self-reported health vary by life stage?

Specifically, might the effect of mastery be stronger in later phases, when serious health diagnoses become more common? Despite the intuitive appeal of this hypothesis, a series of unreported fixed-effects models testing interactions between mastery and life stage provided no supporting evidence. Similarly, tests for whether mastery buffered the impact of obesity or diagnoses on self-reported health revealed no significant interactions with either obesity or the health conditions.

Alternative model specifications

In supplemental analyses, we explored three additional issues. First, we examined whether the association between mastery and self-reported health observed in **Table 3** would appear stronger without controlling for time-invariant unobserved factors. To test this, we re-estimated the equivalent of Model 3 from **Table 3** using a random-effects approach. Like the fixed-effects models, random-effects models evaluate within-person changes in mastery and self-reported health over time but do not account for unobserved time-stable characteristics [45]. As presented in **Table 4**, the significant lagged effect of mastery on self-rated health was roughly twice as large in the random-effects specification (estimate = 0.164) compared to the fixed-effects Model 3 in **Table 3** (estimate = 0.084). This difference in magnitude is attributable to the fixed-effects model's elimination of bias from time-invariant unobserved confounders. We further conducted a Hausman test [48] to assess whether the random-effects assumption (no correlation between individual effects and predictors) was tenable. The test was rejected, confirming that the fixed-effects specifications in **Table 3** are preferred.

Table 4. Random-effects model predicting self-reported health

(N = 4,850 person-waves; 741 individuals)

Time-Varying Predictors	Robust SE	Estimate
Sense of mastery (lagged by 1 wave)	(0.027)	0.164***
Educational attainment (lagged by 1 wave)	(0.014)	0.069***
Months unemployed (lagged by 1 wave)	(0.005)	−0.003
Obesity	(0.035)	−0.266***
High blood pressure	(0.040)	−0.148***
Ischemic heart disease	(0.109)	−0.076
Diabetes	(0.076)	−0.261***
Prolonged anxiety or depression	(0.040)	−0.090*
Cancer	(0.109)	−0.207
Chronic lung disease	(0.057)	−0.097
Broken bones	(0.039)	0.015
Chronic digestive disease	(0.063)	−0.057
Epilepsy	(0.194)	−0.116
Chronic back problem	(0.045)	−0.172***
Other serious health problem	(0.053)	−0.219***
Wave (reference = 1998, ages 24–25)		
2000 (ages 26–27)	(0.035)	−0.176***
2002 (ages 28–29)	(0.037)	−0.124***
2003 (ages 29–30)	(0.037)	−0.178***
2004 (ages 30–31)	(0.040)	−0.109**
2005 (ages 31–32)	(0.041)	−0.099*
2009 (ages 35–36)	(0.044)	−0.124**
2011 (ages 37–38)	(0.045)	−0.149***
2019 (ages 45–46)	(0.051)	−0.201***
Constant	(0.094)	3.295***
Within-person R^2		0.057

*p < .05, **p < .01, ***p < .001

Secondly, was the association between mastery and self-reported health presented in **Table 2** affected by how we measured the time-varying confounders? Through various additional fixed effects model analyses, we determined that the key findings from **Table 2** remained consistent when we: (1) modeled educational attainment using lagged time-varying dummy variables; (2) incorporated a time-varying indicator that aggregated all reported serious health conditions; and (3) due to established associations between income and SRH [38], substituted unemployment with a lagged time-varying indicator of low (i.e., less than $20,000 annually) versus higher family income. Since the binary low family income variable involved substantially more missing data (about 11% greater than the unemployment measure), it was used only as a covariate in these ancillary models.

Thirdly, could shifts in self-reported health influence subsequent changes in mastery? Considering the potential for reverse causality (where perceiving good health might enhance feelings of control over life), we conducted an additional fixed effects model predicting mastery from a lagged self-reported health measure. This reverse model drew on 8 waves rather than 9, because the self-rated health question wording at ages 21–22 differed from later waves, resulting in 739 participants across 4,498 observations. The coefficient for lagged self-

reported health predicting mastery was nearly zero and lacked statistical significance.

Utilizing 10 waves of longitudinal data tracking 741 adults across 24 years (from ages 21–22 to 45–46), this study offers robust support for mastery as an agentic psychological asset that enhances subjective health throughout young adulthood and into midlife. Over this extended life course phase, mastery demonstrated a notable lagged influence on SRH, persisting after adjusting for key SRH predictors such as time-varying educational attainment, unemployment duration, income (in ancillary models), obesity, and serious health condition diagnoses. Additionally, the fixed effects approach accounted for all stable individual differences potentially linked to both mastery and SRH. Although unmeasured time-varying elements might still explain mastery's beneficial impact on SRH, the extensive controls for both time-invariant and time-varying factors substantially bolster causal conclusions. While reverse causation—where SRH bolsters mastery—is theoretically reasonable, the ancillary analysis inverting the direction (SRH predicting mastery) yielded no supporting evidence.

The primary motivation for this investigation was to integrate core life course principles—agency, lifespan development, and timing—with self-reported health. The results strongly align with agency and lifespan development: mastery, a central agentic trait, promoted self-reported health, and this pattern persisted across a wide developmental span. In contrast, no support emerged for timing, the notion that developmental dynamics differ by life stage. Rather, the impact of mastery on SRH proved consistently stable from young adulthood through midlife. Age-related declines in SRH appeared driven mainly by rising obesity and chronic illnesses. Yet, contrary to expectations that mastery might become more protective in midlife amid growing health challenges, non-significant interactions between year and mastery indicated equivalent benefits across the study's 25-year period. Mastery also showed no moderating effect on obesity or disease diagnoses' impacts on SRH.

This study has several limitations. It relies on a community-based sample from St. Paul, Minnesota, originally drawn from public high school students in 1988, limiting representativeness of the broader U.S. population. Regional differences in SRH (and objective health) determinants—tied to community factors like healthcare access, nutritious food availability, recreational opportunities, and crime—may apply. The YDS sample excludes wealthier St. Paul residents likely attending private or parochial schools and is mostly white, mirroring the area's demographics at recruitment. Limited racial/ethnic diversity hinders generalizability, especially given cultural variations in health perceptions and disease effects on those perceptions. Like other prolonged longitudinal efforts, the YDS experienced attrition, with notable drops between waves 19 (ages 37–38, 2011) and 20 (ages 45–46, 2019), possibly undermining midlife SRH evidence.

Lastly, while fixed effects modeling offers strong benefits, it precludes evaluating stable traits' distinct effects. Future work should explore time-invariant factors potentially shaping both mastery and self-rated health. Prominent candidates include family origins; for instance, parental education forecasts adolescent mastery [49]. Related agentic traits, such as ability self-concept [50] and optimism [49, 51], show intergenerational similarity in adolescence. Agentic resources may cluster in families via genetics [52], family problem-solving approaches [53], role modeling, and socialization [49, 54].

Broadly, higher socioeconomic positions correlate with greater agency, stemming from expanded opportunities for effective action [55] in health promotion or other domains. Dominant adult statuses—gender, race/ethnicity, socioeconomic background—furnish resources allowing high-mastery individuals to safeguard subjective and objective health. The interplay of stable status traits with time-varying factors (including mastery and other agentic resources) in shaping self-rated health merits further investigation.

Conclusion

Despite these constraints, this study's results illuminate intrapersonal agentic processes potentially sustaining subjective health perceptions—and possibly objective physical and mental health. Evidence here supports “projective agency” [13]: individuals with robust mastery may proactively avert illness through health-protective behaviors and avoidance of risks, such as optimizing diet, exercise, sleep, stress management, and substance use. Agency thus reinforces SRH while countering disease triggers. To preserve this vital self-aspect, when illness symptoms threaten SRH, mastery (and allied agentic resources) might influence symptom appraisal, hinder disease advancement, and aid health recovery. Thus,

SRH's established predictive links to disease and mortality, highlighted in prior reviews, may partly stem from agentic orientations and actions promoting both perceived and actual health.

Notably, mastery's beneficial effect on SRH remained constant in strength as participants transitioned from generally healthy early adulthood to midlife, with emerging chronic conditions. This enduring influence underscores agency's role in safeguarding a core self-perception element. Combined with SRH's documented ties to diagnoses and mortality timing, these results echo longstanding insights that cognitive states shape illness vulnerability and progression (e.g., Antonovsky's [56] sense of coherence or Cousins' [57] biology of hope). Future longitudinal research should probe mechanisms linking mastery to self-rated—and potentially objective—health.

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