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Perceived Control Across the Adult Lifespan: Longitudinal Changes in Global Control and Daily Stressor Control

Eric S. Cerino[1], Susan T. Charles[2], Jacqueline Mogle[3], Jonathan Rush[4], Jennifer R. Piazza[5], Laura M. Klepacz[1], Margie E. Lachman[6], and David M. Almeida[7]

[1] Department of Psychological Sciences, Northern Arizona University
[2] Department of Psychological Science, University of California, Irvine
[3] Department of Psychology, Clemson University
[4] Department of Psychology, University of Victoria
[5] Department of Public Health, California State University, Fullerton
[6] Department of Psychology, Brandeis University
[7] Department of Human Development and Family Studies, Pennsylvania State University

Perceived control is an important psychosocial resource for health and well-being across the lifespan. Global control (i.e., overall perceived control) decreases over time in studies following people every few years to upwards of 10 years. Changes across wider intervals of the lifespan, however, have yet to be examined. Further, how perceived control changes for specific aspects of daily life, such as stressors, remains comparatively less clear. Using data from the Midlife in the United States National Study of Daily Experiences (NSDE, $N = 1{,}940$, $M = 56.25$ years, $SD = 12.20$, 57% female), we examined longitudinal changes in global control across 20 years and daily stressor control across 10 years. Global control was assessed in the first wave of the NSDE (~1996). In follow-up waves, conducted in ~2008 and ~2017, participants again not only reported their global control but also reported their perceived control over stressors they experience across 8 consecutive days. Longitudinal analyses revealed differential change trajectories for global control across 20 years and stressor control across 10 years ($ps < .001$). Global control declined for younger and older adults but stayed relatively stable for individuals in midlife. The rate of decline in daily stressor control was steeper than the decline in global control and did not vary by age at baseline. In addition, declines were amplified among individuals with higher global control at baseline. Results suggest that daily stressor control is a specific aspect of control beliefs that follows a different rate of change than global control.

Public Significance Statement
Global control and control over stressful experiences in daily life change over time but in distinct ways. Analyses from a large national sample with up to 20 years of longitudinal follow-up suggests that global control declines in younger and older adults but stays relatively stable among individuals in midlife. Control over specific aspects of daily life, in contrast, declines at a similar rate across younger, middle-aged, and older adults.

Keywords: control beliefs, perceived control, daily stressor control, longitudinal changes, intraindividual variability

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Eric S. Cerino https://orcid.org/0000-0003-3609-0805
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Correspondence concerning this article should be addressed to Eric S. Cerino, Department of Psychological Sciences, Northern Arizona University, 325 Student Academic Services Building, Flagstaff, AZ 86011, United States. Email: Eric.Cerino@nau.edu

Perceived control, the extent to which one believes that their actions can evoke desirable outcomes, is an important psychosocial resource for health and well-being (Robinson & Lachman, 2017). Higher perceived control in life is associated with better physical (Infurna et al., 2011) and cognitive health (Cerino et al., 2020; Neupert & Allaire, 2012) and fewer depressive symptoms (e.g., Lachman & Weaver, 1998). In general, perceived control declines with age (e.g., Krause & Shaw, 2003; Lachman & Firth, 2004; Mirowsky, 1995), with evidence across a 10-year period indicating potential peaks in midlife and subsequent declines in later adulthood (Lachman et al., 2009).

Our current understanding of control trajectories rests predominantly on studies assessing global aspects of control (i.e., overall and general aspects of perceived control), with longitudinal follow-up ranging from every few years to upwards of 10 years. Changes across wider intervals of the lifespan, however, have yet to be examined. Further, the ways in which perceived control may manifest in more specific aspects of daily life remain comparatively less understood. In the 1980s, Roberts and Nesselroade (1986) demonstrated that control beliefs have coherent and systematic day-to-day variability. Since then, empirical studies have examined microlevel intraindividual variability in control processes (e.g., Cerino et al., 2020; Diehl & Hay, 2010; Eizenman et al., 1997; Koffer et al., 2019; Neupert & Allaire, 2012; Robinson & Lachman, 2020; Zhang et al., 2020). In comparison to studies of global control, however, this research is limited, and no studies to our knowledge have examined change over time for specific areas of control, such as control over daily stressors.

The current study evaluates developmental trajectories of global control across 20 years of adulthood and control over an individual's daily stressors across 10 years. We examine these two aspects of perceived control to determine their relationship and if they have distinct developmental trajectories. By comparing a state-like and specific aspect of control over daily experiences (i.e., daily stressor control) to a comparatively more trait-like and general perception of how much control people tend to feel over their lives in general (i.e., global control), we provide a systematic evaluation of how different types of control in our daily lives and in general operate across the adult lifespan.

Aging-Related Changes in Global Control

Global perceived control arises from two related beliefs: one's perceived ability to perform actions required to achieve their goals (known as general mastery), and one's perceptions of whether certain outcomes are beyond their control due to powerful others or by chance (known as perceived constraints; e.g., Lachman, 2006; Skinner, 1996). In general, people have higher levels of perceived control when they believe that their ability to evoke change is greater than the forces that prevent change from occurring (Ross & Sastry, 1999). Multiple factors can influence an individual's perception of control, including life circumstances, sociodemographic characteristics, and their interactions (for review, see Lachman et al., 2011), as well as age-related changes in physical, cognitive, and social challenges (Heckhausen & Schulz, 1995; for review see Robinson & Lachman, 2017).

Global perceived control changes across the adult lifespan, with a potential peak of control in midlife and subsequent declines in later adulthood (e.g., Infurna & Okun, 2015; Lachman et al., 2009). Previous research using data from the Midlife in the United States (MIDUS) Survey examined longitudinal change in global control across 10 years for five different age groups (24–31, 32–44, 45–54, 55–64, 65–74; Lachman et al., 2009). For the youngest and the oldest age cohort groups, global control decreased. All middle-age groups, however, remained relatively stable or exhibited increases in control. Research across longer time periods is needed, however, to determine if longitudinal, aging-related declines in control from midlife to later adulthood continue beyond the periods examined in previous studies (e.g., Drewelies et al., 2017; Lachman et al., 2009).

Age and Daily Control Beliefs

The link between global perceived control and well-being is well established (e.g., Langer & Rodin, 1976; Rotter, 1966). More recently, researchers have begun to examine the link between daily reports of control and health and well-being outcomes, such as reactivity to daily stressors (Diehl & Hay, 2010; Koffer et al., 2019) and cognitive function (Cerino et al., 2020; Neupert & Allaire, 2012; Robinson & Lachman, 2020). For example, results from 9 weeks of daily reports (Koffer et al., 2019) and a 30-day daily diary study (Diehl & Hay, 2010) showed that higher levels of perceived control over events that happened during the day buffer reactivity to daily stress in adult lifespan samples assessed over 9 weeks of daily reports. Results from both a 60-day daily diary study (Neupert & Allaire, 2012) and a measurement burst study of five weekly measurements (Cerino et al., 2020) showed cognitive health was better on days when general control was higher than usual. These within-person associations also varied as a function of age and average levels of control. In a week-long daily diary study of adults, Robinson and Lachman (2020) found that on days when participants reported higher control beliefs, they engaged in more physical activity, which in turn was associated with better cognitive function.

To the best of our knowledge, no study has examined long-term longitudinal changes in daily control. However, cross-sectional age differences in associations between daily control and health outcomes suggest possible age differences and age-related changes in trajectories of daily control. For example, increasing health demands associated with growing older (e.g., Heckhausen & Schulz, 1995) may result in greater difficulties to exert control over one's daily life.

Daily Perceived Control in the Context of Daily Stress

Microlongitudinal studies have begun to investigate the role control beliefs play in daily stress processes (e.g., Diehl & Hay, 2010; Koffer et al., 2019; Neupert et al., 2007). For example, higher global control can attenuate the harmful effects of work and interpersonal stressors in everyday life (Neupert et al., 2007). Using global control from the MIDUS Survey project and daily diary data from the National Study of Daily Experiences (NSDE), researchers found that older age and higher control were each related to lower emotional and physical reactivity to interpersonal stressors (Neupert et al., 2007). Further, the physical effects of work stressors were attenuated among younger and older adults with higher control, while younger and older adults with lower control had the strongest physical reactivity to network stressors (Neupert et al., 2007).

Perceiving control over daily events can also attenuate reactivity to daily stress (Diehl & Hay, 2010; Koffer et al., 2019). In a 30-day daily diary study, Diehl and Hay (2010) found that affective reactivity to daily stress was lower on days when individuals had higher levels of daily control than usual. In a 9-week daily diary study, Koffer et al. (2019) similarly found that affective reactivity to daily stress was lower on days when individuals had higher levels of daily control than usual, especially among the older adults in the sample (i.e., ∼66 years). These studies demonstrate the relevance of daily control for understanding one's emotional reactions to daily stress. The present study extends this line of work to daily perceived control over the specific daily stressors experienced.

The protective role that higher levels of global control can have against the impacts of daily stress (e.g., Neupert et al., 2007) suggests that global control may also be relevant for long-term trajectories of control over daily stress. It is possible, for instance, that possessing higher levels of global control enhances a person's ability to adapt to increasing physical, cognitive, and social challenges (Heckhausen & Schulz, 1995) that may manifest in everyday life as daily stressors (Almeida, 2005). In this way, higher global control may serve as a protective psychosocial resource against declines in daily stressor control as individuals grow older, a prediction that has not heretofore been examined.

The Present Study

The current study addresses four questions to better understand the developmental trajectories of global control and daily stressor control. First, what is the relationship between global and daily stressor control? A primary aim of the present study is to evaluate the unique nature of daily stressor control juxtaposed to global control. We hypothesize positive correlations, indicating that higher levels of global control is associated with higher levels of daily stressor control at each wave of assessment. We will also test the intraclass correlations for each aspect of control across waves of assessment. We hypothesize that correlations among global control levels (i.e., across three waves of assessment) will be of greater magnitude than the correlation between daily stressor control levels (i.e., across two waves of assessment).

Second, we build on foundational research that examined 10-years of follow-up in the MIDUS Survey from 1995 to 2005 (Lachman et al., 2009) by being the first study to include the third wave of MIDUS, collected in 2015, to assess changes in control across 20 years. By doing so, we can determine if age patterns maintain or exhibit distinct trajectories compared to previous studies encompassing shorter intervals. We hypothesize that participants will exhibit a decline in global control across the 20-year follow-up, and we will test whether the rate of decline is related to age at baseline. Both linear and quadratic baseline age moderators will be assessed to evaluate the potential for linear and nonlinear age moderation of longitudinal change, respectively.

Third, we will examine the developmental trajectories of perceived control over daily stressors (i.e., daily stressor control) across a 10-year follow-up. Exposure to daily stressors decreases across the lifespan (e.g., Aldwin et al., 2014; Almeida et al., 2023; Stawski et al., 2008). No study, however, has examined whether one's perceived control over daily stressors also exhibits declines or shows unique trajectories across the lifespan. Consistent with patterns of global control, we hypothesize that participants will exhibit a decline in daily stressor control across the 10-year follow-up and we will test whether age at baseline is associated with this rate of decline. Both linear and quadratic baseline age moderators will be assessed to evaluate the potential for linear and nonlinear age moderation of longitudinal change, respectively.

Finally, we will examine whether individual differences in global control moderate trajectories of daily stressor control. Given our expectation for positive correlations between global control and daily stressor control and previous work showing higher levels of global control attenuating harmful effects of daily stress (e.g., Neupert et al., 2007), we test whether changes in daily stressor control depend on baseline levels of global control. We hypothesize that individuals with higher global control will exhibit less decline in daily stressor control across a 10-year follow-up than individuals with comparatively lower global control.

Method

Participants and Procedure

We used data from the NSDE, a subproject of the larger MIDUS Survey project. All MIDUS participants completed a large survey on their general health and well-being, where they reported levels of global control. The MIDUS Survey was repeated approximately every 10 years, resulting in three waves of longitudinal data across 20 years and including 7,108 respondents (MIDUS 1: ∼1995; MIDUS 2: ∼2004; MIDUS 3: ∼2013). At the first wave, a random subset of 1,483 MIDUS participants was invited to participate in the NSDE project. These participants completed end-of-day telephone interviews for 8 consecutive days that assessed exposure to daily stress and subsequent ratings of perceived control over their daily stress (for a detailed description of data collection, see Almeida, 2005; Almeida et al., 2009, 2023). At the second wave, additional 1,048 participants were added to the NSDE. The NSDE data collection consisted of three waves of daily assessments repeated approximately every 10 years (NSDE 1: ∼1996; NSDE 2: ∼2008; NSDE 3: ∼2017). Reports of perceived control over daily stress were included to the NSDE protocol at the second wave, resulting in longitudinal daily diary data on stressor control across 10 years. The current study made use of all available data from respondents who participated in the NSDE subproject of MIDUS.

For global control analyses, we used data from the MIDUS Survey respondents who also participated in the NSDE subproject to maintain consistency across samples for global and stressor control analyses. Thus, the analytic sample for assessing global control beliefs consisted of 2,693 participants (4,302 assessments) with data from any of the three MIDUS Survey waves. The analytic sample for assessing daily stressor control comprised of 1,940 adults (7,703 assessments) who participated in Wave 2 and/or Wave 3 of the NSDE. These 1,940 participants reported at least one stressor during the telephone diary protocol and thus have data on their stressor control. Of the 1,940 adults from Wave 2, 874 individuals contributed Wave 3 data as well.

Transparency and Openness

Data are publicly available at the following website: (https://www.icpsr.umich.edu/web/ICPSR/series/203). All analyses were completed using SAS 9.4 (SAS Institute, 2013). Study materials and study analysis code may be made available for appropriate use upon emailed request to the corresponding author. This study was not preregistered. This study was approved by the institutional review board of the institution responsible for data collection, and all respondents consented to their participation.

Measures

Global Control

Global measures of control were assessed using 12 Midlife Developmental Inventory items (Lachman & Weaver, 1998; Pearlin & Schooler, 1978). Participants indicated how much they agreed or disagreed with 12 statements on a 6-point Likert-type scale (1 = *strongly disagree*, 2 = *somewhat disagree*, 3 = *a little disagree*, 4 = *don't know*, 5 = *a little agree*, 6 = *somewhat agree*, 7 = *strongly agree*). Mastery was derived through four items: "I can do just about anything I really set my mind to"; "When I really want to do something, I usually find a way to succeed at it"; "Whether or not I am able to get what I want is in my own hands"; and "What happens to me in the future mostly depends on me." Perceived constraints were derived from the following eight items: "There is little I can do to change the important things in my life"; "I often feel helpless in dealing with the problems of life"; "Other people determine most of what I can and cannot do," "What happens in my life is often beyond my control"; "There are many things that interfere with what I want to do"; "I have little control over the things that happen to me"; "There is really no way I can solve the problems I have"; and "I sometimes feel I am being pushed around in my life." Scores for constraint items were reverse coded so that higher scores indicated fewer constraints. Total scores for mastery and constraints were derived by taking the average of the four mastery items and the average of the eight constraint items, respectively. A global control composite was created by taking the average of both mastery items and constraints items. In the present study, the global control scale demonstrated adequate internal consistency at Wave 1 ($\alpha = .85$), Wave 2 ($\alpha = .87$), and Wave 3 ($\alpha = .88$). Higher scores indicated higher global control.

Daily Stressor Control

Perceived control over daily stress was assessed as part of the Daily Inventory of Stressful Events (DISE; Almeida et al., 2002). Participants responded to a series of stem questions asking whether certain types of daily stressors had occurred in the past 24 hr (arguments, avoided arguments, work overloads, home overloads, network stressors, and others). When a stressor was reported (40% of all available days in Wave 2, 39% of all available days in Wave 3), participants also rated perceived control over each stressor by answering the question, "How much control did you have over the situation?" on a 4-point Likert-type scale (0 = *none at all*, 1 = *a little*, 2 = *some*, 3 = *a lot*). Higher values indicate greater perceived control over daily stress. Daily stressor control was obtained by taking the average amount of control over the reported stressful situation(s) for each of the 8 days. Wave-level values of daily stressor control were obtained by taking the average amount of stressor control across the entire wave.

Covariates

Participant age at baseline, sex, education, race, and number of daily stressors were included as covariates to adjust for sample heterogeneity. Age at baseline was grouped into 5-year bins (NSDE daily stressor control analyses, ranging from 35–39, 40–44, 45–49, …, 75–79, 80–86; MIDUS global control analyses, ranging from <30; 30–34, 35–39, 40–44, 45–49, … 65–69, 70–75). Age at baseline was centered at the youngest age reported for each participant in all statistical models. Sex was coded with males as the reference category (0 = male, 1 = female). Education and race were both coded as dichotomous variables (0 = high school or less, 1 = some college or more) and race/ethnicity as 0 = White, 1 = not White, respectively. We collapsed Black/African American, Native American or Alaska Native, Asian or Pacific Islander, and other into a non-White dichotomous variable due to low cell sizes of individual racial categories (provided in Table 1). In daily stressor control analyses, the number of daily stressors was the sum of reported stressors for each study day. Descriptive statistics at each wave are presented in Table 1.

Analytic Strategy

We first evaluated whether global and daily stressor control were separate constructs by calculating bivariate correlations among global control and daily stressor control within and across waves of

Table 1
Descriptive Statistics for Study Variables Across Waves of Assessment

Variable	Wave 1 *M*	Wave 1 *SD*	Wave 1 Range	Wave 2 *M*	Wave 2 *SD*	Wave 2 Range	Wave 3 *M*	Wave 3 *SD*	Wave 3 Range
Global control[a]	5.58	0.98	1, 7	5.54	1.01	1, 7	5.49	1.00	1, 7
Daily stressor control[b]				1.49	0.93	0, 3	1.36	0.92	0, 3
Covariates									
Age	46.22	12.88	20, 75	56.25	12.20	33, 84	62.95	10.34	43, 90
Female[c]	0.54	0.50	0, 1	0.57	0.49	0, 1	0.57	0.50	0, 1
College[d]	0.63	0.48	0, 1	0.69	0.46	0, 1	0.77	0.42	0, 1
Race[e]	0.09	0.28	0, 1	0.16	0.36	0, 1	0.11	0.31	0, 1
Black/African American	0.05			0.12			0.04		
Native American or Alaska Native	0.01			0.01			0.01		
Asian or Pacific Islander	0.01			0.01			0.01		
Other	0.02			0.02			0.05		
Number of stressors[f]				1.26	0.37	1, 4	1.21	0.33	1, 4

[a] Assessed at all three waves. [b] Assessed only at Waves 2 and 3. [c] Proportion of female participants. [d] Proportion of participants with at least some college. [e] Proportion of non-White participants. We collapsed Black/African American, Native American or Alaska Native, Asian or Pacific Islander, and other into a non-White dichotomous variable due to low cell sizes of individual racial categories. [f] Average number of stressors when at least one stressor has been reported.

assessment. We used Cohen's (1992) assessment of r for indicating a small-to-medium (0.10–0.30), medium-to-large (0.30–0.50), and large (0.50 and larger) effect size. We used multilevel modeling (MLM; PROC MIXED; SAS Institute, 2013) to address the research questions examining longitudinal aging-related changes and cross-sectional age differences in global and daily measures of control. Wave-level measures of global control were nested within people. Daily occasions of stressor control were nested within measurement waves nested within people. Intraclass correlation coefficients from unconditional mixed linear models were used to determine within- and between-person variation in primary study variables. Maximum likelihood estimation was used due to missing data and attrition across days and waves of assessment.

For our research question examining changes in global control, we used two-level MLMs described below.

Level 1 (wave): $\text{GlobalControl}_{ij} = \beta_{0i} + \beta_{1i}(\text{Wave}_{ij}) + e_{ijk}$

Level 2 (person): $\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Sex}_i) + \gamma_{02}(\text{College}_i) + \gamma_{03}(\text{Race}_i) + \gamma_{04}(\text{BaselineAge}_i) + u_{0i}$

$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{BaselineAge}_i) + \gamma_{12}(\text{BaselineAge}_i * \text{BaselineAge}_i) + u_{01i}$

Global control for person i at wave j was regressed on Wave_{ij} (coded 0, 1, 2 for MIDUS 1, MIDUS 2, and MIDUS 3, respectively) to provide an estimate of the macrolongitudinal change in global control across the three waves of assessment, β_{1i} (between-wave, Level 1). Sex_i, College_i, Race_i, and age at baseline (BaselineAge_i) were included as between-person (Level 2) covariates. Linear baseline age (BaselineAge_i) and quadratic baseline age ($\text{BaselineAge}_i \times \text{BaselineAge}_i$) were included as between-person moderators of changes in global control (i.e., γ_{011}, γ_{012}, respectively). We centered wave at 0 (for MIDUS 1), sex with male as the reference category (0 = male, 1 = female), college with high school or less as the reference category (0 = high school or less, 1 = some college or more), race with White as the reference category (0 = White, 1 = not White), and age at baseline as the youngest age group (i.e., age group < 30).

Research questions examining changes in daily stressor control were assessed with three-level MLMs described below.

Level 1 (day): $\text{StressorControl}_{ijk} = \pi_{0ij} + \delta 1_{ij}(\text{Day}) + \delta 2_{ij}(\text{NumberofStressors}) + i_{lk}$

Level 2 (wave): $\pi_{0ij} = \beta_{00i} + \beta_{01i}(\text{Wave}_{ij}) + r_{0ij}$

Level 3 (person): $\beta_{00i} = \gamma_{000} + \gamma_{001}(\text{Sex}_i) + \gamma_{002}(\text{College}_i) + \gamma_{003}(\text{Race}_i) + \gamma_{004}(\text{BaselineAge}_i) + \gamma_{005}(\text{GlobalControl}_i) + u_{00i}$

$\beta_{01i} = \gamma_{010} + \gamma_{011}(\text{BaselineAge}_i) + \gamma_{012}(\text{BaselineAge}_i \times \text{BaselineAge}_i) + \gamma_{013}(\text{GlobalControl}_i) + u_{01i}$

The within-wave stressor control estimate (π_{0ij}) was regressed on Wave_{ij} (coded 0, 1 for NSDE 2 and NSDE 3, respectively) to provide an estimate of the macrolongitudinal change in stressor control across the two waves of assessment, β_{01i} (between-wave, Level 2). The number of stressors reported each day (NumberofStressors) and a linear trend across days of assessment (Day) were included as within-person (Level 1) covariates. Sex_i, College_i, Race_i, age at baseline (BaselineAge_i), and global control at baseline (GlobalControl_i) were included as between-person (Level 3) covariates. Linear baseline age (BaselineAge_i), quadratic baseline age ($\text{BaselineAge}_i \times \text{BaselineAge}_i$), and global control at baseline (GlobalControl_i) were included as between-person moderators of changes in stressor control (i.e., γ_{011}, γ_{012}, γ_{013}, respectively). We centered day at 0 (for Day 1 at each wave of assessment), number of stressors at 1, wave at 0 (for MIDUS 1), sex with male as the reference category (0 = male, 1 = female), college with high school or less as the reference category (0 = high school or less, 1 = some college or more), race with White as the reference category (0 = White, 1 = not White), age at baseline as the youngest age group (i.e., age group 35–39), and global control at baseline as the sample mean at Wave 2 (i.e., 5.54).

As an index of effect size for longitudinal changes in control, we calculated estimates of percentage change across 10-year periods compared to baseline levels (e.g., Adam et al., 2006).

Results

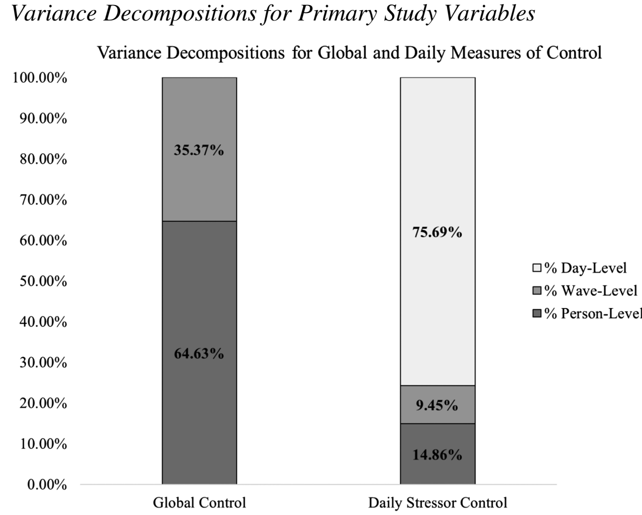
Tables 1–3 provide descriptive statistics and bivariate correlations for study variables within and across waves of assessment. Unconditional MLMs showed significant between- and within-person variation in measures of daily and global control (Figure 1). For global control, 65% of the variance reflected between-person differences and the remaining 35% reflected within-person variation across waves and unspecified sources of variation. For daily stressor control, 15% of the variance reflected between-person differences, 10% reflected within-person variation across waves, and the remaining 75% reflected within-person variation across days and unspecified sources of variation.

Relationship Between Global Control and Daily Stressor Control

Within waves of assessment (Table 2), higher levels of global control were significantly correlated with higher levels of daily stressor control at Wave 2 ($r = .16$, $p < .001$) and Wave 3 ($r = .09$, $p < .01$). Across waves of assessment (Table 3), positive correlations between global control levels were of stronger magnitude than daily stressor control levels. Specifically, global control at Wave 1 was strongly correlated with

Figure 1

Variance Decompositions for Primary Study Variables



Note. Values depicted reflect proportion of variation across persons, waves, and days.

Table 2
Bivariate Correlations Among Study Variables Within Waves of Assessment

	Wave 1							Wave 2							Wave 3						
Variable	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Global control[a]	—							—							—						
2. Daily stressor control[b]		—						.16***	—						.09**	—					
3. Age	−.10***		—					−.02	−.01	—					−.08*	−.04	—				
4. Female[c]	−.09***		.00	—				−.11***	−.08***	−.02	—				−.09**	−.08**	.00	—			
5. College[d]	.12***		−.05†	−.08**	—			−.03	.14***	−.11***	−.07**	—			−.01	.14***	−.09**	−.11***	—		
6. Race[e]	−.01		−.10***	.05*	−.02	—		.09***	−.07***	−.07**	.05*	−.10***	—		.02	.01	−.02	.03	.00	—	
7. Number of stressors[f]							—	−.05†	−.03	−.15***	.03	.08***	.02	—	−.10**	.03	−.07*	.06†	.06†	−.05	—

[a] Assessed at all waves. [b] Assessed only at Waves 2 and 3. [c] Proportion of female participants. [d] Proportion of participants with at least some college. [e] Proportion of non-White participants. [f] Average number of stressors when at least one stressor has been reported.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

global control at Wave 2 ($r = .59$, $p < .001$) and Wave 3 ($r = .57$, $p < .001$), and global control at Waves 2 and 3 were strongly correlated ($r = .66$, $p < .001$). Daily stressor control at Waves 2 and 3 were correlated at a comparatively smaller magnitude ($r = .22$, $p < .001$).

Global Control

Longitudinal Age Change and Cross-Sectional Age Differences

Changes in global control are provided in Table 4. On average, individuals declined in global control across the 20-year period ($b = -0.04$, $SE = 0.02$, $p < .01$, 95% CI [−0.07 to −0.02]; Table 4, Model 1). Cross-sectionally, baseline age was associated with control, such that older adults at baseline reported lower global control than younger adults ($b = -0.02$, $SE = 0.01$, $p < .01$, 95% CI [0.04 to −0.01]; Table 4, Model 1).

Baseline Age Moderation of Longitudinal Change

Linear baseline age did not significantly moderate the declines in global control ($b = 0.01$, $SE = 0.01$, $p > .05$, 95% CI [−0.01–0.02]; Table 4, Model 2). However, quadratic baseline age was a significant moderator ($b = -0.01$, $SE = 0.00$, $p < .001$, 95% CI [−0.02 to −0.01]; Table 4, Model 3). Figure 2A illustrates the nature of longitudinal change showing control declining across the 20-year period for younger and older age groups, but staying relatively stable for individuals in midlife. Using the Johnson–Neyman technique (Johnson & Neyman, 1936; Rast et al., 2014), regions of significance testing are provided in the bottom panel of Figure 2A to specify the ages when a significant change in global control emerged, with 95% confidence bands included to infer statistical significance. Specifically, the plotted regions of significance indicate that younger adults below 40 years of age and older adults above 70 years of age exhibited significant declines (slope *p*s < .05), whereas individuals in midlife remained stable in their levels of global control across 20 years (slope *p*s > .05). Declines were steepest among the youngest and oldest age groups, such that global control declined per 10 years of follow-up by 3% for individuals <30 years, 2% for ages 30–34, 2% for ages 65–69, and 4% for individuals 70 years and older. Individuals in age groups between 35 and 65 either declined by <2% per 10 years of follow-up or exhibited no change.

Sensitivity analysis revealed that results were consistent among the full MIDUS sample ($N = 6{,}542$ participants, 13,018 observations; $b = -0.01$, $SE = 0.00$, $p < .001$, 95% CI [−0.01 to −0.01]). Therefore, the quadratic baseline age moderation of longitudinal change in global control was apparent in both the full MIDUS sample and the NSDE subsample of participants.

Daily Stressor Control

Longitudinal Age Change and Cross-Sectional Age Differences

Changes in daily stressor control are provided in Table 5. On average, individuals declined in their perceived control over daily stress across the 10-year period ($b = -0.12$, $SE = 0.03$, $p < .001$, 95% CI [−0.18 to −0.05]; Table 3, Model 1). By the second set of daily measures (at NSDE 3 ten years later), daily stressor control had declined by 7% compared to baseline levels. Cross-sectionally,

Table 3
Bivariate Correlations Among Study Variables Across Wave of Assessment

Variable	1	2	3	4	5	6	7	8	9	10
1. Global control at Wave 1	—									
2. Global control at Wave 2	.59***	—								
3. Global control at Wave 3	.57***	.66***	—							
4. Daily stressor control at Wave 2	.13***	.17***	.13***	—						
5. Daily stressor control at Wave 3	.11***	.09***	.09***	.22***	—					
6. Age	−.04*	.00	−.05**	−.00	−.06**	—				
7. Female[a]	−.09***	−.09***	−.07***	−.11***	−.08***	.00	—			
8. College[b]	.13***	.12***	.14***	−.03	−.01	−.03†	−.08***	—		
9. Race[c]	−.01	−.04**	−.01	.05**	.03	−.04**	.05***	−.05***	—	
10. Number of stressors[d]	−.06**	−.07***	−.08***	−.02	.03	−.14***	.04*	.07***	.01	—

[a] Proportion of female participants. [b] Proportion of participants with at least some college. [c] Proportion of non-White participants. [d] Average number of stressors when at least one stressor has been reported.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

baseline age was not significantly associated with stressor control, indicating levels of stressor control were statistically comparable across different age groups at baseline ($b = -0.01$, $SE = 0.01$, $p > .05$, 95% CI [−0.03–0.00]; Table 2, Model 1).

Baseline Age Moderation of Longitudinal Change

In tests for possible age moderation of declines in daily control, neither linear baseline age ($b = -0.02$, $SE = 0.02$, $p > .05$, 95% CI [−0.05–0.01]; Table 4, Model 2) nor quadratic baseline age ($b = -0.01$, $SE = 0.01$, $p > .05$, [−0.02–0.01]; Table 4, Model 3) were significant. The top panel of Figure 2B illustrates the nature of longitudinal change, showing daily stressor control declining across the 10-year period for different age groups. For data transparency and consistency with reporting for global control analyses, we present the regions of significance for model-based estimates of stressor control trajectories as well. The bottom panel of Figure 2B indicates that declines in daily stressor control were significant for participants who were 46 years of age and older at baseline. Given the comparatively wider confidence bands among younger and older adult age groups and nonsignificant omnibus interaction terms, this baseline age moderation should be interpreted with caution.

Baseline Global Control Moderation of Longitudinal Change

In additional analyses testing a possible moderation by baseline levels of global control, a Significant Wave × Global Control interaction emerged ($b = -0.07$, $SE = 0.03$, $p < .05$, 95% CI [−0.13 to −0.01]; Table 3, Model 4), although not in the expected direction. Contrary to our hypothesis, declines in stressor control were amplified among individuals with higher levels of global control at baseline.

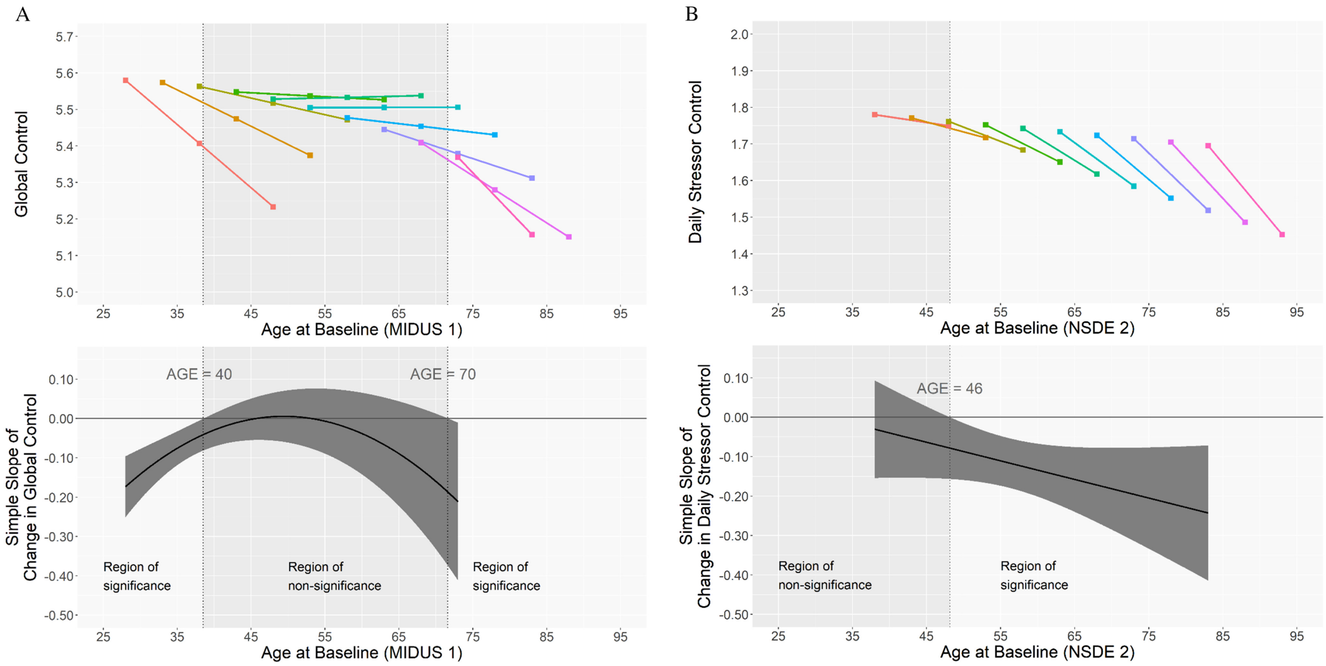
Table 4
Multilevel Models Assessing Changes in Global Control Across 20 Years

	Global control					
	Model 1: main effects		Model 2: linear baseline age moderation		Model 3: quadratic baseline age moderation	
Variable	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI
Fixed effects						
Intercept	5.60 (0.05)***	[5.50, 5.69]	5.61 (0.05)***	[5.51, 5.72]	5.58 (0.07)***	[5.45, 5.71]
Wave	−0.04 (0.02)**	[−0.07, −0.02]	−0.07 (0.03)*	[−0.13, −0.02]	−0.17 (0.04)*	[−0.25, −0.10]
Female	−0.15 (0.04)***	[−0.23, −0.08]	−0.15 (0.04)***	[−0.22, −0.08]	−0.15 (0.04)***	[−0.22, −0.08]
College	0.22 (0.04)***	[0.15, 0.29]	0.22 (0.04)***	[0.15, 0.29]	0.22 (0.04)***	[0.15, 0.29]
Race	−0.04 (0.05)	[−0.14, 0.07]	−0.04 (0.05)	[−0.14, 0.07]	−0.04 (0.05)	[−0.14, 0.06]
Age at baseline	−0.02 (0.01)**	[−0.04, −0.01]	−0.03 (0.01)**	[−0.04, −0.01]	−0.00 (0.03)**	[−0.06, 0.05]
Age at baseline^2					−0.00 (0.00)	[−0.01, 0.01]
Wave × Age at baseline			0.01 (0.01)	[−0.01, 0.02]	0.08 (0.02)	[0.04, 0.13]
Wave × Age at baseline^2					−0.01 (0.00)***	[−0.02, −0.01]
Level 2 random effects						
Intercept	0.62 (0.03)***	[0.57, 0.68]	0.62 (0.03)***	[0.57, 0.68]	0.62 (0.03)***	[0.57, 0.68]
Wave	0.00 (0.01)	[0.00, 0.00]	0.00 (0.01)	[0.00, 0.00]	0.00 (0.01)	[0.00, 0.00]
Level 1 residual	0.36 (0.01)***	[0.33, 0.39]	0.36 (0.01)***	[0.33, 0.39]	0.35 (0.01)***	[0.33, 0.38]

Note. $N = 2,693$ participants, 4,302 observations. CI = confidence interval. Female (0 = male set as reference group, 1 = female). Wave = linear trend across waves. College (0 = high school or less set as reference group, 1 = some college or more). Race (0 = White set as reference group, 1 = non-White). Age at baseline = linear effect of age at baseline. Age at baseline^2 = quadratic effect of age at baseline. Estimates of fixed effects are reported as unstandardized regression coefficients. Estimates of random effects are reported as variances.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2

Longitudinal Aging-Related Changes in Global Control (Panel A) and Daily Stressor Control (Panel B) Across the Adult Lifespan



Note. (A) Top panel: Longitudinal aging-related changes in global control across the adult lifespan. Bottom panel: The simple slope of change in global control is shown across varying values of age at baseline (thick black line). The gray bands represent the 95% confidence interval that can be used to infer statistical significance. When the horizontal zero line is included in the confidence bands, the simple slope is not statistically significant at that age. The vertical hatched lines denote the boundary values of baseline age where longitudinal change in global control is no longer statistically significant based on the Johnson–Neyman technique. The omnibus interaction term for quadratic baseline age moderation of longitudinal change in global control was significant ($b = -0.01$, $SE = 0.00$, $p < .001$). The plotted regions of significance indicate that younger adults below 40 years of age and older adults above 70 years of age exhibited significant declines (slope $ps < .05$), whereas individuals in midlife remained stable in their levels of global control across 20 years (slope $ps > .05$). (B) Top panel: Longitudinal aging-related changes in daily stressor control across the adult lifespan. Bottom panel: The simple slope of change in daily stressor control is shown across varying values of age at baseline (thick black line). The gray bands represent the 95% confidence interval that can be used to infer statistical significance. When the horizontal zero line is included in the confidence bands, the simple slope is not statistically significant at that age. The vertical hatched line denotes the boundary value of baseline age where longitudinal change in control is no longer statistically significant based on the Johnson–Neyman technique. Longitudinal change was statistically significant for participants who were over 46 years of age at baseline for daily stressor control. The omnibus interaction terms for linear ($b = -0.02$, $SE = 0.02$, $p > .05$) and quadratic ($b = -0.01$, $SE = 0.01$, $p > .05$) baseline age moderation of longitudinal change in daily stressor control were nonsignificant. However, we present the regions of significance testing using model-based estimates to specify the exact computation of boundary conditions where the moderator (i.e., age at Wave 2) elicited a statistically significant slope over the 10-year follow-up. Given the comparatively wider confidence bands among younger and older adult age groups and nonsignificant omnibus interaction terms, this baseline age moderation should be interpreted with caution. MIDUS = the Midlife in the United States Survey. NSDE = National Study of Daily Experiences. See the online article for the color version of this figure.

The Johnson–Neyman technique (Johnson & Neyman, 1936; Rast et al., 2014) was used to further probe the significance of the longitudinal changes across varying values of baseline global control. Figure 3 illustrates the nature of this significant interaction, indicating that declines in stressor control were significant only among individuals with average scores of global control at 4.94 (out of 7) or higher. Participants with comparatively lower values of global control at baseline did not exhibit significant declines in stressor control.

Additional Analyses

Additional sensitivity analyses were conducted to examine whether any of the sociodemographic covariates (i.e., sex, education, race) moderated the longitudinal changes in global control and daily stressor control. Results of these additional analyses revealed that changes in global control and daily stressor control did not vary as a function of sex (Wave × Sex for Global Control: $b = 0.02$, $SE = 0.03$, $p = .44$; Wave × Sex for Daily Stressor Control: $b = 0.04$, $SE = 0.06$, $p = .49$), education (Wave × Education for Global Control: $b = -0.00$, $SE = 0.03$, $p = .96$; Wave × Education for Daily Stressor Control: $b = -0.02$, $SE = 0.08$, $p = .79$), or race (Wave × Race for Global Control: $b = -0.00$, $SE = 0.05$, $p = .98$; Wave × Race for Daily Stressor Control: $b = -0.10$, $SE = 0.11$, $p = .35$). Thus, sex, education, and race did not moderate longitudinal changes in global control and daily stressor control.

Further, we included a linear trend for day as a covariate in daily stressor control analyses to statistically adjust for time-related trends in the data across days of assessment within waves. Primary analytic models, however, assumed these daily trends in stressor control were constant across waves and participants. An exploratory three-way interaction term (Day × Wave × Age at Baseline) was included in additional analyses to examine whether daily trends in stressor control

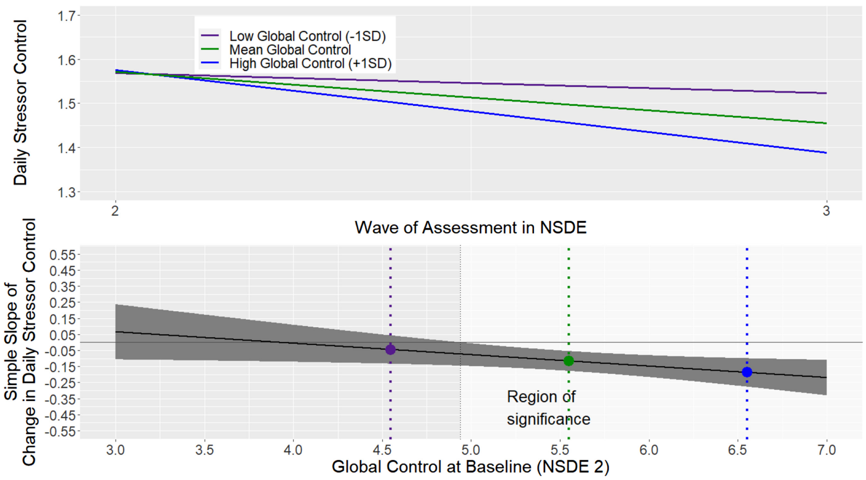
Table 5
Multilevel Models Assessing Changes in Daily Stressor Control Across 10 Years

	Daily stressor control							
	Model 1: main effects		Model 2: linear baseline age moderation		Model 3: quadratic baseline age moderation		Model 4: global control moderation	
Variable	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI	Estimate (*SE*)	95% CI
Fixed effects								
Intercept	1.80 (0.07)***	[1.67, 1.93]	1.78 (0.07)***	[1.65, 1.91]	1.77 (0.08)***	[1.61, 1.93]	1.80 (0.07)***	[1.68, 1.93]
Day	−0.03 (0.01)***	[−0.04, −0.02]	−0.03 (0.01)***	[−0.04, −0.02]	−0.03 (0.01)***	[−0.04, −0.02]	−0.03 (0.01)***	[−0.04, −0.02]
Number of stressors	−0.03 (0.02)	[−0.07, 0.02]	−0.03 (0.02)	[−0.07, 0.02]	−0.03 (0.02)	[−0.07, 0.02]	−0.03 (0.02)	[−0.07, 0.01]
Wave	−0.12 (0.03)***	[−0.18, −0.05]	−0.03 (0.06)	[−0.15, 0.09]	−0.10 (0.09)	[−0.28, 0.09]	−0.12 (0.03)***	[−0.18, −0.05]
Female	−0.18 (0.04)***	[−0.25, −0.11]	−0.18 (0.04)***	[−0.25, −0.11]	−0.18 (0.04)***	[−0.25, −0.11]	−0.18 (0.04)***	[−0.25, −0.11]
College	−0.07 (0.04)	[−0.15, 0.01]	−0.07 (0.04)	[−0.15, 0.01]	−0.07 (0.04)†	[−0.15, 0.01]	−0.07 (0.04)	[−0.15, 0.01]
Race	0.19 (0.05)***	[0.09, 0.29]	0.19 (0.05)***	[0.09, 0.29]	0.18 (0.05)***	[0.08, 0.28]	0.19 (0.05)***	[0.09, 0.29]
Age at baseline	−0.01 (0.01)†	[−0.03, 0.00]	−0.01 (0.01)	[−0.03, 0.01]	−0.00 (0.00)	[−0.06, 0.06]	−0.01 (0.01)†	[−0.03, 0.00]
Age at baseline^2					−0.00 (0.00)	[−0.01, 0.01]		
Global control	0.13 (0.02)***	[0.09, 0.16]	0.13 (0.02)***	[0.09, 0.16]	0.13 (0.02)***	[0.09, 0.16]	0.15 (0.02)***	[0.11, 0.19]
Wave × Age at baseline			−0.02 (0.02)	[−0.05, 0.01]	0.03 (0.05)	[−0.07, 0.13]		
Wave × Age at baseline^2					−0.01 (0.01)	[−0.02, 0.01]		
Wave × Global control							−0.07 (0.03)*	[−0.13, −0.01]
Level 3 random effects								
Intercept	0.17 (0.02)***	[0.14, 0.23]	0.17 (0.02)***	[0.14, 0.23]	0.17 (0.02)***	[0.13, 0.23]	0.18 (0.02)***	[0.14, 0.23]
Wave	0.02 (0.04)	[0.00, 5,530.65]	0.02 (0.04)	[0.00, 25,971]	0.02 (0.04)	[0.00, 309,232]	0.02 (0.04)	[0.00, 65,378]
Level 2 random effect								
Intercept	0.11 (0.03)***	[0.07, 0.20]	0.11 (0.03)***	[0.07, 0.20]	0.11 (0.03)***	[0.07, 0.20]	0.11 (0.03)***	[0.07, 0.20]
Level 1 residual	1.00 (0.02)***	[0.97, 1.04]	1.00 (0.02)***	[0.97, 1.04]	1.00 (0.02)***	[0.97, 1.04]	1.00 (0.02)***	[0.97, 1.04]

Note. $N = 1,940$ participants, 7,703 observations. CI = confidence interval. Female (0 = male set as reference group, 1 = female). Wave = linear trend across waves. College (0 = high school or less set as reference group, 1 = some college or more). Race (0 = White set as reference group, 1 = non-White). Age at baseline = linear effect of age at baseline. Age at baseline^2 = quadratic effect of age at baseline. Estimates of fixed effects are reported as unstandardized regression coefficients. Estimates of random effects are reported as variances.
† $p < .10$. * $p < .05$. *** $p < .001$.

Figure 3

Global Control at Baseline Moderates Longitudinal Change in Daily Stressor Control



Note. Top panel: Purple (top line in figure), green (middle line in figure), and blue (bottom line in figure) lines reflect simple slope estimates of longitudinal change in daily stressor control at three different values of global control at baseline (i.e., −1 *SD* below the mean, 4.55; *M*, 5.55; and +1 *SD* above the mean, 6.55). Bottom panel: The simple slope of change in daily stressor control is shown across varying values of global control at baseline (thick black line). The gray bands represent the 95% confidence interval that can be used to infer statistical significance. When the horizontal zero line is included in the confidence bands, the simple slope is not statistically significant at that level of global control. The vertical hatched line denotes the boundary value of baseline global control where longitudinal change in control is no longer statistically significant based on the Johnson–Neyman technique, and the colored vertical lines represent the nonsignificant (for the low global control group at value 4.55) and the significant slopes (for the mean and high global control groups at values 5.55 and 6.55, respectively) depicted for the three lines above. Longitudinal change was statistically significant for participants with average scores of baseline global control at 4.94 (out of 7) or higher. Participants with comparatively lower values of global control at baseline did not exhibit significant declines in daily stressor control. NSDE = National Study of Daily Experiences. See the online article for the color version of this figure.

varied as a function of wave and age at baseline. Additional analyses indicated daily trends in stressor control across 8 days did not significantly vary as a function of wave and baseline age (Est. = 0.003, *SE* = 0.01, $p = .61$).

Discussion

Greater perceived control over one's life and actions fosters behaviors and lifestyles that promote well-being and optimize healthy adult development and aging. Using a national adult lifespan sample with daily diary data and macro-level longitudinal follow-ups spanning up to 20 years, we evaluated two distinct constructs of control—global control and daily control over stressors in everyday life. Both types of control changed over time, but in distinct ways.

In general, global control declined across 20 years of adulthood for younger and older adults, but stayed relatively stable for individuals in midlife. Daily stressor control, in contrast, declined across the 10 years of measurement at a similar rate for younger, middle-aged, and older adults. The rate of decline in daily stressor control (7% reduction per 10 years of follow-up) was steeper than the declines in global control (percent change ranged from <1% to 4% per 10 years of follow-up for different age groups). Further, stressor control trajectories were moderated by baseline global control, with rates of decline steepest among those with higher global control at baseline. These findings extend prior research findings on perceived control in adulthood and differentiate between global and daily stressor perceived control.

Global Control and Daily Stressor Control as Distinct Types of Control Beliefs

Variation in global control predominately reflected individual differences between persons, whereas variation in daily stressor control predominately reflected time-varying sources within persons across waves and days of assessment. Similarly, positive correlations among global control levels at Waves 1, 2, and 3 were large in magnitude compared to the small correlation for daily stressor control levels at Waves 2 and 3. Additionally, global control and daily stressor control exhibited a small, positive correlation at both Wave 2 and Wave 3, further demonstrating the correlated, but distinct types of control evaluated in the present study. If the correlations between global control and daily stressor control had been large in magnitude, there may have been concern for the potential of overlapping constructs. However, the small correlations provide additional support for studying daily stressor control and global control as two distinct types of control beliefs. The more trait-like assessment of how we perceive control over our life and actions in general (i.e., global control) versus the more state-like evaluations of control over our daily experiences (i.e., stressor control) can be and often are different phenomena.

Higher levels of global control may not translate to having more control over daily stressful experiences. A person with lower global control, for example, may make decisions in daily life that prioritize facilitating higher control over their daily experiences. The variance decompositions and bivariate correlations in the present study emphasize these differences and demonstrate the unique nature of the state-like and specific daily stressor control juxtaposed to the comparatively more trait-like and general perceptions of global control.

Global Control Across 20 Years of Adulthood

Our study is the first account of global control trajectories across 20 years of adulthood using MIDUS data from all three waves of available data. Cross-sectional age differences revealed that global control is highest among younger adults and lowest among older adults. Longitudinal follow-up across 20 years showed declines in perceptions of control among younger adults and older adults, but relative stability among individuals in midlife. These age-related patterns are consistent with conceptual and empirical accounts of control trajectories in adulthood (e.g., Krause & Shaw, 2003; Lachman & Firth, 2004; Lachman et al., 2009; Mirowsky, 1995). Notably, the present findings support and extend analyses by Lachman et al. (2009) that examined changes in control across a 10-year follow-up using MIDUS data. Consistent with this prior work, stability in control at midlife emerged, with significant declines occurring for the youngest and oldest age groups in the study.

Although we did not explicitly test the mechanisms of this aging-related change, there are a number of reasons why this type of developmental trajectory may have occurred. Declines in control among younger adults may be due in part to the constant changes often experienced in this developmental period brought on by role transitions in domains such as career pursuits, financial independence, and family life. Indeed, major life events are most often reported by younger adults compared to middle-aged and older adults (Hughes et al., 1988). Further, past research suggests declines in perceived control over children are most apparent in younger adulthood and midlife (e.g., Lachman et al., 2009; Shane et al., 2023). People beginning the study at midlife may not have exhibited declines in control due to leveraging acquired skills and employing effective strategies to maintain aspects of control amidst losses or challenges in life (e.g., Lachman et al., 2009). Further, it is possible that role transitions common among individuals in midlife (e.g., becoming a caregiver, becoming married or divorced) may have comparatively less relevance for changes in perceived control than the role transitions that occur more often in younger and older adulthood. Declines in control among older adults may be due to age-related cognitive and social challenges that accumulated across the 20 years of follow-up (Heckhausen et al., 2010; Robinson & Lachman, 2017) and losses in control over health and functioning (e.g., Infurna & Okun, 2015; Shane & Heckhausen, 2016), resulting in decreases in the amount of control individuals perceive in general. Declines in global control among older adults may have also been due in part to role transitions common in older adulthood (e.g., becoming widowed, deaths of individuals with familial and nonfamilial social ties) that could lessen an individual's perceived control. Future work is needed to test these ideas and identify mechanisms of aging-related changes in global control. An important next step of analyses on global control trajectories is to examine whether changes in domain-specific control from the MIDUS Survey may predict or covary with changes in global control across 20 years of adult development and aging.

Daily Stressor Control Across 10 Years of Adulthood

In contrast to global control, cross-sectional analyses of stressor control revealed statistically comparable levels across different age groups at baseline. Across 10 years, however, the amount of control individuals perceive over their daily stress declined, regardless of how old they were at baseline. As the first empirical investigation of long-term changes in daily stressor control, our findings help inform how perceived control manifests in daily life. Accumulating evidence has already demonstrated the time-varying nature of perceived control in daily life (e.g., Cerino et al., 2020; Diehl & Hay, 2010; Eizenman et al., 1997; Koffer et al., 2019; Robinson & Lachman, 2020). Leveraging the measurement burst design of the NSDE, our work builds on this literature to demonstrate macrolevel changes (i.e., declines across 10 years) in daily stressor control. Perhaps increased health demands associated with growing older over 10 years time led to a lessening of control over everyday hassles assessed in the NSDE's DISE. Further, daily stress research consistently shows decreases in stressor exposure across the lifespan (e.g., Aldwin et al., 2014; Almeida & Horn, 2004; Almeida et al., 2023; Stawski et al., 2008). Our findings build upon this pattern with parallel decreases in one's perceptions of control over daily stressors as well.

While individuals across all ages demonstrated significant declines in perceived control over daily stressors, it may be that the reasons for declines in control differ across the lifespan. Indeed, the constant role transitions often reported in younger adulthood (Hughes et al., 1988) tend to be accompanied by daily stress (Almeida & Wong, 2009), suggesting the capacity for exerting control over daily stressors may be increasingly difficult as individuals proceed through younger adulthood into midlife. Importantly, middle-aged participants exhibited a decline in daily stressor control, in contrast to the maintained levels of global control observed at midlife. Past work on daily stress shows individuals in midlife report more daily stressors and perceive their daily stressors as more severe than older adults (Almeida & Horn, 2004). Perceiving control over these kinds of daily experiences is qualitatively different and perhaps more challenging than perceiving control more globally. Further, increases in age-related physical, cognitive, and social challenges may help understand why older adults exhibited declines in stressor control as well (Heckhausen & Schulz, 1995). Future work is needed, however, to test these ideas and identify mechanisms of this decline in daily stressor control.

There may have been insufficient power to detect a statistically significant interaction term between wave and baseline age given fewer individuals were represented in the comparatively younger and older age groups of the sample. We address this potential limitation with transparency in the plotting of regions of significance using the Johnson–Neyman technique in Figure 2B. The model-based estimates suggested declines in stressor control were steeper among comparatively older adults, with regions of significance specifying significant declines in stressor control emerged among those who were over 46 years of age. Given the comparatively wider confidence bands among younger and older adult age groups and nonsignificant omnibus interaction terms, however, we recommend this exploratory baseline age moderation should be interpreted with caution. Future work should apply informed theoretical rationale to the assessment of age differences in trajectories of stressor control across adulthood using theories such as Socioemotional Selectivity Theory (Carstensen, 2021) and Strength and Vulnerability Integration (Charles, 2010).

We also cannot rule out the potential for a possible period effect influencing these findings due to our assessment of two waves of daily stressor control only. For example, the declines in daily stressor control from Wave 2 (∼2008) to Wave 3 (∼2017) may be due in part to economic volatility and financial declines that occurred during the great recession of 2008, as well as social unrest and socioeconomic uncertainty in 2017, such as a deadly protest that occurred in Charlottesville, Virginia, and economic growth that was lower than the previous year. With regard to the unexpected finding that it was those with higher global control who showed the greatest declines in stressor control, that may be tied to generally increasing levels of stress. People are reporting higher rates of stress each year since 2000 (American Psychological Association, 2017), and these high rates of daily stress may be particularly difficult for people who have always felt a high level of global control. Additional time points will continue to characterize these changes in daily stressor control and clarify the potential influences of period effects.

Global Control Moderates Declines in Daily Stressor Control

Baseline global control was assessed before any measurement of daily stressor control, facilitating examination of initial levels of global control attenuating or amplifying subsequent trajectories of daily stressor control. Our results revealed declines in daily stressor control were amplified among those with high levels of global control at baseline. This moderated decline emphasizes the relevance of global control for understanding unique daily aspects of control. The finding was unexpected as we hypothesized perceiving higher global control would serve as a psychosocial resource for individuals to augment control over their daily stressors and attenuate declines over time. However, shifting social hierarchies and increasing levels of uncontrollable stressors may be particularly difficult for those who have always had high levels of control in the past.

Higher levels of control beliefs may be maladaptive under circumstances of lower objective control (Chipperfield et al., 2016; Lachman et al., 2011; Miller & Gagne, 2005; Robinson & Lachman, 2017). Miller and Gagne (2005) suggested that older participants with higher levels of control had unexpected difficulty with remembering cognitively demanding reading passages because they were overconfident in their abilities and failed to allocate the necessary time for information processing amidst age-related declines in cognitive processing resources. Cerino et al. (2020) similarly found a point of diminishing return for reporting higher levels of control among the oldest portion of their sample. Specifically, reporting higher levels of control was associated with worse cognitive health only when the attentional demands of the cognitive task were high and a potential incongruence occurred between their perceived ability to perform an attentionally demanding task and their actual ability to process information efficiently (Cerino et al., 2020). In the present study, perceptions of global control may not have effectively aligned to the resources needed to address stressful experiences in daily life, leading to an incongruence between high global control levels and steeper declines in control over daily stress. A second explanation for this moderated decline may be due to people with high global control being less prepared or used to changes that occur as they grow older (compared to individuals with lower control at baseline who may feel as though control in everyday life was less realistic or attainable). A third explanation may be that those with higher global control are less accustomed to experiencing stress in their everyday life. When stressors occurred, it may have challenged their sense of control. It is possible that those with a high sense of control are relatively effective at avoiding or reducing stressors. However, when they do experience stress, it may be due to sources that are seen as uncontrollable. We also cannot rule out the potential for an additional third variable that we have not accounted for explaining this moderating role of baseline global control.

Limitations and Future Directions

The strengths of this study must be interpreted along with its limitations. We assessed changes in global control across three waves across 20 years of follow-up, but assessments of daily stressor control were limited to two waves across 10 years of follow-up due to the initiation of stressor control items to the NSDE protocol at NSDE 2. Further, the analytic sample's lack of diversity in racial and ethnic composition, as well as the lack of individuals in the lowest socioeconomic stratum, is a limitation when considering generalizability of the present findings. With the population increasingly becoming diverse in socioeconomic, racial, and ethnic composition, it is crucial for future work to evaluate how changes in global and stressor control may vary by critical sociodemographic dimensions.

Further, the present study was focused on mapping developmental trajectories of global and stressor control. It did not evaluate what these changes in control may mean for health and well-being across the lifespan. Both global and daily aspects of control beliefs are known correlates of health and well-being outcomes such as physical health (Infurna et al., 2011), cognitive health (Cerino et al., 2020; Robinson & Lachman, 2020), and depressive symptoms (Lachman & Weaver, 1998). An important next step is to understand whether the declines in global control and stressor control reported in the present study are associated with changes in health and well-being outcomes as well. Relatedly, future research should examine the within-person factors (e.g., changes in physical and mental health, other components of daily stress processes, social role transitions) that contribute to the 35% of variance attributed to wave-level differences in global control and the 85% of variance attributed to day-level and wave-level differences in stressor control, as well as the between-person factors (e.g., presence of chronic stress and persistent health conditions) that contribute to the 65% of variance attributed to individual differences in global control and the 15% of variance attributed to individual difference in daily stressor control. By pinpointing trajectories of control and their within- and between-person links to health and well-being, we can move toward optimizing healthy aging trajectories for whom and when control beliefs matter most.

Conclusion

Perceived control helps us make sense of life, engage in health behaviors, and navigate everyday thoughts and actions. The 8-day daily diary nested within 10-year measurement bursts in the current study offered novel opportunity to characterize developmental trajectories of global control, as well as time-varying perceptions of control that manifest in everyday life. Using our large national sample with up to 20 years of longitudinal follow-up, our findings demonstrate that both global control and control over daily stressful experiences change over time, but in distinct ways. Global control declined in younger and older adults, but stayed relatively stable among individuals in midlife. In contrast, control over specific aspects of daily life declined across all ages from 2008 to 2017, with the steepest declines among those with high global control. Our findings suggest people's control over their daily stressful experiences may be declining in parallel with increased rates of stress in the last 20 years (American Psychological Association, 2017). Understanding how control manifests in daily life and changes over time can help guide efforts toward optimizing daily health and well-being in a time where stress is pervasive and control over our daily experiences appears finite.

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