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Motivational Self-Regulation in the Work Domain: Congruence of Individuals' Control Striving and the Control Potential in Their Developmental Ecologies

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Individual agents are most effective in shaping their development if their goal engagement is congruent with their control opportunities. This proposition is examined using the Midlife in the United States longitudinal study. We find that individuals whose high levels of work-related primary control striving are congruent with their work-related perceived control report the most positive work and health outcomes. Individuals who invest high work-related primary control striving under conditions of low work-related perceived control attained upward career mobility, but their low control opportunities undermined the sustainability of strong primary control striving and led to detrimental mental and physical health effects.

Individuals are active agents in their own development (Lerner & Busch-Rossnagel, 1981). However, the adaptiveness of individuals' motivational self-regulation depends on how well it fits with the real-life context in which it occurs (Heckhausen, Wrosch, & Schulz, 2010). Motivational self-regulation to produce congruence between one's control strivings and the control potential in one's developmental ecology represents an important aspect of adaptive human development. Striving for control over uncontrollable situations, or disengagement from controllable situations, may be counterproductive to an individual's development. To optimize one's development, motivational engagement and disengagement

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should be congruent with one's control potential in the relevant domain. In this article, we examine developmental expectations and motivational engagement in the work domain and their longitudinal outcomes in terms of career mobility and mental health across a span of 9 years. Using the Midlife in the United States (MIDUS I & II) longitudinal data set (Midlife in the United States, 2012), this study illustrates the role of the individual agent in producing his or her own development in the work domain, and that the effectiveness of individuals' work-related control striving depends on the congruence between their motivational engagement and perceived control potential within the work domain.

Congruence of Motivational Self-Regulation With the Developmental Ecology

The control individuals can exert over their development is critically dependent upon the congruence between their life-span developmental ambitions and control strivings and the available opportunities and constraints in their current and future developmental ecology. The motivational theory of life-span development contends that motivational processes are not adaptive in and of themselves, but that their adaptiveness depends on the available control opportunities in an individual's given developmental ecology (Heckhausen et al., 2010). In other words, individuals who use self-regulatory strategies to focus their motivational engagement on domains and goals that hold sufficient control opportunities are more likely to achieve superior objective and subjective outcomes. For this reason, when investigating motivational engagement, we need to look at individuals' reports about investing effort and thought (e.g., primary control striving) and their perceptions regarding the control potential they have in the relevant domain of engagement (e.g., perceived control).

Individuals' motivational processes can be grouped into those aimed at influencing the external environment (primary control strivings), and those aimed at influencing their own internal processes (secondary control strivings). Primary control strivings are a universal and evolutionarily grounded component of the motivational system, present across the life span (DeCasper & Carstens, 1981; Watson & Ramey, 1972) and common across many different species (White, 1959). Although the need for primary control remains at a stable-high level across the life span, an individual's capacity to exert primary control over his or her environment follows an inverted *U*-shaped trajectory, peaking in midlife (Heckhausen & Schulz, 1995). Secondary control strivings facilitate primary control strivings, for example by increasing the perceived value and expectancy of attaining a pursued goal and in turn enabling sustained goal pursuit.

Perceived control generally shows a positive relationship with work-related outcomes, such as job satisfaction (Häusser, Mojzisch, Niesel, & Schulz-Hardt,

2010), physical health, (Bosma, Schrijvers, & Mackenbach, 1999), and psychological well-being (Lachman & Firth, 2004). As individuals age they generate more differentiated perceptions of control across the various domains of life, with control perceptions about the work domain increasing through adulthood (Lachman & Weaver, 1998). When predicting a domain-specific outcome, adding a single domain-specific perceived control item significantly increases the explanatory power above and beyond that observed from a multi-item domain-general perceived control measure (Lachman & Weaver, 1998).

The concept of perceived control also features prominently in theories specifically addressing career development, in particular the social-cognitive theory of career development (Lent, Brown, & Hackett, 1994), and in a more general vain, motivational systems theory (Ford, 1992). Social-cognitive theory relies on Albert Bandura's concept of self-efficacy beliefs (1997), or the belief that an individual has the capacity to control the outcome of her or his goal pursuit. Similarly, motivational systems theory emphasizes the role of personal agency beliefs, or in other words the beliefs regarding one's capacity to attain a goal and the degree to which the context will facilitate goal attainment. These concepts, self-efficacy beliefs and personal agency beliefs, are akin to the construct of perceived control, albeit differing slightly in their specificity (Skinner, 1996). Both theories suggest that perceived control influences an individual's expectations for goal attainment, and his or her goal pursuit. *The Motivational Theory of Life-Span Development* (Heckhausen et al., 2010) goes beyond these theories by proposing that the congruence between one's capacity for control in the environment and control striving represents a key principle of adaptive goal striving. In empirical research, perceived control can serve as a proxy (within some limits) of one's actual control capacity.

Central to this article is the congruence between primary control striving and perceived control. Prior research (see review in Heckhausen et al., 2010) has found that in situations affording some level of control, primary control striving has benefits across a wide range of domains, including physical health (Gitlin, Hauck, Winter, Dennis, & Schulz, 2006; Hall, Chipperfield, Heckhausen, & Perry, 2010; Wrosch & Schulz, 2008), mental health and psychological well-being (Wrosch & Heckhausen, 1999; Wrosch, Heckhausen, & Lachman, 2000; Wrosch, Schulz, & Heckhausen, 2002), and vocational outcomes (Converse, Pathak, Depaul-Haddock, Gotlib, & Merbedone, 2012; Haase, Heckhausen, & Köeller, 2009). Conversely, in low-control situations, primary control striving has detriments for physical health (Hall et al., 2010; Wrosch, Miller, Scheier .& Brun de Pontet, 2007), and mental health and psychological well-being (Heckhausen, Wrosch, & Fleeson, 2001; Wrosch & Heckhausen, 1999). This study extends prior empirical work by assessing predictive relationships between work-related control striving and outcomes over a 9-year period through adulthood.

Work in Midlife

The developmental-contextual model of career development illustrates the importance of considering the goodness-of-fit between individual motivations and the context within one operates when assessing work-related outcomes (Vondracek, Lerner, & Schulenberg, 1986). Individual agency is relied on more heavily to direct one's career development as careers increasingly shift toward a boundaryless nature, wherein one's career path is determined more from personal resources and engagement than from advancement up within-company hierarchies (Littleton, Arthur, & Rousseau, 2000). Despite this gain in the importance of individual agency, its effectiveness remains dependent upon the developmental and social ecologies which provide or withhold opportunities (Vondracek, Ferreira, & dos Santos, 2010).

According to *The Motivational Theory of Life-Span Development* most individuals' capacity for control peaks sometime during midlife (Heckhausen & Schulz, 1995; Heckhausen et al., 2010). When asked about their goals, middle-age adults nominate work-related aspirations more frequently than any other domain (Heckhausen, 1997). However, midlife also represents a particularly sensitive time in the life span as individuals' motivational focus starts to shift from gain-oriented to loss-preventive goals (Heckhausen, 2001). This change in focus from gain striving to loss prevention also shows up in work and career-related motivation (Heckhausen, 2005). As individuals age during midlife, extending higher amounts of effort in work generally becomes less and less attractive, coinciding with age-related changes in cognitive capacities, personality, and values (Kanfer & Ackerman, 2004). With age, fluid (e.g., processing speed) intelligence declines while crystallized (e.g., acquired domain-specific knowledge) intelligence increases. This tends to shift individuals' motivation away from learning novel tasks and toward performing tasks that emphasize preexisting knowledge.

Hypotheses

This article focuses on outcomes associated with the congruence between one's work-related primary control striving and perceived control. The outcomes assessed are expectations regarding future improvement of one's work situation, long-term sustainability of work-related primary control striving, objective improvement in work situation, and the effect of one's work situation quality on mental and physical health. The specific hypotheses are as follows: Congruence between high primary control striving and high perceived control predicts: (1) long-term expectations for, as well as objectively attained improvements of one's work situation; (2) sustained primary control striving across the longitudinal study span; and (3) enables positive effects of work situation quality on physical and mental health.

METHOD

Participants and Procedure

The first two waves of the Midlife in the United States longitudinal study (MIDUS I & II) longitudinal study are analyzed. The MIDUS longitudinal study uses a national sample of adults who were initially contacted by phone and later completed a mail-in questionnaire. There were 6,325 participants who completed the phone interview and questionnaire at Time 1 (T1), of which 4,041 participants also completed the phone interview and questionnaire again 8 to 10 years later at Time 2 (T2). The measures examined in this analyses come from the mail-in questionnaire. Of the 6,325 participants at T1, 5,929 participants had complete data on the measures of interest and represent this study's T1 sample. Of the 4,041 participants at T2, list-wise deletion resulted in samples ranging from 3,536 to 2,202 participants. List-wise deletion is used in the analyses because this study relies exclusively on single-item measures. This limits the use of other methods for dealing with missing data, such as multiple imputation, as there is limited information from which missing values could be estimated. The drop in participants between T1 and T2 is due to attrition, whereas the differences in participants within T2 analyses is primarily due to the fact that not all individuals were actively working at a job and thus did not answer any items related to their job's effect on their physical and mental health, and could not have a Socioeconomic Index of occupational status computed. Attrition analyses revealed that compared to individuals who dropped out of the study prior to the T2 assessment, individuals who remained in the sample are more likely to be female, report a higher quality T1 work situation, expect a better work situation in the future, report higher T1 work-related primary control striving and perceived control, report a higher T1 total household income, and have a higher T1 occupational prestige. Participant demographics for each set of analyses are presented in Table 1.

Measures

Work-related primary control striving. Work-related primary control striving is assessed with the item, "Using a 0 to 10 scale where 0 means 'no thought or effort' and 10 means 'very much thought and effort,' how much thought and effort do you put into your work situation these days?" The T1 and T2 items are included in the analyses. Note that this item is related to the participant's general work situation, not necessarily his or her current job.

Work-related perceived control. Work-related perceived control is assessed with the item, "Using a 0 to 10 scale where 0 means 'no control at all' and 10 means 'very much control,' how would you rate the amount of control

TABLE 1
Sample Statistics Based on Dependent Variable of Analyses

	T1 EWS	*T2 PCS*	*T2 PC*	*T2 SEI*	*T2 JEMH*	*T2 JEPH*	*T2 EWS*
Sample size[a]	5,929	3,532	3,536	2,813	2,302	2,302	3,656
T1 Age (*SD*)	46.08 (12.56)	46.12 (11.89)	46.14 (11.90)	42.52 (10.03)	42.55 (9.84)	42.55 (9.84)	46.11 (11.94)
	Range = 55	Range = 55	Range = 55	Range = 54	Range = 52	Range = 52	Range = 55
% Female	52.1%	54.6%	54.5%	53.1%	51.3%	51.3%	54.6%
T1 Total household income (*SD*)	72660.42 (61134.71) Range = 300,000	76296.22 (60881.97) Range = 300,000	76241.87 (60869.95) Range = 300,000	82076.77 (61873.37) Range = 300,000	81288.80 (60670.53) Range = 300,000	81288.80 (60670.53) Range = 300,000	76764.64 (61412.28) Range = 300,000

Notes. PCS = primary control striving; PC = perceived control; CWS = current work situation; EWS = expected work situation; SEI = socioeconomic index; JEMH = job effect on mental health; MEPH = job effect on physical health.

[a]The difference between T1 and T2 sample sizes is due to attrition. The differences within T2 sample sizes is due to list-wise deletion, with only participants currently working in a job completing the T2 Job Effect on Mental and Physical Health questions and having a Socioeconomic Index to compute.

you have over your work situation these days?" The T1 and T2 items are included in the analyses. Note that this item is related to the participant's general work situation, not necessarily her or his current job.

Current work situation. Current work situation is assessed with the item, "Using a scale from 0 to 10 where 0 means 'the worst possible work situation' and 10 means 'the best possible work situation,' how would you rate your work situation these days?" The T1 and T2 items are included in the analyses. Note that this item is related to the participant's general work situation, not necessarily his or her current job.

Expected improvement of work situation. Expected improvement of work situation is assessed with the item, "Looking ahead 10 years into the future, what do you expect your work situation will be like at that time?" Participants responded using an 11-point scale with a value of 0 (*worst*) and a value of 10 (*best*). The T1 and T2 items are included in the analyses, and each item is related to participant's general work situation, not necessarily her or his current job.

Work effect on physical health. Work effect on physical health is assessed with the item, "Overall, what kind of effect does your job have on your physical health? If you have more than one job, please give your best judgment of the combined effect of your jobs." Participants responded using a 5-point scale with a value of 1 (*very positive*) and a value of 5 (*very negative*). Only the T2 variable is included in the analyses. Note that this item is specific to the participant's current job, not his or her general work situation, and that lower numbers indicate a more positive effect.

Work effect on mental health. Work effect on mental health is assessed with the item, "Overall, what kind of effect does your job have on your emotional or mental health? Again, if you have more than one job, please give your best judgment of the combined effect of your jobs." Participants responded using a 5-point scale with a value of 1 (*very positive*) and a value of 5 (*very negative*). Only the T2 variable is included in the analyses. Note that this item is specific to the participant's current job, not her or his general work situation, and that lower numbers indicate a more positive effect.

Objective work situation quality. Objective work situation quality is assessed with the Socioeconomic Index (SEI) (Duncan, 1961; Hauser & Warren, 1996). The Socioeconomic Index represents a composite of occupational prestige, and associated income and education level. The T1 Socioeconomic Index measures are based on the 1980 Census codes, and the T2 Socioeconomic Index measures are based on the 1990 Census codes. Note that this item is specific to the

participant's current job, not her or his general work situation. In situations where the participant is working more than one job, the highest status job is used.

Physical and mental health. Physical and mental health measures are self-reported at T2. Participants responded to the questions, "In general, would you say your physical health is excellent, very good, good, fair, or poor?" and "Would you say your mental or emotional health is excellent, very good, good, fair, or poor?" using a 5-point scale with 1 (*excellent*) and 5 (*poor*). These items are included in the analyses as control variables in order to isolate the effect of work on mental and physical health from participants' general mental and physical health.

RESULTS

Means, standard deviations and inter-item correlations are presented in Table 2. Work-related primary control striving and work-related perceived control variables were mean centered and then an interaction term was created. Using the main effects, interactive terms, and relevant control variables, a series of linear regression analyses are examined. Results of the regression analyses (unstandardized coefficients and standard errors) are summarized in Table 3, interaction effects are presented in Figures 1, 2, 3a and 3b and further discussed below.

T1 Expected Improvement of Work Situation

As shown in Table 3, there is a significant negative effect of age on T1 expected improvement of work situation, B (.002) = –.049, $p < .001$. Also shown in Table 3, controlling for gender, age, and T1 current work situation, there is a significant positive effect of T1 work-related primary control striving, B (.013) = .104, $p < .001$, and T1 work-related perceived control, B (.013) = .166, $p < .001$, on T1 expected improvement of work situation. Partially supporting Hypothesis 1, as shown in Figure 1, there is a significant interaction between T1 work-related primary control striving and T1 work-related perceived control predicting T1 expected work situation improvement, B (.003) = –.030, $p < .001$, with individuals who have high work-related perceived control and high work-related primary control striving expecting the greatest improvement in their work situation quality. However, it is for individuals reporting relatively low perceived control that primary control striving has the greatest effect on their expected improvement of work situation quality.

T2 Expected Improvement of Work Situation

As shown in Table 3, there is a significant negative effect of age on T2 expected improvement of work situation, B (.003) = –.052, $p < .001$. Also shown in

TABLE 2
Means, Standard Deviations, and Interitem Correlations

	M(SD)	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
(1) T1 Age	See Table 1	1											
(2) Gender (1 = Female)	See Table 1	.007	1										
(3) T1 PCS	7.91(2.30)	−.09**	.04*	1									
(4) T1 PC	7.15(2.60)	.10**	.01	.39**	1								
(5) T1 CWS	7.34(2.28)	.13**	.04*	.37**	.65**	1							
(6) T1 EWS	7.71(2.38)	−.22**	.01	.35**	.43**	.46**	1						
(7) T2 PCS	7.78(2.32)	−.06**	.05*	.28**	.13**	.14**	.14**	1					
(8) T2 PC	7.38(2.57)	.18**	.01	.09**	.31**	.23**	.17**	.26**	1				
(9) T2 CWS	7.46(2.17)	.14**	.02	.10**	.24**	.28**	.19**	.29**	.69**	1			
(10) T2 EWS	7.57(2.46)	−.17**	.01	.14**	.17**	.19**	.36**	.29**	.45**	.54**	1		
(11) 1990 SEI	42.08(14.29)	−.07**	−.07**	.08**	.04	.06*	.11**	.11**	.08**	.10**	.14**	1	
(12) T2 JEMH	2.43(1.10)	−.22**	−.02	−.11**	−.16**	−.22**	−.13**	−.14**	−.25**	−.54**	−.25**	−.01	1
(13) T2 JEPH	2.60(1.08)	−.22**	.01	−.07*	−.18**	−.20**	−.08**	−.11**	−.20**	−.43**	−.20**	.04	.69**

Notes. PCS = primary control striving; PC = perceived control; CWS = current work situation; EWS = expected work situation; SEI = Socioeconomic Index; JEMH = job effect on mental health; JEPH = job effect on physical health.

*$p < .01$. **$p < .001$.

TABLE 3
Linear Regression Models, With Independent Variables as Rows and Dependent Variables as Columns; Unstandardized Coefficients (Standard Errors) Presented

	T1 EWS	*T2 PCS*	*T2 PC*	*T2 SEI*	*T2 JEPH*	*T2 JEMH*	*T2 EWS*
Intercept	7.707(.155)***	7.277(.285)*	4.533(.311)*	16.984(1.766)***	3.509(.208)***	3.592(.208)***	6.595(.216)***
Age	−.049(.002)***	−.009(.003)**	.036(.004)***	−.079(.021)***	−.023(.002)***	−.022(.002)***	−.052(.003)***
Gender (1 = female)	−.011(.050)	.158(.075)*	.094(.082)	−.583(.400)	.030(.043)	−.039(.043)	−.043(.050)
T1 PCS	.104(.013)***	.280(.019)*	.003(.021)	.117(.130)	.013(.014)	.003(.014)	
T1 PC	.166(.013)***	.036(.020)	.245(.022)*	.000(.114)	−.039(.012)**	−.046(.012)***	
T1 PCS × PC	−.030(.003)***	.020(.005)*	.004(.006)	−.068(.040)#	−.010(.004)*	−.010(.004)*	
T1 CWS	.318(.015)***	.031(.023)	.023(.026)	−.036(.136)	−.060(.014)***	−.053(.014)***	
T1 EWS		.050(.020)*	.110(.022)*	.267(.122)*	−.019(.014)	−.037(.014)**	
T1 SEI				.667(.014)***			
T2 PCS							.101(.015)***
T2 PC							.168(.018)***
T2 PCS × PC							−.017(.004)***
T2 CWS							.464(.021)***
T2 MH						.227(.026)***	
T2 PH					.183(.025)***		
T2 SEI					.006(.002)***	.002(.002)	
R^2	.338	.092	.123	.461	.114	.135	.377

Notes. PCS = primary control striving; PC = perceived control; CWS = current work situation; EWS = expected work situation; SEI = Socioeconomic Index; JEMH = job effect on mental health; JEPH = job effect on physical health; MH = mental health; PH = physical health.

#$p < .10$. *$p < .005$. **$p < .01$. ***$p < .001$.

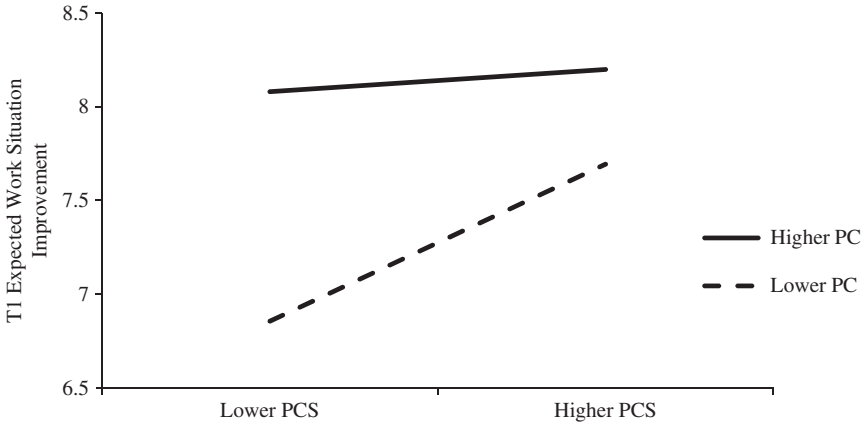

FIGURE 1 Results for the 2-way interaction between T1 work-related primary control striving (PCS) and T1 work-related perceived control (PC) on T1 expected work situation improvement.

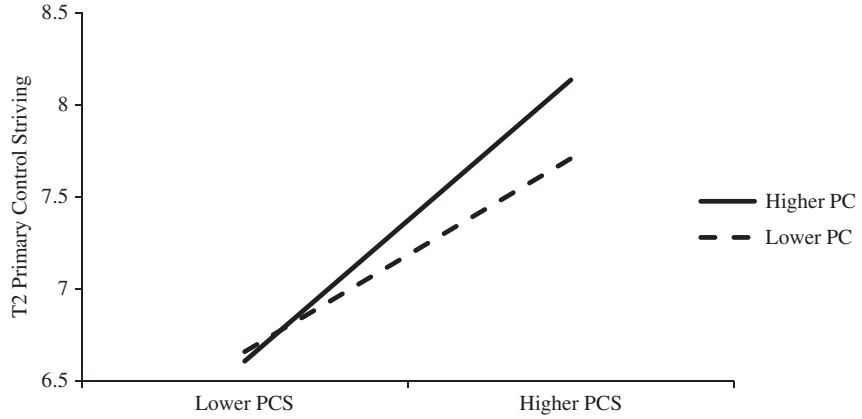

FIGURE 2 Results for the two-way interaction between T1 work-related primary control striving (PCS) and T1 work-related perceived control (PC) on T2 work-related primary control striving.

Table 3, controlling for gender, age, and T2 current work situation, there is a significant positive effect of T2 work-related primary control striving, B (.015) = .101, $p < .001$, and T2 work-related perceived control, B (.018) = .169, $p < .001$, on T2 expected work situation improvement. Partially supporting Hypothesis 1, there is a significant interaction between T2 work-related primary control striving

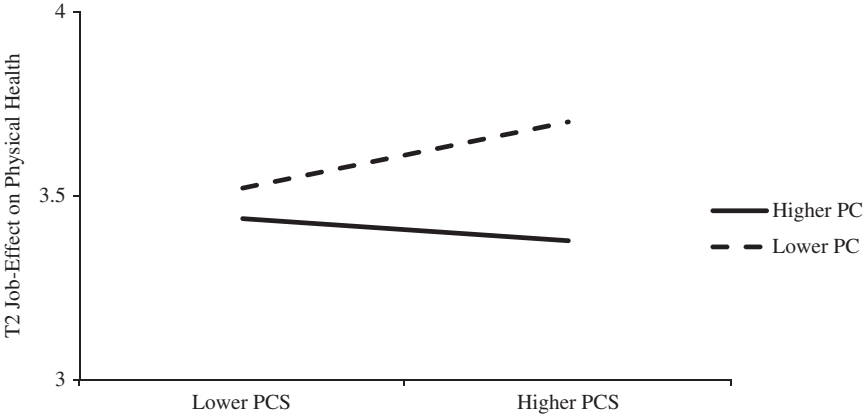

FIGURE 3a Results for the two-way interaction between T1 work-related primary control striving (PCS) and T1 work-related perceived control (PC) on T2 job effect on physical health.
Note. Note that lower scores on the job effect on the physical health variable indicate a more positive effect.

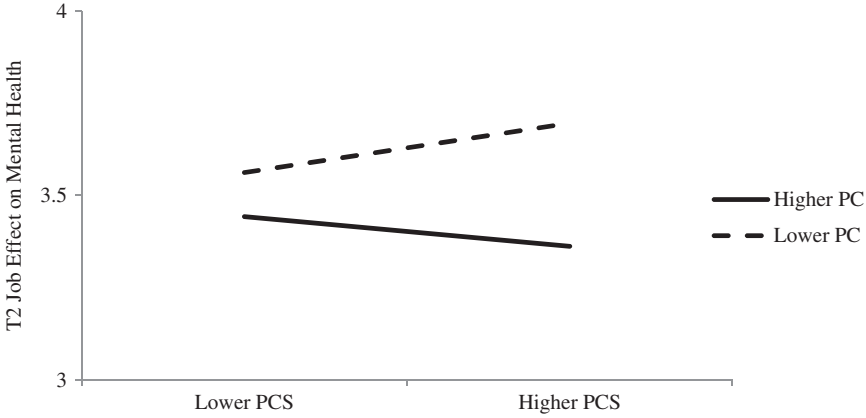

FIGURE 3b Results for the two-way interaction between T1 work-related primary control striving (PCS) and T1 work-related perceived control (PC) on T2 job effect on mental/emotional health.
Note. Note that lower scores on the job effect on mental/emotional health variable indicate a more positive effect.

and T2 work-related perceived control on T2 expected work situation improvement, B (.004) = –.017, $p < .001$, with individuals who have high work-related perceived control and high work-related primary control striving expecting the greatest improvement in their work situation quality. This is a similar pattern as

the one observed for T1 expected work situation improvement, shown in Figure 1, with the greatest effect of primary control striving on expected improvement of work situation quality belonging to individuals reporting relatively low perceived control.

T2 Objective Work Situation Quality (Socioeconomic Index)

As shown in Table 3, there is a significant negative effect of age on T2 Socioeconomic Index, B (.021) = –.079, $p < .001$. Also shown in Table 3, controlling for gender, age, and T1 Socioeconomic Index, there is a significant positive effect of T1 expected work situation improvement on T2 Socioeconomic Index, B (.122) = .267, $p = .029$. There is not a significant effect of T1 current work situation, B (.136) = –.036, $p = .789$, T1 work-related primary control striving, B (.130) = .117, $p = .370$, or T1 work-related perceived control, B (.114) = .000, $p = .997$, on T2 Socioeconomic Index. Counter to Hypothesis 1, there is not a significant interaction between T1 work-related primary control striving and T1 work-related perceived control predicting T2 change in Socioeconomic Index, B (.040) = –.068, $p = .092$.

T2 Work-Related Primary Control Striving

As shown in Table 3, there is a significant negative effect of age on T2 work-related primary control striving, B (.003) = –.009, $p = .005$, and women report higher levels of primary control striving then men, B (.075) = .158, $p < .035$. Also shown in Table 3, controlling for gender and age, there is a significant positive effect of T1 expected work situation improvement, B (.020) = .050, $p = .012$, and T1 work-related primary control striving, B (.019) = .280, $p < .001$, on T2 work-related primary control striving. There is not a significant effect of T1 current work situation quality, B (.023) = .031, $p = .181$, or T1 work-related perceived control, B (.020) = .036, $p = .067$, on T2 work-related primary control striving. Supporting Hypothesis 2, as shown in Figure 2, there is a significant interaction between T1 work-related primary control striving and T1 work-related perceived control on T2 work-related primary control striving, B (.005) = .020, $p < .001$, with individuals who report high T1 work-related primary control striving and high T1 work-related perceived control reporting higher T2 work-related primary control striving then those individuals who report high T1 work-related primary control striving but relatively low T1 work-related perceived control.

T2 Work-Related Perceived Control

As shown in Table 3, there is a significant positive effect of age on T2 work-related perceived control, B (.004) = .036, $p < .001$. Also shown in Table 3, controlling

for gender and age, there is a significant positive effect of T1 expected work situation improvement, B (.022) = .110, $p < .001$, and T1 work-related perceived control, B (.022) = .245, $p < .001$, on T2 work-related perceived control. There is not a significant effect of T1 current work situation, B (.026) = .023, $p = .370$, or T1 work-related primary control striving, B (.021) = .003, $p = .875$, on T2 work-related perceived control. In addition, there is not a significant interaction between T1 work-related primary control striving and T1 work-related perceived control on T2 work-related perceived control, B (.006) = .004, $p = .531$.

T2 Job Effect on Physical Health

As shown in Table 3, there is a significant negative effect of age on T2 job effect on physical health, B (.002) = –.023, $p < .001$. Also shown in Table 3, controlling for gender, age, T2 job prestige, and T2 physical health, there is a significant negative effect of T1 current work situation B (.014) = –.060, $p < .001$, and T1 work-related perceived control, B (.012) = –.039, $p = .001$, on T2 job effect on physical health. There is not a significant effect of T1 expected work situation improvement, B (.014) = –.019, $p = .155$, or T1 work-related primary control striving, B (.014) = .013, $p = .349$, on T2 job effect on physical health. Supporting Hypothesis 3, as shown in Figure 3a, there is a significant interaction between T1 work-related primary control striving and T1 work-related perceived control on T2 job effect on physical health, B (.004) = –.010, $p = .017$, with individuals reporting T1 work-related primary control striving that is congruent with the level of their reported T1 work-related perceived control reporting the most positive effect of their job on their physical health. Or in other words, individuals with relatively low T1 perceived work-related perceived control report a more positive T2 job effect on their physical health if they also report relatively low T1 work-related primary control striving, and individuals with high T1 perceived work-related perceived control report the most positive job effect on their physical health if they also report high T1 work-related primary control striving. Note that lower scores on the job effect on physical health variable indicate a more positive effect.

T2 Job Effect on Mental Health

As shown in Table 3, there is a significant negative effect of age on T2 job effect on mental health, B (.002) = –.022, $p < .001$. Also shown in Table 3, controlling for gender, age, T2 Socioeconomic Index, and T2 mental health, there is a significant negative effect of T1 current work situation, B (.014) = –.053, $p < .001$, T1 expected work situation improvement, B (.014) = –.037, $p = .008$, and T1 work-related perceived control, B (.012) = –.046, $p = .001$, on T2 job effect on mental health. There is not a significant effect of T1 work-related primary control

striving, B (.014) = .003, p = .832, on T2 job effect on mental health. Supporting Hypothesis 3, as shown in Figure 3b, there is a significant interaction between T1 work-related primary control striving and T1 work-related perceived control on T2 job effect on mental health, B (.004) = –.010, p = .010, with individuals reporting T1 work-related primary control striving that is congruent with the level of their reported T1 work-related perceived control reporting the most positive effect of their job on their mental health. Or in other words, individuals with relatively low T1 perceived work-related perceived control report a more positive T2 job effect on their mental health if they also report relatively low T1 work-related primary control striving, and individuals with high T1 perceived work-related perceived control report a more positive job effect on their mental health if they also report high T1 work-related primary control striving. Note that lower scores on the job effect on mental health variable indicate a more positive effect.

Demographic moderators. Participant's age, gender, and total household income at T1 are assessed as potential moderators on each outcome variable examined. The only significant age by primary control striving by perceived control interaction shows that compared to younger individuals, older individuals are more likely to expect a worse work situation in the future when they report currently having a low work place control, B (.000) = –.001, p = .002. The only significant household income by primary control striving by perceived control interaction shows that differences in work-related perceived control have the greatest effect on high income individual's job effect on their mental health, B (.000) = –2.09E-7, p = .008. More specifically, out of the entire sample, individuals reporting the most positive job effect on their mental health reported a high household income, high primary control striving, and high perceived control, whereas the individuals reporting the most negative job effect on their mental health reported a high household income, high primary control striving, and low perceived control. There are no significant three-way interactions involving gender. Inclusion of the three-way interaction term does not make any of the previously tested and significant two-way primary control striving by perceived control interactions nonsignificant.

DISCUSSION

This study illustrates how individual agency can shape development in the domain of work and career, and that the effectiveness of individual agency depends on the degree to which one's control striving is congruent with one's perceived control. Those individuals whose high work-related primary control striving is congruent with high work-related perceived control expect the highest long-term work

situation quality, are the most likely to sustain high levels of primary control striving throughout the longitudinal study, and report the most positive effect of work situation quality on their mental and physical health at the MIDUS II assessment. Individuals reporting high work-related primary control striving and low work-related perceived control (i.e., incongruence) expected and objectively obtained improvement in their work situation quality. However, for this group of high-control strivers and low-control perceivers, the improvement of their work situation quality came at a price. These individuals are less likely to sustain high levels of primary control striving throughout the longitudinal study and report the most adverse job effects on their mental and physical health at the MIDUS II assessment.

Such negative health effects associated with upward mobility in social status are not unique to humans. Parallels can be drawn to primate groups with permeable hierarchies, in which upward mobility adversely affects health (Sapolsky, 2005). In these permeable hierarchies, upward mobility is possible given favorable individual and situational characteristics. However, a permeable hierarchy tends to raise stress levels for members within the hierarchy who do not accept their current status, or whose group does not respect their current status. This elevated stress level leads to a host of downstream physical health effects including impaired cognition, reproduction, and immunological functioning. The modern American work-situation can be viewed as reflecting a permeable hierarchy. To the extent that an individual is not satisfied with his or her current status within the hierarchy, she or he can exert primary control striving to gain upward mobility that the permeable hierarchy allows. Similar to what Sapolsky (2005) reports for health effects in various primate hierarchies, we find that upward mobility in work situation quality is possible even under relatively low-control conditions. However, this mobility is associated with long-term detriments to mental and physical health. In addition, we find that individuals who do not exert high levels of primary control striving in low controllable work situations do not expect to, or actually attain, upward mobility, but with a self-protective benefit. Despite a lack of upward mobility, these individuals' disengagement from upward career ambitions apparently shields them from adverse mental and physical effects stemming from their relatively low control and poor quality work situation.

We also find that high-income individuals reporting a high amount of work-related primary control striving are the most likely to benefit or suffer from the mental health effects stemming from congruence or incongruence between their work-related primary control striving and perceived control. More specifically, individuals reporting the most positive effect of their work situation on their mental health also report a high household income, high primary control striving, and high perceived control, whereas individuals reporting the most negative effect of their work situation on their mental health also report a high household income, high primary control striving, and low perceived control. Again, these results are

consistent with research on stressed and high-status primates (Sapolsky, 2005), in that individuals striving for a high-quality work situation and receiving a high income may still have people above them in their workplace hierarchy, constraining their perceived capacity to control their work situation and leading to adverse mental health effects.

Congruence Between Control Strivings and Control Potential

Our results indicate that individuals whose work-related primary control striving is congruent with their work-related perceived control report positive mental and physical health outcomes. This is the case across levels of perceived control. Individuals with high levels of work-related perceived control report the most positive effect of their job on their mental and physical health when they also report putting in high levels of thought and effort into their work situation. Similarly, individuals with relatively low levels of work-related perceived control report the most positive effect of their job on their mental and physical health when they also report putting relatively low levels of thought and effort into their work situation. These results are consistent with *The Motivational Theory of Life-Span Development* and provide an empirical validation to the theory's proposition that primary control striving is adaptive to the degree that it is congruent with an individual's potential for control (Heckhausen et al., 2010). In addition, individuals whose high levels of work-related primary control striving is congruent with high levels of perceived control are more likely to sustain their primary control striving over long-term time spans. This is consistent with a positive-feedback view of the relation between primary control striving and perceived control, in which high primary control striving may be most effective in situations affording high control potential. To the extent that one's primary control striving leads to positive outcomes, there is a greater likelihood that one will continue to strive for primary control in the pursuit of goals.

Regarding the quality of one's work situation, individuals whose high primary control striving is congruent with high perceived control also expect to attain the highest quality of work situation 10 years into the future. However, we find that compared to younger adults, older adults are more likely to expect a worse work situation in the future, particularly when they report currently lacking control over their work situation. These findings are consistent with a developmental perspective, in that low levels of perceived work control may cause older individuals to diminish their expected quality of work situation due to the limited amount of time left in their careers (Heckhausen, 2005). Conversely, a high work-control environment signals that the individual has the opportunity to improve the quality of their work situation in a short time span. In these high perceived control situations, we find that older adults are almost as likely as younger adults to expect a high-quality work situation in the future.

The difference between low and high primary control striving predicting the expected quality of one's work situation is greatest for individuals reporting low levels of perceived control. These individuals reporting high primary control striving and relatively low perceived control also experience the greatest improvement in objective work situation quality 9 years later. It should be noted that the mean perceived control over one's work situation was 7.15 on an 11-point scale, ($SD = 2.60$). Thus, even these individuals reporting relatively lower levels of perceived control are still reporting a substantial degree of personal control over their work situation. Individuals who report relatively low personal control at their workplace, but are intent on striving for primary control, may justify their primary control striving with enhanced expectations for their future work situation. This finding is consistent with the motivational theory of life span development (Heckhausen et al., 2010), in that enhanced expectations for future goal attainment can act as a selective secondary control strategy, facilitating primary control striving, particularly in times of difficulty (e.g., having a currently low amount of control). Unfortunately, the gains accrued through extending high primary control striving in a low-control situation result in a reduced sustainability of long-term primary control striving, and in adverse effects of one's work situation on mental and physical health.

Limitations and Directions for Future Research

This study is limited by a reliance on single-item measures. However, previous research has shown that when compared to domain-general measures of perceived control, domain-specific measures are more predictive of respective domain-specific outcomes, even when the domain-specific predictor is a single item and the domain-general predictor is comprised of multiple items (Lachman & Weaver, 1998). Single-item measures are common in other disciplines (e.g., sociology), and overall it is our contention that these measures are valid representations of the constructs they are meant to represent. That being said, future research using multiple-item measures would help to buttress conclusions based on our findings.

In addition, although this study uses a longitudinal design, the assessments are separated by an average of 9 years and therefore cannot capture the complexity of developmental processes during the interim. This makes it difficult to investigate processes of change as they occur across time, because entire cycles of change may have occurred in such a long interval. As such, our findings are best considered exploratory, providing a pathway for future research to pursue in greater depth, and with a more fine-grained longitudinal assessment. We compensate for the between-assessment time lag by focusing on the work domain, which may show a more gradual change, particularly during midlife. It should also be noted that our measures of work situation quality are asked at the level of one's overall work situation, not necessarily one's current job. Although it can be argued that the current economic recession has caused changes in the

work domain, particularly for younger adults (Blossfeld, Klijzing, Mills, & Kurz, 2005), this change has been coupled with an increasing reliance on individual agency in directing one's career development. Individuals' career-related choices and actions stabilize an individuals' work situation across the life span (Hoekstra, 2011), particularly when work-related changes are not imposed by the employer but instead are intended and planned by the employee (e.g., furthering education or training for a move into a higher quality work situation). Nevertheless, future research using a shorter between-assessments time interval would help to replicate the current findings and extend them into other domains of life such as family. Finally, though the MIDUS data set uses a national sample, this sample is not nationally representative, as it includes predominately White participants who are somewhat positively biased in terms of their socioeconomic status, and the participants retained through the study show a positive selection on key variables. Future research is needed to extend these findings, particularly for individuals who are severely limited in their potential to control their work situation.

CONCLUSION

This study indicates that the congruence between high levels of work-related primary control striving and perceived control has positive effects on expectations regarding improvement of one's future work situation, the long-term sustainability of primary control striving, and mental and physical health. Congruence between low levels of primary control striving and perceived control has protective effects, specifically regarding mental and physical health. Pairing high levels of primary control striving with relatively low levels of perceived control (i.e., incongruence), has detrimental effects on the long-term sustainability of primary control striving and on mental and physical health, but at the same time it has favorable effects on expected and actual improvement of work situation. Thus, our findings show that individual agents are active contributors to their development, in that assuming some level of control in a permeable workplace hierarchy, upward mobility can be expected and attained, albeit at a cost if control potential is comparatively low.

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