aps ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Current Directions in Psychological Science
2021, Vol. 30(4) 351–357

DOI: 10.1177/09637214211014509
www.psychologicalscience.org/CDPS
SAGE

Self-Control at 220 Miles per Hour: Steering and Braking to Achieve Optimal Outcomes During Adolescence

Kathleen D. Vohs[1] and Alex R. Piquero[2,3]
[1]Carlson School of Management, University of Minnesota; [2]Department of Sociology & Criminology, University of Miami; and [3]Criminology, Monash University

Abstract
Adolescence is a developmental period characterized by heightened attraction to rewards and risk-taking propensities. Dual-systems models portray the adolescent brain in terms of a maturational mismatch whereby brain systems involved in sensitivity to incentives become potentiated before impulse-control systems have matured. That perspective implies that relying on impulse inhibition to overcome temptation is likely to yield uneven success during adolescence. Using the analogy of practice driving a race car, we propose another process that leads to achieving healthy outcomes: steering aimed at limiting or preventing motivational conflict and thereby lessening reliance on impulse control (termed braking). The focal idea is that the more adolescents can avoid troublesome contexts, the less they will need to depend on their relatively weak impulse-control abilities to avert problems and danger. Recent work links dispositional differences in self-control to indicators of steering, such as situation selection, habit cultivation, and proactive responding. Steering to curb or avoid motivational conflict could be key to promoting healthy outcomes during adolescence, a developmental period characterized by vulnerability to risk, and could have lasting importance given that enduring patterns of unhealthy, dangerous, and self-defeating behaviors often start during this period.

Keywords
self-control, risk, habits, proactive responding, adolescence, dual-systems models

Theories of adolescent decision making and self-control have centered on the operations of two systems. One system involves attraction to rewards, and the other system involves the ability to exert control over impulses. Dual-systems models have led to advances in understanding adolescents' behavior, especially regarding self-control and risk taking.

The purpose of this article is to update that conceptualization using an analogy of race-car driving. Drivers of Formula 1 cars often race at 200 miles per hour. A millimeter can mean the difference between the thrill of victory or the agony of defeat, including death.

Race-car driving occurs at high speeds, and the analogous concept in the current model is impulse strength, or reward desire. Impulse strength plays a role in controlled behavior more generally and is particularly relevant for adolescence, a period in which reward drives are elevated.[1]

Control is paramount in race-car driving. Analogously, self-control plays a pivotal role in adolescence. Good self-control[2] is associated with academic success, positive social relationships, and good health (e.g., Tangney et al., 2004; Wills et al., 2006). Poor self-control predicts antisocial and risk-taking behaviors such as delinquency and crime (e.g., Gottfredson & Hirschi, 1990; Pratt & Cullen, 2000; Rocque et al., 2016; Vazsonyi et al., 2017), which peak during adolescence for the majority of offenders (Moffitt, 1993).

We identify two bases of self-control, heuristically referred to as braking and steering. Brakes enable drivers to slow down, regain control, and prevent crashes. Likewise, impulse inhibition enables people to reduce, stop, or override problematic responses. We refer to this aspect of self-control as braking, which resembles

Corresponding Author:
Kathleen D. Vohs, Carlson School of Management, University of Minnesota
E-mail: kvohs@umn.edu

reactive cognitive control (e.g., Braver, 2012; Casey et al., 2008; Steinberg, 2008).

Steering can avoid danger and ensure that drivers end up where they wanted to go. Analogously, people can avoid or limit exposure to situations in which they might be at risk for poor decisions. We define steering as goal-directed responses that reduce or skirt problematic impulses. Steering can take multiple forms, such as cognitive strategies that keep goals foremost in thought, removing temptations from the local environment, or distraction (e.g., Braver, 2012; Decker et al., 2016; Mischel et al., 1972).

This article focuses on steering because it can reduce reliance on braking during adolescence. Broadly speaking, there is a mismatch between adolescents' braking skills (which are weak) and their desires and impulses (which are strong), as we review next. The central argument is that because impulse control cannot always be counted on in conditions involving temptation or risk, steering is an alternative strategy for adaptive outcomes in adolescence.

When applied to adolescent decision making, our analogy is better conceptualized as driving practice than as racing performance. After all, there is a reason that inexperienced drivers train their steering and braking abilities. Practice enables learning the relationship between responses and outcomes as well as the development of habitual reactions, which together can produce effective responses in situations in which they matter, such as those involving danger or risk.

The Fast Lane

A popular conceptualization portrays adolescent risk taking as resulting from the staggered development of two psychological systems. According to dual-process models,[3] brain systems involved in sensitivity to incentives become potentiated before impulse-control systems have matured (Casey et al., 2008; Steinberg, 2008). That perspective has garnered support (Shulman et al., 2016) but also has been challenged (Pfeifer & Allen, 2012) and refined to include other biological changes (e.g., hormones), socioemotional processing, and mental representations of risk (Crone & Dahl, 2012; Rivers et al., 2008).

Understanding why adolescence is associated with risky decisions necessitates defining what is meant by *risk*. Risky decisions have potential outcomes that vary in their degree of goodness or badness. During adolescence (or otherwise), deciding what color socks to wear typically would not be considered a risky decision. Taking one's parents' car out in the middle of the night to pick up friends would be considered risky, as the potential outcomes range from bad (e.g., getting into an accident) to neutral or good (e.g., not getting caught; social acceptance).

Hence, many risky decisions have reward potential, which adolescents may find compelling. Combined with findings suggesting an underdeveloped impulse-control system, that observation explains why adolescence is often characterized by elevated rates of impulsive, ill-considered, and sometimes dangerous behaviors (e.g., Moffitt, 1993; Steinberg et al., 2008).

Power Steering

Steering, which we have described as attempting to eliminate or limit problematic impulses, can come in two forms, defensive and offensive. Drivers steer defensively in the face of unexpected hazards. Drivers steer offensively when they turn down one street instead of another. Both behaviors have benefits, though offensive steering arguably is more advantageous because even skilled drivers may not avoid damage in the face of obstacles.

Developmental work makes a related distinction between goal-related responses that occur in the presence versus absence of motivational conflict, termed hot versus cool executive functioning, respectively. Adolescents perform better on tasks involving cool executive abilities (van Duijvenvoorde et al., 2010), which not incidentally seem to develop before hot executive abilities (Zelazo & Carlson, 2012). Next, we review three examples of offensive steering: proactive responding, situation selection, and reliance on habit.

In a study assessing everyday desires (Hofmann et al., 2012), a community sample of adults furnished 10,000 reports of whether they had recently experienced a desire. If so, they reported whether it had conflicted with other goals and, separately, whether they had tried to resist it. Baseline measures assessed people's trait self-control, operationalized as individual differences in self-discipline, long-term orientation, and the ability to resist temptation (Tangney et al., 2004).

The results were revealing. First, people with better self-control reported weaker desires and thus less compelling temptations. Second, people with better self-control reported that their desires conflicted less with other goals they held. Third, people with better self-control reported resisting their urges less often.

Thus, higher trait self-control predicted weaker desires, fewer uses of braking to resist temptations, and less goal conflict. If steering avoids problematic desires, then fewer problematic desires may be evidence of steering.

After all, not all desires are equal. Some desires may pose few problems for other goals (e.g., eating), whereas others may get in the way (e.g., alcohol use).

Independent coders judged the desires participants reported on how problematic they may be (i.e., their likelihood of conflicting with other goals). The results were illuminating: The desires experienced by people with higher self-control were less likely to be deemed problematic by outside observers.

An additional investigation corroborated the importance of averting problematic temptations. People provided reports of when their desires corresponded to two incompatible goals (e.g., having fun and being safe; working in the evening and getting sleep). They also reported how good or bad it is to satisfy each goal, which gave access to their views of each goal's worthiness (Hofmann et al., 2014).

As before, people with better trait self-control reported fewer daily goal conflicts. Moreover, they experienced fewer vice-virtue conflicts, defined as simultaneously wanting to pursue a goal that participants themselves deemed good and another they deemed bad. Hence, people with better self-control encountered fewer problematic desires in everyday life.

Similar patterns emerged in a study in which adolescents reported stressful encounters and coping mechanisms every evening for 14 days (Galla & Wood, 2015). Their trait self-control scores were obtained at baseline. The results showed that adolescents with better self-control reported fewer stressful encounters overall, paralleling the results obtained in the studies of adults' everyday desires. Moreover, adolescents with relatively high self-control reported using proactive problem-solving tactics to address stressors when they did crop up.

One may wonder whether the findings reviewed here indicate that some people are just not susceptible to conflict, temptation, or stress. Recent work on situation selection suggests otherwise. Situation selection involves choosing situations that reduce the need for effortful control. In a monthlong experience-sampling study, people reported experiences of negative events, emotion-regulation responses, and their momentary regulatory capacities[4] (Wenzel et al., 2021). People with better momentary self-control used emotion regulation less often than others, in part because they experienced less negative daily events. When they did use emotion regulation, they favored steering forms of it, namely, distraction and reappraisal, instead of braking forms of regulation, such as suppression.

All told, these findings speak against the notion that people with better self-control are simply immune to troublesome impulses. It is doubtful that they cannot experience negative feelings, stress, or temptation. Rather, they encounter fewer aversive events, daily stressors, and temptations, presumably through "structuring their surroundings by selecting and modifying situations in their everyday life in such a way that lessens the need for effortful [control]" (Wenzel et al., 2021, p. 453)

Other findings imply that situation selection could be especially helpful during adolescence. In one experiment, some people were instructed to plan their weekend activities on the basis of what would make them feel good (situation selection), whereas others received no such instruction. People assigned to use situation selection experienced more positivity over the weekend. Moreover, situation selection particularly benefited those people who were prone to emotional reactivity or who had poor emotion-regulation skills (Webb et al., 2018). Situation selection therefore may hold promise for adolescents, given their strong impulses and weak impulse control.

Repeatedly orienting oneself away from problematic situations may allow habits to develop, an implication that supports our emphasis on driving practice in adolescence. Meta-analyses conducted by de Ridder et al. (2012) showed that trait self-control predicted both automatic behaviors (those performed without much conscious effort; e.g., mindless snacking) and controlled behaviors (effortful, intentional actions; e.g., taking action to try to quit smoking). Notably, however, the magnitude of the effect size was twice as large for automatic behaviors, such as habits. To use our analogy, although braking and steering both aid desirable outcomes, steering may produce a bigger impact through its capacity to routinize behavior and thus create consistent, habitual patterns (Ouellette & Wood, 1998).

Results of developmental research underscore the importance of trait self-control in the development of habits during adolescence. Longitudinal studies conducted by Galla and Duckworth (2015) tested the connection between trait self-control and goal completion via habits, operationalized as behaviors enacted frequently and without much conscious intent. One study, originating at a wellness retreat, found that trait self-control predicted acquisition of a meditation habit over the next 3 months. Another study showed that homework habits accounted for the link from higher self-control to higher academic grades.

Hence, studies of adults and adolescents alike show links from self-control to several forms of steering. People with better self-control have fewer problematic desires, vice-virtue conflicts, and negative daily experiences, outcomes that may result from situation selection and development of healthy routines.

Contributors to Successful Steering

We have emphasized the role of steering to avoid unwanted impulses. A relevant question is what may

contribute to successful steering. We propose two possible factors.

The first factor is practice. We have portrayed steering as making choices that can avert motivational conflict. As discussed, repeatedly making such decisions can beget similar choices over time, culminating in habits. Moreover, practice may engender generalizations to novel contexts, particularly if it informs mental representations of risk (Reyna et al., 2015). To use our analogy of driving practice, the more adolescents have employed steering in diverse circumstances in the past, the better able they should be to use it in novel ones, too.

The second factor concerns peer relationships, which play an outsized role in adolescence and can contribute to the uptick in risky behavior during this period (e.g., Smith et al., 2014). Recent work, however, suggests a more nuanced pattern. Although the presence of peers worsens decision making on tasks in motivationally charged settings, such as those pitting smaller-sooner rewards against larger-later rewards, it improves them in motivationally neutral settings, such as those requiring cognitive inhibition and flexibility (King et al., 2018). Hence, peer relationships may promote decisions that facilitate reaching goals in contexts absent of temptation and risk.

The peers with whom adolescents affiliate may be crucial for determining their propensity to be exposed to temptation. Research on adolescents' social mobility, leaving one peer group to join another, is relevant. One longitudinal study found that adolescents' prosocial behaviors reflected the norms of the group they joined, and thus selected into, and not the group they left (Berger & Rodkin, 2012). Hence, one factor that may determine whether and to what effect adolescents use steering is the peer groups to which they choose to belong.

Emerging evidence points to that effect. A yearlong study of nearly 3,000 adolescents found that having prosocial friends—that is, friends involved in community, school, and family activities—lessened drug use and delinquent behavior over time (Walters, 2020). Having friends who surround themselves with safe, healthy social relationships may increase adolescents' exposure to those same safe, healthy social contexts.

We have emphasized the benefits of steering over braking in adolescence. Are there drawbacks as well? It could be argued that steering to avoid risky situations may hamper adolescents' socioemotional development, given that the consequences of engaging in risky behavior inform adolescents' risk perceptions (Pogarsky et al., 2004; Reyna & Brainerd, 2011). We suspect that this is unlikely. Although adolescents can anticipate risky situations (Reyna & Farley, 2006), they likely will not anticipate every time that they should take preemptive action, particularly given the myriad novel situations they encounter during this period of burgeoning independence. Hence, adolescents who employ judicious steering nevertheless may find themselves having to rely on braking abilities, and thus would not use steering to such a degree that they fail to have experiences that aid their development.

To be sure, even though attempting to avoid risky circumstances may reduce opportunities to learn from them, this does not undermine our central point. Curbing unfettered exposure to risk will limit the negative consequences of strong appetitive motivations in conjunction with an immature braking system.

Joint Influences of Steering and Braking

Although we have largely portrayed the influence of braking and steering as separate aspects of self-control, desirable life outcomes are the result of both—much as safe driving requires braking and steering. We lay out two routes by which steering and braking may cooperate.

One possibility is that poor brakes encourage heavier reliance on steering. Economic formulations describe individual differences in self-control along three lines: There are people with high self-control, people with low self-control, and sophisticates—people who have low self-control and know it (O'Donoghue & Rabin, 1999). Being a sophisticate has the advantage of enabling decisions to avoid the pitfalls of lacking willpower, such as limiting opportunities for temptation. For instance, adolescents could spend Friday evening with a friend who does not attend unsanctioned parties, thereby reducing the odds of attending one themselves. Or they could give their parents the phone number of their friend's parents, raising the specter of getting caught if they engage in risky activities. Hence, adolescents could compensate for weak braking abilities through steering that obviates the need to brake.

Another possibility is that having ingrained habits diminishes the pull of competing impulses. Studies of students show that having more established habits—for instance, the habit of doing homework—predicts being less tempted to deviate from the goal linked to the habit (Galla & Duckworth, 2015). These results connect multiple findings reviewed here. The more adolescents select situations relatively devoid of goal conflict and temptation, the more they can develop habits that promote selecting into low-temptation situations in the future. Moreover, habits seem to reduce the pull of competing desires when they do arise. The net effect may be choices and behaviors that are determined more by steering and less by braking over time.

Conclusion

Emerging findings suggest that the notion of what constitutes good self-control needs broadening. The notion of self-control as impulse inhibition has a long history of compelling findings. Nevertheless, accumulating evidence indicates that self-control in the form of avoiding the need to inhibit impulses may be highly effective. We have termed these forms of self-control braking and steering, using an analogy of race-car driving to characterize how adolescents deal with strong, powerful motivational impulses.

Given the maturational imbalances during adolescence (i.e., impulse control lagging behind attraction to rewards), steering could play a crucial role in preventing problematic behaviors and promoting beneficial outcomes. The more adolescents can practice avoiding troublesome contexts, the less they need to depend on their relatively weak impulse-control abilities to avert problems and danger.

Moreover, if risky situations can be avoided on a regular basis, it would give time for adolescents' impulse-control faculties to mature, which could have long-term implications. As Reyna and Farley (2006) pointed out, "unhealthy patterns of behavior that play out over a lifetime often debut during adolescence. Avoiding risks or buying time can set a different lifetime pattern" (p. 1).

Battling unwanted and unhelpful urges is one way to achieve a healthy, happy life. Not having to battle them at all arguably would be easier and more effective, yet it is unrealistic to expect adolescents to avoid temptation entirely. Limiting reliance on impulse control while being able to efficaciously deploy it when needed would be highly adaptive for cultivating a healthy, promising life in adolescence and beyond.

Recommended Reading

Galla, B. M., & Duckworth, A. L. (2015). (See References). Reports studies showing that healthy habits can account for the link between good self-control and positive outcomes in life.

Hofmann, W., Baumeister, R. F., Förster, G., & Vohs, K. D. (2012). (See References). Reports an experience-sampling study on desire, temptation, goal conflict, and self-control in everyday life.

Reyna, V. F., & Farley, F. (2006). (See References). Presents an overview of the literature on adolescent decision making in conditions involving risk and temptation.

Steinberg, L. (2008). (See References). Reviews the dual-systems models of adolescent decision making.

Webb, T. L., Lindquist, K. A., Jones, K., Avishai, A., & Sheeran, P. (2018). (See References). Reports investigations of situation selection's effects on emotion control.

Transparency

Action Editor: Robert L. Goldstone
Editor: Robert L. Goldstone
Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

ORCID iD

Kathleen D. Vohs https://orcid.org/0000-0001-5858-2603

Notes

1. We use the analogy of a race car, rather than just any car, to underscore the strength of desires during adolescence.
2. Although we sometimes use categorical descriptions of self-control ("good," "poor") in this review, self-control was operationalized as a continuous measure in all the studies we describe.
3. There are several theoretical models positing that mismatches in reward and control functions contribute to impulsive, risky behavior in adolescence (e.g., Casey et al., 2008; Steinberg, 2008). We do not favor one over others.
4. Trait self-control scores also were obtained. They did not predict situation selection.

References

Berger, C., & Rodkin, P. C. (2012). Group influences on individual aggression and prosociality: Early adolescents who change peer affiliations. *Social Development*, *21*(2), 396–413. https://doi.org/10.1111/j.1467-9507.2011.00628.x

Braver, T. S. (2012). The variable nature of cognitive control: A dual mechanisms framework. *Trends in Cognitive Sciences*, *16*(2), 106–113. https://doi.org/10.1016/j.tics.2011.12.010

Casey, B. J., Getz, S., & Galvan, A. (2008). The adolescent brain. *Developmental Review*, *28*(1), 62–77. https://doi.org/10.1016/j.dr.2007.08.003

Crone, E. A., & Dahl, R. E. (2012). Understanding adolescence as a period of social–affective engagement and goal flexibility. *Nature Reviews Neuroscience*, *13*(9), 636–650. https://doi.org/10.1038/nrn3313

Decker, J. H., Otto, A. R., Daw, N. D., & Hartley, C. A. (2016). From creatures of habit to goal-directed learners: Tracking the developmental emergence of model-based reinforcement learning. *Psychological Science*, *27*(6), 848–858. https://doi.org/10.1177/0956797616639301

de Ridder, D. T. D., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review*, *16*(1), 76–99. https://doi.org/10.1177/1088868311418749

Galla, B. M., & Duckworth, A. L. (2015). More than resisting temptation: Beneficial habits mediate the relationship between self-control and positive life outcomes. *Journal*

of Personality and Social Psychology, *109*(3), 508–525. https://doi.org/10.1037/pspp0000026

Galla, B. M., & Wood, J. J. (2015). Trait self-control predicts adolescents' exposure and reactivity to daily stressful events. *Journal of Personality*, *83*(1), 69–83. https://doi.org/10.1111/jopy.12083

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press.

Hofmann, W., Baumeister, R. F., Förster, G., & Vohs, K. D. (2012). Everyday temptations: An experience sampling study of desire, conflict, and self-control. *Journal of Personality and Social Psychology*, *102*(6), 1318–1335. https://doi.org/10.1037/a0026545

Hofmann, W., Luhmann, M., Fisher, R. R., Vohs, K. D., & Baumeister, R. F. (2014). Yes, but are they happy? Effects of trait self-control on affective well-being and life satisfaction. *Journal of Personality*, *82*(4), 265–277. https://doi.org/10.1111/jopy.12050

King, K. M., McLaughlin, K. A., Silk, J., & Monahan, K. C. (2018). Peer effects on self-regulation in adolescence depend on the nature and quality of the peer interaction. *Development and Psychopathology*, *30*(4), 1389–1401. https://doi.org/10.1017/S0954579417001560

Mischel, W., Ebbesen, E. B., & Raskoff Zeiss, A. (1972). Cognitive and attentional mechanisms in delay of gratification. *Journal of Personality and Social Psychology*, *21*(2), 204–218. https://doi.org/10.1037/h0032198

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, *100*(4), 674–701. https://doi.org/10.1037/0033-295X.100.4.674

O'Donoghue, T., & Rabin, M. (1999). Addiction and self-control. In J. Elster (Ed.), *Addiction: Entries and exits* (pp. 169–206). Russell Sage Foundation.

Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, *124*(1), 54–74. https://doi.org/10.1037/0033-2909.124.1.54

Pfeifer, J. H., & Allen, N. B. (2012). Arrested development? Reconsidering dual-systems models of brain function in adolescence and disorders. *Trends in Cognitive Sciences*, *16*(6), 322–329. https://doi.org/10.1016/j.tics.2012.04.011

Pogarsky, G., Piquero, A. R., & Paternoster, R. (2004). Modeling change in perceptions about sanction threats: The neglected linkage in deterrence theory. *Journal of Quantitative Criminology*, *20*(4), 343–369. https://doi.org/10.1007/s10940-004-5868-z

Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology*, *38*(3), 931–964. https://doi.org/10.1111/j.1745-9125.2000.tb00911.x

Reyna, V. F., & Brainerd, C. J. (2011). Dual processes in decision making and developmental neuroscience: A fuzzy-trace model. *Developmental Review*, *31*(2–3), 180–206. https://doi.org/10.1016/j.dr.2011.07.004

Reyna, V. F., & Farley, F. (2006). Risk and rationality in adolescent decision making: Implications for theory, practice, and public policy. *Psychological Science in the Public Interest*, *7*(1), 1–44. https://doi.org/10.1111/j.1529-1006.2006.00026.x

Reyna, V. F., Wilhelms, E. A., McCormick, M. J., & Weldon, R. B. (2015). Development of risky decision making: Fuzzy-trace theory and neurobiological perspectives. *Child Development Perspectives*, *9*(2), 122–127. https://doi.org/10.1111/cdep.12117

Rivers, S. E., Reyna, V. F., & Mills, B. (2008). Risk taking under the influence: A fuzzy-trace theory of emotion in adolescence. *Developmental Review*, *28*(1), 107–144. https://doi.org/10.1016/j.dr.2007.11.002

Rocque, M., Posick, C., & Piquero, A. R. (2016). Self-control and crime: Theory, research, and remaining puzzles. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (3rd ed., pp. 514–532). Guilford Press.

Shulman, E. P., Smith, A. R., Silva, K., Icenogle, G., Duell, N., Chein, J., & Steinberg, L. (2016). The dual systems model: Review, reappraisal, and reaffirmation. *Developmental Cognitive Neuroscience*, *17*, 103–117. https://doi.org/10.1016/j.dcn.2015.12.010

Smith, A. R., Chein, J., & Steinberg, L. (2014). Peers increase adolescent risk taking even when the probabilities of negative outcomes are known. *Developmental Psychology*, *50*(5), 1564–1568. https://doi.org/10.1037/a0035696

Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, *28*(1), 78–106. https://doi.org/10.1016/j.dr.2007.08.002

Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: Evidence for a dual systems model. *Developmental Psychology*, *44*(6), 1764–1778. https://doi.org/10.1037/a0012955

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*(2), 271–324. https://doi.org/10.1111/j.0022-3506.2004.00263.x

van Duijvenvoorde, A. C. K., Jansen, B. R. J., Visser, I., & Huizenga, H. M. (2010). Affective and cognitive decision-making in adolescents. *Developmental Neuropsychology*, *35*(5), 539–554. https://doi.org/10.1080/87565641.2010.494749

Vazsonyi, A. T., Mikuška, J., & Kelley, E. L. (2017). It's time: A meta-analysis on the self-control-deviance link. *Journal of Criminal Justice*, *48*, 48–63. https://doi.org/10.1016/j.jcrimjus.2016.10.001

Walters, G. D. (2020). Prosocial peers as risk, protective, and promotive factors for the prevention of delinquency and drug use. *Journal of Youth and Adolescence*, *49*(3), 618–630. https://doi.org/10.1007/s10964-019-01058-3

Webb, T. L., Lindquist, K. A., Jones, K., Avishai, A., & Sheeran, P. (2018). Situation selection is a particularly effective emotion regulation strategy for people who need help regulating their emotions. *Cognition and Emotion*, *32*(2), 231–248. https://doi.org/10.1080/02699931.2017.1295922

Wenzel, M., Rowland, Z., & Kubiak, T. (2021). Examining five pathways on how self-control is associated with emotion

regulation and affective well-being in daily life. *Journal of Personality*, *89*(3), 451–467. https://doi.org/10.1111/jopy.12590

Wills, T. A., Walker, C., Mendoza, D., & Ainette, M. G. (2006). Behavioral and emotional self-control: Relations to substance use in samples of middle and high school students. *Psychology of Addictive Behaviors*, *20*(3), 265–278. https://doi.org/10.1037/0893-164X.20.3.265

Zelazo, P. D., & Carlson, S. M. (2012). Hot and cool executive function in childhood and adolescence: Development and plasticity. *Child Development Perspectives*, *6*(4), 354–360. https://doi.org/10.1111/j.1750-8606.2012.00246.x