

Revisiting the Concept of Stability in the General Theory of Crime

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Stacey Nofziger¹  and Taylor Johnson¹

Abstract

The general theory proposes that self-control exerts a relatively stable effect on behaviors across the life course. Most studies have examined the stability of self-control itself, rather than whether it leads to persistent patterns of offending that differ between low and high self-control groups. This article examines this alternative idea of stability by tracing patterns of offending over time. Using data from the National Longitudinal Survey of Youth—Child and Young Adult Data, we find that the level of childhood self-control predicts deviance in every age group. The patterns of offending indicate there are stable differences, with low self-control leading to involvement in a greater range of deviant behavior at every age. The theoretical and policy implications of this stability are discussed.

Keywords

self-control, stability, longitudinal, deviance

Introduction

With the publication of the General Theory of Crime in 1990, Gottfredson and Hirschi initiated a surge of research in criminology. Scholars conducted numerous studies on how to measure the key concept of self-control (Arneklev

¹The University of Akron, OH, USA

Corresponding Author:

Stacey Nofziger, Associate Professor, Department of Sociology, The University of Akron,
Olin Hall 247, Akron, OH 44325-1905, USA.

Email: sn18@uakron.edu

et al., 1999; Grasmick et al., 1993; Tittle et al., 2003), assessed the utility of the idea of opportunity (Hay & Forrest, 2008; LaGrange & Silverman, 1999), and tested the premise of the generality of this theory (de Ridder et al., 2011). While most work has focused on testing the theory, there are also important implications for the utility of the theory as a model for crime and deviance prevention.

Self-control predicts a wide range of deviant, criminal, and analogous behaviors, as well as victimization. Due to the volume of research on self-control theory, several meta-analyses have been conducted to assess the overall value of the theory. Two meta-analyses of empirical work found that measures of self-control have moderate but consistent effects on deviance and addictive behaviors (de Ridder et al., 2011) and that self-control serves as a strong predictor of deviance and physical violence (Vazsonyi et al., 2017). In an assessment of the utility of the general theory to the field, Pratt and Cullen (2006) concluded that self-control is “one of the strongest known correlates of crime” (p. 952). In addition, the theory has been extended to predict victimization, with a meta-analysis of 66 studies finding that self-control modestly, but consistently and significantly, predicts victimization (Pratt et al., 2014).

The wide support for the theory in predicting offending and victimization makes it an ideal candidate for use in policies of crime prevention. Early intervention programs could help high-risk youth develop self-control, leading to long-term consequences across a range of life outcomes. In fact, Moffitt et al. (2011) examined how a gradient measure of self-control influenced outcomes of health, criminal involvement, and income over a 30-year period. They argued that their findings support the case for implementing early and universal intervention approaches designed to improve self-control. A meta-analysis of research on programs intended to both develop and strengthen self-control suggests that policies targeting children prior to age 10 are successful in improving self-control and subsequent outcomes (Piquero et al., 2010).

It may appear that this theory has been thoroughly tested, including its potential role in intervention policies, and that there is little more to say on the subject. However, a very important element of this theory that has not been fully explored is the premise of stability. Existing research that discusses the idea of stability in the theory largely examines whether self-control at one age, both within and between individuals, is consistent with self-control at a second age (i.e., Hay & Forrest, 2006; Turner & Piquero, 2002; Vaske et al., 2012; Vazsonyi & Huang, 2010). Therefore, the stability that is assessed is the absolute level of self-control within individuals and the relative levels of self-control between individuals. This is an important component of the general theory because Gottfredson and Hirschi argue that once

self-control is established, it remains fairly stable. However, the current study reexamines Gottfredson and Hirschi's argument related to stability and presents another interpretation. Specifically, we focus not on the stability within self-control itself but instead on whether those who are high and low in childhood self-control develop distinct and stable patterns of deviance over time.

Literature Review

Stability in Self-Control

The general theory of crime (Gottfredson & Hirschi, 1990) is based on the premise that individuals develop varying levels of self-control during childhood and that this self-control influences their involvement in crime and analogous behaviors throughout the life course. Self-control, the ability to resist temptations of the moment, develops when a parent or other caretaker adequately monitors the behaviors of the child, recognizes when actions are deviant, and corrects these inappropriate behaviors (Gottfredson & Hirschi, 1990). According to the theory, once established, self-control is expected to remain fairly stable.

However, this does not mean that self-control cannot develop or change beyond early childhood. There may be other factors than parenting that influence the development of self-control that were not extensively discussed by Gottfredson and Hirschi. According to Buker's (2011) review of the literature on the formation of self-control, social context, biological factors, and neurological factors may also influence this process. Regardless of the precise processes involved in creating self-control, Hirschi and Gottfredson (2001) indicate that "differences observed at ages 8 to 10 tend to persist from then on" (p. 91). Several studies find self-control to be stable in significantly younger ages as well. For instance, Hay and Forrest (2006) measured self-control at 5 points between the ages of 7 and 15. They found that 80% of their sample demonstrated strong absolute and relative stability of self-control over those ages, suggesting that self-control can be established as early as 7. Others found self-control to become fairly stable as early as ages 4 to 6 and have used self-control at these young ages to predict a number of deviant outcomes (Boutwell & Beaver, 2010; Meldrum et al., 2016; Raffaelli, Crockett & Shen 2005; Tremblay et al., 1995; Verhoeven et al., 2007).

It is this idea of within-person stability within self-control that most existing studies examine. These studies compare the absolute levels of self-control through repeated measures of this concept over relatively short periods of time during childhood and adolescence (Coyne & Wright, 2014; Hay & Forrest, 2006; Higgins et al., 2009; Jo, 2015; Ray et al., 2013; Turner &

Piquero, 2002; Vazsonyi & Huang, 2010). Vaske et al. (2012) reviewed the majority of these studies and concluded that they provide moderate support for the idea of both relative and absolute stability of individual self-control. For example, Arneklev et al. (1998) examined self-control among college students between the start and end of one semester and found a high level of stability within this period. Other studies (i.e., Hay & Forrest, 2006; Higgins et al., 2009) find that self-control remains relatively consistent in children at younger ages. For example, Ray et al. (2013) found that from the seventh grade to the 10th grade, 73.9% of the sample have stable trajectories of self-control over time.

While the majority of these studies show at least moderate consistency in self-control, others demonstrate that self-control within the individual can change. Burt et al. (2006) found that self-control was fairly flexible, with about half of the sample switching between defined categories of self-control over a 2-year period. However, this study did find moderate stability, with a correlation of .48 between Waves 1 and 2 in this measure. Expanding upon these results, a second study by Burt et al. (2014) found that ages between 10 and 25, 68% of the sample demonstrated a considerable change in self-control. Yet, differences in self-control between subjects in the extreme groups (very high and very low self-control) remained fairly persistent over time.

In addition, some research indicates that self-control could be influenced by intervention programs. One study examined subjects in a sample of high-risk youth who received early intervention in Grade one that was designed to improve self-control. This study found that the intervention group experienced an increase in self-control over the study period, suggesting that self-control may indeed be malleable beyond early childhood (Na & Paternoster, 2012). Another study found that there were fairly substantial changes in absolute levels of self-control within inmates in a correctional boot camp over a 6-month period (Mitchell & Mackenzie, 2006). These studies indicate that effective interventions can be used to improve self-control.

The majority of the studies that have examined the idea of stability in the general theory indicate at least moderate stability in levels of self-control. However, this is not the only way stability is conceptualized in the general theory. Gottfredson and Hirschi hypothesize that self-control continues to exert a stable influence on behaviors over the life course, in the sense that those who are low in self-control will engage in more deviance than those high in self-control at every stage of life. By focusing on the absolute and relative measures of self-control, which Gottfredson and Hirschi themselves agree may change, most existing studies have not examined how differences in self-control at early ages set individuals on stable paths of substantially different behavioral outcomes.

Alternative View of Stability

In the presentation of the general theory, Gottfredson and Hirschi (1990) identify a “stability problem” (p. 107) that most theories are unable to address. Specifically, they argue that “differences between people in the likelihood that they will commit criminal acts persist over time” (Gottfredson and Hirschi, 1990, p. 107) and that theories that propose criminals are created out of previously non-criminal people, either due to changes in their life circumstances or relationships to social institutions, are unable to account for this stability. Gottfredson and Hirschi argue that self-control is a concept that explains this empirical finding because it is a trait that exerts a relatively stable influence *on behaviors* over time. Putting it simply, “Good children remain good. Not so good children remain a source of concern to their parents, teachers, and eventually to the criminal justice system” (Hirschi & Gottfredson, 2001, p. 90).

This claim may seem contradictory to another finding within criminology that is also discussed by Gottfredson and Hirschi (1990). Specifically, they devote a substantial section of their book to the age-crime curve. Within criminology, one of the most persistent facts is that crime rises sharply in early adolescence, reaches a peak in the late teens to mid-20s, and then sharply declines thereafter. This is invariant across personal and social characteristics such as historical periods, countries, race, and sex. Thus, the claim that self-control would result in a predictably stable pattern of deviance seems contrary to the age-crime curve at first glance.

However, nowhere is the claim made that self-control will prevent all offending behavior. Instead, individuals with higher self-control will engage in less deviant and criminal behavior over the life course compared with those with lower self-control. Individuals' volume of deviance will vary in ways that are consistent with the age-crime curve. These fluctuations may be due to maturational processes, changes in opportunity, or other factors, but do not indicate a dramatic change in self-control. Gottfredson and Hirschi (1990) specifically state that “the frequency with which individuals participate in criminal events may vary over time and place without implying change in their self-control” (p. 137). Even though frequency of offending may vary within the individual over the life course, there will be *relatively stable differences in offending* for those who are higher or lower in self-control. Thus, frequencies of criminal events are expected to follow the age-crime curve, but “differences in ‘crime’ tendency across individuals remain relatively stable over the life course” (Gottfredson and Hirschi, 1990, p. 144). It is this comparative stability that is largely unexamined in existing research.

Several scholars have examined the stability or consistency in criminal offending within individuals, particularly the life-course research (Moffitt,

1993, 2003; Nagin & Paternoster, 1993; Sampson & Laub, 1995). However, few studies to date have specifically examined the idea that self-control can be used as a predictor of differences in patterns of criminal offending across the life course. Vazsonyi and Huang (2010) found that initial differences in self-control were significantly predictive of deviance. However, their data were limited to children from 4.5 to 10.5 years old. This is a period when self-control is still in the process of development and a time when deviance is fairly limited. In a second study, Vaske et al. (2012) examined if risk-seeking remains stable from adolescence into adulthood. They included an analysis of deviance in three waves of data corresponding to ages 14 to 19, 16 to 21, and 18 to 23. A comparison of low, high, and moderate risk-seeking groups demonstrated a relatively stable influence of risk-seeking on deviance across the three waves. A final study testing the impacts of impulsivity and self-control also points to long-term impacts (Moffitt et al., 2011). This study followed a sample of 1,000 respondents in New Zealand from birth to age 32 and found important impacts of childhood self-control on not only crime but also health behaviors and indicators of wealth. These studies begin to address the issue of the persistent effects of self-control.

The current study proposes to expand the work on this aspect of stability. First, we test whether differences in deviance persist across groups with different levels of childhood self-control. We hypothesize that those with high self-control measured at age 8 or 9 will report committing fewer different types of deviant acts than those with low self-control. Second, we hypothesize that childhood self-control will predict deviance throughout the life course. More specifically, we propose two hypotheses:

Hypothesis 1: Those who are high in self-control as children (age 8 or 9) will report lower versatility in deviance over time (from approximately age 14 to 36) than those who are low or average in self-control.

Hypothesis 2: The level of self-control at age 8 or 9 will predict deviance for each age group: those with low and average self-control will have higher deviance scores than those with high self-control.

Data and Method

This study tests the impact of self-control on offending between the ages of 14 and 36 using the National Longitudinal Survey of Youth and particularly the Child and Young Adult samples (NLSY-CYA). The NLSY is a nationally representative panel survey sponsored by the U.S. Department of Labor that began in 1979 by sampling 12,686 men and women between the ages of 14 and 21 years. There were initially three subsamples developed in the original

1979 cohort: a cross-sectional sample of 6,111 non-institutionalized civilians; 5,295 civilian Hispanic or Latino, Black, and economically disadvantaged non-Black/non-Hispanic (NBNH) individuals; and a sample of 1,280 respondents serving in the military.¹ Thus, this is not a fully representative sample but actually oversampled groups who might be more at risk for deviance.

Annual interviews of the original cohort were conducted between 1979 and 1994, with biannual interviews since 1994. Beginning in 1986, additional interviews were conducted with the women in the original cohort about their children. Starting in 1994, children who were 15 years or older by the end of the survey year also completed self-report surveys (Young Adult Survey). Combined, these two additional surveys are known as the CYA data.² The primary data used in the current study are drawn from the 1986 through the 2012 waves from both the mothers' reports (child and family demographics, and assessments of the self-control of their children) and the self-reports of deviance provided by the young adults.

The subsample from the NLSY-CYA for this study was built using the children of the women in the original cohort who were aged 8 or 9 in Waves 1986, 1988, or 1990. The 1986 wave was the first point in time that mothers reported on the characteristics and activities of their children, thus setting this as the earliest possible wave for this study. While it would have been possible to include youth from additional waves, they would have not reached the full span of ages of interest by 2012. For example, those who would have been aged 8 or 9 in 1992 would have only been 28 or 29 by wave 2012, and therefore would not have had any data available for the "30 or older" age group. Therefore, the study sample was built starting with those who were the target ages of 8 or 9 in the first three waves that included reports on the children.

Data may be missing for many reasons, which is often a concern with longitudinal data (Brame & Paternoster, 2003). According to a means test of difference on the variables in the models, the only significant difference was being Hispanic, with Hispanic respondents being more likely to be missing data. However, to test the key variables in these analyses, this sample was limited to respondents who had usable measures for the two key measures: self-control and deviance. A total of 23 respondents were cut due to missing data on self-control, and 301 were cut due to a lack of data on deviance. As deviance in this study is measured from age 14 to 36, it would seem to be possible that 22 different measures of deviance could be recorded for each individual. However, the biennial nature of the data cuts the number of ages for which deviance can possibly be collected in half, and in many cases, respondents did not provide data at every wave. In fact, respondents whose mothers provided information on their self-control may have never completed their

own self-report survey. Therefore, the data were limited to those young adults who provided complete data on their involvement in deviant acts in at least one interview between 1994 and 2014. These limitations resulted in a final usable sample of 1,822 respondents. In this sample, 111 respondents had any missing data on any of the variables in the sample. As it did not appear that the data were missing in any systematic way, other than a slightly higher risk for Hispanics to be missing, the analyses were conducted allowing missing to be dropped from each individual procedure.

One unique aspect of this study is that rather than measuring the variables at each wave in the data, we coded items based on the age of the individual. Within any wave, the ages of the respondents may vary significantly. For example, in 1996, the full NLSY-CYA sample ranges from newborn infants to 25 years old. Measuring deviance of individuals at a particular wave would be problematic, as this would create a measure for deviance at Wave 2000, for example, where the respondents in that wave ranged in age from 17 to 24 in our subsample. As this study is interested in examining whether groups who have different levels of self-control develop stable patterns of deviance over time, the age of the individuals was crucial to use to develop the measures of deviance. The age of each respondent in each wave is thus coded by subtracting the year of the interview date from the year of birth for the respondent. This age was then used to determine the appropriate waves to measure each of our variables. This coding process for each of the key measures is detailed below.

Measures

Self-control. Hirschi and Gottfredson (2001) argue that self-control stabilizes between ages 8 and 10. As the NLSY-CYA collects data every 2 years, using this full range of ages may create a situation where respondents' self-control is assessed at two different waves. For example, if the respondents were aged 8 in the 1986 wave, they would most likely be aged 10 in the 1988 wave, and self-control would be measured at both time points. To prevent such overlap, we developed the measure of self-control for those who were 8 or 9 years old in one of the waves covering 1986, 1988, and 1990. These ages, rather than 10 to 11 years, were selected to be able to assess self-reported deviance at the youngest possible age. The 1994 wave was the first year that the "young adult" survey was administered. Therefore, most of those who were 8 or 9 in 1986 would have reached the age of eligibility in 1994, along with those who were 9 in 1988 and some of those who were 8 in 1988 also being eligible at this first possible point of data collection. If self-control had been shifted to those who were 10 or 11 in the first three waves

of the CYA data, they would already have been as much as 19 years old before it would have been possible to collect data on their deviance. Therefore, age 8 or 9 was selected as the best age range to measure self-control for the purposes of this study. In addition, as discussed above, numerous past studies have measured self-control at these ages, and even younger, and found it to be relatively stable by this point and a good predictor of deviance (Boutwell & Beaver, 2010; Hay & Forrest, 2006; Meldrum et al., 2016; Nofziger & Newton, 2018; Verhoeven et al., 2007).

How to measure self-control is a continuing debate in the field of criminology and in other disciplines as well. For example, in a meta-analysis of research in psychology, Duckworth and Kern (2011) compare four types of approaches to assessing self-control in the fields of personality and psychology. They find that some types of measures, particularly those that use informant questionnaires, may have higher correlations between items measuring self-control and are closely related to other types of measures, but that all the strategies for measurement of self-control in their meta-analysis appear to be valid. In discussing their concept of self-control, Gottfredson and Hirschi argued that there were six characteristics of crime that mirror aspects of self-control, but that, in general, self-control is a unidimensional concept (1990). Grasmick et al. (1993) set the stage for multidimensional measures of self-control in tests of the theory, and the debate surrounding the dimensionality of self-control continues (see, for example, Arneklev et al., 1993; Nagin & Paternoster, 1993; Piquero, MacIntosh & Hickman, 2000; Piquero & Rosay, 1998). For example, work by Burt et al. (2014) found that impulsivity and sensation seeking, two aspects of self-control that are often used in measures, actually are distinct and even develop differently. Despite this debate, studies continue to find that many different measures of self-control can be useful for understanding the effects of this concept on deviant behavior (see, for example, Pratt & Cullen, 2006).

In the current study, the measure of self-control is developed from the Behavior Problem Index (BPI). The BPI is made up of items that describe various activities of the child. The entire scale has been commonly used to assess subcategories of behavior and characteristics such as depression, anxiety, or aggression. Multiple studies have established the merit for using items from the BPI to measure self-control (i.e., Beaver et al., 2013; Chapple, 2005; Chapple et al., 2005; Hay & Forrest, 2006; Nofziger, 2008; Nofziger & Newton, 2018, Pratt, Turner & Piquero, 2004; Turner et al., 2005; Turner & Piquero, 2002). Therefore, this study used items from the BPI reported by the mothers.

The current study used 14 individual items that are theoretically consistent with the concept of self-control. For each item, the mother indicated whether each description was often true (coded as one), sometimes true (coded as

two), or not true (coded as three) in describing their child. As each item indicates problematic behaviors, higher total scores indicate increasing self-control. For some respondents, there were missing responses to a number of these items. Those who were missing more than half the items ($N = 23$) were eliminated from the sample in the early stages of the analysis. Of those remaining, a total of 1,782 or nearly 98% of the sample had no missing data on these items, with another 32 (1.7%) missing only one or two items. For those with missing data from less than half of the 14 items, mean substitution for each item was employed for the final measure of self-control.

To assess whether these 14 items were representing one underlying trait, we conducted factor analyses and reliability tests. Two factors emerged from a principal components factor analysis, but the second had an eigenvalue only slightly higher than 1, and there was a substantial drop in the eigenvalues between the first and the second factors (Factor 1 = 5.020, Factor 2 = 1.049). In addition, each item loaded on the first factor more strongly than the second factor. Therefore, we utilized all 14 items to create the measure of self-control in this study. We created a weighted standardized scale to allow the individual items to contribute to the overall measure based on their factor loadings, as well as to be able to divide the sample into groups that were "average" in self-control (within 1 standard deviation [SD] of the mean) and those who were high or low in self-control (beyond 1 SD from the mean). Tests indicated that this was a highly reliable scale ($\alpha = .862$), and the final scale had a range of 5.467 with a minimum of -4.003 and maximum of 1.464 (see the appendix for full list of items).

This study attempts to examine whether patterns in offending between individuals with varying levels of self-control follow the type of stable, persistent differences predicted by the theory. Thus, we established comparison groups divided by quartiles (highest 25%, lowest 25%, and the middle 50%). Given that the measure of self-control is standardized, most respondents are expected to be "average" or within about 1 SD of zero. Comparisons between individuals slightly below the mean to those slightly above the mean would not be expected to demonstrate any significant differences. Thus, the middle half of the sample was combined and comparisons were made between this group to those low in self-control (the lowest 25%) and those high in self-control (highest 25% of sample).

Deviance. Typically, studies that measure deviance across time use one set of variables to assess deviance. However, this was impossible for this study for two reasons. First, questions in the NLSY-CYA are age specific, with those under 18 being asked different questions than those over 18 years old. Second, over time, items in the NLSY changed. Specific items were dropped or

added in each wave of the NLSY-CYA, or the wording or response options changed. For example, in the 1998 wave, when respondents in our sample ranged in age from 15 to 21, a series of 18 items related to a wide range of deviant acts, ranging from skipping school and conning someone to committing physical assaults, were included. However, in the very next wave, when our respondents were 17 to 24 years old, only four of those 18 items were asked. As there were respondents aged 17 to 21 in both these waves, measuring deviance at any of those ages required that the same items be available. Otherwise, some respondents' deviance at these ages may have been based on 18 items and some limited to only four. Thus, we were challenged by the number and type of questions available to measure deviant behavior. The appendix lists the specific items used to measure deviance. The first list of items was available for those aged 14³ through 17 (seven total items). For those aged 18 and older, only four items were consistent, and thus our measure of deviance is limited to those four items.

For each item, respondents indicated whether in the past year (12 months) they had ever engaged in each of the activities (coded as zero for no and one for yes). In one case, for the item "convicted," respondents were asked whether they had been convicted for something other than a minor traffic violation. In some waves, this was asked as "since the last interview," and in other waves, it was asked as "have you ever been convicted" with follow-up questions about the type of crimes and the total number of lifetime convictions. As the "ever" option might refer to an arrest that occurred at an earlier age, this item was recoded to indicate only new convictions since the last interview. This was done by subtracting the past wave's report of the total number of convictions from the total number reported in the current wave. The item was then recoded as zero if there were no additional convictions reported in the current wave, and one if there were any new convictions.

The age-specific measures of deviance represent an additive count of the number of different types of acts committed by the individual at each age that is available. Therefore, this is a diversity measure rather than an indicator of the frequency or volume of offending. We cannot say how many times individuals were committing deviant acts, and of course, we are unable to speculate about how many different types of deviance they may have committed beyond those measured. For example, respondents may receive a score of 1 on our measure, because they answered yes to having been convicted of a crime since the last interview. However, it is very possible that this individual not only committed additional acts that they were not caught and convicted for but also may have had multiple convictions. In addition, the 18 and older items are acts that are fairly serious, in that two are violent crimes and a third is being convicted of a crime. It is likely that respondents who engage in

these types of behaviors also commit minor acts, such as minor property crimes, binge drinking, and drug use. This can therefore be considered as a very conservative estimate of how deviant the respondents actually are.

Ideally, we would have a measure of deviance for every age. However, the nature of the biennial data collection, in addition to changes in the interview schedules of the NLSY,⁴ makes this impossible. This cycle of interviews generates a great deal of “missing” data for each age of deviance. In fact, for the 22 years of age potentially included in this study (14–36), the maximum possible number of interviews would have been nine, meaning that only nine possible measures of deviance over the 22 years would be available.

To address the number of missing data for deviance at every age, two different measures of deviance were created for different parts of the analysis. The first measure is a simple count of the number of different types of deviant acts the respondent indicated they had participated in at each age that they were interviewed. This was used to compare the patterns of mean deviance for the three levels of self-control at each age, and as a basis for the clustered dependent variable of deviance. The main measure of deviance used in most of the analyses was clustered into five age groups: 14 to 17, 18 to 21, 22 to 25, 26 to 29, and 30 and older. We calculated the deviance for each individual across the cluster of ages by adding the number of types of reported deviance at each age that was available. Only respondents with at least one completed interview in the age range were included. The natural log of the number of completed interviews in each cluster was used as an offset variable in the negative binomial regressions. A final variable was created of the total deviance across the entire age range to assess the impact of self-control on the lifetime reported deviant acts of each respondent. Again, the number of valid interviews was used as the offset variable in this regression model.

Control variables. This article hopes to provide recommendations related to policy regarding self-control and prevention of deviance. It is argued that such work “requires evidence that isolates self-control as the active ingredient affecting health, wealth, and crime, as opposed to other influences on children’s futures, such as their intelligence or social class origins” (Moffitt et al., 2011:2694). Thus, for the current study, time-invariant effects related to demographics, family socioeconomic status (SES) in childhood, and school-aged assessments of academic performance are included in the models.

Several standard demographic controls are included in the current study. Sex is coded as 1 for male and 2 for female, and the indicator of race is based on the mother’s reports of their children’s race, with available responses of “Hispanic,” “Black,” and “Non-Hispanic, Non-Black” (used as the left-out

category in analyses). Birth order was also included as research does indicate that this influences the parent–child relationship and parenting practices, as well as delinquency (Bègue & Roché, 2005; Furman, 1995; Sputa & Paulson, 1995). The final demographic predictor was family income, measured as the average of the net family income reported by the mothers in 1986, 1988, and 1990 (the years the respondent was 8 or 9 years old).

Beyond these demographic controls, following the recommendations of Moffitt et al. (2011), the Peabody Individual Achievement Test (PIAT) was used to control for academic achievement. The full PIAT battery intends to measure achievement in the core areas of math, reading, and reading comprehension as taught in mainstream education (Dunn & Markwardt, 1970). There are age-specific normalized scores available and the PIAT demonstrates moderate concurrent validity with other measures of intelligence such as the Wide Range Achievement Test (WRAT) and the Wechsler Intelligence Test for Children (WISC; Soethe, 1972). For the current study, the average of the three scores for math, reading, and reading comprehension was created in each of the three waves of 1986, 1988, and 1990, and then the final average of these three waves was calculated for each respondent. Thus, this represents an indicator of academic achievement at the time when the youth were approximately 8 to 9 years old.

Analytic Methods

A number of bivariate tests were conducted to develop a preliminary understanding of the relationship between self-control and deviance across time. These included cross-tabulations and correlations. To test the first hypothesis of the study, *t* tests of mean deviance across age groups were conducted. In addition, the mean deviance for each of the three self-control groups was calculated for every individual age (14–36), and the patterns of offending for each self-control group were graphed. Finally, to test Hypothesis 2, negative binomial regressions were conducted for each age group on the final measure of total reported deviance to assess whether the level of childhood self-control predicts deviance across the full age range of this sample.

Results

Table 1 presents the descriptive characteristics of the sample used in the study, as well as a comparison of the self-control groups. Of the total 1,822 participants, 36.7% were classified as NBNH, 40.7% as Black, and 22.6% as Hispanic. This is obviously not representative of the U.S. population and reflects the initial oversampling process used by the NLSY. Sex is, however,

Table 1. Descriptive Characteristics of Sample and Key Measures by Self-Control Groups.

Variable	Full sample						Self-control					
	n		%		Lowest 25%		Middle 50%		Highest 25%		n	%
	n	%	n	%	n	%	n	%				
Male	937	51.4	279	61.3	465	51.0	193	42.4				
Female	885	48.6	176	38.7	447	49.0	262	57.6				
Black	742	40.7	192	42.2	368	40.4	182	40.0				
Hispanic	411	22.6	79	17.4	212	23.2	120	26.4				
NBNH	669	36.7	184	40.4	332	36.4	153	33.6				
	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)		
PIAT	1,751	50.423 (22.388)	433	45.017 (23.517)	879	50.396 (21.290)	439	55.809 (22.149)				
Family Income	1,779	US\$21,357 (US\$14,805)	445	US\$18,992 (US\$13,891)	888	US\$21,499 (US\$14,651)	446	US\$23,435 (US\$15,667)				
Self-control	1,822	0.0 (1.000)	445	-1.378 (.697)	912	0.134 (0.391)	455	1.110 (0.213)				

Note. NBNH = non-Black/non-Hispanic; PIAT = Peabody Individual Achievement Test.

fairly close to the population, with 51.4% males and 48.6% females. However, both race and sex vary across the different self-control groups. For the lowest self-control group, the sample shifts to be more male as well as more Black and more NBNH, while the percentage of Hispanic drops. The middle half of the sample is nearly identical to the full sample in terms of race and sex. The highest self-control quartile has a much higher percentage of females (57.6% in this group compared with the 38.7% and 49% in the lowest and middle groups, respectively). Unlike for low self-control, the racial composition of the high self-control group closely resembles that of the whole sample.

Table 1 also contains descriptive statistics of key variables, including the PIAT, family income, and self-control. The mean PIAT score for the full sample and middle self-control groups was very similar, at just over 50. However, the low self-control group dropped 5 points to 45.017 and the high self-control group had an average score of 5 points higher at 55.809. Family SES also shifts somewhat between the three groups, with those in the lowest self-control group having a mean family income approximately 11% lower than the full sample and 19% lower than the highest self-control group. Thus, it appears that self-control is related to this particular measure of academic achievement and family income. Finally, the mean self-control for the whole sample was zero due to the fact that this is a standardized measure. For the highest self-control quartile, the mean is 1.110, and the mean self-control is -1.378 in the lowest quartile group, indicating that these groups do fall just beyond 1 *SD* beyond the mean.

To begin to examine the relationships between self-control and deviance, Pearson's correlations for all the variables in the study were conducted and are displayed in Table 2. While all the correlations between the measures of deviance at each age group were significant at $p < .001$, they are not displayed due to space considerations. One clear finding in this analysis is that the two groups of high and low self-control are significantly correlated with deviance at nearly every age group, but that having average self-control is not. Being in the low self-control group is significantly and positively correlated with every measure of deviance ($p < .001$). In contrast, high self-control is negatively and significantly correlated with deviance at every age group with the exception of the 22 to 25 group. Being in the middle self-control group is only correlated with deviance at age 26 to 29 ($r = -.049, p < .05$).

Different levels of self-control also correlate with several of the controls. Females are less likely to be in the low self-control group and more likely to be in the high self-control group. Respondents who are Hispanic are also less likely to be low in self-control and more likely to be high in self-control. A similar pattern exists for both family income and the PIAT. The high

Table 2. Pearson's Correlations Among Key Variables.

Variable	Middle					Black	NBNH	Family Inc	PIAT	Birth order
	Low SC	SC	High SC	Female	Hispanic					
Female	-.114***	.009	.109***							
Hispanic	-.072**	.016	.053*	-.007						
Black	.017	-.008	-.009	-.001	-.447***					
NBNH	.045	-.007	-.037	.007	-.411***	-.631***				
Family income	-.092***	.010	.081***	.022	-.020	-.266***	.287***			
PIAT	-.138***	-.001	.139***	.078***	-.082***	-.203***	.278***	.283***		
Birth order	.044	.094	.098	.046*	.034	.051*	-.082***	-.049*	-.178***	
Deviance 14 to 17	.112***	-.141	-.064*	-.156***	.002	.011	-.012	-.057*	-.004	0.02
Deviance 18 to 21	.107***	-.027	-.076**	-.189***	-.066*	.012	.044	-.016	-.049	.057*
Deviance 22 to 25	.082***	.019	.001	-.185***	-.072**	.052*	.009	.000	.019	-.014
Deviance 26 to 29	.131***	-.049*	-.074**	-.167***	-.063*	.093***	-.041	-.082***	-.059*	.014
Deviance 30 plus	.089**	-.001	-.083**	-.088**	-.059	.066*	-.018	-.054	-.064*	.002
Total Deviance	.139***	-.039	-.094***	-.196***	-.060*	.047*	.004	-.043	-.014	.045

Note. SC = self-control; NBNH = non-Black/non-Hispanic; PIAT = Peabody Individual Achievement Test.

* $p < .05$. ** $p < .01$. *** $p < .001$.

self-control group is associated with higher in academic achievement and family income.

Several of the controls also correlate with deviance. Being female lowers deviance in every age group, and being Hispanic lowers reported acts of deviance for the combined deviance across all ages, as well as for the 18 to 21, 22 to 25, and 26 to 29 age groups. In comparison, being Black increases overall reported deviant acts and deviance for the age groups of 22 to 25, 26 to 29, and 30 plus. Much less consistent patterns emerge for the remaining variables. As a whole, these correlations indicate that, while significant, these correlations are not excessively high. In fact, discounting the correlations between the racial groups, the Pearson coefficients were almost all under .200, indicating there would not be multicollinearity concerns in regressions.

As a next step in the analysis, *t* tests were conducted to examine whether deviance for those high, average, and low in self-control were significantly different. This analysis was conducted for each age group to see whether any differences persisted over time. This is a crucial step in the analysis to establish whether differences in deviance are stable, in the sense that they continue to exist for each age group, between those with varying levels of self-control. Table 3 displays results of this analysis.

It is clear that the average deviance varies significantly across the three self-control groups. The mean deviance for the lowest self-control group is significantly higher in every age group than the high self-control group, and also significantly higher than those with average self-control for all but one of the age groups (30 plus). Even for the least deviant age group of 30 plus, the mean deviance for the low self-control group is twice as high than those high in self-control (0.275 and 0.127, respectively). In contrast, the mean difference comparison between the high self-control group to the average group was only significant for the 22- to 25-age group and the 30 and older group. Not only are there significant differences in the mean's between self-control groups, but the range of the number of deviant acts is lower in the high self-control group than the average of low self-control group. For the total number of deviant acts across all age groups, those high in self-control ranged from zero to 10 total acts when in comparison the average self-control group reported zero to 17 acts, and zero to 23 acts were recorded for the low self-control group. Therefore, the analysis of the *t* tests indicates a consistent difference in the mean deviance between self-control groups. Consistent with the first hypothesis of this study, those in the highest self-control quartile reported fewer mean acts of deviance for every age group than those with low self-control.

Table 3. The *t* Tests of Mean Difference in Deviance by Age Group for SC Groups.

Ages	Low 25% SC		Middle 50% SC		High 25% SC		<i>M</i> difference
	<i>M</i> (SE) Variance range	<i>n</i>	<i>M</i> (SE) Variance range	<i>n</i>	<i>M</i> (SE) Variance range	<i>n</i>	
14 to 17	1.304 (.106) 3.620 0-11	322	0.935 (.056) 2.051 0-9	650	0.829 (.075) 1.906 0-8	340	Low vs. mid = 0.369*** Mid vs. high = 0.106 High vs. low = 0.475***
18 to 21	0.829 (.075) 0.861 0-5	317	0.420 (.033) 0.705 0-6	648	0.331 (.040) 0.511 0-4	320	Low vs. mid = 0.180** Mid vs. high = 0.089 High vs. low = 0.268***
22 to 25	0.567 (.049) 0.879 0-6	418	0.446 (.028) 0.683 0-5	845	0.333 (.035) 0.506 0-4	417	Low vs. mid = 0.121* Mid vs. high = 0.113* High vs. low = 0.234***
26 to 29	0.517 (.041) 0.683 0-4	408	0.321 (.024) 0.468 0-5	808	0.266 (.030) 0.378 0-4	417	Low vs. mid = 0.197*** Mid vs. high = 0.054 High vs. low = 0.251***
30 plus	0.275 (.037) 0.320 0-3	236	0.200 (.024) 0.274 0-4	495	0.127 (.025) 0.145 0-2	237	Low vs. mid = 0.075 Mid vs. high = 0.073* High vs. low = 0.149***
Total Deviance	2.547 (.141) 8.984 0-23	455	1.826 (.082) 6.091 0-17	912	1.501 (.102) 4.713 0-10	455	Low vs. mid = 0.722*** Mid vs. high = 0.318* High vs. low = 1.040***

Note. SC = self-control.

* $p < .05$. ** $p < .01$. *** $p < .001$.

As a way of examining the patterns of offending between the self-control groups, Figure 1 displays the mean deviance for the three groups of low self-control, the middle 50% of the sample, and high self-control for every age in the sample. As expected, based on the age-crime curve, all three deviance lines decrease with age. In fact, at age 34, the three paths converge. However, at this point, there are very few respondents in the three groups. At age 34, only 127 respondents across the three categories completed interviews and this dropped dramatically to only six respondents at age 35. While the sample is as old as 36 in the grouped ages, this age was dropped from this figure because only two individuals remained at this age, making it impossible to divide them into three distinct groups.

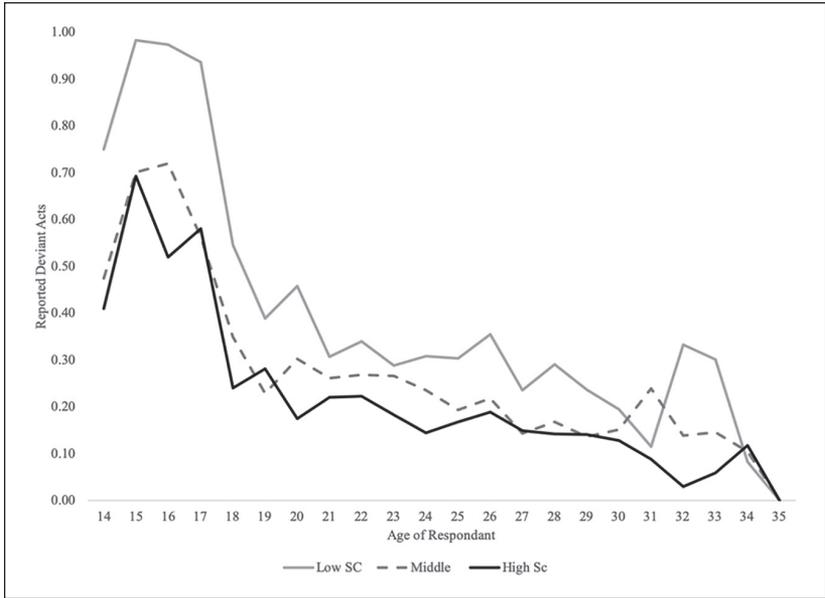


Figure 1. Mean-reported deviant acts for high, low, and middle self-control groups by age.
Note. SC = self-control.

The findings of this analysis largely support Hypothesis 1. Those classified as high self-control as children report fewer types of deviant acts at each age. While this difference did diminish over time and disappeared in the oldest age groups, childhood self-control did lead to fairly stable difference in the levels of offending, with those higher in self-control reporting fewer types of deviance than either of the other two groups across the range of ages investigated. Thus, as presumed by Gottfredson and Hirschi, good children who are high in self-control remain good, relative to those with lower self-control.

To test Hypothesis 2, that the level of self-control at age 8 or 9 will predict deviance for each age group, negative binomial regressions were conducted. Separate models were run for each age group, as well as a final model on the total deviance between the ages of 14 and 36. In each model, the number of ages that the respondent completed an interview was used as the offset variable. Table 4 displays the results of each model on deviance. For each regression, the Omnibus test indicates the model is significant at $p < .001$.

The most important finding that emerges from this analysis is that the level of self-control at age 8 or 9 is a significant predictor of deviant involvement across every age group. Compared with those high in self-control, which is the left-out category in the models, those low in self-control report higher deviance at every age group. The magnitude of the effect of low self-control on deviance varied from .443 ($p < .001$) for the youngest 14 to 17 age group, to a high of .756 for the 30 plus age group ($p < .01$). Being high in self-control is a strong protective factor against deviance not only compared with those low in self-control but for those in the middle group of self-control in several models. As compared with those high in self-control, those in the middle category had higher deviance for the age 22 to 25 group, the 30 plus group, and the total deviance.

In addition to the effects of self-control in each model, several of the control variables also had an impact on deviance. Being female significantly predicted decreased deviance across the full range of ages and for the final model of total deviance. Being Black as compared with the NBNH group significantly predicted increased deviance for the 22- to 25- and the 26- to 30-year-old groups, but was not significant in any other model. As compared with NBNH, being Hispanic did not significantly predict deviance in any model. The effects of the other controls in the model (birth order, PIAT, and family income) also varied by age group. The birth order was significant for the first two age groups, indicating that young adults who were later in the birth order in their families, and therefore who also have more siblings, are at greater risk for deviance. The effect of the respondents' PIAT never reached significance, and higher family income predicted decreased deviance for the ages of 14 to 17 and 26 to 29 only.

Discussion

Most previous tests of the general theory of crime that have examined "stability" have focused on the repeated measure of self-control within an individual. It is valuable to assess whether self-control changes and whether families, schools, and even communities can change self-control in individuals. But such work does not demonstrate whether the effects of self-control lead to the development of stable, between-person differences, on deviance over time. This study examines deviance from age 14 to 36 to test whether self-control in childhood leads to different patterns of deviance between self-control groups. Thus, this fills an important gap in our understanding of whether self-control has a persistent or stable effect on offending over time. This study lends two important contributions to the literature.

First, based on comparisons of those who are high and low in self-control in childhood, it is clear that the differences in the number of types of reported

Table 4. Negative Binomial Parameter Estimates on Deviance by Age Group.

Variables	Model 1 Age 14-17		Model 2 Age 18-21		Model 3 Age 22-25		Model 4 Age 26-30		Model 5 30 plus		Total deviance	
	Beta	SE	Beta	SE	Beta	SE	Beta	SE	Beta	SE	Beta	SE
Intercept	-0.124	.223	-0.517	.292	-0.768**	.262	-0.920***	.283	-1.519**	.494	-0.588***	.169
Female	-0.442***	.084	-0.774***	.113	-0.768***	.098	-0.738***	.107	-0.446**	.169	-0.685***	.062
Hispanic	0.125	.112	-0.273	.157	-0.229	.140	-0.109	.155	-0.431	.265	-0.073	.087
Black	0.060	.099	0.056	.128	0.224*	.112	0.332**	.125	0.092	.200	0.110	.074
Birth order	0.112*	.054	0.142*	.067	-0.063	.064	0.073	.068	0.023	.113	0.075	.041
PIAT	0.003	.002	0.000	.003	0.003	.002	0.001	.003	-0.002	.004	0.002	.002
Family Inc	-7.1E-6*	3.0E-6	-1.8E-6	4.0E-6	4.8E-6	3.4E-6	-8.6E-6*	4.2E-6	-3.9E-6	6.5E-6	-4.0E-6	2.3E-6
Low SC	0.443***	.117	0.513***	.156	0.460***	.139	0.507***	.147	0.756**	.266	0.440***	.089
Mid SC	0.157	.1028	0.168	.141	0.326**	.124	0.130	.136	0.521*	.241	0.182*	.078
Dev/df	1.028		0.749		0.774		0.702		0.516		1.137	
Ornibus test	60.285***		77.785***		98.153***		95.801***		27.026***		172.371***	
Model n	1,248		1,206		1,583		1,541		915		1,711	

Note. PIAT = Peabody Individual Achievement Test; SC = self-control; df = degrees of freedom.

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

deviant behavior between these groups are relatively stable. Deviance for both groups fluctuates by age and generally follows the expected pattern of the age-crime curve. However, those in the low self-control group report an average number of different deviant acts that is higher at every age than the group who is high in self-control. Thus, this study contributes to the theoretical literature by supporting Gottfredson and Hirschi's claim that differences in deviant behaviors that are observed early in life persist over time and that these differences are associated with self-control.

This finding is consistent with a large body of literature that examines changes and consistency in deviance over the life course. Much of this work is based on Moffitt's concept of life-course persistent offenders (see, for example, Moffitt, 1993, 2003; Moffitt & Caspi, 2001; Moffitt et al., 2011). Research finds that most individuals will engage in some deviance, but that this is largely limited to acts committed in adolescence and does not lead to a life of crime. Those who are "life-course-persistent" offenders exhibit neuropsychological problems that combine with environmental risks and create much more prolonged involvement in deviant behaviors (Moffitt, 1993, 2003). For most others, the process of maturation, combined with social learning, is typically examined as the explanation for the rise and fall of deviance in adolescence (Moffitt, 1993). The current study supports the assertion that most individuals, even those with higher criminal propensities, decline in deviant activity over time. However, we argue that differences in patterns in offending that develop do not require neuropsychological problems as an explanation. Rather, early socialization that leads to differing levels of self-control can predict the patterns of high and low offending over a large period of the life course. This may allow us to develop a more optimistic view in the quest to prevent crime in that we are not trying to change biology and psychological deficiencies, but simply need to provide training on the development of self-control to key adults. This leads to the second contribution of this study.

Similar to past studies looking at long-term effects of self-control (Vaske et al., 2012; Vazsonyi & Huang, 2010), we find that high self-control decreases the risk of deviant behavior at every stage of life. In our study, this effect remains even while controlling for other key predictors such as sex, family income, and academic achievement. Unlike past work, we are not examining stability in self-control within a person but in the effects of self-control between groups over time. This is relevant both to the theory and potential intervention programs. This finding is important for the theory, as it confirms that self-control is an important predictor of deviance across a wide period of time, and that even an early measure of self-control can predict deviant behaviors many years later. A similar study by Moffitt et al. (2011) found that less self-control as measured in children as early as age 3 predicted

greater crime involvement over three decades of life to age 32. Thus, it may not be necessary to expend effort and resources to repeatedly measure self-control across the life course to be able to fairly adequately predict the risk of offending.

This finding of the long-term impacts of self-control is also important in considering how to prevent crime. Programs intended to improve self-control do already exist (see Piquero et al., 2010). The findings related to the impact of these suggest a useful course of action. Children who have not yet developed adequate self-control or not doomed to a life of crime, as past research has found that self-control may be at least somewhat malleable beyond early childhood (Burt et al., 2006, 2014; Na & Paternoster, 2012). Thus, an effective prevention strategy is not only to have programs to teach self-control in children who are exhibiting early signs of problems but to implement more generalized programs that teach self-control to all children at early preschool ages. To be most effective, any program designed to teach self-control must also involve the parents. Such programs need to emphasize warm relations between parents and their children, as well as encourage parents to avoid physically punitive discipline to develop self-control in their children. Such universal programs would be most effective for lifelong outcomes if they targeted children before the age of 6 or 7, when past work shows stability in self-control is already fairly well established.

While the theoretical and policy implications of this study are valuable, there are important limitations. First, only a small number of time-invariant or at least time-limited variables were included as controls. There are of course many other predictors of deviance, including involvement with deviant peers, child abuse, as well as biological and psychological risks. Some of these may actually relate to self-control and serve as moderators between self-control and delinquency. For example, Chapple (2005) found that self-control predicts association with deviant peers, but that both self-control and peer deviance also have direct effects on delinquency. For the current study, it was necessary to only use controls that were time-invariant (such as sex and race) or that were confined in time to the period in childhood when self-control was measured. This is due to the fact that other risk factors, such as abusive parenting or association with deviant peers, may occur at many ages. Picking the most useful age or wave to control for each of these would have been exceedingly difficult, as was simply beyond the scope of the current project.

The second major limitation in this study is the measure of deviance. Due to the use of multiple waves to measure deviance for each age, there were very few items that were available across enough waves. Every additional item that was considered, ranging from very minor property crimes

to binge drinking, using various drugs, or even imprudent sexual activity, had to be eliminated because it was not asked in similar ways in enough consecutive waves to encompass all the respondents who may be of a specific age. The resulting measure of deviance is thus dependent on only four items for most ages and represents a count of the different types of deviance rather than a frequency of deviant behavior.

There is concern whether this measure accurately represents the level of deviance for the individual. For example, a respondent may have stolen something and been convicted of this crime when they were 18, thus being coded with a deviance score of 2 even though they only stole one thing. In such a case, the deviance count would overrepresent their actual behaviors. In contrast, someone may have gotten into 10 fights in their neighborhood over the course of a year, but due to the wording of the item about getting into a fight "at school or work" may have a deviance count of zero. Similarly, the respondents may have committed many acts that are not represented in these questions. The specific types of deviance for those 18 and older are generally considered to be fairly serious types of crimes. Two are violent acts, which are much less common than property- and drug-related crimes, and thus, we may be only assessing those who are highly deviant. However, Gottfredson and Hirschi (1990) argue that there is a great deal of versatility in offending, with people who engage in violence also being likely to engage in property crimes, use drugs, and engage in a wide range of similar behaviors. Thus, while it is possible that we are overestimating deviant involvement for some individuals, it is much more likely that we are underestimating deviance. Therefore, this should be considered as a conservative estimate of the effects of self-control on deviance, and future work is encouraged to develop measures of deviance that include a wider range of behaviors as well as assess the frequency of offending.

In addition to these empirical limitations, the potential recommendations to prevention programs based on this study are only tentative. The magnitude of the effects of self-control on deviance is relatively small. This could indicate that self-control does not matter a great deal to predicting deviance. An alternative interpretation, and one we argue is more accurate, is that the effects of self-control on deviance are very important. Self-control in this study is only measured at one point in early childhood, a point in time that is about 20 years prior to the later waves in the study. The fact that it has any impact at such a distant period indicates that self-control in childhood likely affects many different life outcomes that ultimately influence deviant involvement. Self-control may influence choice of friends, educational outcomes, or career trajectories, all of which may contribute to offending at various ages. Whether and how early self-control might affect these outcomes as well as

whether self-control measured later in life might effect deviance at older ages are important topics for future research.

While this study is argued to have important implications for prevention programs, this is not an evaluation of any existing program, and it is beyond the scope of the current project to determine what specific practices may lead children to have high self-control. Programs that focus on behavioral management strategies (Na & Paternoster, 2012) and school-based interventions (Barkley et al., 2000) indicate these may serve to teach self-control and reduce subsequent problem behavior. But research on the effectiveness of programs is typically confined to the effects measured immediately after the program. Thus, we recommend that future work specifically test the long-term impacts of these policies on deviance in later life.

Appendix

Item and Scale Statistics for Measures of Self-Control and Deviance

Self-control. As you read each sentence, decide which best describes your child's behavior over the last 3 months (Coding: 1 = *Often True*, 2 = *Sometimes True*, 3 = *Not True*).

Item	Loading
He or she has sudden changes in mood or feeling.	.551
He or she is rather high strung, tense, and nervous.	.556
He or she cheats or tells lies.	.580
He or she argues too much.	.639
He or she has difficulty concentrating, cannot pay attention for long.	.602
He or she bullies or is cruel or mean to others.	.634
He or she is disobedient at home.	.625
He or she does not seem to feel sorry after he or she misbehaves.	.449
He or she is impulsive or acts without thinking.	.657
He or she is restless or overly active, cannot sit still.	.620
He or she is stubborn, sullen, or irritable.	.694
He or she has a very strong temper and loses it easily.	.688
He or she breaks things on purpose or destroys his or her own or another's things.	.531
He or she demands a lot of attention.	.506
$\alpha =$.858	

Deviance: Ages 14 through 17.

Variable	Description: Items are dichotomized (0 = no/never, 1 = yes/at least once)
StealBig	In the past year, have you . . . other than from a store, taken something not belonging to you that was worth US\$50 or more
Force	used force to get money or things from someone else
Hit	hit or seriously threatened to hit someone
Attack	attacked someone with the idea of seriously hurting or killing them
Motor Vehicle Theft	taken a vehicle without the owner's permission
Hurt	hurt someone badly enough to need bandages or a doctor
Convict	ever been convicted of any charge other than minor traffic violation (coded as 1 only if a new conviction since previous interview)

Deviance: Ages 18 to 36.

Variable	Description: Items are dichotomized (0 = no/never, 1 = yes/at least once)
Fight	In the past year, have you . . . gotten into a physical fight at school or work?
StealBig	ever taken something not belonging to you that was worth US\$50 or more?
Hit	ever hit or seriously threatened to hit someone?
Convict	ever been convicted of any charge other than minor traffic violation (coded as 1 only if a new conviction since previous interview)

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ORCID iD

Stacey Nofziger  <https://orcid.org/0000-0002-6431-6763>

Notes

1. Various segments of these groups were eliminated from eligibility for interviews at various points in the history of the National Longitudinal Survey of Youth (NLSY). See the “Introduction to the Sample” documentation at <http://www.nlsinfo.org> for additional information, including the numbers of each subsample surveyed in each year.
2. For additional detail on the development of the NLSY Child–Mother data, see Chase-Lansdale et al. (1991).
3. While the National Longitudinal Survey of Youth and particularly the Child and Young Adult (NLSY-CYA) user guide indicates that the “young adult” survey was for those 15 and older, there were some cases of children who were 14 being included. This is due to the fact that the child’s age on December 31 of the wave year is used to determine which survey is administered.
4. For example, in 1998, young adults 21 or older were not interviewed. This did not have a strong impact on our analysis because at that wave, our respondents ranged in age from 15 to 21, with only 13 respondents being 21. So, while we do not have a measure of deviance for these 13 respondents at age 21, they are included in earlier and later ages. A larger problem is the lack of data on those in the older ages. Starting in 2010, the participants who were over age 30 were divided into two groups (based on age at the end of the year) and interviewed only every other year, resulting in a 4-year gap between interviews. This did have an impact on the current study, as the data for respondents 30 and older were significantly more likely to be missing.

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Author Biographies

Stacey Nofziger is an associate professor in the Department of Sociology at the University of Akron. She received her PhD from the Department of Sociology at the University of Arizona (1999). Her research interests include juvenile violence and victimization, experiences of children in foster care, and control theories. Her work has been published in outlets, including *Journal of Research in Crime and Delinquency*, *Journal of Interpersonal Violence*, *Violence and Victims*, *Deviant Behavior*, and *Feminist Criminology*.

Taylor Johnson is serving as a research assistant at the University of Akron and Case Western Reserve University. She earned her BA in psychology and cognitive science at Case Western in Cleveland, Ohio, in 2018, and plans to pursue a PhD in clinical psychology. Her primary research interests are in juvenile delinquency, and interpersonal violence and victimization among children and adolescents.