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Research on Offender Decision-Making and Desistance From Crime:

A Multi-Theory Assessment of Offender Cognition Change

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Project Purpose and Goals

In the United States, community supervision is widely used to manage and rehabilitate individuals convicted of crime (Kaeble, 2018). Whether occurring after incarceration (i.e., re-entry onto parole) or directly onto probation, community supervision is a pivotal period because individuals are once again presented with opportunities to either (a) return to criminal activity or (b) gather necessary resources (internal and external) to protect themselves from recidivism and desist from crime, if these resources are available. Given the relevance of desistance processes for probation practice and correctional rehabilitation more broadly, the purpose of this project was to investigate decision-making toward desistance among community supervised individuals.

Multiple theoretical perspectives focus on cognitive decision-making as driving motivation for crime or action away from crime. However, to date, there have been few multi-assessment longitudinal studies in community corrections contexts that have assessed proposed cognitive mechanisms that may underlie recidivism or desistance. As such, little is known about how cognitions might change across time during probation and which decision-making cognitions may be relatively stronger drivers of desistance. Further, the few prior multi-assessment studies with community corrections samples (Brown et al., 2009; Morgan et al., 2013) measured cognitions about crime only, omitting cognitions about desistance.

Employing a two-phase program of research, we designed this project to answer several research questions about the relationship between cognitions and desistance from crime: (1) What cognitions do probationers self-identify as key beliefs that motivate their desire to desist from crime? (2) What are the psychometric properties of newly developed

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standardized measures designed to assess desistance cognitions? (3) Do probationers differ in their crime and desistance cognitions and, on average, do these cognitions change across time? (4) How are crime and desistance cognitions related to official-record assessment and outcome data? Specifically, are there associations between self-reported cognitions and risk and strength factors rated by supervision officers? And, (5) do crime and desistance cognitions predict future revocations and arrests as hypothesized by rational choice, correctional psychology, and / or desistance theories?

Project Context, Participants, and Procedures

To recruit participants for two studies, we partnered with two community corrections agencies who supervise individuals serving sentences on probation. One site was a state probation agency in Texas situated within a Hispanic-majority county. The second site was a federal probation agency in a state that neighbors Texas. The procedures of both studies were reviewed and approved by NIJ and institutional review boards at three universities. The partner probation agencies also reviewed the proposed study procedures prior to participant recruitment.

For Phase 1 of the study, we conducted one focus group at each site with a total of 16 probationers (9 individuals at the state agency, 7 individuals at the federal agency) to explore how individuals express their personal motivations to desist from crime. We recruited probationers through supervision officers and specified the following inclusion criteria: (a) had remained incident-free on probation for at least 9 months, (b) was maintaining a positive relationship with their supervision officer, and (c) was fluent in English. Participants received $30 gift cards to compensate their time.

For Phase 2 of the research, we hired research assistants who were provided access by each agency to a dedicated office room and contact information for probationers. The research assistants phoned potential participants and informed them of the opportunity to attend a voluntary session at the probation office to answer a series of questionnaires asking their thoughts about themselves and crime. We made effort to recruit probationers shortly after beginning their supervision orders to maximize retention in the longitudinal design, but we specified no exclusion criteria for participation and attempted to contact all individuals who were currently supervised at the agencies. (Both agencies only supervise adults and so youth were automatically excluded.)

Upon attending a scheduled session, participants read information about the study and acknowledged informed consent on a computer tablet prior to privately completing questionnaires on the tablet. Participants were debriefed about the purpose of the study at each session they attended while also informed that they would be contacted up to two additional times and invited to complete the questionnaires again in subsequent sessions. Participants received a $20 gift card at the end of their first session, a $25 gift card at the end of their second session, and a $30 gift card at the end of their third session. In total, we recruited 355 individuals for the longitudinal study (252 probationers from the state agency, 73 from the federal agency). At the state agency, our rate of recruitment for a second session was 58% whereas approximately one-third of this sample completed a third assessment session. At the federal agency, re-assessment rates were lower as approximately 30% of this sample returned for a second session.

Phase 1 Focus Groups: Which self-identified thoughts motivate the pursuit of desistance?

In April and October 2017, the Principal Investigator conducted two focus groups with probationer participants, with one focus group at each agency. The group discussion was fully unstructured following an initial prompt that requested participants reflect on and discuss which characteristics in their life promoted positive behavior and motivated them to maintain a crime-free lifestyle. With the exception of follow-up questions, summarizations, and requests for clarification, we encouraged participants to freely self-identify their motivations to desist without explicit prompting. Each focus group lasted approximately 1 hour.

There were several goals for conducting the focus groups. First, drawing on prior, more extensive qualitative work on narratives of desistance (specifically, Maruna, 2001), the focus groups were an opportunity to compare whether the themes extracted from this research were consistent with previously established frameworks of cognitive drivers of desistance. In Appendix A, we outline the close similarity between many of the statements and themes we extracted from the transcripts of our focus groups using Maruna's (2001) coding structure. Broadly, our study participants also identified highly similar sub-aspects of (a) agency / self-efficacy and (b) generativity as driving motivations to desist. In Appendix A, we also provide exemplar quotes from participants. In the Phase 2 longitudinal portion of this study, we relied on a questionnaire that was designed to measure Maruna's (2001) conceptualization of agency for desistance; thus, the conceptual overlap suggests it would be consistent to assess these themes in a standardized way among these probationer populations.

Beyond applying Maruna's (2001) existing frameworks to the qualitative data, the second goal for the focus groups was to explore other emerging themes around decision-

making toward desistance. For this reason, within the focus groups, we attempted to use follow-up questions to encourage participants to reflect how their decision-making processes may have differed when previously engaging in crime versus when successfully staying crime-free. In both groups, participants discussed becoming more aware of the negative consequences of criminal activity. Both groups also discussed the challenge of contending with an impulsive behavioral style which, to overcome, required them to consider their actions more carefully prior to taking action. These themes are also consistent with existing theories of desistance (e.g., Paternoster & Pogarsky, 2009).

Thus, these results highlighted how individuals on probation (who are arguably situated within a still-active process of desistance) are consciously aware of the key cognitions theorized to drive desistance. Specifically, participants discussed (a) engaging in cost-benefit thinking, (b) slowing down impulsive action, and (c) endorsing personal agency and generativity as motivations of desistance. In the Phase 2 longitudinal study, we tested (a) expected costs and benefits of crime, (b) five facets of impulsivity, and (c) agency for desistance. Because the qualitative and quantitative portions of this project share conceptual overlap, the focus group transcripts help provide richer context to the interpretation of the quantitative results, and vice versa.

Phase 2 Multi-Assessment Longitudinal Study: Description of Procedures and Samples

Data collection sessions began May 22, 2017 and concluded on June 29, 2019. Hand-held computer tablets presented participants with 285 unique questionnaire items and these same items were repeated in full in each of the three sessions. On average,

sessions lasted 52 minutes, although some were shorter (when participants did not complete all items) or longer (up to approximately 90 minutes).

Recognizing the substantial time commitment of participation, we implemented several strategies to maximize follow-up recruitment and to minimize the amount of missing data (and minimize the potential systematic pattern of missing data across questionnaire items). First, we presented the questions on computer tablets; this format is more engaging for participants in criminal justice settings compared to paper-and-pencil methods (King et al., 2017). Second, following the strategy described by Pickett and colleagues (2014), we allowed participants to self-navigate through the questions, presenting the choice at three points regarding which type of questions could be presented next. We grouped questionnaire items into broad categories (e.g., "thoughts about myself", "how I'm feeling") for participants to select. Further, within each category, items were presented in a random order. Third, all materials were translated from English so Spanish-fluent participants could choose to complete the study in Spanish (including informed consent and debriefing forms). Fourth, as described above and encouraged by Hanson and colleagues (2012), we compensated participants' time with a gift card for each session and increased the amount of the gift card for each subsequent session to encourage study retention.

In Appendix B, we describe characteristics of the sample of participants (displayed separately by agency location). Demographic, criminal history, risk score, and revocation information were generously provided by our partner agencies from official files. Within the state agency's files, risk was recorded as scores on the Texas Risk Assessment System (TRAS). Within the federal agency's files, risk was recorded as scores on the Post

Conviction Risk Assessment (PCRA). Both of these measures assess risk of general recidivism and both agencies provided file information on an ongoing basis through 2018-2019 during our ongoing recruitment. They also updated the files with new revocations and arrests across time. For the state probation agency, the most current file information was provided through May 29, 2019. For the federal probation agency, the most current file information was provided through December 31, 2018, with some updated information through August 30, 2019 for a sub-portion of that sample. Thus, at the time of this report, some file information is incomplete. Further, for some participants, we have no recorded follow-up time to examine potential recidivism outcomes because they participated subsequent to the last collection of follow-up data. Thus, some of the information in Table B (such as the index offence for the federal probation sample) is missing due to records that are currently incomplete (until additional official data can be obtained).

As displayed in Table B, the samples were approximately three-fourths male and one-fourth female. On average, the sample was in their mid-30s to early-40s. Notably, this is the stage of the life course when individuals generally are in a process of desistance from crime. Other demographic information (including race/ethnicity, marital status, and education status) were either not reliably coded or were inconsistently provided by the agencies. We did not ask participants to provide this information directly. In Table B, we present risk level information (as measured by TRAS or PCRA) as categories (low, moderate, high) to assist comparison across instruments. Although both risk assessment tools share highly similar domains, these tools cannot be directly compared. In the state probation sample, the most common recidivism event was a new arrest (for any type of charge). We consider the recidivism data to be relatively complete for this sample (up to

May 29, 2019), but we do not encourage interpretation or analysis of the recidivism data from the federal probation sample, as these data are highly limited. For this reason, in the relevant analyses described below, we only included individuals for whom we had complete information.

In total, we conducted 655 data collection sessions with 355 individuals. Unfortunately, four participation sessions were lost when a tablet malfunctioned, leaving a total of 651 sessions for analysis from 354 individuals. Also, although the study was designed to involve a maximum of three participation sessions per individual, two individuals were mistakenly invited to participate in a fourth session each.

What are the core components of desistance cognitions?

In the Phase 2 study, we employed several questionnaires that have been used by prior research. For these measures, we followed the authors' instructions for calculating subscale scores. We also conducted confirmatory factor analyses (CFA) to check that the established factor structure for these measures fit our data. There was mixed (likely due to our small sample size) but overall meaningful evidence of good fit for the Measures of Criminal Attitudes and Associates (MCAA; Mills & Kroner, 2001) and there was slightly weaker but borderline good fit for the Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and the UPPS+P Impulsive Behavior Scale (Whiteside & Lynam, 2001). The MCAA was designed specifically for criminal justice populations whereas PANAS and UPPS+P were not. However, our CFA results did not support the factor structure of the Criminal Self-Efficacy Scale (CSES; Brown, Zamble, & Nugent, 1998), so results that use CSES subscale scores should be interpreted with caution.

There are very few standardized questionnaires designed to assess desistance cognitions, and prior research (Ellis & Bowen, 2017; Lloyd & Serin, 2012) on three measures employed in this study had not fully established their psychometric properties. We conducted exploratory factor analyses (EFA) on data gathered from participants' first session and results generally supported the conclusion that there is a cost-vs-benefit dimension to beliefs about crime. According to rational choice theory (see Paternoster, 2010), individuals engage in a personalized weighting of the costs and benefits associated with a criminal action prior to deciding to (a) act on or (b) withdraw from an opportunity for crime. Consistent with rational choice theory, the *Negative Expectancy* subscale on the Personal Outcome Expectancy for Crime Questionnaire assesses personal views about the potential costs of crime, whereas the *Positive Expectancy* subscale balances these thoughts by measuring personal views about the potential benefits of crime.

Some desistance theories suggest there is a parallel cost-vs-benefit dimension toward taking action toward desistance. The *Positive Expectancy* subscale of the Personal Outcome Expectancy for Desistance Questionnaire measures personal views about the potential benefits of giving up crime, whereas the *Negative Expectancy* subscale measures the potential costs of giving up crime. Adding to this, a third dimension called *Effort Expectancy* had been previously proposed (Lloyd & Serin, 2012). This subscale measures personal views that giving up crime will likely require effort to find new non-criminal solutions to solve life problems.

Finally, the structure of the Agency for Desistance Questionnaire was divided into *High Agency* and *Low Agency*. *High Agency* refers to demonstrating strong confidence in one's ability to desist from crime, whereas *Low Agency* demonstrates fear that one's efforts

to desist will be thwarted. In other words, higher scores on the *Low Agency* subscale suggest the individual is internally motivated to desist but views external factors as limiting their ability to desist. Results from the factor analyses are presented in Appendix C and Tables C1-C3 list which questionnaire items belong to which subscale.

After establishing the questionnaire subscales, we calculated average scores for each subscale at each sequential data collection session (Time 1 through Time 4). These scores (and standard deviations) are displayed in Table C4 in Appendix C, separated by study location. On average, individuals in the sample rated their cognitions as pro-desistance and anti-crime. For example, comparing the mean *Negative Expectancy for Crime* scores to the possible range on this subscale, results showed that individuals endorsed a relatively high number of negative consequences for engaging in criminal behavior. By contrast, scores were generally low for the next set of subscales that assessed benefits of criminal behavior (i.e., *Positive Expectancy* for crime), perceived ability to successfully commit crime (i.e., criminal self-efficacy), and justifications, rationalizations, and positive beliefs about committing crime (i.e., attitudes toward violence, entitlement, criminal friend, and antisocial intent).

Parallel to this, participants generally endorsed positive views of desistance, the need to extend effort for desistance, and personal agency to desist. By contrast, participants did not strongly endorse negative expectations for desistance or beliefs that their efforts to desist will be thwarted. For ratings of positive emotional moods and negative emotional moods, participants, on average, endorsed relatively higher positive mood states compared to negative mood states. Finally, self-ratings on the five dimensions of impulsivity suggested participants did not view themselves as strongly impulsive. These

results suggest participants in this sample were poised to engage in a process of pursuing desistance and avoiding crime during their period of probation.

Do cognitions differ among probationers and do cognitions change across time?

Desistance is generally viewed and studied in terms of behavior change, such that desistance is the cessation of criminal behavior. However, the foundational theories of desistance (e.g., Maruna, 2001) logically argue that this behavior change does not occur in isolation but is motivated and accompanied by emerging internal changes in prosocial beliefs, identity, and investment in prosocial opportunities. Thus, a key hypothesis of these theories is that desistance cognitions will change across time. As such, a core goal of this project was to explore whether crime and desistance cognitions (as measured by the questionnaires employed in this study) would evidence change.

To examine change, we restricted analyses to data collected from individuals who had attended more than one data collection session (i.e., at least two and possibly up to four sessions). Finally, we structured the longitudinal data such that measurement occasions were ordered across time in relation to the start of the period of supervision (making the beginning of the probation period the "baseline" time point). Because the measurement occasions were not ordered cleanly across time for each participant (i.e., data were not collected in a panel design), we hypothesized that any pattern of growth may be related to the amount of time an individual has remained successfully crime-free on supervision since the start of their probation order. We present results from a series of multilevel models (where repeated assessments are clustered within individuals) in Appendix D.

This series of analyses resulted in four general findings. First, probationers differed from each other in their average questionnaire scores, showing there was meaningful variation across individuals in their crime and desistance beliefs. Also, intraclass correlation coefficients were moderately high, suggesting that individuals often differed from each other in their cognitions relatively more than there was fluctuation within individuals across participation sessions.

Second, there was overall limited evidence that scores demonstrated systematic linear change across time. Introducing time since the start of supervision as a predictor in the models resulted in statistically non-significant effects in 13 of the 19 separate models. These models suggest stability is more common than change. Still, for some constructs such as negative emotion and impulsivity, individuals differed from each other in their individualized patterns of change, even as the sample overall did not show change.

Third, among the constructs that demonstrated statistically significant average change, the direction of these changes suggested probationers endorsed more negative consequences of crime and fewer positive benefits of crime as they completed their community supervision. This finding is consistent with a rational choice perspective on desistance, which expect that individuals' views of crime will shift toward de-valuing criminal action as they succeed toward desistance.

Fourth, there was some evidence that was not consistent with a rational choice perspective on desistance. Specifically, participants endorsed fewer beliefs about the benefits of desistance across time and similarly showed decreasing endorsement of high agency for desistance (p = .07, approaching statistical significance). There are several potential explanations for this finding. One possible interpretation is that individuals

become more aware of the challenges of enacting desistance as they engage further in the process of avoiding temptation for crime and seeking legitimate opportunities post-conviction onto probation. However, counter to this, the *Effort Expectancy* subscale did not show similar increases across time. Further, this finding is consistent with other study results showing that two of the four measures of antisocial attitudes and one of the five measures of impulsivity similarly demonstrated average increases across time. It may be individuals became more honest across time in their reporting of their views on the questionnaires, once they become confident that results will not be shared with their supervision officers. Or, these results may suggest that individuals meet the challenges of probation by increasingly recognizing that impulsive or antisocial actions still offer potential solutions to these challenges, even if they are generally still engaging in a process of desistance.

Do supervision officers rate constructs similarly to probationers' self-report ratings?

One goal of this study was to compare supervision officer ratings of risk factors, strength factors, and community de-stabilizers to the cognitions self-reported by probationers. To accomplish this, we trained officers at both locations to score a case management tool designed for reassessment in community corrections, the Dynamic Risk Assessment for Offender Re-entry (DRAOR; Serin, 2007). Both agencies piloted their use of this assessment tool within a sub-group of probationers in their caseloads and so there was some (but limited) data available for these comparisons (n = 59 data points).

Still, because the degree of interrater reliability across supervision officers and probationers is under-studied, especially for internal constructs such as cognitions, we examined these limited data. In particular, it is noteworthy that one set of authors of a

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similar study recommended relying less on self-report measures and more on ratings from supervision officers (Morgan et al., 2013), whereas another set of authors of a similar study recommended relying less on ratings from supervision officers and more on self-report measures (Brown et al., 2009).

Similarly, results from this project were mixed, but overall arguably supportive of positive associations between raters when examining pro-criminal constructs. Displayed in Appendix E, correlations in Table E1 show that supervision officers and probationers were similar in their ratings of degree of attachment to antisocial friends, the presence of negative moods, and most facets of impulsivity (although supervision officers were not as attuned to the sensation seeking elements of poor impulse control). Notably, supervision officers differentiated probationers' negative mood from anger/hostility and low positive mood.

By contrast, correlations in Table E2 suggest there was little association between supervision officers' strength ratings and probationers' self-report of the same desistance cognitions. These correlations were small and not statistically significant. However, the correlation (r = -.25, p < .10) between probationers' negative views of desistance and supervision officer ratings of the probationers' benefits of desistance approached statistical significance. This may suggest that supervision officers are more attuned when their clients are disengaged from a process of desistance, rather than aware of their clients' levels of engagement.

Do crime and desistance cognitions predict future revocations and arrests?

The largest goal of this project was to examine the relationship between cognitions (both crime and desistance) and behavioral outcomes, such as revocations and new arrests.

We recognize that the duration of this study is too short to define desistance as the complete discontinuation of criminal activity in the life course, but we would argue that we can be reasonably confident that the majority of the sample was on a pathway toward desistance during study participation. We point to the participants' older average age, relatively low levels of prior criminal history, and the fact that they engaged as volunteers in a non-mandatory research study while under supervision, suggesting some prosocial engagement. By contrast, whereas desistance that may follow after this study remains unmeasured, records of recidivism represent clearer evidence of non-desistance, making this outcome an important variable to analyze. As such, supporting the desistance potential of the sample, the base rate of recidivism for the sample was low at 15%.

Using recidivism information from official files, we conducted a series of prediction analyses from the standpoint of building various theory-informed models, starting with a traditional rational choice perspective. We employed Cox regression with time-varying predictors (see Singer & Willett, 2003) because this approach can account for (a) inconsistent schedules of measurement across individuals, (b) loss of follow-up due to recidivism or completion of probation, and (c) repeated assessment (such that the model always uses the most proximal information available when predicting future outcomes). We display these models in Appendix F.

Traditionally, rational choice theory has focused on how the perceived costs of crime deter individuals from engaging in crime. We did not find strong evidence for traditional rational choice theory in this project, as negative expectancies for crime did not predict recidivism in Model 1 of Table F. Expanding the scope of rational choice theory to include positive expectancies for crime (Model 2) and procriminal beliefs (Model 3), results

suggested that *Antisocial Intent* predicted recidivism after controlling for other procriminal beliefs. In univariate models, criminal self-efficacy, attitudes toward violence, and attitudes toward antisocial associates also predicted recidivism. Thus, beliefs related to valuing criminal action (rather than views on its potential consequences) were more strongly related to recidivism outcomes.

Desistance beliefs are theorized to drive desistance behaviors and although this largely desisting sample generally endorsed desistance beliefs, variations in these cognitions did not predict non-desisters (recidivists) from likely desisters (non-recidivists; see Model 4). The one exception was the construct of *Low Agency*, which still may best be characterized as a risk cognition rather than a desistance cognition. Specifically, individuals who endorsed greater fear that their efforts to desist would be thwarted or blocked were more likely to recidivate. After taking *Antisocial Intent* into account, this finding approached statistical significance (p = .06, see Model 5).

Next, we examined potential moderators of the cognition-recidivism relationship. A body of research suggests that positive views of crime may particularly motivate criminal action in moments of high emotion or poor impulse control (e.g., Bouffard & Bouffard, 2011; van Gelder & de Vries, 2014). This prior research suggests a moderating effect where beliefs about the benefits of crime are most "activated" (and consideration of the potential consequences of crime are temporarily "bypassed" or dismissed) in the presence of emotionality or impulsivity. In this sample, low positive emotion (but not high negative emotion) predicted higher likelihood of recidivism, and the sensation seeking element of impulsivity particularly predicted recidivism after controlling for other aspects of impulsivity. (*Lack of Perseverance* approached statistical significance in the multivariate

Model 7 and, similar to *Negative Urgency* and *Positive Urgency*, predicted recidivism in univariate models.) However, in moderation models, there was no strong support that impulsivity or emotion once combined with procriminal cognitions explained recidivism outcomes above the direct effects. Yet, the moderation effect in one model approached statistical significance (p = .10; see Model 8). Finally, after accounting for official record risk scores and the other strongest predictors in a single model, low positive emotion continued to uniquely predict future recidivism.

Implications for Criminal Justice Policy and Practice in the United States

In any typical correctional population, desistance is as common as (if not more common than) reoffending (see Hanson, 2018), and this research (utilizing both qualitative focus groups and quantitative analyses) demonstrated that probationers who volunteered to participate in this study generally self-reported many cognitions that are (a) supportive of desistance and (b) unsupportive of continuing further criminal activity. This suggests that supervision officers in community corrections settings have many opportunities to engage individuals on their caseloads in discussions about how to successfully navigate desistance from crime. Further, officers can generally trust that many of their clients desire to desist. Within the focus groups conducted in this project, many of the participating probationers discussed wanting to have a greater sense of life purpose, value, and motivation. This suggests one important goal of community corrections should be to assist individuals to capitalize on those motivations. For example, many clients may need assistance to overcome the barriers they view as hindering their desistance. Study results showed that individuals who were motivated to desist but feared (perhaps accurately) that their efforts would be thwarted by external forces were at greater risk to recidivate.

There is growing excitement in corrections about utilizing strength-based approaches and harnessing protective factors among individuals to assist their transition to desistance. This project provided some support for this by showing that individuals endorsed a high number of strength-based cognitions while likely being in the process of desisting. At the same time, this project suggests agencies should be cautious about being overly confident that they can identify the core beliefs that drive desistance and know how to effectively intervene to enhance these beliefs toward desistance. This study suggests there is much the field still does not understand about how individuals drive their own desistance processes. In particular, we employed for this study some of the very few standardized questionnaires of desistance cognitions that are based on a strong body of qualitative research. We expected desistance cognitions to (a) change across time and (b) predict outcomes in a way that would show these cognitions are (a) dynamically changing ahead of desistance and (b) related to observable behavior in expected ways. The fact that neither of these findings were supported in this study suggests no policy recommendations for designing formal interventions targeting desistance cognitions can be justified based on the current results. This statement is not intended to imply that the current *conceptualization* of desistance cognitions has failed. Rather, given the limited amount of existing evidence about desistance beliefs and the potential pitfalls related to expending resources toward intervening in processes that are not fully understood, more research would be necessary before an agency should employ strategies designed to manage and reduce risk through a framework of desistance cognitions. Because desistance is a pervasively common phenomenon, researching desistance cognitions arguably remains an important avenue for enhancing correctional practice, but to obtain this goal, more

sophisticated research is required (that potentially overcomes the limitations of the current project), including more varied and larger-scale empirical assessment of desistance cognitions and strengths, and / or more conceptual refinement of what cognitions may particularly drive motivation for desistance (and research on how these cognitions operate on behavior).

Overall, this research largely supported contemporary best practices in community corrections. For example, when predicting recidivism, after controlling for risk categories derived from official record risk scores drawn from the probation agencies, several of the key predictors were no longer statistically significant. This suggests that contemporary risk measures are largely successful at assessing and accounting for many of the key predictors of criminal recidivism. For example, it is well known that two of the core predictors of criminal behavior are procriminal attitudes and poor impulse control (see Bonta & Andrews, 2016), so it is largely unsurprising that these factors were some of the strongest predictors of recidivism in this study (both independently, and approaching significance when combined).

However, within the existing framework of contemporary practice, this study offers a few potential suggestions for refinement. First, when predicting recidivism, the relationship between low positive mood and future recidivism remained statistically significant after accounting for risk scores, suggesting the consideration of emotion beyond current risk frameworks may have an important place within probation practice. It is currently unclear to what degree supervision officers consider probationers' emotional experiences, ask questions about emotional states, or attempt to assist probationers in managing ongoing low mood without resorting to criminal behavior. The relative lack of

positive emotion among recidivists in this study may suggest several concerns that deserve focus in practice, such as having difficulty coping with the challenges of post-conviction reintegration, lacking hope for the future due to perceived barriers, or lacking engagement with prosocial activities that may perpetuate positive emotions. These are potential avenues for discussion between supervision officers and their clients.

Second, although based on limited findings, there was a notable discrepancy in the study findings where *Sensation Seeking* emerged as the element of impulsivity most strongly related to recidivism, but correlations suggested that supervision officers were more attuned to the relatively less-predictive elements of impulsivity, e.g., *Lack of Premeditation*. It may be helpful to encourage supervision officers to refine their conceptual thinking about impulse control in a way that encourages more consideration of sensation seeking as a key aspect of impulsivity and a meaningful risk factor.

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Appendix A

Table A

Themes and Exemplar Excerpts Identified in Focus Group Discussions Describing Self-Reported Motivations to Desist From Crime Organized in a Framework of Sub-Themes (from Maruna, 2001) Situated Within the Broader Themes of Agency and Generativity

Desistance Theme	Brief Description of Theme	Exemplar Narrative Excerpts
	Themes of Agency	
Self-Mastery	An individual is motivated to improve themselves toward achieving desistance after having their "eyes opened" to the importance of living a meaningful life.	"I had to come and watch [my family] walk out the door and you're having to hurry up, go and be strip searched and do all this - have all these things done to you after every visit [...] Are you going to tell me that that's normal[...]? No, I'm the weird one behind this barbed wire fence caged in where I should be because I didn't know how to act out there. But given another opportunity I bet you I won't be back." (Federal Probation Focus Group Participant)
Status / Victory	An individual attains a level of prestige that shows their efforts are recognized by others which motivates further pursuit of desistance goals.	*This theme was not evident in the focus group narratives.*
Achievement / Responsibility	An individual achieves success after pursuing a desistance-related goal and feels motivated to build on that prior success.	"[I told myself that] I'm going to take advantage of [time prior to sentencing]. I did the classes…I was fortunate enough to get a year but the judge split it in half because of what I was doing prior to me going to prison. I went to drug treatment, I went to [inaudible] house. I got a job. I had that job for six months before

		I had to go to prison, but [the judge] gave me a year, split it in half and said we'll give you - I'll split it in half for you. I'm going to give you six months in, six months out." (Federal Probation Focus Group Participant)
Empowerment	An individual feels connected to an entity larger than themselves and is motivated to desist because of the personal meaning they derive from their association with that entity.	"I mean everybody, from the guy that arrested me, up to this last probation officer, has done nothing but to help me…if you go somewhere and [law enforcement] treat you like the criminal that you are, you expect to be treated, well then you, kind of, feel like, yeah, that's what I am, you know. But if [law enforcement] treat you like a human being with a lot of respect and, you know, want you to get better, they want you to get better and that's what they're all there for, when you come right down to it. That's what makes me stay crime free, I would have to say, more than anything." (State Probation Focus Group Participant)
Themes of Generativity		
Caring versus Self-Absorption	An individual becomes engaged in the pursuit of having a purpose in life and is motivated to desist from crime to build the capacity for obtaining a sense of purpose.	"I've used up a lot of selfishness at the beginning; because [his sponsor] was saying earlier that we've committed all these selfish acts and we've committed that crime, got ourselves locked up and poor me and stuff, self-pity and stuff, and really, it's getting outside of yourself and stuff." (Federal Probation Focus Group Participant) "The change came for me when I started to watch what I - pay attention to what I was listening to, what I was watching, what I was partaking in […]. You can be a part of [the prison world] or you can make a decision and everybody that's not a part of it is considered to be weird, not cool, and I decided to not be cool anymore. […] That's who I wanted to be around because we were likeminded or striving to be likeminded, likeminded being get out,

		stay out, hey look man, this is not for me, sick and tired of being sick and tired." (Federal Probation Focus Group Participant)
General Generativity	An individual becomes concerned with "paying forward" to future generations and is motivated to desist to make a lasting impact on others.	"I have a stepson who is 20 years old, and I tell him, 'Don't do as I did. Do as I tell you because I have experience, you know. You might get a lot of wisdom.'" (State Probation Focus Group Participant)
Children	An individual expresses a sense of life purpose and motivation for desistance through investment in their children.	"I guess ever since then I've known - both my sons are together. I'm thankful for that. I get pictures of them and everything and they're good, but I know in my mind that later on down the line I want to be able to see them and I know the only way I'm going to be able to ever go see them is if I do right." (Federal Probation Focus Group Participant)
Need to be Needed	An individual derives a sense of personal meaning when others rely on them and they are motivated to desist from crime to remain dependable to others.	"If you have somebody to depend on you, to me, it changed everything completely. Somebody needs me and that's so important to have somebody who needs you." (State Probation Focus Group Participant)
Productivity versus Stagnation	An individual is emotionally invested in personal development and they are motivated to desist as part of their pursuit of self-improvement.	"I see the motivation because I'm a very motivated individual. If I wake up and I say, I'm going to do this today, that's what I'm going to do. My mind was always set and determined, even when I was at my best. If I got up and I was like, okay, I'm going to go hit the mall and I'm going to steal this much stuff so I can have this much money at the end of the day, and at the end of the day I had that much money because I stole that much stuff. So I just switched the motivation around from negative to positive." (Federal Probation Focus Group Participant)

Note. Maruna, S. (2001). *Making good: How ex-convicts reform and rebuild their lives*. Washington, DC: American Psychological Association. doi:10.1037/10430-000. Maruna's (2001) conceptual structure was drawn from the following sources:

McAdams, D. P. (1992). *Coding autobiographical episodes for themes of agency and communion* (3rd ed., Rev.). Evanston, IL: Foley Center for the Study of Lives, Northwestern University.
Stewart, A. J., Franz, C., & Layton, L. (1988). The changing self: Using personal documents to study lives. *Journal of Personality, 56,* 41-74.

Appendix B

Table B

Descriptive Statistics (Sample Sizes, Percentages, Means, and Standard Deviations) of Phase 2 Longitudinal Samples

Variable	**State Probation Sample (*n* = 281)**	**Federal Probation Sample (*n* = 73)**
	n (%)	*n* (%)
Gender		
Male	206 (73.3%)	51 (69.9%)
Female	71 (25.3%)	15 (20.5%)
Missing Data	4 (1.4%)	7 (9.6%)
Age at Start of Supervision	*M* (*SD*) = 35.1 (12.2) *n* = 277, Missing Data *n* = 4	*M* (*SD*) = 42.3 (11.4) *n* = 66, Missing Data *n* = 7
Most Serious Index Offence		
Driving Under the Influence of a Substance	97 (34.5%)	-
Substance Use / Possession / Dealing	53 (18.9%)	-
Non-violent Crime	61 (21.7%)	-
Violent Crime	48 (17.1%)	-
Sexual Crime	16 (5.7%)	-
Technical Violation	1 (0.4%)	-
Missing Data	5 (1.8%)	-
Risk Level		
Low	52 (18.5%)	19 (26.0%)
Moderate	154 (54.8%)	31 (42.5%)
High	24 (8.5%)	3 (4.1%)
Missing Data	51 (18.1%)	20 (27.4%)
Recidivism Events	*n* = 39	*n* = 3
New Arrest	28 (71.8%)	-
Revocation (Other)	5 (12.8%)	2 (66.7%)
Violation of Conditions	6 (15.4%)	1 (33.3%)

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Appendix C

Table C1

Factor Loadings Resulting from an Exploratory Factor Analysis (EFA) of the Personal Outcome Expectancies for Criminal Behavior Questionnaire (POE-C; Lloyd & Serin, 2012)

Questionnaire Item	Negative Expectancy	Positive Expectancy
You will ruin or destroy your life	**0.832**	-0.238
You will hurt or disappoint your family	**0.799**	-0.251
You will go to prison	**0.795**	-0.298
You will have to be separated from your family	**0.793**	-0.219
You will get a worse criminal record than before	**0.781**	-0.296
You will lose your job or get penalized at work	**0.764**	**-0.343**
You will feel bad about yourself	**0.756**	-0.293
You will feel bad about yourself or guilty	**0.750**	**-0.308**
You will have to spend time with criminals	**0.732**	-0.168
You will lose friends	**0.713**	-0.203
You will be looked down upon by society	**0.699**	-0.120
You will lose respect from others	**0.695**	-0.210
You will lose money or other important things	**0.695**	-0.215
You will disappoint god	**0.652**	-0.162
You will get hurt or killed	**0.609**	-0.048
You will feel better about yourself	**-0.591**	**0.536**
You will be able to help people you love	**-0.537**	**0.522**
You will get addicted to something	**0.536**	-0.018
You will get hurt/raped/harmed in prison	**0.525**	-0.022
You will hurt or kill someone	**0.396**	0.110
You will get more respect	**-0.445**	**0.710**
You will feel a good thrill or excitement	-0.160	**0.679**

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You will get what you want	-0.284	**0.661**
You will get a good amount of money or become wealthy	-0.242	**0.648**
You will have a better life	**-0.574**	**0.604**
You will feel closer to your friends	**-0.449**	**0.578**
You will get more women	-0.049	**0.558**
You will not have to worry about things anymore	-0.222	**0.506**
You will be able to get revenge	0.157	**0.452**
You will get away without being caught	0.041	**0.381**

Note. Kaiser-Meyer-Olkin measure of sampling adequacy = 0.963. Extraction method: maximum likelihood. Rotation method: Varimax with Kaiser normalization. Estimation maximization was used to replace missing values with item means. Factor extraction fixed to two factors. Values greater than 0.30 are **bolded**. Lloyd, C.D., & Serin, R.C. (2012). Agency and outcome expectancies for crime desistance: Measuring offenders' personal beliefs about change. *Psychology, Crime, and Law*, 6, 543-565. doi:10.1080/1068316X.2010.511221

Table C2

Factor Loadings Resulting from an Exploratory Factor Analysis (EFA) of the Personal Outcome Expectancies for Desistance Questionnaire (POE-D; Lloyd & Serin, 2012)

Questionnaire Item	Positive Expectancy	Negative Expectancy	Effort Expectancy
You will be able to fix problems easier	**0.803**	-0.046	-0.101
You will have a healthier lifestyle	**0.798**	-0.105	-0.026
You will develop better skills to handle daily hassles	**0.793**	-0.082	0.033
You will deal better with people	**0.780**	0.017	0.040
You will have a better group of friends and acquaintances	**0.772**	-0.033	-0.006
You will have better physical health	**0.751**	0.017	-0.071
You will become better at having positive relationships with people	**0.746**	0.002	0.057
You will find problems become easier to handle	**0.724**	-0.003	-0.027
You will feel proud about accomplishments	**0.688**	-0.060	0.083
You will learn how to use money more responsibly	**0.679**	0.029	-0.040
You will be there for the important people in your life	**0.669**	-0.60	0.180
You will be honest with yourself and others	**0.619**	-0.057	0.106
You will give up alcohol or drugs	**0.577**	0.022	0.056
You will fix problems without committing crimes	**0.560**	-0.032	0.261
Work or money problems will disappear	**0.521**	0.029	-0.245
Problems will get fixed without aggressive behavior or violence	**0.515**	-0.074	**0.313**
You will give up friends who commit crimes	**0.455**	-0.024	0.211

You will need to always stop and think about situations or decisions before doing anything	**0.387**	0.144	0.152
Problems with important others will take care of themselves	**0.378**	0.159	0.006
Even on bad days you will stay responsible for all of your actions	**0.349**	-0.039	**0.338**
You will deal with anger, frustration, or boredom in different and slower ways	**0.330**	0.169	0.223
You will feel lonely and at odds with people at least for awhile	0.056	**0.684**	-0.047
You will feel more negative about life	-0.127	**0.655**	0.079
Problems will get bigger	-0.222	**0.612**	0.158
You will not be able to deal better with daily hassles	0.066	**0.564**	-0.133
You will not achieve your goals	0.026	**0.519**	-0.275
You will live on lower income at least for awhile	0.182	**0.415**	0.030
You will not make more victims	0.032	-0.155	**0.678**
You will no longer be able to do illegal things to fix problems	0.077	-0.060	**0.656**
You will no longer have violence as an option to deal with people	0.107	-0.085	**0.554**
You will not be able to use old ways of dealing with problems	0.145	0.170	**0.552**
You will not worry about arrest or prison	0.041	-0.092	**0.536**
You will not be able to brew when things do not go well	-0.107	**0.348**	**0.531**
You will not be able to give up even when things seem hopeless	0.242	0.008	**0.382**

Note. Kaiser-Meyer-Olkin measure of sampling adequacy = 0.923. Extraction method: principal component analysis. Rotation method: Oblimin with Kaiser normalization. Estimation maximization was used to replace missing values with item means. Factor extraction fixed to two factors. Values greater than 0.30 are **bolded**. Lloyd, C.D., & Serin, R.C. (2012). Agency and outcome expectancies for crime desistance: Measuring offenders' personal beliefs about change. *Psychology, Crime, and Law*, 6, 543-565. doi:10.1080/1068316X.2010.511221

Table C3

Factor Loadings Resulting from an Exploratory Factor Analysis (EFA) of the Agency for Desistance Questionnaire (ADQ; Lloyd & Serin, 2012)

Questionnaire Item	Positive Agency	Negative Agency
There are people in my life who respect me for the steps I have taken to keep myself away from crime	**0.647**	0.110
Even when things are tough, I will still find a way to stay crime free	**0.645**	0.040
I am smart enough to be able to learn everything I need to help me live a crime free life	**0.645**	-0.067
Things have been bad for me in the past, but I can turn things around if I really put my mind to it	**0.624**	0.118
I am in charge of whether I stop doing crime	**0.602**	0.066
Recently I have learned how to stay away from crime	**0.581**	0.068
I have recently done things I never thought I would be able to do that will help me stay away from crime	**0.575**	0.242
I am the only person who can stop me doing crime	**0.534**	0.001
When I am involved with good people who keep me away from crime, I feel like I am part of something powerful	**0.530**	0.213
I have always had the ability to stop myself from committing crimes	**0.512**	-0.073
Nothing can stop me from living a crime-free life if I want to	**0.357**	0.088
I feel helpless when I try to stop myself from committing crimes	-0.227	**0.628**
When I try to stop myself from doing crime, things always get in the way	-0.221	**0.500**
No matter what I do to try to stop committing crimes, I doubt I can	-0.315	**0.415**
No matter what, something always forces me to keep going back to crime	-0.297	**0.342**

Note. Kaiser-Meyer-Olkin Measure of sampling adequacy = 0.868. Extraction method: maximum likelihood. Estimation maximization was used to replace missing values with item means. Factor extraction fixed to two factors. Values greater than 0.30 are **bolded**. Lloyd, C.D., & Serin, R.C. (2012). Agency and outcome expectancies for crime desistance: Measuring offenders' personal

beliefs about change. *Psychology, Crime, and Law*, 6, 543-565. doi:10.1080/1068316X.2010.511221

Table C4

Sample Sizes, Central Tendencies, and Standard Deviations of Subscale Questionnaire Scores, Across Sample and Across Multi-Assessment Longitudinal Measurement Occasions

Variable	Possible Range	Time 1		Time 2		Time 3		Time 4	
		n	*M*(*SD*)	*n*	*M*(*SD*)	*n*	*M*(*SD*)	*n*	*M*(*SD*)
State Probation Sample (*n* = 281)		281		165		96		2	
Negative Expectancy for Criminal Action	18-126	260	78.3 (34.0)	158	86.7 (29.8)	89	81.8 (32.9)	2	69.5 (10.6)
Positive Expectancy for Criminal Action	12-84	255	25.0 (16.1)	152	21.6 (13.8)	87	23.4 (15.1)	2	22.5 (0.71)
Criminal Self-Efficacy	0-15	232	3.01 (2.53)	145	2.75 (2.62)	89	2.83 (2.84)	1	1.00
Positive Attitudes Toward Violence	0-12	243	2.58 (2.59)	152	2.80 (2.72)	92	3.02 (3.11)	1	3.00
Entitlement Attitudes	0-12	243	4.80 (2.36)	150	5.01 (2.22)	91	4.94 (2.59)	1	6.00
Antisocial Intent	0-12	243	1.63 (2.17)	151	1.55 (1.86)	91	1.86 (2.06)	1	1.00
Positive Attitudes Toward Antisocial Associates	0-10	240	3.65 (2.57)	147	3.43 (2.46)	89	3.33 (2.48)	1	6.00
Positive Expectancy for Desistance	21-147	254	122.5 (22.1)	158	123.0 (23.3)	90	121.1 (28.2)	2	103.2 (13.)
Negative Expectancy for Desistance	6-42	254	14.37 (6.97)	152	14.1 (7.48)	85	15.63 (8.19)	2	13.0 (1.41)
Effort Expectancy for Desistance	7-49	242	35.82 (9.84)	154	37.6 (9.20)	87	36.7 (10.2)	2	35.0 (9.90)
High Agency for Desistance	12-84	237	69.7 (12.42)	146	70.7 (11.8)	93	67.3 (16.5)	1	71.0
Low Agency for Desistance	4-28	220	7.82 (4.35)	138	7.69 (4.38)	89	8.09 (4.26)	1	13.00
Negative Emotion	18-90	271	35.1 (14.2)	157	34.7 (14.6)	90	34.1 (12.9)	2	35.5 (16.3)
Positive Emotion	12-60	270	40.3 (10.7)	158	42.1 (11.2)	89	41.5 (10.7)	2	42.6 (10.7)
Impulsivity: Negative Urgency	12-48	232	23.82 (8.51)	147	23.42 (7.92)	94	24.08 (8.38)	1	23.0
Impulsivity: Positive Urgency	14-56	236	25.89 (9.24)	143	26.16 (9.23)	90	26.36 (8.69)	1	31.0
Impulsivity: Sensation Seeking	12-48	237	30.91 (8.15)	145	30.74 (8.23)	94	29.70 (7.94)	1	31.0
Impulsivity: Lack of Premeditation	11-44	236	18.08 (5.19)	145	17.62 (4.83)	92	18.92 (5.75)	1	24.2
Impulsivity: Lack of Perseverance	10-40	229	16.65 (4.22)	144	16.31 (4.17)	89	16.86 (4.97)	1	23.0
Federal Probation Sample (*n* = 73)		73		21		13		-	
Negative Expectancy for Criminal Action	18-126	72	100.9 (16.9)	21	98.3 (20.2)	13	100.9 (16.8)	-	-
Positive Expectancy for Criminal Action	12-84	71	18.7 (10.1)	21	17.2 (7.40)	13	17.2 (6.82)	-	-
Criminal Self-Efficacy	0-15	72	3.12 (3.03)	20	2.14 (2.28)	13	2.49 (2.89)	-	-

Positive Attitudes Toward Violence	0-12	72	2.12 (2.14)	21	2.12 (2.35)	13	1.08 (1.61)	-	-
Entitlement Attitudes	0-12	72	3.92 (2.12)	20	3.40 (2.42)	13	3.76 (2.34)	-	-
Antisocial Intent	0-12	71	1.79 (2.32)	20	1.57 (1.87)	13	1.40 (1.50)	-	-
Positive Attitudes Toward Antisocial Associates	0-10	70	4.95 (2.85)	20	4.47 (3.00)	13	4.66 (2.48)	-	-
Positive Expectancy for Desistance	21-147	72	121.4 (18.6)	21	121.3 (21.7)	13	117.3 (22.0)	-	-
Negative Expectancy for Desistance	6-42	72	14.35 (6.55)	21	13.74 (5.61)	13	10.92 (4.65)	-	-
Effort Expectancy for Desistance	7-49	72	38.07 (8.64)	20	39.05 (9.51)	13	39.88 (6.14)	-	-
High Agency for Desistance	12-84	72	73.04 (12.6)	21	73.55 (13.3)	13	70.7 (19.4)	-	-
Low Agency for Desistance	4-28	69	6.48 (3.38)	21	6.57 (2.73)	11	5.00 (2.05)	-	-
Negative Emotion	18-90	73	35.1 (13.3)	21	32.0 (11.1)	13	31.27 (10.0)	-	-
Positive Emotion	12-60	73	40.6 (9.52)	21	38.7 (9.68)	13	39.7 (10.30)	-	-
Impulsivity: Negative Urgency	12-48	73	24.84 (7.90)	21	24.51 (8.13)	13	21.87 (8.27)	-	-
Impulsivity: Positive Urgency	14-56	73	24.42 (7.90)	21	23.08 (9.03)	13	21.30 (10.4)	-	-
Impulsivity: Sensation Seeking	12-48	73	31.21 (8.02)	21	30.30 (7.55)	13	30.50 (9.39)	-	-
Impulsivity: Lack of Premeditation	11-44	72	18.32 (4.57)	21	19.02 (5.53)	13	17.72 (4.52)	-	-
Impulsivity: Lack of Perseverance	10-40	73	16.06 (4.10)	20	16.94 (4.09)	13	14.87 (4.48)	-	-

Appendix D

Table D

Multilevel Model Unstandardized Coefficients Predicting Mean Criminogenic and Desistance Factors Across Multiple Assessments (Minimum of 2, Maximum of 4) and Examining Longitudinal Growth Across Time Using Restricted Maximum Likelihood Estimation

Variable	Model 1: Random Intercept		Model 2: Random Intercept and Fixed Slope		Model 3: Random Intercept and Random Slope	
	B(SE)	*t*-value	*B(SE)*	*t*-value	*B(SE)*	*t*-value
Negative Expectancy for Criminal Action (*N* = 433 assessments from 177 individuals)						
Intercept	82.74 (2.004)	41.29	75.82 (2.75)	27.57	76.18 (3.01)	25.33
Linear Slope (Time in Months)	-	-	0.8999 (0.25)	3.64	0.85 (0.24)	3.58
Model Fit						
AIC / BIC	4202.2 / 4214.4		4191.1 / 4207.4		4185.6 / 4210.0	
ICC / χ^2 Δ from prior model	ICC = 0.41		χ^2 Δ = 13.08***		χ^2 Δ = 9.54**	
Positive Expectancy for Criminal Action (*N* = 422 assessments from 176 individuals)						
Intercept	23.40 (0.86)	27.36	27.15 (1.28)	21.23	27.20 (1.40)	19.39
Linear Slope (Time in Months)	-	-	-0.49 (0.12)	-3.91	-0.49 (0.12)	-4.10
Model Fit						
AIC/BIC	3476.1 / 3488.2		3463.0 / 3479.2		3455.3 / 3479.6	
ICC / χ^2 Δ from prior model	ICC = 0.24		χ^2 Δ = 15.05***		χ^2 Δ = 11.68**	
Criminal Self-Efficacy (*N* = 407 assessments from 174 individuals)						
Intercept	2.84 (0.17)	16.12	2.96 (0.22)	13.23	2.95 (0.22)	13.48
Linear Slope (Time in Months)	-	-	-0.015 (0.017)	-0.84	-0.014 (0.0.18)	-0.78
Model Fit						

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AIC/BIC	1818.8 / 1830.8		1663.8 / 1679.8		1665.9 / 1689.8	
ICC / χ^2 Δ from prior model	ICC = 0.61		χ^2 Δ = 0.71		χ^2 Δ = 0.27	
Positive Attitudes Toward Violence (*N* = 421 assessments from 175 individuals)						
Intercept	2.53 (0.17)	14.78	1.97 (0.22)	8.92	1.89 (0.20)	9.57
Linear Slope (Time in Months)	-	-	0.07 (0.02)	4.08	0.09 (0.02)	3.96
Model Fit						
AIC/BIC	1915.0 / 1927.1		1900.8 / 1917.0		1881.6 /1905.9	
ICC / χ^2 Δ from prior model	ICC = 0.54		χ^2 Δ = 16.16***		χ^2 Δ = 23.18***	
Entitlement Attitudes (*N* = 419 assessments from 175 individuals)						
Intercept	4.76 (0.15)	32.45	4.69 (0.20)	23.09	4.72 (0.21)	21.99
Linear Slope (Time in Months)	-	-	0.0094 (0.018)	0.52	0.0064 (0.02)	0.31
Model Fit						
AIC/BIC	1855.6 / 1867.7		1857.3 / 1873.5		1858.1 / 1882.3	
ICC / χ^2 Δ from prior model	ICC = 0.43		χ^2 Δ = 0.27		χ^2 Δ = 3.25	
Antisocial Intent (*N* = 415 assessments from 175 individuals)						
Intercept	1.52 (0.13)	12.13	1.23 (0.16)	7.57	1.24 (0.17)	7.33
Linear Slope (Time in Months)	-	-	0.036 (0.013)	2.78	0.034 (0.014)	2.43
Model Fit						
AIC/BIC	1617.5 / 1629.6		1611.9 / 1628.0		1615.2 / 1639.4	
ICC / χ^2 Δ from prior model	ICC = 0.55		χ^2 Δ = 7.63**		χ^2 Δ = 0.66	
Positive Attitudes Toward Antisocial Associates (*N* = 407 assessments from 176 individuals)						
Intercept	3.58 (0.18)	20.41	3.50 (0.21)	16.30	3.50 (0.22)	16.22
Linear Slope (Time in Months)	-	-	0.010 (0.016)	0.65	0.0099 (0.016)	0.64
Model Fit						
AIC/BIC	1770.2 / 1782.2		1771.7 / 1787.8		1775.7 / 1799.8	
ICC / χ^2 Δ from prior model	ICC = 0.68		χ^2 Δ = 0.42		χ^2 Δ = 0.03	

Positive Expectancy for Desistance (*N* = 432 assessments from 176 individuals)						
Intercept	122.89 (1.40)	87.53	126.81 (2.03)	62.35	126.87 (1.92)	66.00
Linear Slope (Time in Months)	-	-	-0.50 (0.19)	-2.68	-0.53 (0.22)	-2.43
Model Fit						
AIC/BIC	3937.7 / 3949.9		3932.7 / 3948.9		3927.0 / 3951.4	
ICC / χ^2 Δ from prior model	ICC = 0.32		χ^2 Δ = 7.06**		χ^2 Δ = 9.66**	
Negative Expectancy for Desistance (*N* = 420 assessments from 176 individuals)						
Intercept	14.17 (0.42)	33.83	14.26 (0.62)	23.16	14.13 (0.58)	24.29
Linear Slope (Time in Months)	-	-	-0.011 (0.06)	-0.19	0.0075 (0.06)	0.12
Model Fit						
AIC/BIC	2814.6 / 2826.7		2816.5 / 2832.7		2816.3 / 2840.5	
ICC / χ^2 Δ from prior model	ICC = 0.31		χ^2 Δ = 0.04		χ^2 Δ = 4.22	
Effort Expectancy for Desistance (*N* = 416 assessments from 176 individuals)						
Intercept	36.79 (0.60)	60.87	37.002 (0.84)	44.00	36.95 (0.84)	43.85
Linear Slope (Time in Months)	-	-	-0.03 (0.07)	-0.37	-0.02 (0.08)	-0.24
Model Fit						
AIC/BIC	3019.2 / 3031.2		3021.0 / 3037.2		3024.4 / 3048.6	
ICC / χ^2 Δ from prior model	ICC = 0.43		χ^2 Δ = 0.13		χ^2 Δ = 0.62	
High Agency for Desistance (*N* = 415 assessments from 175 individuals)						
Intercept	69.78 (0.84)	82.87	71.27 (1.17)	60.78	71.83 (1.09)	65.63
Linear Slope (Time in Months)	-	-	-0.19 (0.10)	-1.84	-0.29 (0.13)	-2.22
Model Fit						
AIC/BIC	3288.9 / 3300.9		3287.5 / 3303.6		3264.9 / 3288.1	
ICC / χ^2 Δ from prior model	ICC = 0.42		χ^2 Δ = 3.33		χ^2 Δ = 27.58***	
Low Agency for Desistance (*N* = 389 assessments from 174 individuals)						
Intercept	7.73 (0.27)	28.42	7.77 (0.38)	20.23	7.81 (0.41)	19.26
Linear Slope (Time in Months)	-	-	-0.0049 (0.03)	-0.15	-0.0075 (0.04)	-0.21

Model Fit						
AIC/BIC	2185.6 / 2197.5		2187.5 / 2203.4		2190.1 / 2213.9	
ICC / χ^2 Δ from prior model	ICC = 0.44		χ^2 Δ = 0.02		χ^2 Δ = 1.40	
Negative Emotion (*N* = 439 assessments from 177 individuals)						
Intercept	33.96 (0.91)	37.48	33.66 (1.14)	29.60	33.96 (1.25)	27.06
Linear Slope (Time in Months)	-	-	0.0399 (0.09)	0.44	-0.0027 (0.11)	-0.03
Model Fit						
AIC/BIC	3440.7 / 3452.9		3442.5 / 3458.8		3434.0 / 3458.5	
ICC / χ^2 Δ from prior model	ICC = 0.58		χ^2 Δ = 0.19		χ^2 Δ = 12.52**	
Positive Emotion (*N* = 439 assessments from 177 individuals)						
Intercept	41.61 (0.70)	59.78	42.20 (0.90)	46.97	42.04 (0.95)	44.35
Linear Slope (Time in Months)	-	-	-0.078 (0.07)	-1.05	-0.051 (0.08)	-0.61
Model Fit						
AIC/BIC	3253.5 / 3265.8		3254.4 / 3270.8		3254.4 / 3278.9	
ICC / χ^2 Δ from prior model	ICC = 0.52		χ^2 Δ = 1.09		χ^2 Δ = 4.09	
Impulsivity: Negative Urgency (*N* = 410 assessments from 176 individuals)						
Intercept	23.39 (0.54)	43.69	22.43 (0.70)	31.89	22.51 (0.78)	29.00
Linear Slope (Time in Months)	-	-	0.12 (0.06)	2.11	0.11 (0.07)	1.55
Model Fit						
AIC/BIC	2790.8 / 2802.9		2788.4 / 2804.5		2773.4 / 2797.5	
ICC / χ^2 Δ from prior model	ICC = 0.56		χ^2 Δ = 4.38*		χ^2 Δ = 19.07***	
Impulsivity: Positive Urgency (*N* = 405 assessments from 174 individuals)						
Intercept	25.54 (0.60)	42.46	24.82 (0.78)	31.62	24.62 (0.80)	30.81
Linear Slope (Time in Months)	-	-	0.09 (0.06)	1.43	0.12 (0.08)	1.57
Model Fit						
AIC/BIC	2837.9 / 2849.9		2837.9 / 2853.9		2830.0 / 2854.0	
ICC / χ^2 Δ from prior model	ICC = 0.57		χ^2 Δ = 2.04		χ^2 Δ = 11.93**	

Impulsivity: Sensation Seeking (*N* = 413 assessments from 175 individuals)						
Intercept	30.33 (0.55)	55.02	30.16 (0.69)	43.93	30.29 (0.74)	40.96
Linear Slope (Time in Months)	-	-	0.02 (0.05)	0.41	-0.0033 (0.06)	-0.06
Model Fit						
AIC/BIC	2763.1 / 2775.2		2765.0 / 2781.1		2757.1 / 2781.2	
ICC / χ^2 Δ from prior model	ICC = 0.65		χ^2 Δ = 0.17		χ^2 Δ = 11.87**	
Impulsivity: Lack of Premeditation (*N* = 411 assessments from 176 individuals)						
Intercept	18.16 (0.33)	54.99	17.86 (0.45)	39.45	17.83 (0.47)	38.30
Linear Slope (Time in Months)	-	-	0.038 (0.04)	0.98	0.043 (0.05)	0.92
Model Fit						
AIC/BIC	2458.4 / 2470.5		2459.4 / 2475.5		2457.1 / 2481.2	
ICC / χ^2 Δ from prior model	ICC = 0.47		χ^2 Δ = 0.96		χ^2 Δ = 6.35*	
Impulsivity: Lack of Perseverance (*N* = 402 assessments from 176 individuals)						
Intercept	16.55 (0.29)	57.16	16.56 (0.38)	43.02	16.54 (0.39)	42.18
Linear Slope (Time in Months)	-	-	-0.0014 (0.03)	-0.05	6.6E-4 (0.03)	0.02
Model Fit						
AIC/BIC	2255.6 / 2267.6		2257.6 / 2273.6		2260.5 / 2284.5	
ICC / χ^2 Δ from prior model	ICC = 0.54		χ^2 Δ = 0.002		χ^2 Δ = 1.09	

Note. AIC = Akaike Information Criteria. BIC = Bayesian Information Criteria. ICC = Intraclass correlation coefficient. ICCs presented were derived from the Random Intercept Model.
**p < .01; ***p < .001

Appendix E

Table E1

Pearson Correlation Coefficients Describing the Associations Between Supervision Officer-Rated Risk Scores and Probationer Self-Reported Questionnaires

Variable	Dynamic Risk Assessment for Re-Entry (DRAOR) Risk Items					
	Antisocial Peers	Poor Impulse Control	Poor Problem-Solving	Entitlement	Anger / Hostility	Negative Mood
Entitlement Attitudes (*n* = 56)				0.15		
Attitudes Toward Antisocial Associates (*n* = 54)	**0.32***					
Impulsivity: Negative Urgency (*n* = 50)		**0.30***	**0.38****			
Impulsivity: Positive Urgency (*n* = 55)		**0.39***	**0.42****			
Impulsivity: Sensation Seeking (*n* = 54)		-0.03	0.07			
Impulsivity: Lack of Premeditation (*n* = 55)		**0.36****	**0.32***			
Impulsivity: Lack of Perseverance (*n* = 56)		**0.43****	**0.30***			
Negative Emotion (*n* = 59)					0.10	**0.44****
Positive Emotion (*n* = 58)					0.04	-0.16

Note. Serin, R. C. (2007) *The Dynamic Risk Assessment for Offender Re-entry (DRAOR)*. Unpublished user manual.
*$p < .05$; **$p < .01$

Table E2

Pearson Correlation Coefficients Describing the Associations Between Supervision Officer-Rated Strength Scores and Probationer Self-Reported Questionnaires

Variable	Dynamic Risk Assessment for Re-Entry (DRAOR) Strength Items	
	Positive Expectancies for Desistance	High & Realistic Hope for Desistance
Positive Expectancy for Desistance (*n* = 55)	0.14	
Negative Expectancy for Desistance (*n* = 55)	-0.25	
Effort Expectancy for Desistance (*n* = 51)	0.08	
High Agency for Desistance (*n* = 51)		0.12
Low Agency for Desistance (*n* = 51)		-0.17

Note. Serin, R. C. (2007) *The Dynamic Risk Assessment for Offender Re-entry (DRAOR)*. Unpublished user manual.

Appendix F

Table F

Cox Regression Survival Analysis (With Time-Varying Predictors) Hazard Ratios From Models Predicting Time to Recidivism

Variable	*B*(*SE*)	exp(*B*) [95% CI]	*z*	*p*-value
Model 1 (*N* = 459 assessments from 242 individuals; 41 recidivism events)				
Negative Expectancy for Criminal Action	0.0025 (0.0049)	1.002 [0.993, 1.012]	0.50	0.62
Model Fit				
Wald test / Concordance	0.25 (*df* = 1, *p* = 0.62) / 0.49			
Model 2 (*N* = 441 assessments from 235 individuals; 41 recidivism events)				
Negative Expectancy for Criminal Action	0.0069 (0.0063)	1.007 [0.995, 1.019]	1.10	0.27
Positive Expectancy for Criminal Action	0.017 (0.012)	1.017 [0.992, 1.042]	1.34	0.18
Model Fit				
Wald test / Concordance	1.90 (*df* = 2, *p* = 0.39) / 0.56			
Model 3 (*N* = 404 assessments from 209 individuals; 34 recidivism events)				
Criminal Self-Efficacy	-0.064 (0.07)	0.94 [0.81, 1.09]	-0.86	0.39
Positive Attitudes Toward Violence	0.057 (0.08)	1.06 [0.91, 1.23]	0.75	0.45
Entitlement Attitudes	-0.088 (0.08)	0.92 [0.78, 1.07]	-1.10	0.27
Antisocial Intent	0.22 (0.10)	1.25 [1.03, 1.53]	2.21	0.03*
Positive Attitudes Toward Antisocial Associates	0.088 (0.09)	1.09 [0.92, 1.30]	1.00	0.32
Model Fit				
Wald test / Concordance	15.02 (*df* = 5, *p* = 0.01) / 0.67			
Model 4 (*N* = 353 assessments from 176 individuals; 30 recidivism events)				
Positive Expectancy for Desistance	-0.0082 (0.01)	0.99 [0.97, 1.01]	-0.82	0.42
Negative Expectancy for Desistance	-0.026 (0.03)	0.97 [0.92, 1.03]	-0.98	0.33
Effort Expectancy for Desistance	0.021 (0.03)	1.02 [0.96, 1.08]	0.74	0.46

High Agency for Desistance	0.0034 (0.02)	1.00 [0.97, 1.04]	0.21	0.84
Low Agency for Desistance	0.11 (0.04)	1.11 [1.04, 1.20]	2.93	0.003**
Model Fit				
Wald test / Concordance	10.28 (*df* = 5, *p* = 0.07) / 0.71			
Model 5 (*N* = 387 assessments from 195 individuals; 32 recidivism events)				
Antisocial Intent	0.204 (0.07)	1.23 [1.07, 1.41]	2.91	0.004***
Low Agency for Desistance	0.068 (0.04)	1.07 [0.998, 1.15]	1.89	0.06
Model Fit				
Wald test / Concordance	15.39 (*df* = 2, *p* = 0.0005) / 0.69			
Model 6 (*N* = 467 assessments from 252 individuals; 40 recidivism events)				
Negative Emotion	-0.0026 (0.01)	0.99 [0.98, 1.02]	-0.27	0.79
Positive Emotion	-0.061 (0.02)	0.94 [0.92, 0.97]	-4.01	< .001***
Model Fit				
Wald test / Concordance	17.74 (*df* = 2, *p* = 0.0001) / 0.70			
Model 7 (*N* = 400 assessments from 204 individuals; 34 recidivism events)				
Impulsivity: Negative Urgency	0.014 (0.04)	1.01 [0.95, 1.09]	0.40	0.69
Impulsivity: Positive Urgency	0.0052 (0.03)	1.01 [0.94, 1.07]	0.16	0.87
Impulsivity: Sensation Seeking	0.061 (0.03)	1.06 [1.01, 1.12]	2.24	0.03*
Impulsivity: Lack of Perseverance	0.108 (0.06)	1.11 [0.99, 1.25]	1.87	0.06
Impulsivity: Lack of Premeditation	-0.036 (0.04)	0.96 [0.89, 1.04]	-0.90	0.37
Model Fit				
Wald test / Concordance	14.70 (*df* = 5, *p* = 0.01) / 0.67			
Model 8 (*N* = 407 assessments from 206 individuals; 35 recidivism events)				
Antisocial Intent	-0.2996 (0.31)	0.74 [0.41, 1.35]	-0.98	0.33
Impulsivity: Sensation Seeking	0.0029 (0.03)	1.00 [0.95, 1.06]	0.10	0.92
Antisocial Intent * Sensation Seeking	0.013 (0.008)	1.01 [0.99, 1.03]	1.66	0.10
Model Fit				

Wald test / Concordance	21.97 (*df* = 3, *p* = 0.000007) / 0.65			
Model 9 (*N* = 311 assessments from 151 individuals; 26 recidivism events)				
Risk Score Category = Moderate (Reference = High)	-0.56 (0.47)	0.57 [0.22, 1.43]	-1.20	0.23
Risk Score Category = Low (Reference = High)	-1.68 (0.85)	0.19 [0.04, 0.98]	-1.98	0.05*
Antisocial Intent	0.013 (0.09)	1.01 [0.85, 1.21]	0.15	0.88
Low Agency for Desistance	0.045 (0.04)	1.05 [0.96, 1.14]	1.02	0.31
Positive Emotion	-0.050 (0.02)	0.95 [0.92, 0.99]	-2.62	0.009**
Impulsivity: Sensation Seeking	0.054 (0.03)	1.06 [0.99, 1.12]	1.73	0.08
Impulsivity: Lack of Perseverance	0.028 (0.05)	1.03 [0.93, 1.14]	0.55	0.58
Model Fit				
Wald test / Concordance	24.73 (*df* = 7, *p* = 0.0008) / 0.79			

*$p < .05$; **$p < .001$