VALIDITY, STABILITY, AND CHANGE IN PSYCHOPATHIC TRAITS IN OLDER

ADULTS: A REGISTERED REPORT

by

LEIGHA ROSE WAIKEL

(Under the Direction of Joshua D. Miller)

ABSTRACT

The present investigation utilized a large and diverse sample of older adults from the St. Louis Personality and Aging Network (SPAN) to examine psychopathy's nomological network and whether these traits change over four timepoints spanning approximately 10 years. We also explored whether these changes were associated with changes in other important constructs (e.g., physical and psychological functioning) across the same time span. We found that 1) the nomological network of psychopathy appears to be consistent with what has been observed in samples of younger adults, 2) psychopathic traits remain stable over time as adults make the transition from midlife to later life, and 3) changes that were observed are significantly related to changes in several important outcomes, including physical health, mental health, relationship satisfaction, intimate partner aggression, and social functioning.

INDEX WORDS: Psychopathy, Aging, Triarchic Psychopathy Model, Five Factor Model, personality disorders

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Psychopathy is a personality disorder construct comprising traits such as callousness, remorselessness, deception/lying, self-centeredness, impulsivity, and irresponsibility. These traits have been identified via several decades of both clinical observation and empirical research. Modern conceptualizations of psychopathy began with Cleckley's (1941) case descriptions and articulation of traits exemplifying prototypical cases, which were subsequently refined and operationalized by Hare (1980; 1991; 2003) as part of his development of the Psychopathy Checklist (and subsequent iterations; PCL-R).

In terms of the personality components that comprise the broader, multidimensional construct of psychopathy, there is strong consensus that psychopathy is predominantly described by interpersonal antagonism and low conscientiousness (Lynam & Miller, 2015). Although there is some debate involving the centrality of traits related to low neuroticism and agentic extraversion (see Lilienfeld et al., 2012; Miller & Lynam, 2012), several conceptualizations of psychopathy include and prioritize such traits in the form of Fearless Dominance (e.g., Lilienfeld & Widows, 2005) or Boldness (e.g., Patrick et al., 2009) and these constructs are found in expert ratings of prototypical cases of psychopathy as described by Cleckley (Crego & Widiger, 2016; Miller et al., 2001). One increasingly popular instantiation of this conceptualization is the Triarchic Psychopathy Model (TriPM; Patrick et al., 2009), which has a three-factor structure: Meanness, Boldness, and Disinhibition. The Meanness and Disinhibition factors of the TriPM reflect the core components of Hare's conceptualization of psychopathy, with Meanness comprising "deficient empathy, lack of affiliative capacity, contempt for others, predatory exploitativeness, and empowerment through cruelty or destructiveness," and Disinhibition entailing "impulsiveness, weak restraint, hostility and mistrust, and difficulties in regulating emotion" (Patrick & Drislane, 2014, pp. 628). The Boldness factor of the triarchic model was

derived from Cleckley's observations and previous work with the Fearless Dominance factor from the Psychopathic Personality Inventory (Lilienfeld & Andrews, 1996); it reflects "proclivities toward confidence and social assertiveness, emotional resiliency, and venturesomeness" (Patrick & Drislane, 2014, pp. 628). This factor has been the subject of relatively intense debate among scholars (e.g., Lilienfeld et al., 2012; Miller & Lynam, 2012) regarding its relevance and necessity, given its null to small relations with the other two domains (see Sleep et al., 2019 for a TriPM focused meta-analytic review) and largely adaptive correlates.

Most of the attention paid to psychopathy is due to its robust correlations with antisocial behavior. It is correlated with physical and verbal aggression (e.g., assault, threats), tricking or scamming others, criminality/delinquency, gambling and other selfish/irresponsible financial behavior, and trolling/cyberbullying (Goodboy & Martin, 2015; Jones, 2014; Muris et al., 2017; Neumann et al., 2015). Psychopathy predicts recidivism, including violent recidivism (Hemphill et al., 1998), substance misuse, and is comorbid with antisocial and narcissistic personality disorders (Lynam, 2011; Widiger & Crego, 2018). Psychopathy also has significant societal costs, with some estimates of the economic impact exceeding $1.5 billion (Gatner et al., 2022).

Despite the substantial harms related to psychopathy – to individuals with these traits, their coworkers, romantic partners, friends, and society (e.g., the cost of incarceration) – we know remarkably little about this construct across the latter half of the lifespan. The majority of work in psychopathy has been conducted in young adults, however, there is a substantial literature investigating psychopathic, or callous-unemotional, traits in children and adolescents (Frick & White, 2008; Frick et al., 2014; Forth et al., 1990). For instance, hyperactivity, impulsivity, conduct problems, low guilt, low empathy, and fearlessness have been identified as predictors of psychopathy (Lynam, 1998; Pisano et al., 2017; Waller et al., 2016). Mirroring

adult samples, psychopathy in children and adolescents is related to aggression, delinquency, violent antisocial behavior, and criminal recidivism (Lynam, 1997; Edens et al., 2006) while longitudinal studies report moderate stability of these traits from childhood through early adulthood (Frick et al., 2003; Lynam et al., 2007; Lynam et al., 2009; Hawes et al., 2018).

In comparison to studies from childhood to early adulthood, investigations of psychopathic traits in middle-age and older adults are rare. In fact, relatively little attention has been paid to all forms of personality pathology in later life, both in terms of trajectory and its impact on important life outcomes (Oltmanns & Balsis, 2011). Cross-sectional investigations of PCL-R psychopathy scores in offender samples show some stability with age. Harpur and Hare (1994) rated 889 male prison inmates aged 16-69 and found that Factor 1 (consisting of affective and interpersonal psychopathic traits) maintained stability, whereas Factor 2 scores (including deviant lifestyle behaviors) declined with age. Putkonen and colleagues (2010) compared adult homicide offenders aged 60 and older to a younger comparison sample ($N = 25$ in each sample). Similarly, they found that Factor 1 scores were not significantly different across groups, while the older adults scored significantly lower on Factor 2 scores. Finally, Huchzermeier et al. (2008) examined PCL scores for 226 male violent offenders aged 18-59 and found that Factor 1 was uncorrelated with age, while Factor 2 was negatively correlated with age.

Regarding antisocial behavior, Black and colleagues (1995) examined the long-term outcomes of 68 men with antisocial personality disorder and found that many (~42%) were unimproved and still experiencing psychiatric and social problems. Similarly, Andersen and colleagues (2022) solicited reports from 1,215 family members and friends of individuals with high levels of psychopathic traits and found that frequency and severity of antisocial behavior was perceived as remaining consistent with age, although the presentation may have changed

(e.g., less physical violence, but equal or more manipulation, emotional harm, financial harm, etc.). Countering theories that antisocial behavior typically remits or "burns out" with age, the cumulative evidence (however sparse) seems to support the existence of "life-course persistent" antisocial behavior (Moffitt 1993).

General Personality in Older Adulthood

Given that psychopathy can be conceptualized using general models of personality such as the Big Five/Five Factor Model (B5/FFM), insight may be gleaned from the examination of basic personality over this time (e.g., Lynam & Widiger, 2007, Miller et al., 2001). As noted earlier, traits from the domains of Agreeableness (or its low pole, Antagonism) and Conscientiousness (or its low pole, Disinhibition) are the most consistently identified elements of psychopathy (Lynam & Miller, 2015), with traits from Extraversion and low Neuroticism also appearing in several models. Evidence suggests that Agreeableness shows (modest) increases throughout the lifespan, as do Emotional Stability (inverse of Neuroticism) and Conscientiousness (McCrae, Martin, & Costa, 2005; McCrae, Costa, & Martin, 2005; Bleidorn et al., 2022). These results would suggest that, on average, there should be some small declines in psychopathy over time. To test whether these changes in personality domains could be used to predict changes in psychopathy across the lifespan, Vachon and colleagues (2013) examined the relation of traits to psychopathy in participants with ages ranging from 14 to 91. They found that the changes in FFM domains across the lifespan closely approximated the observed declines in both PCL psychopathy (as well as PCL factor scores) and antisocial personality disorder with age.

The Current Study

Many of the unanswered questions in the psychopathy literature do not lend themselves

well to the methodologies that dominate the field (i.e., cross-sectional designs and samples of

convenience). Furthermore, lifespan perspectives have been quite beneficial to understanding the

maintenance of, and recovery from, many psychological disorders (Vaillant & Hiller-Sturmhöl

1996; Boness et al., 2021). The present investigation is the first to our knowledge to examine

psychopathy longitudinally in a representative, community-based sample of older adults using a

trait-based personality perspective[1]. Using data from the St. Louis Personality and Aging

Network (SPAN), we used the Revised NEO Personality Inventory (NEO PI-R; Costa &

McCrae, 1992) to measure psychopathy in two ways – in a more global, macro manner via the

use of the NEO PI-R Psychopathy Resemblance Index (PRI; Miller et al., 2001; Miller &

Lynam, 2003) and in a more granular manner in which the TriPM psychopathy domains of

Meanness, Boldness, and Disinhibition were scored using the NEO-Tri scoring procedures

detailed by Drislane et al. (2018). These two scoring approaches were used in tandem to provide

a wholistic conceptualization of psychopathy.

The proposed analyses build upon previous work in several important ways. First, we

utilized four time points of longitudinal data spanning approximately ten years, whereas previous

investigations have used either cross-sectional (e.g., Vachon et al., 2013) data or fewer time

points (Cooper et al., 2014; Oltmanns et al., 2020). Second, this was the first examination of

potential covariates of change in psychopathic personality traits apart from sex (Vachon et al.

(2013) found no sex moderation). We also tested whether either baseline levels or rates of

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[1] Two previous investigations have used the SPAN dataset to examine change in personality or
personality disorders across time. Cooper and colleagues (2014) explored whether reported
changes in personality differed across self- and informant-reported data. Oltmanns and
colleagues (2020) used this data set to examine whether retrospective reports of personality
change converged across self- and informant-reported data.

change of psychopathic traits or personality domains were associated with various covariates (e.g., interpersonal functioning).

First, we examined whether the psychopathy scores (i.e., PRI and NEO-Tri Meanness, Disinhibition, and Boldness) yielded nomological networks similar to those observed in younger adults. These initial analyses explored what psychopathy "looks like" in adults of this age range. This analysis used a range of relevant external criteria, including substance use, aggression, relevant DSM-IV/5 personality disorder diagnoses, and depression in relation to the psychopathy scores. Previous reports from the SPAN study have found that various types of personality disorder and several Big Five/FFM personality traits are significantly associated with outcomes involving physical health (Wright et al., 2022), misuse of alcohol and nicotine (Paul et al., 2021), relationship satisfaction (South et al., 2020), and intimate partner aggression (South et al., 2021). Our purpose in the current set of analyses was to focus specifically on psychopathy, which has not been examined in any of the previous SPAN papers.

We hypothesized PRI scores and NEO-Tri Meanness would evince moderate-to-large associations with antisocial personality disorder (ASPD), narcissistic personality disorder (NPD), and intimate partner aggression (rs ~ .30 - .40), and a small association with alcohol misuse (r ~ .25) and history of arrest (r ~ .15; Sleep et al., 2019; Eisenbarth et al., 2021; Blagov et al., 2015; Kramer, 2018; Gottfried et al., 2018; Miller et al., 2001).

We anticipated that NEO-Tri Disinhibition would show moderate associations with ASPD, externalizing problems, intimate partner aggression, alcohol pathology, and a history of arrests (rs between ~|.30| - |.40|; Sleep et al., 2019; Eisenbarth et al., 2021; Blagov et al., 2015; Kramer et al., 2018; Dotterer et al., 2017; Gottfried et al., 2018).

Finally, we expected NEO-Tri Boldness to be primarily related to measures of adaptive

functioning such as health-related quality of life and social engagement. We anticipated that

NEO-Tri Boldness would evince strong negative relations with depression ($r \sim |.50|$) and null to

small positive relations to drug abuse, alcohol abuse, history of criminal offending, intimate

partner aggression, ASPD, or NPD (rs $\sim|.10|$ or less; Sleep et al., 2019; Eisenbarth et al., 2021;

Gottfried et al., 2018; Dotterer et al., 2017).

After examining the nomological nets of psychopathy and psychopathic traits in this

sample of older adults (mean age of participants at baseline was 60), we used data from four

timepoints spanning approximately 10 years to model changes in total psychopathy scores via

the PRI, as well as TriPM psychopathy domains. Additionally, we tested whether the changes in

each of these traits or domains varied by gender or age. Next, we explored the extent to which

the intercepts or slopes of the psychopathic traits were associated with the intercepts or slopes of

other relevant variables, including interpersonal functioning and physical, mental, and general

health. These analyses allowed us to determine whether (1) baseline levels of psychopathy were

associated with any of these variables, and (2), whether changes in psychopathic traits across

time were associated with changes in these other relevant variables. The external criteria for this

analysis were chosen because they are the variables most relevant to and representative of

functioning/impairment across multiple domains (i.e., physical, mental, or general health, and

interpersonal functioning). [2]

Transparency and Openness

Prior to data analyses, this Stage 1 Registered Report was uploaded to this project's OSF

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[2] Given that there is some controversy as to whether basic personality traits require "reconfiguration" to study psychopathy dimensions for the TriPM (Collison et al., 2023; Drislane et al., 2018; Hyatt et al., 2019), we ran a fully parallel set of analyses with the "raw" FFM domains. These results are briefly commented on in the main manuscript but reported fully in the online supplemental materials,

page (https://osf.io/46c8q/) to document preregistration. The analysis code and supplemental

materials can be found there as well. Deviations from the original registration are noted clearly in

the manuscript. Collection procedures for the data used in this project were approved by the

Institutional Review Board at Washington University in St. Louis and informed consent was

collected from all participants.

Methods

Participants and Procedure

Participants were recruited from the St. Louis Metropolitan Areas as part of the St. Louis

Personality and Aging Network (SPAN) project. Careful and intentional epidemiological-based

recruitment strategies (e.g., personalized recruitment letters, recruitment phone calls, follow-up

letters, etc.) were employed so that the demographics of the final sample approximated the

population of St. Louis. Description of recruitment procedures have been provided in previous

publications (see Oltmanns & Gleason, 2011; Oltmanns et al., 2014).

Baseline data were collected from 1,630 adults between the ages of 55 and 64 (mean age

= 59.77; 56% female; 68% White, 30% Black, 2% Other; 2% Hispanic). Participants identified

collateral informants who would be able to provide an accurate description of the participant's

personality traits, and, at baseline, 1,488 informant reports were collected. Follow-up data were

collected approximately 2.5 years after baseline (N = 1,280; Informant N = 1,057),

approximately 7 years after baseline (N = 1,072; Informant N = 859), and approximately 9 years

after baseline (N = 1,035; Informant N = 702). Timepoints are referred to as Time 1 (or baseline),

Time 2, Time 3, and Time 4 from this point forward.

Self-Report Variables

Demographics. Demographic information was collected from all participants at baseline.

This questionnaire included date of birth, gender, marital status, education, annual income, whether the participant had ever been convicted of a crime, and how many times they had been fired from a job. For the present analyses, education and annual income were combined to create a socioeconomic status composite. The variables reflecting criminal history and job history were used as criterion variables in Aim 1, and age and sex were used as covariates in Aim 2.

NEO PI-R Psychopathy Resemblance Index (PRI). The PRI was scored by quantifying the degree of absolute similarity between each participants' NEO PI-R profile and an expert-based NEO PI-R profile of prototypical psychopathy. Double-entry Q-correlations (also called intraclass correlations or r_{ICCS}) were calculated to yield a single PRI score for each participant. Intraclass correlations can be interpreted similarly to standard zero-order correlations, ranging from -1 to 1, with higher scores indicating greater absolute similarity to the expert rated prototypical psychopathy profile. This scoring approach has demonstrated reasonable convergent and construct validity for psychopathy (Miller et al., 2001; Miller & Lynam, 2003) and personality disorders more generally (Miller, 2012).

TriPM Domains. TriPM Meanness ($\alpha = .80$), Boldness ($\alpha = .78$), and Disinhibition ($\alpha = .78$) domains were measured by the NEO PI-R (Costa & McCrae, 1992) and scored according to the NEO-Tri scoring method detailed by Drislane and colleagues (2018; see below for more details). The NEO PI-R is a 240-item self-report that assesses the five domains and 30 facets of the Five Factor Model of personality. Response scales were Likert-type ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The NEO PI-R was administered at all four timepoints. The NEO-Tri scales were used in all analyses (Aims 1-3), using data from all time points.

Depression. Depression was assessed via the Beck Depression Inventory (BDI; Beck et al., 1996). The BDI ($\alpha = .87$) is a 21-item self-report inventory that measures symptoms of

depression experienced in the past two weeks. Participants responded on a four-point scale from 0 to 3. Prior to analyses, the items of each measure were examined for overlapping content which could result in artificial inflation of statistics. Three items were removed from the BDI due to overlapping content with NEO PI-R items (e.g., the BDI item "I blame myself for everything bad that happens" was removed due to overlapping content with NEO PI-R item "I tend to blame myself when anything goes wrong"). Remaining items were averaged to obtain a total score, with higher scores indicating greater depressive symptoms. Baseline BDI scores were used in Aim 1 (see below for description of aims and analyses).

Intimate Partner Aggression. The Conflict Tactics Scale (CTS; Straus et al., 1996) is a 13-item self-report inventory that measures how frequently the participant engaged in psychological or physical aggression toward their romantic partner in the past year ($\alpha = .66$). Participants were asked the CTS questions only if they endorsed being in a current romantic relationship. The CTS items were imbedded in the Structured Clinical Interview for DSM-IV Personality. Baseline data were used as part of Aim 1 only.

Alcohol and Substance Use Disorder Composites. The Mini-International Neuropsychiatric Interview Alcohol & Substance Use sections were administered to participants to assess alcohol and drug dependence and abuse. At baseline, questions were asked about lifetime and past-12-month use. To be more consistent with current diagnostic criteria and theoretical conceptualizations of substance use, for the present analyses, an alcohol use disorder composite was calculated by combining the alcohol 'dependence' and 'abuse' variables. Similarly, a substance use disorder composite reflected drug 'dependence' and 'abuse'. The data regarding alcohol and substance use in this sample did not have sufficient variance to be operationalized continuously. Thus, we created lifetime alcohol and substance use disorder

composites with two levels reflecting whether the participant currently (at the time of assessment) or had ever met criteria for an alcohol or substance use disorder (coded as 1) or had never met criteria for an alcohol or substance use disorder (coded as 0). Baseline data was used to address Aim 1 analyses only.

DSM Section II Personality Disorders. The 10 DSM-IV/5 Personality Disorders were assessed via both the Multisource Assessment of Personality (MAPP) self- and informant-reports and the Structured Interview for DSM-IV Personality (SIDP-IV). Given that each variable was intended to assess the same diagnostic criteria, but slightly differing information can be collected from each assessment type, for baseline analyses, composites were calculated by combining the respective PD scores from each of the three assessments (see Aim 1 below). The MAPP is a self-report that consists of 80 lay translations of DSM-IV diagnostic criteria administered in a quasi-random order. Participants rated each item on a 5-point Likert scale ranging from 0 (*I am never like this*) to 4 (*I am always like this*). The MAPP was administered at all four timepoints. Due to overlapping content with NEO PI-R items, six MAPP items were removed from scoring. The SIDP-IV is a semi-structured diagnostic interview for DSM-IV personality disorders. Interviews were conducted by trained staff members and clinical psychology graduate students who rated participants' pathologies on a 4-point scale ranging from 'Not Present' to 'Strongly Present' for each of the 10 DSM-IV PDs. Due to overlapping content with NEO PI-R items, three SIDP items were removed from scoring (e.g., the SIDP item "Shows rigidity and stubbornness" was removed for having overlapping content with NEO PI-R item "I'm hardheaded and stubborn"). The SIDP was administered at the first three time points. More detailed information regarding reliability of the SIDP ratings, the distribution of scores for the SIDP and the MAPP, and correlations among these measures can be found in the report of baseline data (Oltmanns et al., 2014). The 10 DSM

PD composites were used in Aim 1 analyses only (utilizing baseline data only). Intercorrelations among the three assessments for each of the PDs ranged from $r = .13$ (between informant- and participant-rated MAPP for narcissistic personality disorder) to $r = .59$ (between SIDP-IV and participant-rated MAPP for avoidant personality disorder). The median and mean intercorrelations for the measurement of each PD, across all PDs, were $r = .25$ and $r = .28$.

Health. The RAND-36 Health Status Inventory (HSI; Hays & Morales, 2001) is a measure of health-related quality of life. It yields eight subscale scores (emotional well-being, energy/fatigue, general health perceptions, pain, physical functioning, role limitations caused by physical health problems or emotional problems, and social functioning) that were combined to create three composite scores reflecting physical health ($\alpha = .93$), mental health ($\alpha = .87$), and general health ($\alpha = .95$). Higher scores reflect better health. The HSI was administered at all four timepoints. Due to overlapping content with NEO PI-R items, three items were removed from the HSI when scoring. For the present analyses, we used only the three composite scores, and these were utilized in Aims 1 and 3.

Relationship Satisfaction. The brief version of the Dyadic Adjustment Scale (DAS-4; Sabourin et al., 2005; $\alpha = .78$) is a self-report questionnaire in which participants rate their relationship satisfaction on a Likert-style response scale, with higher scores indicating greater relationship satisfaction. Only participants who endorsed being in a romantic relationship completed the DAS-4, which was administered at all four timepoints.

Social and Leisure Functioning. The self-report questionnaire known as the Social Adjustment Scale (SAS-SR; Weissman, 1999) measures functioning and engagement during the past 2 weeks across a number of life domains (e.g., housework, social, leisure, work for pay, family unit, parental, etc.). The full form has 54 items, but from Time 2 onward only the Social

and Leisure subscale was administered because it could be completed regardless of which social roles the participant holds (e.g., work outside the home, parent, etc.). Thus, only the Social and Leisure Functioning subscale was used here (α = .59). Participants responded to items using a Likert-style scale. The scale was reversed such that higher scores indicated better functioning. Two items were removed from the SAS-SR due to overlapping content with NEO PI-R items. SAS Social and Leisure was used in Aims 1 and 3.

Attrition and Death. We compared baseline participant identification numbers to subsequent waves of data collection to ordinally index general attrition based on how many waves the participant completed. This variable was reverse coded such that higher scores reflect greater attrition (i.e., less participation). Additionally, we used the latest confidential report obtained from the National Death Index (through the end of 2022) to determine whether participants who have dropped out of the study were deceased. This variable was keyed nominally, such that 0 = living and 1 = deceased. Both the attrition and death variables were used in Aim 1 only.

Domains of the Five-Factor Model (FFM). The domains of the FFM – Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness – were scored from the NEO PI-R (Costa & McCrae, 1992). The NEO PI-R is a 240-item self-report that assesses the five domains and 30 facets of the Five Factor Model of personality (FFM). Response scales were Likert-type ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The NEO PI-R was administered at all four timepoints. FFM domains are used in supplemental analyses only.

Informant-Report Variables

Collateral informant reports were collected for the Dyadic Adjustment Scale (relationship satisfaction), the MAPP (DSM PDs), the NEO PI-R (used to score the PRI and TriPM domains),

and the HSI (physical, mental, and general health). These were collected at all four timepoints but were used in Aim 1 (which uses baseline data only) due to high rates of attrition among informants. As was the case when scoring the self-reported scales, items with highly overlapping content with the NEO PI-R items were removed from the other scales when scoring. The informant MAPP scores were combined with self-report MAPP and SIDP-IV scores to create the 10 PD composites. The Informant NEO PI-R was scored to create both Informant NEO-Tri scales as well as PRI profiles in the same fashion as was done with the self-reported NEO PI-R. Informant NEO-Tri and PRI scores were used in Aim 1 only.

Data Analyses

All statistical analyses were conducted in R (R Core Team, 2021). In Aim 1 (correlational analyses only), scale means were calculated by excluding any missing values (equivalent to mean imputation), requiring 70% complete data for each scale. In Aims 2 and 3 (latent growth modeling), we tested whether the pattern of data missingness across time points was systematically related to our variables of interest (i.e., FFM PRI or NEO-Tri Meanness, Boldness or Disinhibition). To do this we calculated the correlations between the number of study visits each participant completed and each of their psychopathy variables. We found that no correlation surpassed our preregistered threshold of $r = .30$, thus we considered the pattern of missingness to be Missing Completely at Random (MCAR). Thus, all models were fit using Full Information Maximum Likelihood (FIML), which estimates missing observations using available data for each individual. FIML is appropriate for use in growth models when data are Missing at Random (MAR) or MCAR (Enders & Bandalos, 2001; Enders, 2010). A p value of .005 was used for all tests of statistical significance (Benjamin et al., 2018).

Parallel analyses for all aims were conducted using the "raw" domains of the FFM. See

the Supplemental Materials for a full report of these results, which are only briefly summarized

in the manuscript. Supplemental Materials can be found here: https://osf.io/46c8q/.

Results

Aim 1

Our first aim was to explore the general nomological network of psychopathy in the form

of NEO-Tri scales (i.e., Meanness, Boldness, and Disinhibition) and the psychopathy

resemblance index (PRI). To do so, we first calculated zero-order correlations among the self-

report psychopathy scales, as displayed in Table 1. The intercorrelations among the NEO-Tri

scales were consistent with those observed when the TriPM is used in other samples (Patrick &

Drislane, 2014). Specifically, the NEO-Tri Meanness was moderately correlated with

Disinhibition ($r = .43$, $p < .005$) and uncorrelated with Boldness ($r = -.05$, *ns*), while Boldness

and Disinhibition were moderately negatively correlated with one another ($r = -.25$, $p < .005$).

The PRI was most strongly associated with Boldness and Meanness (*r*s of .69 and .51,

respectively, both $p < .005$) and evinced a small positive correlation of $r = .19$ ($p < .005$) with

Disinhibition. Supplemental Table 1 displays the summary statistics for psychopathy and

personality variables.

Furthermore, we calculated the zero-order correlations between the psychopathy

variables and relevant self- and informant-reported external criteria to further validate their

nomological networks in this sample. These results are displayed in Table 2.

Overall, results were generally consistent with our preregistered expected correlations

based on what has been reported in other samples. NEO-Tri Boldness was primarily related to

adaptive outcomes; it was negatively related to BDI Depression ($r = -.34$) and positively related

to HSI Mental Health ($r = .36$). NEO-Tri Disinhibition evinced positive relations with CTS

intimate partner aggression (r = .20) and MINI Alcohol and Substance Use Disorder variables (rs

of .18 and .20, respectively) and also positively related to several of the personality disorder

composites (rs including .37 for antisocial .42 for borderline). NEO-Tri Meanness was

negatively related to the health outcomes (rs ranging from -.13 to -.15) and positively related to

the personality disorder composites (rs ranging from .12 (dependent) to .34 (both antisocial and

narcissisticFinally, the PRI was moderately negatively related to BDI Depression (r = -.21) and

positively related to antisocial and narcissistic personality composites (rs of .32 and .33,

respectively).

The self-reported psychopathy variables evinced moderate-to-strong correlations with the

respective informant-report variables. These ranged from r = .34 (NEO-Tri Meanness) to r = .54

(PRI) with a median of .45. Consistent with the intercorrelations among psychopathy variables,

the informant-reported PRI was more strongly related to NEO-Tri Boldness than Disinhibition or

Meanness (r = .47 vs .06 and .18, respectively).

The Aim 1 results for the "raw" FFM domains are presented in Supplemental Table 2.

The nomological networks of the FFM domains are consistent with those observed in other

research using samples of younger adults. Neuroticism was negatively associated with health and

functioning, while evincing positive correlations with depression, substance use, and the

personality disorder composites. Agreeableness was positively associated with the health and

functioning variables, while evincing negative associations with the personality disorder

composites – especially antisocial and narcissistic personality disorders (rs of -.35 and -.38,

respectively). FFM Agreeableness was strongly negatively associated with NEO-Tri Meanness (r

= -.89), as was FFM Conscientiousness with NEO-Tri Disinhibition (r = -.73). We also scored a

composite of reverse-scored Neuroticism and Extraversion (-N/+E) to resemble the FFM

equivalent of Boldness. This composite was strongly positively correlated with self- and informant-report NEO-Tri Boldness (rs of .83 and .48)[3]. -N/+E was negatively associated with depression (r = .48) and positively associated with the health and functioning variables.

We calculated the intraclass correlations ($r_{ICC)}$) between the NEO-Tri scales and their respective FFM domains (Supplemental Table 3)[4]. Using the standards for interpreting agreement put forth by LeBreton and Senter (2008), each pair would be classified as "very strong agreement" - r_{ICC} = -.99 for NEO-Tri Meanness/FFM Agreeableness, r_{ICC} = -.96 for NEO-Tri Disinhibition/FFM Conscientiousness, and r_{ICC} = .91 for NEO-Tri Boldness and the -N/+E composite supporting previous suggestions that the TriPM domains are nested within the broader FFM trait model (e.g., Collison et al., 2023; Hyatt et al., 2019).

Finally, in non pre-registered analyses, we compared the means and standard deviations of each of the FFM domains in the present study to those presented by Costa and McCrae (1992) from the NEO PI-R normative sample. The SPAN sample showed remarkable similarity to the normative sample, with approximately half of the participants scoring in the "Average" range for each domain, while only a small percentage scored "Very High" or "Very Low."

Aim 2

The second aim of this project was to model the change in psychopathic traits (i.e., PRI and NEO-Tri Boldness, Disinhibition and Meanness) over time using latent growth modeling (LGM). Using the *lavaan* package in R (Rosseel, 2012), we first fit random intercept-only (null) models for each variable, followed by a second standard growth model including both a random intercept and a random slope. These nested models were compared via the likelihood ratio test of

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[3] Note that the correlation between self-reported NEO-Tri Boldness and the -N/+E composite is likely inflated due to the variables being scored from overlapping NEO-PI-R items.
[4] The calculation of these intraclass correlations were not pre-registered.

model differences (also called LR test or chi-square difference test). Following our preregistered analysis plan, the NEO-Tri variables were modeled as latent factors, while the PRI scores were modeled as manifest variables due to the nature of their calculation (i.e., PRI scores are intraclass correlations indexing the similarity between a participant's personality profile and that of expert-rated prototypical psychopathy).

Model fit indices and results of the LR tests for all psychopathy variables are displayed in Table 3. Results of the LR tests indicated that, for NEO-Tri Boldness, Meanness, and the PRI, the LGMs that included both random intercept and random slope fit the data significantly better than the intercept-only models. The likelihood ratio test for null and growth NEO-Tri Disinhibition models was not significant. However, a wholistic appraisal of the fit indices for each of the NEO-Tri variables' null and growth model suggests that allowing random slopes in the growth model did not improve fit over the null model, in which all slopes were fixed to zero. For example, the 90% confidence intervals for the RMSEA overlap across the null and growth models for each of the NEO-Tri variables. Only the PRI growth model appears to fit the data better than the PRI null model. Model fit indices for the FFM domains are displayed in Supplemental Table 4.

Regarding the slopes and intercepts for each psychopathy variable, the growth models predicted virtually no slope for any of the psychopathy variables. For NEO-Tri Boldness, the model-predicted mean at baseline (i.e., average intercept) was $M_{\text{Baseline}} = 3.11$, with an average slope of -.01 ($p = .02$, $SD = .06$). The latent intercept and slope were moderately correlated ($r = .25$), such that individuals with higher levels of NEO-Tri Boldness at baseline tended to exhibit increases across time, and vice versa for those with lower levels at baseline.

For NEO-Tri Disinhibition, the model-predicted mean at baseline was $M_{\text{Baseline}} = 1.75$, with an average slope of .00 ($p = .69$, $SD = .05$). The latent intercept and slope were moderately correlated ($r = .31$), such that individuals with higher levels of Disinhibition at baseline tended to become more impulsive over time.

For NEO-Tri Meanness, the model-predicted mean at baseline was $M_{\text{Baseline}} = 1.97$, with an average slope of .00 ($p = .50$, $SD = .05$). The latent intercept and slope for NEO-Tri Meanness were virtually uncorrelated ($r = -.05$).

Finally, for the PRI, the model-predicted mean at baseline was $M_{\text{Baseline}} = -.26$, with an average slope of .00 ($p < .005$, $SD = .02$). Recall that the PRI is scored on a scale of -1 to 1 and was modeled as a manifest variable. The intercept and slope were virtually uncorrelated with one another ($r = -0.05$)

Thus, contrary to our registered hypotheses that slight changes in psychopathic traits would be observed, essentially no meaningful mean changes were observed across any of the psychopathy variables. Further exploration of the variance of the slopes revealed that not a single participant exhibited a slope of ≥ 1 standard deviation from the mean of the slopes for any of the NEO-Tri variables. This was true when observing changes from timepoint to timepoint, as well as across the full period of approximately nine years. For the PRI, two participants (out of > 1600) exhibited slopes ≥ 1 standard deviation away from the mean PRI slope across the ~9-year span, both in the positive direction (increases in psychopathy). No participants exhibited a slope ≥ 1 standard deviation away from the mean PRI slope from one timepoint to the next timepoint[5]. These exploratory investigations into the variances of the slopes were not specified in our original registration but were aimed at testing whether mean general lack of change could be due

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[5] For each psychopathy variable, we also tested whether any participant exhibited a change of ≥ 1 standard deviation from one time point to the next, or across the ~9-year time span and results were identical.

potential subgroups with increasing and decreasing slopes that were effectively cancelling each other out – this does not appear to be the case.

Supplemental Figure 1 depicts the simple average change in psychopathic traits across time for each of the psychopathy variables. Supplemental Figures 2-5 depict the same changes in psychopathic traits across time with the top and bottom 20% of slopes (i.e., greatest "increasers" and "decreasers") highlighted to illustrate lack of variance in the slopes.

Aim 2 results for the FFM domains were consistent with those for the NEO-Tri domains, with the growth models predicting no meaningful slope for any of the FFM domains (see Supplemental Figure 6) and a lack of variance in slopes.

Next, we added gender (measured at baseline) as a time-invariant covariate to each NEO-Tri model as an exogeneous predictor (i.e., regression) of both intercept and slope. Results indicated that gender significantly predicted baseline levels of NEO-Tri Boldness, Meanness and PRI (βs of -.10, -.55, and -.24, respectively, all $p < .001$). Men scored slightly higher than women at baseline on each. Supplemental Figure 7 depicts the average change in psychopathic traits across time, with separate lines for men and women, for these significant variables. Gender did not significantly predict slopes of any of the psychopathy variables, nor did it significantly predict the intercept of NEO-Tri Disinhibition. In the same manner as with gender, we also tested age (as measured at baseline) as a time-invariant covariate. Age did not significantly predict the slope or intercept factors for any of the psychopathy variables tested.

Gender significantly predicted baseline scores for Extraversion and Agreeableness, with women scoring higher on both domains (βs of .12 and .31). Age significantly predicted baseline scores for Neuroticism, with older participants scoring slightly lower (β= -.11). Neither gender nor age predicted slopes of any of the FFM domains. A summary of the parallel Aim 2 results for

the FFM domains is located in Supplemental Appendix A.

Aim 3

The third and final aim of this study was to examine the extent to which the intercepts or slopes of each of the psychopathy scales were associated with the intercepts or slopes of other relevant variables. Specifically, we focused on constructs broadly related to core areas of functioning – physical, psychological, and relationship - via HSI Physical, Mental and General Health, DAS Relationship Satisfaction, and SAS Social/Leisure Functioning scales. Growth models for each of these variables were added to each of the growth models from Aim 2, allowing us to examine the associations between respective intercepts and slopes. These results are summarized in Table 4.

As modeled by the LGMs, HSI Physical Health had a *M* intercept of 54.24 (scored 1-100), with a *M* slope of -.65 ($p < .001$). HSI Mental Health had a *M* intercept of 59.38, with a *M* slope of -.82 ($p < .001$). HSI General Health had a *M* intercept of 55.68, with a *M* slope of -.74 ($p < .001$). These results suggest that psychological and physical functioning generally declined over the study's assessment period. DAS Relationship Satisfaction had a *M* intercept of 4.28 (scored 1-6), with a *M* slope of 0.00 ($p = .61$). Finally, SAS Social/Leisure Functioning had a *M* intercept of 2.16, with a slope of .03 ($p < .005$).

Boldness. The latent *intercepts* of NEO-Tri Boldness correlated significantly with the intercepts of physical health ($r = .44, p < .005$), mental health ($r = .70, p < .005$), general health ($r = .59, p < .005$), relationship satisfaction ($r = .25, p < .005$), and social/leisure functioning ($r = .76, p < .005$). Thus, participants higher in Boldness reported better health, higher relationship satisfaction, and superior social/leisure functioning, on average, at baseline. The latent *slopes* of NEO-Tri Boldness correlated significantly with the slopes of physical health ($r = .08, p < .005$),

mental health ($r = .15$, $p < .005$), general health ($r = .10$, $p < .005$) and social/leisure functioning ($r = .14$, $p < .005$), but not relationship satisfaction ($r = .32$, $p = .05$). Overall, decreases in Boldness (Aim 2 M slope of -.01) were associated with decreases in these relevant outcomes[6].

Disinhibition. The latent *intercepts* of NEO-Tri Disinhibition correlated significantly ($p < .005$) with the intercepts of physical health ($r = -.31$), mental health ($r = -.62$), general health ($r = -.49$), relationship satisfaction ($r = -.28$), and social/leisure functioning ($r = -.44$). Overall, higher levels of reported Disinhibition at baseline were associated with worse health and social outcomes. The latent *slopes* of NEO-Tri Disinhibition correlated significantly with the slopes of mental health ($r = -.20$), and general health ($r = -.12$) but not physical health ($r = -.47$, $p = .02$), relationship satisfaction ($r = -.48$, $p = .03$), or social/leisure functioning ($r = -.13$, $p = .01$). Thus, increases in Disinhibition were associated with decreased mental and general health.

Meanness. The latent *intercepts* of NEO-Tri Meanness correlated significantly with the intercepts of physical health ($r = -.23$), mental health ($r = -.26$), general health ($r = -.26$), relationship satisfaction ($r = -.14$), and social/leisure functioning ($r = -.27$). These results indicate that participants who scored higher on Meanness at baseline reported lower levels of health and social functioning. The latent *slopes* of NEO-Tri Meanness correlated significantly with the slopes of physical health ($r = -.11$) and general health ($r = -.09$), but not mental health ($r = -.06$, $p = .13$), relationship satisfaction ($r = -.30$, $p = .14$), or social/leisure functioning ($r = -.13$, $p = .006$). Overall, increases in Meanness were associated with decreases in physical and general health over time.

PRI. The *intercepts* of the PRI correlated significantly with the intercepts of physical

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[6] Although the average slope of each of the psychopathy variables was virtually zero, the growth model predicted variation in slope across participants. It is presumed that the observed correlations between the slopes of the psychopathy variables and the relevant outcome variables were due to this.

health ($r = .19$), mental health ($r = .41$), general health ($r = .28$), relationship satisfaction ($r = .09$), and social/leisure functioning ($r = .27$). Thus, overall psychopathy scores as indexed by the PRI were positively associated with these relevant outcomes at baseline. The *slopes* of the PRI correlated significantly with the slopes of physical health ($r = .04$), mental health ($r = .11$), general health ($r = .07$), relationship satisfaction ($r = .05$), and social/leisure functioning ($r = .22$). Changes in participants' PRIs were slightly positively associated with changes in these relevant outcomes over time, on average.

Finally, regarding the parallel FFM results, we found that baseline scores for the FFM domains were significantly correlated with those of relevant criteria. Of note, Neuroticism's intercept was strongly negatively related to intercepts for all of the health and functioning outcomes (ranging from $r = -.38$ for DAS Relationship Satisfaction to -.86 for HSI Mental Health). Baseline Extraversion was positively related to baseline social and leisure functioning ($r = .86$). Baseline FFM -N/+E was significantly positively related to the intercepts all of the outcome variables, with particularly strong relations with HSI Mental and General Health (rs of .87 and 71, respectively). See Supplemental Table 5 for all correlations between intercepts and slopes for the FFM domains.

Discussion

Psychopathy is a maladaptive personality construct that evinces robust associations with antisocial behavior, aggression, criminality, and substance use (Goodboy & Martin, 2015; Jones, 2014; Muris et al., 2017; Neumann et al., 2015; Hemphill et al., 1998; Lynam, 2011) with tremendous associated costs (Gatner et al., 2023). Viewing psychopathy through the lens of the TriPM (Patrick et al., 2009), this investigation is one of the few to examine how psychopathic traits manifest in older adults and whether these traits "burn out" with age. Our analyses suggest

that 1) psychopathy can be measured validly in older adult samples, 2) psychopathic traits

remain almost perfectly stable, on average, across time in this period of the lifespan, and 3)

intercepts and slopes of psychopathy variables are associated with those of important indices of

functioning, including physical and mental health, relationship satisfaction, and involvement in

social/leisure activities. Specifically, the more maladaptive features of psychopathy – Meanness

and Disinhibition – tend to change in stride with changes in mental and physical health.

There is value in parsing psychopathy into lower-order components, as the present results

highlight the differential relations of Boldness, Disinhibition, and Meanness to relevant criterion

variables that are largely missed when treating psychopathy as a unidimensional, homogenous

construct like the PRI used here as an exemplar. For example, in Aim 1, Disinhibition and

Meanness (which were moderately interrelated) evinced moderate positive relations with Cluster

B personality disorders and aggression, and negative correlations with mental and physical

health outcomes, relationship satisfaction, and engagement with the person's social network.

Boldness, however, was negatively correlated with the other TriPM psychopathy factors, and

evinced positive relations with the health outcomes, relationship satisfaction, and social/leisure

functioning. These data align with previously raised questions regarding the relevance and

importance of Boldness to psychopathy due to its apparent adaptivity (Miller & Lynam, 2012;

Sleep et al., 2019; cf, Lilienfeld et al., 2012).

Some previous research has suggested that psychopathy may "burn out" with age (Harpur

& Hare, 1994). If this were true, we would have observed decreases in psychopathic traits.

Instead, we found substantial and compelling evidence of stability across this 9-year period.

Further exploration into the variances of the slopes supported the robustness of our results, as not

a single participant exhibited a change of ≥ 1 standard deviation in NEO-Tri traits either from

timepoint to timepoint, or across the entire period of data collection. Thus, our null slopes do not appear to be due to the presence of subgroups with substantially increasing and decreasing slopes that effectively cancel each other out.

Our findings alone, however, cannot definitively disprove the "burn out" theory. For one, it is possible that psychopathy could have "burnedout" (i.e., diminished) earlier in the lifespan, prior to the start of data collection, which took place when all participants were between the ages of 55 and 64. An alternative explanation is that differences in measurement of psychopathy across studies may drive the mixed evidence surrounding the "burn out" theory. Evidence for this phenomenon comes from research, primarily in justice-involved samples, that uses the Psychopathy Checklist (PCL) to measure psychopathy. The PCL places greater emphasis on behaviors, such as criminality, recidivism, and misconduct, as opposed to personality traits. It is possible, then, that expression of psychopathy may change with age (i.e., heterotypic continuity), but underlying personality traits remain stable. Instances of overt physical aggression, for example, may fade with age and be replaced by verbal aggression or manipulation. There is some evidence consistent with this hypothesis. In a longitudinal investigation of criteria for schizotypal, borderline, avoidant, and obsessive-compulsive personality disorders, McGlashan and colleagues (2005) found that traits comprising these disorders (e.g., affective instability in borderline PD) were more stable across 24 months than symptomatic behaviors (e.g., non-suicidal self-injury in borderline PD).

Our findings suggest that personality traits are relatively stable across time in middle-age-to-older adults. Indeed, we did not observe meaningful change for any NEO-Tri psychopathy trait or "raw" FFM domains. These results differ from the conclusions drawn in a recent meta-analysis conducted by Bleidorn and colleagues (2022). Those authors observed slight decreases

in Agreeableness and Conscientiousness (corresponding to Meanness and Disinhibition, respectively), and slight increases in Emotional Stability and slight decreases in Extraversion (blended to capture Boldness) in older adulthood. Perhaps our analyses were not sensitive to these changes due to the time frame across which our sample was followed (i.e., 9 years). It is also possible that the changes reported by Bleidorn et al. will become apparent in the present sample as the participants continue to age.

Due to the utility in interfacing models of maladaptive and general personality, Drislane and colleagues (2018) derived a method of scoring the domains of the TriPM from the NEO PI-R inventory of the Five Factor Model. Although not the primary purpose of our study, we conducted a completely parallel set of analyses using the "raw" FFM domains, allowing comparisons to be made between the NEO-Tri psychopathy and FFM personality domains. We also modeled FFM "Boldness" by creating a composite of reverse-scored Neuroticism and Extraversion (-N/+E). This construct behaved similarly to NEO-Tri Boldness, evincing positive zero-order correlations with health and functioning outcomes. The nomological networks of respective domains from each model were very similar (rICCs ranging from .91 for Boldness and the -N/+E composite to |.99| for Agreeableness and Meanness). Consistent with prior research (e.g., Collison et al., 2023), we conclude that it is not necessary to re-configure FFM domains in order to capture psychopathic traits as they are almost perfectly captured as is by the FFM domains with the exception of Boldness that is the amalgamation of two domains, low Neuroticism and high Extraversion.

Limitations

Despite considerable strengths of this study (particularly, the diverse and large sample, longitudinal design and preregistration of analyses), no investigation is without weaknesses. The

start of data collection when participants were ages 55-64 does not allow us to draw conclusions about changes in personality/psychopathy that may have occurred in early adulthood or middle age. Additionally, although data collection is ongoing, we are also not able to ascertain how personality may change as the participants continue to age. Perhaps a future investigation could extend the present work to report on those results. Finally, like much work in this field, this study relied primarily on self-report data with supplementation via informant reports and interviews. Although we found virtually no meaningful change across time in self-reported personality, future work could explore changes across other assessment modalities (i.e., interviews, informant-reports, or behavioral indicators).

Conclusion

The results of the present investigation indicate that 1) psychopathy can be measured validly in samples of older adults, 2) psychopathic traits remain stable, rather than changing, across time in this age range, and 3) intercepts and slopes of psychopathy variables are associated with those of relevant criteria, including physical and mental health, relationship satisfaction, and involvement in social/leisure activities.

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Table 1

Intercorrelations among psychopathy variables at baseline.

	NEO-Tri Boldness	NEO-Tri Disinhibition	NEO-Tri Meanness
NEO-Tri Disinhibition	**-.25**		
NEO-Tri Meanness	-.05	**.43**	
PRI	**.69**	**.19**	**.51**

Note. Bolded values were statistically significant ($p < .005$).

Table 2

Relations between psychopathy variables and relevant criteria.

	NEO-Tri Boldness	NEO-Tri Disinhibition	NEO-Tri Meanness	PRI
Self-Report				
BDI Depression	-.34	.34	.13	-.21
CTS Aggression	-.06	.20	.11	.07
DAS Relationship Satisfaction	.18	-.19	-.10	.07
HSI				
Physical Health	.23	-.24	-.14	.10
Mental Health	.36	-.35	-.13	.21
General Health	.30	-.30	-.15	.15
SAS Social/Leisure Functioning	.33	-.19	-.13	.21
MINI				
Alcohol Use Disorder	.04	.18	.21	.16
Substance Use Disorder	.06	.20	.16	.15
Personality Disorder Composites				
Paranoid	-.24	.27	.28	.01
Schizoid	-.25	.14	.30	-.06
Schizotypal	-.21	.29	.24	-.01
Antisocial	.08	.37	.34	.32
Histrionic	.04	.32	.16	.17
Narcissistic	.11	.20	.34	.33
Borderline	-.22	.42	.26	.00
Avoidant	-.53	.28	.17	-.31
Obsessive-Compulsive	-.13	.08	.20	-.01
Dependent	-.29	.33	.12	-.14
# of times arrested	.08	.01	.07	.13

# of times fired from a job	.05	.08	.13	.10
Attrition	.01	-.10	-.07	-.02
Mortality	-.01	.08	.05	.00
Informant Report				
DAS Relationship Satisfaction	.02	-.10	-.15	-.07
HSI				
Physical Health	.12	-.16	-.03	.08
Mental Health	.11	-.14	-.08	.04
General Health	.15	-.19	-.09	.06
NEO-Tri Boldness	.53	-.15	.02	.42
NEO-Tri Disinhibition	-.03	.37	.17	.14
NEO-Tri Meanness	.09	.17	.34	.29
PRI	.47	.06	.18	.54

Note. BDI = Beck Depression Inventory; CTS = Conflict Tactics Scale; DAS = Dyadic Adjustment Scale; SAS = Social Adjustment Scale; MINI = Mini-International Neuropsychiatric Interview; Personality Disorder Composites were created by combining MAPP self-reports, MAPP informant reports, and SIDP scores. Social/Leisure Functioning was reversed such that higher scores indicate better functioning. Attrition was coded such that higher scores indicate completion of more time points.

Table 3

LGM Fit Statistics

	Boldness		Disinhibition		Meanness		PRI	
	Null	Growth	Null	Growth	Null	Growth	Null	Growth
X^2	11114.70	11056.24	7152.23	7140.99	11357.15	11338.30	112.81	14.60
df	3967.00	3964.00	2965.00	2962.00	4705.00	4702.00	8.00	5.00
p value	.00	.00	.00	.00	.00	.00	.00	.01
AIC	260709.80	260657.34	214278.94	214273.70	260946.49	260933.64	-8956.60	-9048.82
BIC	262877.28	262840.96	216188.27	216199.16	263339.87	263343.16	-8924.33	-9000.41
RMSEA	.03	.03	.03	.03	.03	.03	.09	.03
RMSEA 90CI Lower	.03	.03	.03	.03	.03	.03	.09	.01
RMSEA 90CI Upper	.03	.03	.03	.03	.03	.03	.08	.06
SRMR	.07	.07	.07	.07	.07	.07	.00	.02
CFI	.86	.86	.87	.87	.86	.86	.98	1.00
TLI	.85	.85	.86	.86	.85	.85	.98	1.00
LR test X^2(*df*)	58.46(*3*)*		11.24(*3*)		18.85(*3*)*		98.21(3)*	

Note. Null model refers to an intercept-only model. * = *p* < .005. PRI was modeled as a manifest variable, while the other psychopathy variables were latent variables. *df* = degrees of freedom.

Table 4

Associations between intercepts and slopes of psychopathy variables and relevant criteria.

	NEO-Tri Boldness	NEO-Tri Disinhibition	NEO-Tri Meanness	PRI
HSI Physical Health				
Intercept	**.44** [.37, .51]	**-.37** [-.44, -.29]	**-.23** [-.31, -.15]	**.19**
Slope	**.08** [.02,.13]	-.08 [-.16, .00]	**-.11** [-.17, -.04]	**.04**
HSI Mental Health				
Intercept	**.70** [.63, .76]	**-.62** [-.69, -.55]	**-.26** [-.34, -.18]	**.41**
Slope	**.15** [.07, .23]	**-.20** [-.31, -.08]	-.06 [-.14, .02]	**.11**
HSI General Health				
Intercept	**.59** [.52, .65]	**-.49** [-.56, -.41]	**-.26** [-.33, -.18]	**.28**
Slope	**.10** [.04, .15]	**-.12** [-.19, -.04]	**-.09** [-.15, -.03]	**.07**
DAS Relationship Satisfaction				
Intercept	**.25** [.17, .33]	**-.28** [-.36, -.20]	**-.14** [-.23, -.06]	**.09**
Slope	.32 [-.23, .86]	-.48 [-1.00, .31]	-.30 [-.94, .34]	**.05**
SAS Social/Leisure Functioning				
Intercept	**.76** [.52, 1.00]	**-.44** [-.61, -.26]	**-.27** [-.41, -.14]	**.27**
Slope	**.14** [.07, .22]	-.13 [-.23, -.02]	-.13 [-.22, -.03]	**.22**

Note. Correlations in bold were statistically significant ($p < .005$). Confidence intervals were unable to be calculated for PRI estimates, likely due to the PRI being modeled as a manifest variable rather than latent, as the NEO-Tri domains were. This was due to the nature of the calculation of the PRI, which was an intraclass correlation indexing the similarity between each participants' personality profile and that of expert-rated prototypical psychopathy.