

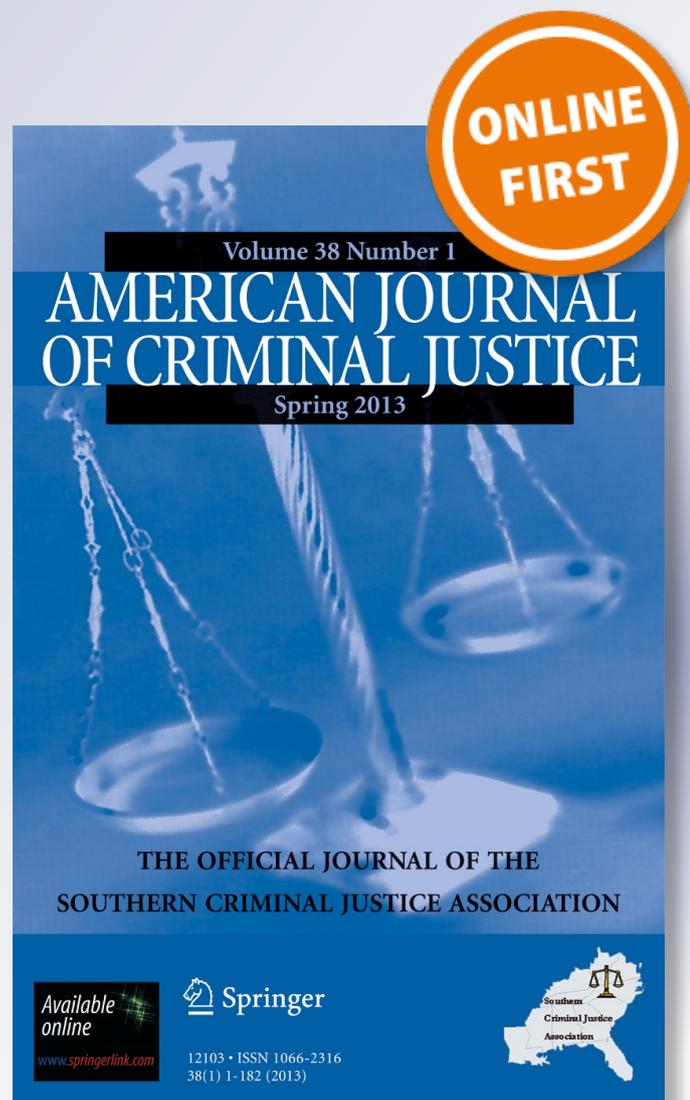
*Predicting Probationer Rates of
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from the Substance Abuse Questionnaire-
Adult Probation III (SAQ-Adult Probation
III)*

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Predicting Probationer Rates of Reincarceration Using Dynamic Factors from the Substance Abuse Questionnaire-Adult Probation III (SAQ-Adult Probation III)

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Abstract Individuals incarcerated for violating the terms of their probation constitute a large portion of the prison population. Intervention programs designed to rehabilitate probationers have the potential to reduce prison populations and moderate the costs associated with incarceration. Unlike previous research, which has focused on demographic and static characteristics, the present study examined dynamic factors as predictors of probation revocation, as they may be more amenable to rehabilitation. The sample was comprised of 8,310 adult probationers and used scores from the SAQ-Adult Probation III. Poisson regression analyses showed that three dynamic factors, violence, antisocial behavior, and stress risk were positively related to the number of lifetime probation revocations. These results are discussed in light of potential rehabilitative benefits.

Keywords Probation · Revocation prediction · Recidivism · Intervention · Treatment · Assessment

Predicting Probationer Rates of Re-incarceration Using the SAQ-Adult Probation III

According to the PEW Center on the States (April 2011) recidivism has “long been considered the leading statistical indicator of return on correctional investment (p. 6).” In a unique, state-by-state comparison, PEW Center of the States conducted a study of recidivism and re-incarceration rates. Results indicated that, on average, approximately 40 % of inmates are returned to prison within 3 years. The percentage of inmates who return to prison varied by state and across regions but ranged from 24

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to 68 %. Inmates who returned to prison were grouped into two categories, inmates who committed new crimes and those re-incarcerated for technical violations. Technical violations can be described as activities that violated the terms of inmate supervision, which result in a probation or parole revocation. The rates for new crimes ranged from 8 to 25 %; the rate for technical violations ranged from 2–51 % (PEW Center on the States). The rates of re-incarceration vary widely; however, an average recidivism rate of 40 % threatens public safety and places a strain on all ready stretched correction department resources.

Recently, many probation and parole departments have adopted strategies and implemented policies to address recidivism while simultaneously improving public safety. These strategies include implementing evidence based practices into supervision, preparing inmates for release at the time of their admission, and evaluating recidivism risk using assessments (PEW Center on the States, September 2011; Austin, 2003). With accurate identification of risk potential and factors associated with recidivism, appropriate interventions and treatments can be matched to meet the needs of an inmate. This is often referred to as the risk principle (Andrews & Bonta, 2010). The risk principle recommends that higher risk probationers receive higher intensity interventions whereas lower risk probationers receive lower intensity interventions. Research has demonstrated that treatment that is matched to probationer risk level is more effective than treatment that is not (Andrews & Bonta, 2010; Hanson, Bourgon, Helmus, & Hodgson, 2010).

Assessing Risk

Methods of assessing probationer risk have evolved over the last 30 years and expanded to incorporate treatment planning and case management into the assessment process (Andrews & Bonta, 2010). As described by Andrews and Bonta (2010), first generation assessment strategies relied on clinical judgment for determining offender risk. This approach demonstrated very poor predictive validity and was replaced by use of actuarial risk scales. The actuarial approach generally assigned a score to factors associated with offender behavior (static and historical). The scores were summed to create a total risk score that proved more accurate in predicting risk than clinical judgment, and useful in determining offender classification and assigning appropriate levels of supervision.

The third generation of instruments built upon the success of actuarial scales by incorporating factors that are amenable to change (dynamic factors) which serve to identify offender needs. Identifying risk potential and treatment needs enables correction and treatment staff to allocate supervision resources (risk principles) and target interventions (need principle). Fourth generation assessment instruments incorporate all the attributes of third generation assessment, as well as integrate assessment and case management principles. Fourth generation approaches ensure that inmates' "personal strengths and prosocial orientation (Andrews & Bonta, 2010, p.318)" are identified to maximize treatment benefits. A fourth generation approach follows the probationer from the beginning of the criminal justice process through release and supervision termination (Andrews & Bonta). Departments who adopt fourth generation principles ensure that not only are assessments administered but that they are used to identify and treat offender problem areas and build upon existing strengths.

Risk Factors

Identifying risk has been, and remains, the primary function of assessment instruments and researchers have identified static and dynamic factors associated with offender recidivism and risk.

Static factors are historical aspects of the offender that are considered unchangeable. Static factors for inmates include gender, the current age of the offender, prior criminal history, prior arrest history, the age of first conviction for an offense, and victim characteristics (e.g., male victims, female victims, stranger victims) (Andrews & Bonta, 2010). Much of the adult offender research has been limited to the study of static factors (Rodriguez & Webb, 2007), such as age, ethnicity, gender, employment status, and prior offense type (Albonetti & Hepburn, 1997; Gray, Fields, & Maxwell, 2001; Morgan, 1994; Sims & Jones, 1997; Ulmer, 2001).

Dynamic factors are considered aspects of the offender that are changeable through intervention or treatment. Denial is considered a dynamic factor but it has demonstrated mixed results in predicting offender recidivism (Nunes, Hanson, Firestone, Moulden, Greenberg & Bradford, 2007; Yates, 2009). Substance abuse and antisocial traits are considered dynamic factors and several studies have reported that probationers who completed substance abuse treatment programs were less likely to be re-incarcerated than probationers who did not complete substance abuse treatment (Huebner & Cobbina, 2007; Vito, Wilson, & Keil, 1990). Dynamic factors that are not associated with recidivism include victim empathy, psychological issues and personal distress. These factors, while not predictive of recidivism, do have implications for intervention and treatment recommendations, as well as offender treatment compliance and outcomes (Yates).

This purpose of this study was to expand upon recidivism research by using dynamic factors measured by the Substance Abuse Questionnaire-Adult Probation III (SAQ-Adult Probation III), a multidimensional probationer risk assessment. It was hypothesized that assessment scores measuring dynamic factors (violent propensity, antisocial traits, aggressiveness, and stress management) would enhance predicting probationer rates of re-incarceration over static factors that included probationer characteristics and self-reported criminal history.

Methods

Measure

The SAQ-Adult Probation III is popular risk assessment used to evaluate adult (male and female) probationers. Data submitted from probation and correction departments across the United States are stored in an online database held by Behavior Data Systems, Ltd. for validity and reliability studies. Data for this project were retrieved from the online database, representing probationers from 36 States.

According to the authors of the SAQ-Adult Probation III validation studies were conducted using, established Minnesota Multiphasic Personality Inventory (MMPI) scales as well as Polygraph examinations and other reports. Reliability and validity

studies have been conducted on substance abuse inpatients, outpatients, college students, job applicants, defendants, diversion program attendees, probationers, inmates and counseling patients. The SAQ-Adult Probation has been studied in many adult probation departments and court related settings (Behavior Data Systems [BDS], Scientific Findings, 2012, p.7).

The SAQ-Adult Probation III consists of 149 items that comprise seven scales: Truthfulness, Violence (Lethality), Antisocial Behavior, Aggressiveness; Alcohol Use, Drug Use, and Stress Coping Abilities. Items use true/false and multiple-choice formats and address probationer behaviors rather than attitudes or other cognitive constructs. The SAQ-Adult Probation III takes approximately 30–35 min to complete (Behavior Data Systems, 2012). Prior, peer reviewed research has used the SAQ-Adult Probation III to identify probationers for inclusion in an intensive supervision probation program (Birkel & Wegner, 2000).

Four SAQ-Adult Probation III scales were selected for analysis; Violence Scale, Aggressive Scale, Antisocial Scale, and Stress Coping Abilities Scale. In addition, the Truthfulness Scale and risk range thresholds are discussed to provide a context for scale score interpretation. Reliability coefficients for those scales used in this analysis were greater than .83.

Truthfulness Scale The Truthfulness Scale consists of 20 true/false items that measure how truthful the inmate was while completing the test. It identifies guarded and defensive inmates who attempt to minimize problems or attempt to “fake good”. All interview and inmate self-report information is subject to the dangers of untrue answers due to defensiveness, guardedness, or deliberate falsification. This is of particular concern in a prison environment where inmates often attempt to minimize their problems and/or concerns in an effort to obtain early release (Benedict, & Lanyon, 1992; Piquero, Farrington, & Blumstein, 2003; Roberts & Wells, 2010). The Truthfulness Scale identifies these self-protective, recalcitrant, and guarded inmates who minimize or even conceal information. In addition, the Truthfulness Scale identifies respondents with impaired (below the sixth grade) reading abilities.

Violence Scale This scale measures the expression of anger and hostility through physical force. The Violence Scale consists of 25 true/false and multiple-choice items that assess the expression of physical force against another person. Unsurprisingly, probationers who harbor violent tendencies are more likely to commit violent crimes (Glover, Nicholson, Hemmati, Bernfeld, & Quinsey, 2002; Jones & Gondolf, 2001; Rice, 1997), and violent attitudes are also associated with recidivism (Borum, 2000; Glover, et al., 2002). Violent inmates have accounted for a large proportion of prison growth in the past decade (West, Sabol, & Greenman, 2011), increasing the potential for violence within prison. Inmates can exhibit multiple forms of violence including collective, interpersonal, intrapersonal, and institutional violence (Bottoms, 1999; Byrne & Hummer, 2007), each representing unique threats to the safety of inmates, correction personnel, and the public. Early assessment using measures of violence propensity can provide information crucial to the development of interventions and management techniques to reduce violence within the prison, as well as reduce the potential for violence after release.

Aggression Scale Aggressive behavior characterized by verbal aggression, verbal assault, hostility, and anger are measured by the Aggression Scale. This scale consists of 22 true/false items and is used to measure the expression of aggression.

Although violence may be most commonly linked to criminal behavior, other forms of aggressive behavior may also contribute to offense. Verbal aggression and hostility are also related to substance abuse, which both precedes aggressive behavior and is reported more often by aggressive individuals (Bushman & Cooper, 1990; McCormick & Smith, 1995; Straus & Sweet, 1992). Aggression has been associated with criminal recidivism (Çorapçıoğlu & Erdoğan, 2004; Firestone, Nunes, Moulden, Broom, & Bradford, 2005; Hanson & Harris, 2000; Salekin, Rogers, Ustad, & Sewell, 1998) and identifying these risk factors has implications for probationers transitioning to the community.

Antisocial Scale This scale consists of 22 true/false and multiple-choice items that measure behaviors which defy social norms, authority, and laws. Antisocial behavior is that which is socially deviant, whereby the individual withdraws from society and exhibits a refusal to conform to social norms and mores, often accompanied by a lack of remorse or empathy for the consequences of their actions (Hare, Hart, & Harpur, 1991; Widiger, Corbitt, & Millon, 1992). Antisocial orientation traits have been identified as reliable predictors of recidivism among inmates (Hanson & Morton-Bourgon, 2005). Inclusion of antisocial items in an assessment provides specific information about offender risk and recidivism potential. Antisocial orientation, as a dynamic factor, may be successfully addressed in treatment and has direct implications for probationer behavior upon release.

Stress Coping Abilities This scale consists of 28 items and uses a 4-point rating scale that assesses probationer ability to effectively cope with tension, stress, and pressure. Prison is repeatedly characterized as a highly stressful environment (Hassine, 2004; Massoglia, 2008) and an inmate's ability to cope with stress is essential to their well-being in, and after release from, prison. Exposure to stressors has been extensively studied as a cause of criminal behavior (Agnew, 1992; Eitle & Turner, 2003) with increased exposure to stress being linked to more violent forms of delinquency (Aseltine, Gore, & Gordon, 2000). The effect of one's exposure to stress can be moderated by the ability to effectively cope with stress (Agnew; Aseltine, Gore, & Gordon). The Stress Coping Abilities Scale identifies the probationers who are not coping effectively with stress and in this study the scoring was modified so as to be consistent with other scales. To distinguish the scales, the adjusted scale will be reported as Stress Risk.

Risk Ranges For each PII scale respondents are classified into four risk ranges: Low Risk (zero to 39th percentile), Medium Risk (40th to 69th percentile), Problem Risk (70th to 89th percentile), and Severe Problem (90th to 100th percentile). Risk ranges represent degree of severity, and were established by converting raw scores to percentile scores using cumulative percentage distributions (Behavior Data Systems, 2012). Early instrument development included the use of content experts to confirm the proposed risk ranges. Data analyses, in combination with field reports from experienced evaluators

have confirmed that these percentile categories provide accurate identification of problem behavior (Behavior Data Systems).

In addition to establishing risk thresholds, the risk ranges serve an important role when interpreting Truthfulness Scale scores. A truthfulness concern is identified when a Truthfulness Scale score is at or above the Problem Risk range (70th percentile). These respondents are typically cautious, guarded or may be defensive in their answers. Scores in the Problem Risk range should be interpreted cautiously. Severe problem scores on the Truthfulness Scale (90th percentile and above) invalidate all other scale scores. The impact of truthfulness on test scores is largely contingent on the severity of the client denial or problem minimization (Behavior Data Systems).

When completing the SAQ-Adult Probation III, probationers provided information about their criminal history. These variables included felony arrests, probation sentences, probation revocations, arrests, jail and prison sentences, alcohol-related arrests, and drug-related arrests. The items were open-ended which allowed probationers to enter a number; responses ranged from 0- 99.

Participants

Participants were adult probationers who completed the SAQ-Adult Probation III. Data were submitted from probation and correction departments across the United States to an online database held by Behavior Data Systems, Ltd. Data was submitted from 36 States. A date range was used for participant selection; May 6, 2009 through May 6, 2010 ($N=11,043$) comprised the sample. Several steps were taken to ensure the validity of the sample. Initially, scores at or above the 90th percentile on the Truthfulness scale were excluded. As noted earlier, scores at this threshold indicate severe deception and all other scales were invalidated ($n=1,362$). As the SAQ-AP III is administered only to adult probationers, those whose reported age was below 18 were also eliminated from the final sample ($n=156$). Third, participants who were missing data on the demographic variables or reported highest completed year of education exceeded 20 years were excluded ($n=153$). Finally, to further guard against reporter falsification, those with outlier scores on any criminal history variables were excluded ($n=1,062$). Outlier values were identified as those above the 99th percentile.

The remaining sample consisted of 8,310 participants who ranged in age from 18 to 79 years ($M=29.60$ years, $SD=10.56$ years). The majority were men (73.5 %) and Caucasian (64.4 %), whereas the others were Black (18.1 %), Hispanic (13.4 %), or other (4.2 %). Most participants were single (63.4 %), whereas the others were married (18.2 %), divorced (11.8 %), separated (5.9 %), or widowed (.7 %), and the majority (70.4 %) were high school graduates.

Procedures

Probationer scores on the violence, aggression, antisocial, and stress risk scales were selected as predictor variables because they represent dynamic risk factors. Number

of probation revocations served as the outcome variable for the analysis. Probation revocation was selected as the outcome variable because revocations occur when probationers violate a condition or requirement of their supervision. As noted earlier, recidivism rates for supervision violations range from 2 to 51 % (PEW Center on the States, April (2011)). A Poisson regression analysis was conducted to determine if the scale scores predicted recidivism beyond what is accounted for by static risk factors (e.g., demographic and criminal history characteristics).

Analysis

Poisson regression is a member of the family of generalized linear models and its use is appropriate and necessary when analyzing non-normally distributed data like number of probation revocations, which are count variables. An assumption of Poisson regression is that the mean of the dependent variable is equal to its variance (Cameron & Trivedi, 1998; Cohen, West, & Aiken, 2003). Table 1 shows that these values were equivalent for probation revocations ($SD^2=.29$). Thus, a Poisson model was considered appropriate for the present study.

Additionally, to facilitate model interpretation, the behavioral scales were divided by 10; thus, regression coefficients correspond to a 10 % change in the given scale rather than a 1 % change.

To avoid capitalizing on sample-specific variance and allow validation of the model, the sample of probationers was randomly divided into two subsamples, upon which the final model was applied. Multiple group analysis showed that the regression coefficients across the two subsamples did not significantly differ in the prediction of probation revocations, $\chi^2_{diff}(22)=24.32, p=.33$. Therefore, subsequent analyses were performed on the sample as a whole.

Three Poisson regression analyses were conducted to ensure that the addition of dynamic factors contributed to the overall fit of the model and prediction capabilities.

Table 1 Descriptive statistics for the criterion, criminal history, and dynamic variables

Variable:	<i>M</i>	<i>SD</i>	Range	95 % CI for <i>M</i>
Probation revocations	.26	.54	0–2	.25–.28
Total arrests	5.53	6.14	0–44	5.39–5.66
Felony arrests	1.22	1.63	0–12	1.18–1.25
Times in prison	.23	.66	0–5	.22–.24
Alcohol-related arrests	1.05	1.51	0–8	1.01–1.08
Drug-related arrests	.89	1.37	0–8	.86–.92
Alcohol scale	52.15	24.85	3–99	51.62–52.69
Drugs scale	52.10	29.75	0–99	51.46–52.74
Violence scale	51.54	26.49	4–99	50.97–52.11
Antisocial scale	58.09	26.97	9–99	57.51–58.67
Aggressiveness scale	45.65	24.21	6–99	45.13–46.17
Stress risk scale	52.81	27.59	1–99	52.22–53.40

Table 3 provides a summary of the predictor variables included in each analysis. The first analysis was the baseline model which included no predictor variables, the second analysis included the demographic variables and criminal history variables listed in Table 3. The final analysis included all static factors used in the prior analysis and added scores for the violence, antisocial, aggressiveness, and stress risk Scales.

Results

Descriptive statistics and correlations among study variables are presented in Table 1 and Table 2, respectively. The values for the alcohol, drugs, violence, antisocial, aggression, and stress risk scales were percentile scores. Thus, a score of 52nd percentile compared to other participants in the study. All but one correlation was statistically significant; however, judgments may be made regarding the practical significance of these relations by examining the size of their effects (correlations of .10–.23, .24–.36, and .37+ correspond to small, moderate, and large effect sizes, respectively; Cohen, 1992).

Probation revocations exhibited small to moderate positive correlations with the criminal history characteristics (all arrest types and the alcohol and drugs scales), replicating previous research examining the relation between such variables and probation revocation (Albonetti & Hepburn, 1997; Gray, et al., 2001; Morgan, 1994; Sims & Jones, 1997; Ulmer, 2001). Probation revocations also showed weak to moderate relations with the dynamic factors, correlating positively with violence, antisocial behavior, and aggressiveness, and, unexpectedly, negatively with stress and coping. Stress risk also correlated negatively with the other behavior scales; however, all other correlations with the behavior scales were in expected directions. No

Table 2 Zero-order correlations between study variables

Variable:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Probation revocations											
2. Total arrests	.36										
3. Felony arrests	.32	.59									
4. Times in prison	.26	.39	.53								
5. Alcohol-related arrests	.20	.37	.11	.09							
6. Drug-related arrests	.23	.45	.42	.24	.12						
7. Alcohol scale	.29	.43	.23	.18	.68	.17					
8. Drugs scale	.29	.38	.39	.23	.11	.60	.32				
9. Violence scale	.21	.34	.24	.20	.11	.16	.30	.33			
10. Antisocial scale	.23	.36	.33	.20	.10	.28	.29	.44	.53		
11. Aggressiveness scale	.11	.21	.11	.05	.04	.12	.20	.23	.56	.47	
12. Stress risk scale	-.08	-.15	-.13	-.08	-.01 ^a	-.09	-.14	-.25	-.47	-.56	-.36

All correlations are significant at $p < .001$

^a This correlation is non-significant

multicollinearity among variables was identified in the analysis. Moreover, although the zero-order correlations showed that nearly all of the variables were significantly related, the regression analyses permitted the examination of the extent to which unique variance in each predictor was related to probation revocations. It is important to note that Poisson regression does not provide an explanation of overall variance accounted for (R^2) and direct comparison and interpretation using alternative approaches are considered problematic (Hox, 2010; Logistic Regression, n.d).

The baseline model that included just the intercept was conducted which did not fit the data well, $\chi^2(8245)=9060.71, p<.001$. Next, a model estimating the predictive effects of only the demographic and criminal history factors was applied. Nominal variables (gender, ethnicity, and marital status) were dummy-coded and entered as individual predictors in the regression. This model fit the data well, $\chi^2(8227)=7236.50, p=.99$, and represented a significant increase in fit beyond the baseline model, $\chi^2_{diff}(18)=1824.21, p<.001$. Adding demographics and criminal history variables improved the prediction model.

Finally, a third Poisson regression was estimated to test the hypothesis that the dynamic factors of violence, aggression, antisocial behavior, and stress risk predicted probation revocations beyond the demographic and static factors examined in previous research. The model including the dynamic factors fit the data well, $\chi^2(8223)=7213.37, p=.99$, and resulted in a significant improvement in fit beyond the model including only the demographic and static factors, $\chi^2_{diff}(4)=23.13, p<.001$. These results indicated that, beyond demographic and static variables, dynamic factors are important for the prediction of probation revocations.

The results of the final model are presented in Table 3. Due to the large number of variables included in the regression, the significance of the individual parameter estimates was based on a Bonferroni adjusted p -value of .0023. After controlling for demographic and static characteristics, the number of probation revocations was significantly related to three of the four dynamic factors. The largest predictor was antisocial behavior, whereby the number of probation revocations rose 6.72 % for every 10 % increase in antisocial behavior. Violence was also significantly predictive of probation revocation, accounting for a 4.60 % increase in the number of revocations for every 10 % increase in violent behavior. Lastly, stress risk was related to the number of probation revocations, in that a 10 % increase in reported stress accounted for a 5.34 % increase in revocations. Aggression was not significantly related to the number of probation revocations. These results demonstrate that, beyond the effects of demographic and static variables, dynamic characteristics, that may increase the likelihood of risky or criminal behavior, are important predictors of probation revocation.

Holding all other variables in the model constant, Hispanic participants had an expected log count of -.41, meaning that they had a probation revocation count 33.64 % less than White participants. Several criminal history variables were also significant predictors of probation revocation for probationers; those with greater numbers of total arrests (2.02 %), felony arrests (5.87 %), and times in prison (13.31 %) had greater expected log counts of probation revocation. A history of drug (11.62 %) or alcohol use (12.75 %) was also related to increased probation revocation.

Table 3 Poisson regression coefficients predicting probation revocations

Variable:	Static model		Full model		Effect size ^a
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	
Demographic factors					
Age	-.01	.003	-.01	.003	.02
Female	-.05	.05	-.06	.05	.03
Other	-.14	.10	-.15	.10	.09
Hispanic	-.40	.08	-.41*	.08	.18
Black	-.04	.06	-.05	.06	.03
Widowed	.13	.27	.17	.24	.09
Separated	.03	.09	.01	.09	.004
Divorced	.04	.07	.03	.07	.01
Married	-.01	.07	-.02	.07	.01
Criminal history variables					
Total arrests	.02*	.004	.02*	.003	.06
Felony arrests	.06*	.01	.06*	.01	.05
Times in prison	.14*	.03	.13*	.03	.05
Education	-.10	.03	-.08	.03	.03
Months employed	-.003	.01	.01	.01	.01
Alcohol-related arrests	.02	.01	.01	.01	.01
Drug-related arrests	-.02	.01	-.02	.02	.01
Alcohol scale	.12*	.01	.12*	.01	.11
Drugs scale	.13*	.01	.11*	.01	.12
Dynamic factors					
Violence scale			.05*	.01	.05
Antisocial scale			.07*	.01	.06
Aggressiveness scale			-.02	.01	.02
Stress risk scale			.05*	.01	.06

Significant values are * $p < .0023$

^a Effect sizes were calculated as Cohen's d for categorical variables and Pearson's r for continuous variables in accordance with the formulas in Nakagawa & Cuthill, 2007

Discussion

To date, the vast majority of research on probation outcomes has focused on identifying static factors, such as demographic and criminal history variables, and a history of substance use to predict probation outcomes (Rodriguez & Webb, 2007). Although rehabilitation programs that employ practices based on this research have met with some success (Huebner & Cobbina, 2007; Vito, et al., 1990), identifying dynamic factors – offender characteristics that are amenable to change – that predict probation success or failure may serve to improve these rehabilitation efforts and ultimately decrease recidivism.

The present study identified four dynamic factors – violence, aggression, antisocial behavior, and stress risk – and examined their relation to probation revocations

beyond the effect contributed by static, criminal history, and substance use characteristics. The results showed that three of the four dynamic factors significantly predicted number of probation revocations. Antisocial behavior was the largest predictor of probation revocation. This finding is not entirely surprising given that such behavior is characterized by deviance and a refusal to conform to social norms (Hare, et al., 1991; Widiger, et al., 1992), and such behavior may ultimately result in offense that leads to probation revocation. This result also parallels similar findings in the recidivism literature where antisocial behavior has been found to predict general and violent recidivism (Walters, 2003).

Violence, operationalized in the present study as the expression of physical force against another person, was also a positive predictor of the number of probation revocations. This finding is analogous to findings in the literature on recidivism. Probationers who exhibit violent tendencies and harbor violent attitudes are more likely to commit violent crimes and engage in delinquent behaviors (Blitstein, et al., 2005; Borum, 2000; Friedman, 1998; Glover, et al., 2002; Jones & Gondolf, 2001; Rice, 1997; Swahn & Donovan, 2004). Thus, violent probationers are also likely to commit offenses that ultimately result in probation revocation.

Finally, stress risk was also a significant predictor of probation revocation; an inability to cope with stressful life events was related to greater numbers of probation revocations. This may have been because individuals who experience high levels of stress often attempt to cope with that stress by abusing alcohol and drugs (Goeders, 2003). Engaging in such behavior may violate the terms of probation or lead to other behaviors that result in probation revocation. Interestingly, the prediction of probation revocations from stress risk is the opposite of the correlation between the two variables. The results of the regression are likely due to a suppressor effect, whereby the correlation between stress risk and probation revocations changes with the inclusion of the other predictors in the regression equation. When allowed to covary independently, stress risk and probation revocations are negatively correlated; however, when holding all other factors equal, stress risk is positively related to greater numbers of probation revocations.

Contradictory to the hypotheses, aggression was not significantly related to the number of probation revocations. Aggression exists in a variety of forms, and in the present study it was operationalized as verbal aggression, anger, and hostility. Although it was significantly correlated with probation revocations, when controlling for the other variables in the regression analysis its relation was no longer significant. These results suggest that aggressive tendencies in the form of verbal threats, anger, and hostility are not sufficient to result in probation revocation after accounting for the other variables in the regression. These behaviors may not lead to offenses that are as serious as those perpetrated by those who are high in violence, antisocial behavior, or stress.

In addition to the contribution of dynamic factors, results also revealed that probationers who engaged in greater criminal activity (arrests, felonies, prison) were more likely to experience probation revocations. Alcohol and drug users were also more likely to experience revocations. Unexpectedly, the results showed that Hispanic probationers had 34 % fewer revocation counts than white probationers. There may be several explanations for this phenomenon including reporting bias (reporting fewer arrests than actual arrests), fewer technical violations by Hispanic probationers,

limited or no alcohol and drug use among Hispanic probationers, differences in supervision classification and probation requirements for Hispanic probationers, or greater adherence and compliance with targeted interventions.

Andrews and Bonta (2010) provided several strategies and targeted interventions that addressed dynamic factors and their influence on criminal conduct. For example, antisocial traits can be addressed through probationer problem solving and self-management education and treatment. Violence and aggression can be targeted by anger management education and coping skills training. Stress Risk can also be improved through the use of coping skills training, and involvement in pro-social, and productive activities (Andrews & Bonta).

These results have important implications for the treatment of probationers. Violence, antisocial behavior, and stress coping abilities are amenable to change (Babcock, Green, & Robie, 2004; Brady & Sonne, 1999; Cooper, Elsingher, & Stolley, 2006; Hawkins, Catalano, & Miller, 1992; Kownacki, 1995), and although the effect values of the dynamic factors were relatively small, investment in intervention programs focused on identifying and rehabilitating these issues in probationers may ultimately reduce the number of probation revocations and lessen the financial impact associated with incarcerating individuals who violate their probation.

Limitations and Conclusions

The results of the present study must be considered in light of some limitations. First, although the goal of this research was to examine behavioral characteristics associated with revocation for all probationers, it may be the case that characteristics predict revocation differently for men and women. For example, because women are far less likely than men to exhibit physical aggression, forms of aggression other than physical aggression may be related to revocation for women, but not men. Future research should aim to examine these gender differences. Second, although links were found between behavioral characteristics and probation revocation, not explicitly studied were the processes underlying the relation between behavioral characteristics and probation revocation. For example, the form of criminal behavior that results from antisocial tendencies, and thus leads to revocation, was not examined. Future research should look to determine what behaviors link violence, antisocial behavior, and stress to probation revocation. Third, the pretext for revocation was not assessed in the present study. It is possible that revocation resulted from a range of factors, such as re-offense or a technical violation of probation conditions, and that the severity of the action that resulted in revocation may have an effect on the relation between dynamic factors and revocation. Moreover, data submitted for analysis were self-report data and not verified by record review or correction staff. Future research should exam any moderating effects for revocation when examining factors that predict probation revocation. Fourth, although it is implied that dynamic behavioral factors predict probation revocation; in the present study it was not possible to determine any causal influence. It is important for future work to focus on examining causal role of dynamic factors in predicting number of probation revocations which be accomplished through longitudinal studies.

It should be noted that this study used a relatively large, non-random sample of probationers and relied on self-report data for criminal history items. Given the size of the sample and the modest effect sizes of the dynamic factors, it is unlikely that similar results would be found with a smaller sample. This is an important consideration for researchers wishing to replicate the impact of dynamic factors.

The present study showed that identifying dynamic factors and determining their relation to probation revocation is important for informing rehabilitation efforts designed to reduce the number of probation revocations. The results of the present study showed that violence, antisocial behavior, and stress risk are important predictors of probation revocation. Given that these behavioral problems may not have been included in current intervention programs, such issues should be targeted by those hoping to rehabilitate probationers. It is my hope that this study sparks future research on the examination of dynamic factors that contribute to probation outcomes.

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