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What is This?
Predicting Treatment Attrition Among Seriously Violent Offenders: An Application of the Directionality Model

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Abstract
Treatment completion by violent offenders results in fewer victims and less violence in society. As researchers and members of society, we have a compelling interest in finding ways to keep violent male offenders in effective treatment programs. This study examines file-rated predictors of treatment attrition from an institutionally based program for persistently violent offenders. Each of the three prediction models of institutionally based treatment attrition included the predictors of motivation for assistance and prior treatment dosage: (a) the past criminal behavior model, (b) the recent antisocial behavior model, and (c) the non-antisocial instability model. Recent antisocial behavior did not improve the prediction of treatment attrition over the past criminal behavior model. Motivation for assistance did not

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make a contribution in the recent antisocial behavior or the non-antisocial instability models while prior treatment dosage consistently contributed to the prediction of attrition across the models. Recent non-antisocial behavior is important to offender treatment attrition.

**Keywords**

treatment attrition, offender intervention, dosage, motivation

Intervention programs among offenders are central to efforts in promoting safety. Appropriate offender interventions can reduce general recidivism (Lipsey & Cullen, 2007; Morgan & Flora, 2002; Tong & Farrington, 2008), with the typical general recidivism decrease between 10% and 27% (measured by effect sizes; Bourgon & Armstrong, 2005; Prendergast, Hall, Wexler, Melnick, & Caò, 2004). Offenders who drop out miss the opportunity to benefit from these interventions. Facilitating full participation in an effective treatment intervention is, therefore, a public safety issue. In fact, offenders who drop out typically re-offend at a higher rate than those who complete treatment (Berman, 2005; Hepburn, 2005) and re-offend more quickly (Prendergast et al., 2004; Serin, Gobeil, & Preston, 2009). Thus, understanding the factors that contribute to treatment can potentially promote public safety. This article examines prediction models of treatment attrition in an institutionally based intervention program for persistently violent incarcerated males.

In addition to public safety, positive effects of completed treatment programs occur for offenders and correctional systems. For the offender, opportunities to promote change, a sense of accomplishment, and improving quality of life can occur. For correctional systems that have a discretionary/parole method of gradual release, completion of intervention programs often plays an important role in the decision process. From a management perspective, keeping offenders in programs has greater efficiency in the dispersing of limited resources. Loss in intervention efficiencies can include inadequate care for clients, fewer treatment opportunities for others, increased monetary expenditures, and an overall increase in treatment failure rates. Evidence has suggested a relationship between treatment attrition and prison misconduct (Olver, Stockdale, & Wormith, 2011; Serin et al., 2009).

Furthermore, the costs of treatment attrition are more noticeable within a structured treatment context. Delivering treatment below maximum capacity may unduly increase the monetary cost to the treatment provider. Attrition also leaves a treatment position vacant, which may remain empty within closed admission programs. Within the criminal justice system, this inefficiency is
of particular importance as offenders’ window of opportunity for treatment can be limited (i.e., approaching release dates). These attrition costs are further exacerbated by the substantial percentage of offenders who drop out of treatment (27%-46%; Hepburn, 2005; Hiller, Knight, Saum, & Simpson, 2006; Serin et al., 2009), which can consume a substantial proportion of treatment budgets. A fuller understanding of the reasons for treatment attrition may assist to keep violent offenders in treatment programs.

The risk assessment literature makes a useful distinction between static and dynamic risk factors that can be applied to predicting dropouts. Static risk factors are those that predict an outcome (i.e., recidivism), but cannot change with intervention (i.e., number of past offenses). Static risk factors are typically strong predictors of treatment attrition (Wormith & Olver, 2002). Given that treatment attrition is often another expression of noncompliance and impulsivity (Walters, 2004), it is no surprise that past antisocial behavior/criminal history predicts future treatment attrition (Hepburn, 2005; Olver et al., 2011).

In contrast to static factors, dynamic risk factors can change with time or with intervention. For example, the dynamic risk factor of “antisocial relationships” can change with the passage of time or be reduced with intervention, implicit in dynamic risk variables is the temporal proximity of a risk factor to an outcome. A reduction in antisocial relationships should indicate a decreased likelihood of future contact with the criminal justice system, which has been demonstrated by within change intervention research (Ashford, Wong, & Sternbach, 2008; Kroner & Yessine, 2013; Wormith, 1984).

The purpose of the present study is to focus on attrition predictors that are of a dynamic nature and in close temporal proximity to the intervention for persistently violent offenders. Non-offender treatment attrition studies suggest a greater clinical utility with dynamic predictors (Samstag, Batchelder, Muran, Safran, & Winston, 1998). Incorporating dynamic and temporal proximal variables, the Directionality model is introduced to describe the importance of these variables in predicting treatment attrition. Directionality is defined as general and progressive orientation toward engagement in factors reducing the likelihood of crime-related activities. The general aspect of directionality refers to a broad range of attitudes and activities that directly contribute to engagement in relevant factors that have a positive impact on crime-related outcomes. Progressive refers to observable increments in activities that are reflective of one’s orientation, which would include desistance activities. In the current intervention for persistently violent offenders, the development of positive relationships would be one desistance activity. Examples of factors not included in the Directionality model that predict attrition include hostility, recent unemployment, motivation, and daily use
of a hard drug (Hiller et al., 2006; Olver et al., 2011; Pelissier, Camp, & Motivans, 2003; Rooney & Hanson, 2001).

The focus on dynamic and the temporal proximity factors in predicting institutionally based treatment attrition could inform treatment deliverers of potential obstacles to treatment completion, which can be addressed and changed as a part of the intervention. A focus on areas and activities more proximal to the treatment will provide contextual factors to be integrated into the intervention and enhance the progressive orientation toward engagement. The content of the orientation of an offender toward a program in an institution (i.e., attitudes leading to misconducts) would be different than within the community (i.e., attitudes leading to employment), but both could be relevant to treatment attrition. For these dynamic and temporal proximity factors to have an applied utility, they will have to make an additional contribution to predicting attrition, beyond past antisocial behavior.

Although antisocial factors are predictive of treatment attrition, non-antisocial, unstable behavior has also been shown to predict treatment attrition. With a community-based drug treatment program, unemployment continued to be a predictor of attrition after controlling for demographic variables, criminal history, and sentence characteristics (Huebner & Cobbina, 2007). Among probationers, unemployment within the past 30 days was predictive of treatment attrition after controlling for gender, age, and education (Hiller et al., 2006). A key component of the Directionality model is a recent presence of lifestyle stability, broadly indicated by behavioral and affective stability.

Treatment programs with sufficient “dosage” and treatment integrity have an increased likelihood of reducing recidivism (Andrews & Bonta, 2010; Andrews & Dowden, 2005). In the risk-needs-responsivity framework, the risk principle suggests that matching offenders to an adequate dosage level of treatment is important, which is supported by the evidence that sufficient dosage is related to reductions in recidivism (Bourgon & Armstrong, 2005; Kroner & Takahashi, 2012). In the present study, the number of previously completed treatments was used as a measure of prior dosage. Within the Directionality model, dosage reflects a progressive, consistent effort for change. Different than a focus on risk and protective factors, the Directionality model emphasizes the process, or the “how to” areas in reducing the likelihood of crime-related activities.

In addition to past criminal history, offenders’ motivation or readiness has also been considered a factor predicting treatment attrition. Motivation is a dynamic factor that can be enhanced by appropriate interventions. The relationship between motivation and treatment retention has been studied among substance abusers (Hiller, Knight, Leukefeld, & Simpson, 2002), sexual offenders (Drapeau, Körner, Granger, Brunet, & Casper, 2005), and batterers
Motivational interviewing is a specific approach that has shown some promise in reducing the number of dropouts in treatment programs (McMurran, 2009). In addition, application of this approach has demonstrated reductions in recidivism (Anstiss, Polaschek, & Wilson, 2011). Although motivation has shown some promise as a component of success in offender treatment, there are few empirical studies that have examined the effects of motivation on treatment dropout and its relationship with antisocial historical factors for violent offenders in criminal justice settings. An exception has been the development of a dropout prediction measure that incorporated both motivation and antisocial historical factors (Nunes, Cortoni, & Serin, 2010).

The hypotheses guiding the present analyses of institutionally based treatment attrition were as follows:

1. Prior dosage (reflecting the directionality of the offender) will add to the prediction of treatment attrition, regardless of the type of antisocial behavior (past or recent) or the level of motivation (Model 1 with past antisocial behavior, motivation, and dosage vs. Model 2 with recent antisocial behavior, motivation, and dosage).

2. Antisocial measures will predict attrition, but a model with dynamic measures of recent instability will be equivalent in predicting dropouts (Model 2 with recent antisocial behavior, motivation, and dosage vs. Model 3 with recent non-antisocial instability, motivation, and dosage).

**Method**

**Participants**

Participants were 273 incarcerated males (mean age = 31.1 years, SD = 7.8). With respect to demographic variables, racial composition was 178 (65.2%) White, 17 (6.2%) Black, 72 (26.3%) North American Native/Metis/Inuit, 2 (0.7%) Asian, and 4 (1.5%) Other. Marital status was 131 (50.0%) single, 106 (38.8%) common law, 15 (5.5%) married, 12 (4.4%) divorced, and 9 (3.3%) separated. All participants had committed two or more previous violent offenses, with approximately 88% of the participants using a weapon.

**Treatment Program Description**

The Violence Prevention Program (VPP) is an institutionally based correctional program for incarcerated, persistently violent federal male offenders that
was developed by the Correctional Service of Canada in 1999. The current sample had VPP start dates between December, 1999, and October, 2004. The VPP defines a persistently violent offender as one who has previously committed a minimum of two violent offenses and who is at high risk to commit future violent crimes (Statistical Information on Recidivism [SIR-R1] score in the two out of five highest risk categories; Nafekh & Motiuk, 2002; SIR-R1 at http://www.csc-scc.gc.ca/text/plcy/cdshtm/705-6.cd-eng.shtml#Statistical). Although participation in the program was voluntary, it was viewed favorable for transfer to lower security and in the parole decision process.

The VPP is based on social learning and social information-processing theories and relies on the primary premise that past violent behaviors have been learned through modeling, reinforcement, and/or cognitive mediation. It endeavors to reduce the risk of violent recidivism in high-risk male offenders by providing the skills required to identify past negative lifestyles and a heightened awareness of violence, responsibility, and control. The intervention includes 10 modules presented in six 2-hr sessions per week for a total of 94 sessions. The modules and their associated number of sessions are as follows: making change (6 sessions), violence awareness (12 sessions), anger control (12 sessions), solving problems (10 sessions), social attitudes (10 sessions), positive relationships (8 sessions), conflict resolution (8 sessions), positive lifestyles (8 sessions), self-control (8 sessions), and violence prevention (12 sessions).

Using a non-treated matched comparison group, a previous study applied Cox regression analyses to examine the relationship between VPP participation and recidivism, while controlling for other variables that could also influence recidivism such as length of time in the community, other program participation, and risk (Cortoni, Nunes, & Latendresse, 2006). With a mean follow-up time of 379 days, results showed that offenders who had completed the institutionally based program had significantly lower rates of recidivism than the non-treated offenders. Non-treated offenders had 1.36 times greater rates of any recidivism, and 2.10 times greater rates of violent recidivism than offenders who had completed the VPP. Thus, the VPP has empirical support for reducing violent recidivism for participants who completed the entire program. In 2000, the VPP program received international accreditation.

**Measures**

*Past antisocial behavior.* This variable consisted of two historical risk items. One is Quinsey and Upfold’s scale (Quinsey & Upfold, 1985) and the other is criminal versatility (Item 20 from the Hare Psychopathy Checklist–Revised [PCL-R]; Hare, 2003). Using the most severe offense for the offenders’ current
incarceration, file information was used to rate the incident according to Quinsey and Upfold’s scale. This scale placed victim damage into the following seven categories based on the most violent incident as an adult: “1” = no damage; “2” = slight damage with no weapon; “3” = slight damage with weapon; “4” = victim treated in clinic and released; “5” = victim treated in hospital and stayed at least one night; “6” = victim death; “7” = victim death and subsequent mutilation. Validity of this scale has been demonstrated with offender samples (Beal, Kroner, & Weekes, 2003; Kroner & Weekes, 1996). Criminal versatility was reduced to the following three categories based on the range of 15 types of offences: “0” = three or fewer types of offenses; “1” = four to five types of offenses; “2” = six or more types of offenses (Hare, 2003). Thus, this measure of past antisocial behavior was based on community offenses.

Recent antisocial behavior. Three items contributed to this variable: convictions for institutional misconducts, weapon use, and staff assault. Due to the skewed distribution in the number of institutional convictions, four categories were created as follows: “0” = no convictions; “1” = one through two convictions; “2” = three through six convictions; “3” = 7 through 35 convictions. Both weapon use and staff assault in prison during the past year were dichotomized (0 = no, 1 = yes). These measures were gathered 1 year prior to offenders entering the treatment program.

Non-antisocial instability. This variable measures an offenders’ involvement in areas that are not of a negative nature, and comprised of the following two items: (a) the number of days employed or in programming in institution and (b) the number of days in administrative segregation (non-punitive reasons, i.e., inability to integrate into the general population). These were the total number of days throughout the offender’s year prior to entering the program and do not reflect continuous involvement in employment/programming or segregation. The number of days employed or in programming was reduced to the following categories: “0” = none; “1” = 1 through 25 days; “2” = 26 through 50 days; “3” = 51 through 100 days. Similarly, five categories were created for administrative segregation: “0” = none; “1” = 1 through 13 days; “2” = 14 through 43 days; “3” = 49 through 111 days; “4” = 112 through 328 days. After reversing the number of days employed or in programming, these two items were summed.

Motivation. Motivation was a file-rated measured with a summation of two dichotomized items (each item: 0 = no, 1 = yes). One was the rated offenders’ motivation to complete the VPP program, and the other is an offender’s willingness to seek help in his daily life. These items were gathered 1 year prior
to offenders entering the treatment program. The two items were summed to construct the motivation measure (range = 0-2).

**Prior dosage.** Treatment dosage was measured by involvement in prior accredited treatment programs, which included cognitive living skills, substance abuse, family violence, community integration, and anger/emotion management. This variable was the summation of the number of institutional treatment programs during the past and current incarcerations.

**Treatment attrition.** Treatment attrition was coded as “1” for dropouts and “0” for treatment completion. The number of dropouts were 135, thus resulting in a base rate of 49.5%. Such a rate is similar to comparable intervention programs (46%, Serin et al., 2009; 38%, Wormith & Olver, 2002). Although reasons for dropout were not coded, they did not include releases or administrative transfers. Completion of the program took priority over transferring to lower security. Treatment attrition occurred prior to institutional release and was not considered as a form of recidivism.

**Procedure and Analyses**

The data used to compose the scales were file rated, derived from the offenders’ file. With the assistance of a coding guide, four raters gathered the data. The four raters were graduate and undergraduate research assistants. The coding guide was developed by those with a high level of file knowledge and piloted prior to implementation. Modifications to the scoring criteria were made during the piloting phase. Table 1 contains the descriptive statistics of the predictor variables and interrater reliability, as measured by intraclass correlations (Dunn, 1989). There was a strong agreement across the predictor measures. At the time of data collection, all offenders had been released.

Three logistic regression models were utilized to examine the two hypotheses. For the first hypothesis, it is anticipated that prior dosage will predict dropout in each of the three prediction models. For the second hypothesis, recent antisocial behavior and non-antisocial instability will account for similar amounts of the predictive variance (Model 2 with recent antisocial behavior, motivation, and dosage vs. Model 3 with recent non-antisocial instability, motivation, and dosage).

**Results**

The results of the logistic regression model for predicting treatment dropout are displayed in Table 2 (data for Tables 1, 2, and Figure 1 are available at
Odds ratios greater than 1.0 reflect increased risk associated with treatment dropout, whereas odds ratios of less than 1.0 reflect a higher probability of treatment completion. Results indicated that prior dosage added to the accuracy of prediction of treatment retention in all the models used. Thus, the first hypothesis, testing the contributions of consistent efforts within the Directionality model, received support. Motivation was significantly related to the prediction of treatment attrition only in Model 1, which included the past antisocial behavior measure. When recent antisocial behavior (Model 2) and the non-antisocial instability measure (Model 3) were used, motivation did not contribute to the prediction of treatment attrition. Thus, the inclusion of temporal variables diminished the role of motivation. All three models were statistically different than the model fit with solely the intercept (see χ² results, Table 2).

The second hypothesis posits equivalent results between Models 2 and 3, suggesting that antisocial and non-antisocial instability measures would result in similar predictive accuracy. As shown in Table 2, the results demonstrated that Model 3 was stronger than Model 2 (Model 3 Akaike information criterion [AIC] = 343.2 vs. Model 2 AIC = 348.3; Model 3 $R^2 = .17$ vs. Model 2 $R^2 = .20$; Model 3 $-2 \log$ likelihood [LL] = $-167.6$ vs. Model 2 $-2$ LL = 170.2). This finding was contrary to expectation, in that non-antisocial

### Table 1. Descriptive Statistics and Interrater Reliability (Intraclass Correlations; N = 273).

<table>
<thead>
<tr>
<th>Scales</th>
<th>M (SD)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Intraclass correlation (n = 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past antisocial behavior</td>
<td>5.29 (1.86)</td>
<td>1</td>
<td>9</td>
<td>.90</td>
</tr>
<tr>
<td>Recent antisocial behavior</td>
<td>1.19 (1.16)</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Non-antisocial instability</td>
<td>3.46 (1.69)</td>
<td>0</td>
<td>7</td>
<td>.60</td>
</tr>
<tr>
<td>Motivation</td>
<td>1.18 (0.89)</td>
<td>0</td>
<td>2</td>
<td>.93</td>
</tr>
<tr>
<td>Prior dosage</td>
<td>3.47 (2.68)</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

*There was complete agreement with the “staff assault” item and one item of disagreement with the “weapons used in past year” item. Interrater data were not gathered for the “institutional conviction” item.

bIt was based on only the “number of days employed” item.

cPrior dosage was a count variable that involved no coder judgment. Interrater data were not gathered.
instability explained more of the variance than Model 2, which included a recent antisocial measure. Lifestyle stability issues appear to have a strong role in the predictions of treatment attrition.

Figure 1 visually presents the results of Model 3. The likelihood of dropout varied from 10% for low instability and high dosage (bottom left) to 80% for high instability and low dosage (top right). Dosage levels have the greatest impact on dropout at low and moderate levels of motivation, noted by the space between the 95% CI ranges.

Discussion

The purpose of this study was to examine dynamic and recent predictors of attrition from an institutionally based program for persistently violent offenders. Overall, dynamic and recent measures (i.e., non-antisocial instability and dosage) were able to predict treatment attrition. When recent antisocial or non-antisocial behavioral measures are included, offender motivation fails to add to the prediction of treatment attrition.
The inability of motivation to predict treatment attrition across all the statistical models suggests a reduced role for motivation in predicting treatment attrition. Rooney and Hanson (2001), examining multiple spousal treatment programs, found that commitment to change, which can be considered an aspect of motivation, did not predict attrition. Prendergast et al. (2004) suggests that offenders can learn the value of participating in a treatment

**Figure 1.** Probability of dropout across motivation, instability, and dosage (with 95% confidence intervals [CIs]).
program, regardless of motivation levels. Furthermore, Pelissier et al. (2003) argues that the predictive role of motivation may be influenced by the type of attrition. When attrition was associated with institutional misconducts (expulsion), motivation was not predictive, but history of past violence was predictive. This contrasted voluntary attrition (dropout), for which motivation was predictive of attrition. In addition, the predictive role of motivation may remain if static and non-recent variables are included to predict treatment attrition (Nunes et al., 2010). The present study adds to the literature indicating that motivation, broadly defined, may not be a consistent predictor of treatment attrition with offenders, especially when accounting for dosage and recent behavior. A demonstrated, behavioral expression of a consistent effort and lifestyle stability will have stronger predictive power than motivation, reflective of a more internal state that may or may not have been expressed.

Dosage, measured by the completion of previous correctional programs, decreased the likelihood of dropout. By completing programs, offenders could be developing a sense of efficacy and greater responsibility for one’s actions. Walters (2004) argues that offenders with high levels of irresponsibility view treatment content as threatening. The completion of treatment programs, which presumably challenge the offender to change and accept greater responsibility, could result in the perception of treatment content becoming less threatening. As noted in Figure 1, offenders with low amounts of dosage are more likely to drop out, especially when motivation is low.

Non-antisocial instability was predictive of dropout. Within an institution, non-antisocial behavioral instability can be indicated by a lack of consistent employment and administrative segregation (non-punitive) time. In the community, the concept can be expressed through instability in marital relationships or employment. Relationships and employment are predictive of community treatment completion (Hiller et al., 2006; Huebner & Cobbina, 2007; Rooney & Hanson, 2001). Other areas that can increase instability include substance abuse, misconducts, and a propensity to get side-tracked from goals. Walters (2004) found discontinuity, which is defined as a propensity to get sidetracked in the pursuit of goals, to be predictive of treatment dropout. From an offenders’ perspective, stability is a key component to entering treatment and continued engagement in treatment (Drapeau et al., 2005).

The Directionality framework emphasizes the path or direction that an offender is taking toward exiting the criminal justice system. There are two key components. First is the global, recent presence of lifestyle stability. Lifestyle stability allows for the acquisition and integration of the intervention efforts. Stabilization is necessary to develop a positive outlook when faced with significant change, which might be a threat (Walters, 2004). It will be difficult to put changes into practice and integrate change efforts into a
lifestyle when patterns of behavior are consuming the energies necessary for change. The second component is the consistent efforts to change. In the present results, consistent effort for change was indicated by prior dosage. Past participation in programs contributed to successful treatment completion, regardless of the other variables in the prediction model. Consistent efforts to change may reflect a gradual reduction in the threat of change (Walters, 2004).

Consistent efforts to change, which are of a behavioral nature, can be measured via completion of previous programs, program sessions, session activities, and homework. Thus, within a program, a recent demonstration of an offender’s engagement provides a foundation for treatment completion (Olver et al., 2011). This contrasts other concepts, such as motivation and readiness, which predominantly reflect internal processes. The stronger the behavioral indicators of general and progressive orientation toward engagement in crime-reduction activities, the greater the likelihood that an offender will finish a treatment program. Using behavioral ratings to measure gains in motivational interviewing, Anstiss et al. (2011) found that increased motivation resulted in reductions in recidivism.

There are limitations to the present study. First, our measure of motivation was broadly defined. It included both a desire for release and for treatment completion. With this general motivation measure, we were not able to identify a general desire for change, apart from release and treatment completion. Thus, direct comparisons with treatment readiness or stages of change were not possible. Moreover, the present measure of motivation was a rated measure, and specifically did not directly address the offenders’ perception of their motivation, as a self-report measure would. Some central aspects of motivation may not have been captured by the present measure. More specifically, a motivation interviewing approach integrated into a treatment program may produce more powerful effects. The current motivational measure did, however, have a strong intraclass correlation ($r_{\text{class}} = .93$; McGraw & Wong, 1996), indicating that a broad motivation construct was reliably measured. Those who had completed previous programs may also have a greater readiness for change, which may influence motivation in ways not captured by the current measure. Second, the present study did not measure therapeutic alliance characteristics. Therapeutic alliance has shown to be a robust predictor of treatment attrition in the nonoffender literature (Samstag et al., 1998), and new advances on therapeutic alliances with offenders have been suggested by Skeem, Eno Louden, Polaschek, and Camp (2007). They highlight the importance of caring, fairness, trusting, and nonauthoritarian relationships in successful criminal justice interventions. Third, the variables used to predict attrition were assessed in prison prior to program involvement. Not
incorporating variables from a time of release may uniformly deprive the sample of the opportunity to participate in activities that may increase the likelihood of remaining in treatment (e.g., employment) or drop out of treatment (e.g., daily hard drug use).

Although limitations are present, there is some support for the generalizability of the current results. The current results are similar with other research, even with design differences. With regard to sample characteristics, the present sample was composed of persistently violent offenders from medium or maximum security prisons, who were at high risk to reoffend. Other studies with similar results have typically used lower risk offenders (Walters, 2004), or researchers conducted the study within a community context (Huebner & Cobbina, 2007; Rooney & Hanson, 2001). From a measurement perspective, the present study used file ratings to derive the predictive measures. Other studies with similar results have used self-report measures (Rooney & Hanson, 2001) or direct ratings of the participants (Pelissier et al., 2003). The standardization of the dynamic dropout predictors may assist practitioners in determining who is at risk of a dropout and facilitate the development of strategies to prevent it.

**Treatment Delivery Implications**

It would be prudent to address instability and program completion issues in treatment, preferably at the beginning of the offender’s entry into a program, given that attrition can happen at any time throughout the program (Pelissier et al., 2003), and often during the early stages of intervention (Hiller et al., 2006). These efforts can include a focus on both treatment and non-treatment activities (i.e., employment, participation in social activities). From a treatment delivery perspective, the application of directionality can involve several strategies. As noted in Figure 1, past dosage may influence the probability of dropout, indicated by the space between the 95% CIs. But for those offenders who are at the highest level of instability (right side of the figure) dosage had no impact. At this level, instability is the strongest predictor of dropout. To address this problem, difficulties with instability should be introduced at the beginning of the intervention and then regularly addressed throughout the intervention. Many group interventions have a “check-in” time, which may be appropriate to address stability issues. Attention to how offenders manage their behavior outside of group may assist in greater stability. Second, if the intervention is in a group format, the application of directionality may result in more individualized efforts to encourage treatment completion.

To enhance treatment completion, the way in which treatment rules are implemented should be considered. This may involve temporary suspensions
from the program, rather than terminations when treatment rules have been violated. In considering treatment delivery attitudes and practices, Pelissier et al. (2003) examined the attrition predictors of “required to obey program rules,” “emphasis on program removal: rule violations,” “emphasis on program removal: lack progress,” and “peer pressure used to induce conformity.” Of these four predictors, only the “emphasis on program removal: rule violations” was significant in predicting attrition. Adherence to basic treatment rules is necessary, but an overemphasis on treatment termination due to rules may undermine the overall potential benefits of intervention. Based on the current result of the predictive value of prior dosage, every effort to complete a program will count. A potential strategy to facilitate completion would be to design programs that have several shorter components, rather than a single long-term intervention. A “modules” strategy will give offenders a greater sense of accomplishment, providing milestones for an offender’s progress.

Others have articulated well the evidence-based research on delivering correctional interventions, covering treatment targets, how treatment should be delivered, necessary administrative support, and so on (French & Gendreau, 2006). Based on the premise that program completion can lead to lower recidivism, the Directionality model is proposed to better understand the contributors to program attrition factors and also to guide strategies to reduce program attrition.

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