INFLUENCES OF CRIMINAL THINKING ON THE RELATIONSHIP BETWEEN PSYCHOSOCIAL DYSFUNCTION AND TREATMENT MOTIVATION

by

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Lastly, I would like to dedicate this manuscript to the memory of my sister Wendy, my dad, and Mrs. Thelma Wallace, whom I know are watching proudly from above.

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Influences of Criminal Thinking Relationship between Psychosocial Dysfunction and Treatment Motivation

Successful outcomes in substance abuse treatment have been related to therapeutic engagement and treatment retention. Engagement in treatment requires sufficient treatment motivation which is influenced by many factors. Psychosocial dysfunction (e.g. depression, anxiety, low self-esteem, high risk-taking, and low social conformity), for example, has been shown to be an important predictor of increased motivation in both community (Griffith, Knight, Joe, & Simpson, 1998) and correctional (Hiller et al., 2009) samples. Correctional samples, however, generally demonstrate less motivation than community samples (Farabee, Nelson, & Spence, 1993; Hiller et al., 2009). To further complicate matters, Joe et al. (2010) found criminal thinking—a construct shown to be inversely related to increased motivation and treatment engagement (Best et al., 2009)—to be positively correlated with psychosocial dysfunction. That is, as criminal thinking increases, psychosocial dysfunction also increases.

Thus we have two constructs systematically increasing together which relate to treatment motivation in opposing ways (i.e. high criminal thinking is related to high psychosocial dysfunction and low motivation, but high psychosocial dysfunction is associated with high motivation). One solution to this problem is that criminal thinking may moderate the relationship between psychosocial dysfunction and treatment motivation, such that psychosocial dysfunction has a different influence for individuals high in criminal thinking than it does for those low in criminal thinking. That is, some individuals have adapted a style of thinking which alters the function that deleterious psychological and social effects from drug abuse normally exert on an individual (i.e. motivates them to seek treatment). These erroneous thinking patterns interfere with their ability to recognize and desire help for their problems because their cognitive

processes explain away personal responsibility. Furthermore, it may be that increased contact with the criminal justice system and associated increased levels of criminal thinking produce a profile in correction samples which obscures the relationships between psychosocial dysfunction and motivation, helping explain the generally lower levels of treatment motivation found in these populations.

The following sections will review (1) the Texas Christian University treatment model, which will provide a conceptual framework for the treatment process, (2) the evidence supporting treatment engagement's positive relationships with treatment outcomes, (3) motivation as a predictor of increased treatment engagement, (4) psychosocial dysfunction's positive association with treatment motivation, (5) the confounds criminal thinking presents to the relationship between psychosocial dysfunction and motivation, and (6) the present study exploring solutions to these inconsistencies (i.e. positively correlated criminal thinking and psychosocial dysfunction variables have differential relationships with treatment motivation). Data from the Texas Christian University (TCU) Disease Risk Reduction (DRR) project are used to investigate these issues and further our understanding of treatment in correctional settings.

TCU Treatment Model

The TCU treatment process model (Figure 1) visually represents various findings about effective treatment processes which lead to favorable outcomes. The model includes the interrelated treatment components (early engagement, early recovery, and stabilized recovery) which represent the "black box" of treatment, along with patient and program attributes related to this black box, and target interventions meant to improve the aforementioned components. One important function of the TCU treatment model is that it provides a framework in which evidence-based practice can be viewed and implemented in treatment programs. Although the

present interest is in understanding factors related to specific patient attributes (i.e. how psychosocial dysfunction and criminal thinking relates to motivation), this model provides a broad scope in which to view this study. To this end, the following sections describe the evidence demonstrating the importance of treatment engagement, how motivation relates to engagement, and then factors that can influence motivation for treatment.

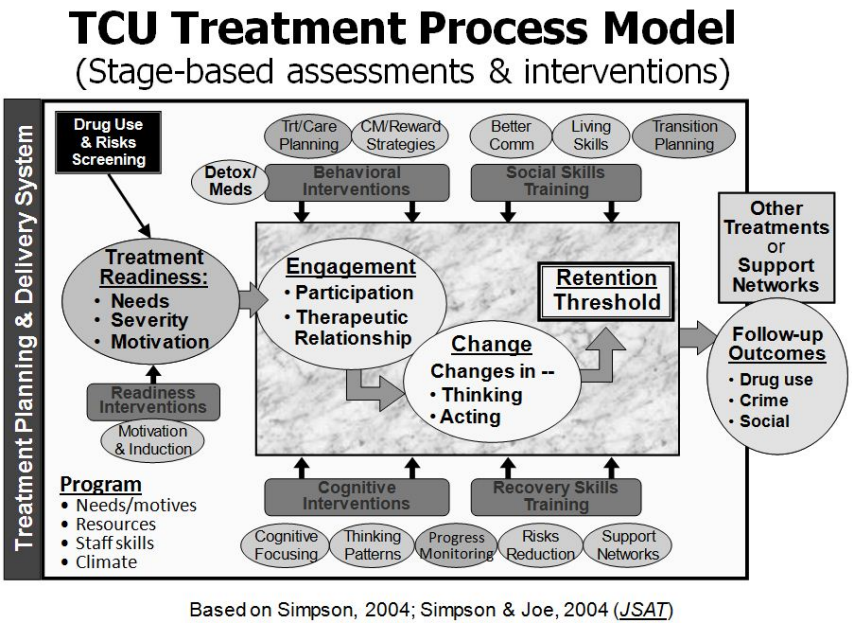

Figure 1: TCU Treatment Model

Treatment engagement predicts positive outcomes

In a therapeutic community, as well as other treatment modalities, engagement in treatment is an important component to successful outcomes. Conceptualizing treatment engagement, however, has been a bit more elusive and has been refined many times over the years. Early studies focused on treatment tenure as a rough approximation of engagement (e.g. Simpson, 1981), but it became clear that treatment attendance does not always equate to treatment participation. The advent of prison-based treatment further illuminates this problem because offender dropout options are usually limited to a return to the general prison population.

The following sections will outline these successive stages in our understandings of treatment engagement.

Treatment Tenure

As noted, early treatment engagement studies demonstrated that treatment tenure is a significant predictor of positive outcomes. Drawing on data from the Drug Abuse Reporting Program (DARP) from the early 70's, Simpson (1981) reported that treatment tenure was related to favorable 1-year post-treatment outcomes on measures of criminality, drug-use, and employment. This finding was demonstrated in methadone maintenance, therapeutic community, and outpatient drug-free treatment settings. Additionally, Simpson (1981) reported that subjects that stayed in treatment less than 3 months showed the least favorable outcomes and were not significantly different from patients who only went through a detoxification program. This suggests that treatment doesn't really begin to be effective until this 90 day threshold is obtained.

Results from a more recent study with methadone maintenance patients showed that clients over 35, those higher in treatment motivation, and those with lower drug-injection frequency were approximately twice as likely to have favorable outcomes (Simpson, Joe, and Rowan-Szal, 1997). Perhaps more importantly, this study showed that individuals who remained in treatment for 1 year or longer were almost five times more likely to have favorable outcomes than those who did not, adding to the efficacy of treatment tenure. Similarly, Griffith and colleagues (1998) showed in a structural equation model that treatment motivation was predictive of treatment engagement, and that engagement was related to reduced deviance measures at follow-up (i.e. self-reported heroin use, urinalysis, and criminal involvement).

Treatment Participation

Participation in treatment represents one refinement over treatment tenure as a measure of engagement because it is an indicator of being actively involved in treatment. Simpson (2004) noted that participation can be measured as either session attendance or psychological engagement, the former being more appropriate for outpatient settings and the latter appropriate where attendance is mandatory. Simpson, Joe, Rowan-Szal, and Greener (1995) demonstrated, with a diverse sample of opioid dependent drug users, that greater session attendance was related to a reduction in negative post-treatment outcomes such as illegal activities and drug use (measured by random drug urinalysis). Furthermore, this study showed that greater session attendance was related to improved psychological and social functioning measures (e.g. self-esteem, depression, hostility, risk-taking, etc.), which likely contributed to the observed positive outcomes. Again, session attendance is only an approximation of treatment engagement and is not the best representation of engagement in residential or mandated treatment settings. Relationships between counselor and peers, therefore, are also important in understanding the degree and quality of treatment participation.

Treatment Relationships

Positive relationships obtained in treatment represent yet another refinement in therapeutic engagement. Not only are we interested in how long a client stays in treatment or how many sessions they attend; we want to know how the quality of the treatment episode is related to outcomes. A number of studies have sought to identify and support this idea. Broome and colleagues (1997), for example, model the influence that counselor competence and peer support have with reduced recidivism. Using a sample of probationers mandated to residential treatment, this study examined the relational effects family dysfunction, peer deviance, and drug

problems have on treatment engagement and recidivism. More specifically, it reported a structural equation model which suggested that the influence of drug related problems on recidivism is mediated by therapeutic relationships. Important to the current discussion, therapeutic relationships (as measured by counselor competence and peer support) were shown to be predictive of reduced recidivism.

Similarly, Joe, Simpson, Dansereau, and Rowan-Szal (2001) demonstrated that counselor rapport was positively related to a number of post-treatment outcomes. Using logistic regression, this study found in one cohort that clients low in counseling rapport were almost four times as likely to have been involved in post-treatment illegal activities than those high in rapport, three times as likely to test positive for cocaine, and almost twice as likely to test positive for heroin. Similar results were found in a second cohort. Positive therapeutic relationships are thus essential components of favorable post-treatment outcomes.

Treatment Satisfaction

A construct related to treatment relationships is the extent to which clients are satisfied with their treatment program. Treatment satisfaction describes a dynamic aspect of treatment engagement and thus was used as a covariate in the analysis of counselor rapport described above (Joe et al. 2001). Although this measure is both conceptually and empirically related to other measures of engagement, Simpson (2004) reported that its importance for positive outcomes appears to be secondary to that of therapeutic relationships. A study by Joe and Friend (1989) reported a similar finding that treatment satisfaction measured early in treatment (i.e., the first 3 months) was only marginally related to outcomes, though they did suggest that this relationship may be stronger later in treatment.

Engagement Concluding Remarks

Findings described above demonstrate the importance of treatment engagement to treatment outcomes. The general finding is that clients who remain in treatment longer, attend and participate in more sessions, build greater therapeutic alliances with counselors and positive relationships with peers, and are satisfied with treatment tend to have better post-drug abuse treatment outcomes. It is thus important to explore factors that influence an individual's level of treatment engagement.

Motivation predicts treatment engagement

Motivation for treatment represents a particularly prominent client attribute that predicts therapeutic engagement. Conceptually related to stage based models of change (Prochaska & DiClemente, 1986), and building on multidimensional models of motivation (De Leon & Jainchill, 1986), early studies of treatment motivation (e.g. Simpson & Joe, 1993) provide the foundation on which the current discussion of motivation will be built. Using opioid addicted clients from methadone maintenance clinics, Simpson and Joe (1993) identified and validated three core components of motivation: assessment of drug use problems (DP), desire for help (DH), and readiness for treatment (TR). These components provide a benchmark for the following studies. To this end, assessment of drug problems refers to the degree to which an individual acknowledges problems related to their drug use and will be referred to throughout as **Problem Recognition**; an individual's understanding of a need for change and a desire to get help in doing so is referred to as **Desire for Help**; and an individual's willingness to accept action in the form of specific steps will be referred to as **Treatment Readiness.** In addition to providing these benchmarks, this study demonstrated that treatment motivation was a good predictor of early dropout. Findings revealed that clients scoring 2.5 (on a four point likert scale)

or less on the DP and DH scales had a 45% dropout rate, compared to 19-25% dropout rates for those scoring 2.5 and higher.

In general, treatment motivation has been shown to predict retention and it is associated with engagement (i.e. treatment participation and therapeutic relationships) across the major treatment modalities (Joe, Simpson, & Broome, 1998; Broome, Simpson & Joe, 1999). Specifically, Joe and colleagues (1998) found that treatment readiness was a significant predictor of 90-day retention in long-term residential (LTR) and outpatient methadone (OMT) settings. Problem recognition was also a significant predictor of 90-day retention in outpatient drug-free (ODF) programs, although treatment readiness was not. This finding was explained in terms of the stages-of-change model; clients in this treatment modality may not have progressed beyond the contemplation stage. Additionally, this study looked at correlations between treatment readiness and treatment process measures (treatment confidence, counselor rapport, and treatment engagement) and generally found significant and positive relationships in all three treatment modalities.

Motivation has also been shown to be important in criminal justice settings where coercion may be a factor. In a sample of felony probationers mandated to residential treatment, Hiller et al. (2002) found that while controlling for variables such as age, gender, marital status, drug type, and number of arrests, motivation measures were significant predictors of a positive therapeutic process (i.e. Personal involvement, Personal progress, and Psychological Safety). More specifically, desire for help was a significant predictor of all three treatment process measures and treatment readiness significantly predicted personal involvement and psychological safety. Problem recognition, however, was not significantly related to any of the positive process measures. These findings for both community and correctional samples support

the linkage between motivation for treatment and treatment engagement and encourage the examination of factors that relate to and influence treatment motivation.

Predictors of Motivation

Research indicates that predictors of motivation involve various life problems which act like road signs signifying a need for help. That is, a person without life problems is not likely to be motivated for drug treatment because their life is not being disrupted. An individual experiencing high levels of psychological distress related to their drug use is likely to be highly motivated because these problems may be interfering with their ability to function. Psychological and social problems have been shown to have an important influence on levels of motivation for treatment. Early studies on treatment motivation (Simpson and Joe, 1993) found that psychosocial problems such as depression, anxiety, and inability to control violent behavior showed significant positive correlations with desire for help, and treatment readiness. Griffith et al. (1998) reported similar findings, showing that poor psychological (self-esteem, depression, and anxiety) and social (risk-taking and social conformity) functioning were significant predictors of a composite motivation score comprised of problem recognition, desire for help, and treatment readiness. The structural model below (see Figure 2) illustrates all of the previously discussed links: 1) engagement predicts outcomes, 2) motivation predicts engagement, and 3) psychosocial dysfunction predicts motivation.

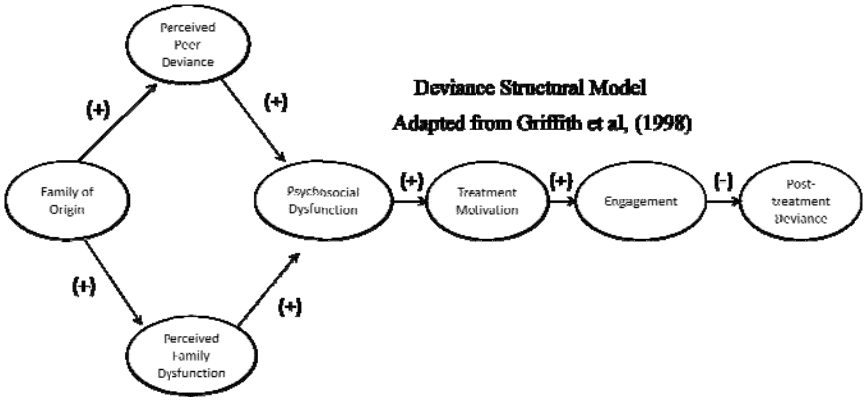

Figure 2: Deviance Structural Model

Psychosocial dysfunction's influence on treatment motivation has been replicated in correction samples as well. Hiller and colleagues (2009) demonstrated that mental health problems (depression, anxiety, and cognitive deficiencies) were significant predictors of problem recognition and desire for help. In addition, this study showed employment, family, and physical health problems to be important predictors of treatment motivation. Importantly, these additions broaden the scope and characterize a multi-dimensional framework of life problems which are likely interrelated. Identification of these problems represents an important linkage in the path of recovery for individuals with drug addictions. Hiller and colleagues concluded that age was the most salient predictor and that "aging out" may play an important part in treatment motivation. Duration of problems is likely one reason older clients are more motivated for treatment. Additionally, as drug users get older, drug related problems may become more visible because thinking errors that mask them may have weakened.

The Criminal Thinking Confound

Criminal thinking is one element that may inhibit an individual's ability to recognize problems or that their problems are related to drug use. However, statistical relationships between criminal thinking, motivation, and psychosocial dysfunction are inconsistent. The criminal thinking construct has roots in Sutherland's differential association theory, Sykes and

Matza's neutralization theory, and Yochelson and Samenow's criminal personality perspective (Walters, 2006). Basically, it represents criminal attitudes that influence both initiation and continuation of criminal conduct. Neutralization theory is of particular importance to the proposed research because it describes techniques of "neutralizing" the dissonant effects experienced when criminal actions are incongruent with one's beliefs. These techniques include denial of responsibility, denial of injury, and denial of the victim (Sykes & Matza, 1957). While these thinking patterns represent the criminal mind more generally, they have particular implications for drug abuse treatment. Studies show that criminal thinking is negatively related to treatment motivation and treatment engagement, but positively related to psychosocial dysfunction. In a study validating the Criminal Justice Client Evaluation of Self and Treatment (CJ-CEST), Garner and colleagues (2007) reported medium positive correlations between criminal thinking scales (i.e. entitlement, justification, personal irresponsibility, power orientation, cold heartedness, and criminal rationalization) and psychosocial functioning scales (i.e. depression, anxiety, self-esteem, decision making, hostility, and risk-taking) but negative correlations between criminal thinking scales and motivation scales (i.e. desire for help and treatment readiness). Also, criminal thinking was negatively correlated with engagement (i.e. treatment satisfaction, counselor rapport, treatment participation, peer support, and social support).

Using these scales in a United Kingdom sample, Best, Day, Campbell, Flynn, and Simpson (2009) divided a sample of drug abusing offenders into high, medium, and low groups of criminal thinking. Using multivariate analysis of variance procedures (MANOVA), they reported that clients in the high criminal thinking group reported significantly lower levels of treatment readiness than the other two groups. Groups did not differ, however, on levels of

desire for help. Furthermore, clients highest in criminal thinking were most likely to report that their reason for being in treatment was due to external pressures. They found that the high criminal thinking group was significantly different on all three measures of engagement. That is, high criminal thinking was significantly related to lower levels of treatment satisfaction, treatment participation, and counselor rapport. Finally, they reported that the high criminal thinking group had significantly higher levels of psychosocial dysfunction than the other two groups demonstrated by their scores on depression, anxiety, hostility, and risk taking.

Finding positive relationships between criminal thinking and psychosocial dysfunction, but negative relationships with motivation is counter intuitive given positive relationships between psychosocial dysfunction and motivation. It may be that criminal thinking represents a maladaptive coping strategy for psychosocial problems and that the influence of psychosocial dysfunction on motivation for treatment is different for individuals high in criminal thinking versus those low in criminal thinking. Conceptually, criminals have a tendency to rationalize and justify their problems. Without the criminal thinking arsenal, life problems indicate a need to change, but criminal thinking provides an alternative means for dealing with these problems and thus, more problems may reinforce beliefs about the unfairness of the world. Other studies have sought to indentify the etiology of criminal thinking. Walters (2003) suggested that criminal thinking is likely an adaptive response to the prison environment, but upon release it becomes maladaptive. He showed that novice inmates demonstrated a marked increase in criminal thinking when compared to their more experienced counterparts. Thus, increased contact with the criminal justice system may produce the conditions addressed by the current study hypothesis (i.e. elevated criminal thinking moderates the psychosocial dysfunction—motivation

relationship). The present study seeks to better understand the relationship criminal thinking has with important attributes patients bring with them when presenting for treatment.

Current Study

The **primary goal** of this study was to test whether psychosocial dysfunction differentially affects treatment motivation at varying levels of Criminal Thinking. A **secondary goal** was to search for and identify additional factors that influence the relationship between problem severity and treatment motivation. The first and second aims described below will service the primary goal and the third aim will service the secondary goal.

Aim 1 of the study was to replicate the relationships between psychosocial dysfunction, treatment motivation, and criminal thinking found in the literature previously discussed. In addition, this aim sought to extend the psychosocial dysfunction construct to include other drug-related problems—physical health and family problems—noted by Hiller et al. (2009) to be predictive of treatment motivation (see Figure 3). The hypotheses for this aim were (1) relationships among psychosocial dysfunction, treatment motivation, and criminal thinking will be consistent with those reported in the literature discussed above and (2) physical health and family problems will positively correlate with motivation and criminal thinking in the same manner as psychosocial dysfunction. In this way, the psychosocial dysfunction construct can possibly be extended to include additional factors.

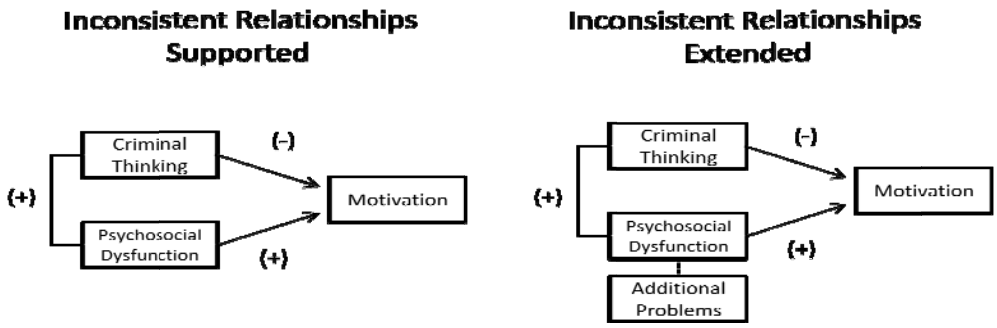

Figure 3: Inconsistent Relationships Model

Aim 2 of the study was to test for moderation effects of criminal thinking on the relationship between psychosocial dysfunction and treatment motivation (see Figure 4). The hypothesis for this aim was that drug related problems would be a better predictor of increased treatment motivation for individuals lower in Criminal Thinking than those high in Criminal Thinking.

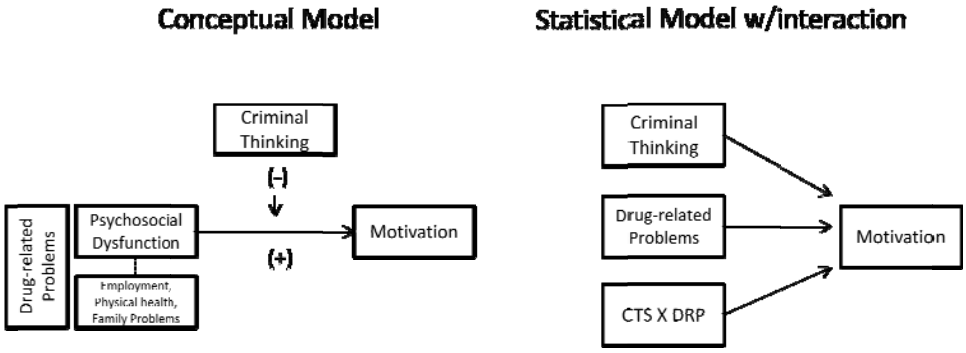

Figure 4: Moderation Model

Aim 3 of the study was to test the hypothesis that age is also a moderator of the relationship between psychosocial dysfunction and treatment motivation. Evidence suggests that criminal thinking is higher in younger samples (Packer, Best, Day, and Wood, 2009), and that increased age predicts increased motivation (Hiller, et al., 2009). The hypotheses for this aim are (1) increases in age will predict decreases in criminal thinking, (2) increases in age will predict increased motivation, and (3) the effect of psychosocial dysfunction on motivation levels will be greater for older samples than for younger samples.

Methods

Participants

Participants represent a diverse sample of 7,623 men and women offenders drawn from 8 correctional institutions in two states. The sample was collected as part of the Disease Risk Reduction project implementing and testing an intervention designed to reduce the spread of

infectious diseases. As part of a battery of ongoing assessments, participants in all sites completed a series of automated data capture forms (ADC; i.e. scan type forms) including the TCU CJ-Client Evaluation of Self and Treatment (CJ-CEST) and the TCU Criminal Thinking Scales (Simpson, Joe, Knight, and Gray, 2012), the Global Risk Assessment for Adults (TCU A-RSK) and the Mental and Physical Health Status Screen (TCU HLTHform). The A-RSK was administered at intake only whereas the other forms were administered at various times throughout treatment. Data on psychological and social functioning, criminal thinking, social networks, physical health, and demographics were obtained at intake, whereas motivation data were captured at the end of orientation. Approximately 70% were men and 30% were women. Program attributes varied by gender and by specialization. Substance Abuse Felony Punishment (SAFP) facilities or In-Prison Therapeutic Communities (IPTC) represented institution types from one state. The core difference between these institutions is that IPTCs are generally filled with more long-term prisoners who are mandated to treatment as a condition of release, and SAFPs are typically offenders who have shorter sentences or are being diverted into treatment. Sites from another state consisted of minimum security level prisons providing therapeutic community treatment.

From these units, four subgroups existed which may present differential relationships among the variables of interest. **Women Regular.** The women regular group (WR) represented about 20% of the total sample and consisted of units housing women that do not require special services related to mental or physical health. **Women Special Needs.** The women special needs group (WSN) represented about 10% of the total sample and consisted of one unit that houses women requiring special services related to mental or physical health. **Men Regular.** The men regular group (MR) represented about 31% of the total sample and consisted of three units that

house men generally serving shorter sentences than the long-term offenders outlined below.

Men Long Term. The men long-term (MLT) represented about 38% of the total sample and consisted of the two IPTC units housing men typically serving longer sentences and participating in treatment as a condition of their release. Demographics for each of these groups are reported in Table 1 below.

Table 1.

Demographics including age, education levels, and ethnicity, by group

		Women		Men	
		Regular (n = 1,552)	Special Needs (n = 755)	Regular (n = 2,391)	Long Term (n = 2,925)
Age		33.26	34.98	34.75	35.61
Ethnicity	Hispanic/Latino	18%	22%	3%	36%
	Black	14%	25%	27%	34%
	White	67%	53%	64%	31%
	Other	19%	22%	9%	35%
Education	Less than 12 years	42%	48%	36%	39%
	12 years or GED	36%	32%	49%	46%
	12 + years	22%	20%	15%	15%
Marital Status	Single (never married)	42%	38%	54%	47%
	Married or w/partner	23%	27%	20%	27%
	Divorced/Widowed	35%	35%	26%	26%
Incarceration length prior to Treatment	< 1 year	83%	85%	51%	29%
	1-3 years	11%	10%	32%	36%
	over 3 years	6%	5%	17%	34%

Note: Represents categories based on how many years it had been since the offender lived in the "free world" for at least six months.

Instrumentation

The Global Risk Assessment Adults (TCU A-RSKform) provided demographic information such as age, race, and education level. The Motivation form (TCU MOTform), Psychological functioning form (TCU PSYform), and Social functioning form (TCU SOCform)

were part of the CJ-CEST referenced above and provided information on offender motivation levels as well as psychological and social functioning indicators. The Adult Family and Friends form (TCU A-FMFRform) provided information on the offenders perceptions of family and peer dysfunction. The Health form (TCU HLTHform) assessed physical health problems. Finally, the Criminal Thinking Scales (TCU CTS) provided measures on criminal attitudes and thinking errors. (Note: the items from these forms may be found on the scoring guides in appendices E-K). From these, Treatment Motivation, Psychological Dysfunction, Social Dysfunction, Dysfunctional Social Networks, and Criminal Thinking composites and subscales were created and used as outlined below. All scales have demonstrated good psychometric properties. With the exception of demographics from the A-RSK form and the HLTH form, all variables were scored on a five point likert type scale ranging from disagree strongly to agree strongly. *Note: Reliabilities reported below for criminal thinking, motivation, psychological dysfunction, and social dysfunction were reported in Simpson et al. (2012).* Chronbach's alphas listed for the dysfunctional social networks variables were computed on the current sample and demonstrated strong reliabilities.

Treatment Motivation. Motivation scales (i.e. problem recognition, desire for help, and treatment readiness) were used in the current study both as a composite (MOT) and as separate scales. Problem recognition (PR; alpha = .90) consists of 9 items such as "your drug use is a problem for you" and "your drug use is making your life become worse and worse," which represents an offender's ability to recognize that their drug use is causing problems in their life. Desire for help (DH; alpha = .81) consists of 6 items such as "you need help dealing with your drug use" and "it is urgent that you find help immediately for your drug use" which characterizes an offenders desire to obtain help in dealing with their addiction. Treatment readiness (TR;

alpha = .84) consists of 8 items such as “this treatment gives you a chance to solve your drug problems” or reversed scored item “you are at this treatment program only because it is required,” which represents an offender’s readiness for substance abuse treatment.

Psychological Dysfunction. The psychological dysfunction variable (PSY) was a composite created by averaging the subscales of depression, anxiety, and self-esteem (reverse scored to reflect “low” self-esteem) taken from the PSYform. Depression (DP; alpha = .81) consists of 6 items like “you feel extra tired or run down.” Anxiety (AX; alpha = .85) consists of 7 items such as “you feel anxious or nervous.” Self-esteem (SE; alpha = .76) consists 6 items like “you have much to be proud of.”

Social Dysfunction. The social dysfunction variable (SOC) was a composite created by averaging the subscales hostility and risk taking taken from the SOCform. Hostility (HS; alpha = .84) consists of 8 items like “you feel a lot of anger inside you” or “you get mad at other people easily.” Risk taking (RT; alpha = .80) assesses an individual’s willingness to engage in risky behaviors and includes items such as “you like to take chances” and “you like friends who are wild.”

Dysfunctional Social Networks. The dysfunctional social networks variable (DSN) was a composite created by averaging the subscales “family drug use” and “peer criminality.” Family drug use (alpha = .81) consists of 3 items such as “your family drank alcohol together.” Peer criminality (alpha = .89) consists of 6 items referencing the offender’s friends such as “they traded, sold, or dealt drugs” or “they got into loud arguments or fights with other people.” These two scales were combined to cover a multitude of dysfunctional social networks including both family and friends.

Psychosocial Dysfunction. The psychosocial dysfunction variable (PSD) was created by averaging the psychological dysfunction, social dysfunction, and dysfunctional social networks variables described above. This variable extends the psychosocial dysfunction construct found in the literature by including both inter and intra personal dysfunction. For reasons described in the results, physical health was excluded from this composite. For the remainder of the paper, psychosocial dysfunction may be used to reference any of the three variables that make it up or the construct as a whole. When necessary the individual components of psychosocial dysfunction may still be referenced.

Criminal Thinking. The criminal thinking variable (CT) was a composite created by averaging six subscales (Entitlement, Justification, Power orientation, Cold heartedness, Criminal rationalization, and Personal irresponsibility). Entitlement (EN; alpha = .78) consists of 6 items such as "you have paid your dues in life and are justified in taking what you want." Justification (JU; alpha = .75) consists of 6 items like "when being asked about the motives for engaging in crime, you point out how hard your life has been." Power orientation (PO; alpha = .81) consists of 7 items such as "when not in control of a situation, you feel the need to exert power over others." Cold heartedness (alpha = .68) consists of 5 items like the reversed scored item "seeing someone cry makes you sad." Criminal rationalization (alpha = .71) consists of 6 items such as "police do worse things than do the 'criminals' they lock up." Personal irresponsibility (alpha = .68) consists of items such as "you are not to blame for everything you have done."

Physical Health. The physical health variable (PHLTH) was created by summing 11 items (see Rowan-Szal et al. 2011) which had response categories ranging from "none of the time" to "all of the time" measured on a five point scale. Items asked things such as "During the

past year, how often have you had any of these problems or types of diseases? ‘stomach problems or ulcers’ or ‘kidney infection problems.’”

Age. The age variable represents the actual age of the offender and was taken from the ARSKform.

Analytic Plan

Analyses were conducted in several phases designed to address each aim outlined above. Additionally, a **Power analysis** was included to determine the effect size that could be detected for a given subsample.

Aim 1. Correlational analyses will be used to determine if the relationships between psychosocial dysfunction, treatment motivation, and criminal thinking are consistent with those found in the literature. Also, the additional motivation predictors (physical health and family problems) will be analyzed to confirm that their relationships with motivation and criminal thinking are consistent with those associated with psychosocial dysfunction. This will involve a rough approximation based on correlation size and direction. Regression analyses will then confirm that motivation will regress on each of the indicated predictors (i.e. psychosocial dysfunction and criminal thinking). This will be done for each the four sub-groups in the sample.

Aim 2. The moderating effects of criminal thinking on the relationship between psychosocial dysfunction and motivation will be tested. Regression analysis procedures with an interaction term will be used to test this hypothesis. To reduce problems with multi-collinearity, the independent variable and moderator will first be standardized by subtracting the mean and dividing by the standard deviation. The interaction term will then be computed by multiplying the centered independent variable by the centered moderator. A statistically significant effect of

the interaction term will indicate moderation. Because of the large sample size, the study is likely overpowered, so R^2 effect sizes will be used to determine practical significance. To this end, motivation will be regressed on psychosocial dysfunction with the addition of an interaction term between psychosocial dysfunction and Criminal Thinking.

Aim 3. Finally, criminal thinking was regressed on age to replicate findings by Packer et al. (2009) and motivation was regressed on age to replicate findings by Hiller et al. (2009). Moderated regressions were then performed to test the hypothesis that age moderates the relationship between psychosocial dysfunction and motivation (see aim 3). This analysis followed the same procedures described above for criminal thinking. Motivation was regressed on age and psychosocial dysfunction and included an age by psychosocial dysfunction interaction term.

Power Analysis. A power analysis performed for regression procedures with three predictors revealed that at a nominal power of .80 at $p < .05$ the following effect sizes could be detected by the associated group: WR (n=1543) can detect $f^2 = .007$; WSN (n=643) can detect $f^2 = .017$; MR (n=2124) can detect $f^2 = .005$; and MLT (n=2647) can detect $f^2 = .004$. *Note: The total sample for the power analysis was based on valid cases used in moderated regression procedures (n = 6,957) and thus the discrepancy between sample sizes reported here and that reported in the participants section.*

Results

The results are divided into five major sections. **Descriptive statistics** provide means and standard deviations of the variables in which the present study is interested. **Aim 1 outcomes** present findings intended to replicate results found in the literature. **Aim 2 outcomes** pertain to the hypothesis that criminal thinking moderates the psychosocial dysfunction—motivation

relationship; **Aim 3 outcomes** pertain to the hypothesis that age moderates the psychosocial dysfunction—motivation relationship. **Supplemental findings** were secondary results found during analyses related to aim 1 which provide significant insight in answering the dilemma of psychosocial dysfunction and criminal thinking being positively correlated yet having opposing influences on treatment motivation.

Descriptive statistics

Differences existed between groups on the variables of interest and are summarized in Table 2. Of particular interest is that the Men Long Term group was significantly lower in motivation (M = 3.64) than the Women's Regular group (M = 3.89), the Women Special Needs group (M = 3.95), and the Men's Regular group which did not differ from each other. This is consistent with the literature because MLT were also significantly lower on psychological (M = 2.25) and social (M = 2.62) dysfunction than all three other groups. Also important to note is that the Men's Regular group scored significantly higher in criminal thinking (M =2.29) and dysfunctional social networks (M = 2.60) than the other three groups whose mean criminal thinking and dysfunctional social network scores ranged from 2.11-2.16 and 2.42-2.45, respectively. Additionally, all groups differed significantly from each other on psychological dysfunction and physical health, demonstrating substantive differences among these variables.

Table 2
Descriptive statistics (means and standard deviations) for the predictor variables by group.

	Women				Men			
Variables	Regular		Special Needs		Regular		Long Term	
Motivation	3.89[a]	(.66)	3.95[a]	(.69)	3.88[a]	(.71)	3.64[b]	(.72)
Psych Dysfunction	2.75[a]	(.73)	3.13[b]	(.79)	2.65[c]	(.66)	2.25[d]	(.59)
Social Dysfunction	2.87[a]	(.68)	2.87[ab]	(.72)	2.96[c]	(.64)	2.62[d]	(.59)
Dys. Soc. Networks	2.47[a]	(.87)	2.45[a]	(.91)	2.60[b]	(.82)	2.42[a]	(.76)
Physical Health	14.6[a]	(4.8)	16.6[b]	(10.9)	14.0[c]	(4.4)	12.4[d]	(3.9)
Criminal Thinking	2.11[a]	(.45)	2.16[a]	(.52)	2.29[b]	(.45)	2.12[a]	(.45)
Age	33.3[a]	(9.5)	35.0[b]	(10.9)	34.7[c]	(9.9)	35.6[bc]	(9.9)

Note: Groups with differing superscripts are significantly different by Tukey's post hoc tests at $p < .05$ for each variable.

Aim 1 outcomes

Correlation analyses revealed that psychosocial dysfunction variables were significantly and positively correlated with criminal thinking in each group presented in Table 3. Social dysfunction demonstrated the strongest correlation with criminal thinking (*r's* > .50) and was consistent across all groups. Whereas psychological dysfunction's correlation with criminal thinking was similar between the Women Regular and the Men Regular groups, there was a substantial difference between the Women's Special Needs group ($r = .240$) and the Men's Long-Term group ($r = .419$). Dysfunctional social networks were similar in correlation strength with criminal thinking across each group (*r's* ranging from .303-.381). Physical health was weakly correlated with criminal thinking in the Women's regular ($r = .075$) and Men's Long term groups ($r = .126$), but not significantly correlated with Women's special needs group or the Men's Regular group. Age was more strongly correlated with criminal thinking than physical health, but still was relatively weakly correlated with criminal thinking as compared to other variables; *r*'s ranging from -.064 to -.169.

Table 3
Correlations (by group) of each dysfunction variable with criminal thinking

	Women		Men	
Variables	Regular	Special Needs	Regular	Long Term
Psych Dysfunction	.359***	.240***	.338***	.419***
Social Dysfunction	.542***	.532***	.521***	.501***
Dys. Soc. Networks	.381***	.303***	.347***	.352***
Physical Health	.075***	.029	.000	.126***
Age	-.148***	-.105**	-.169***	-.064***

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

These results suggest consistency with the literature in terms of psychological and social dysfunction having medium to large positive correlations with criminal thinking. Dysfunctional social networks also had medium positive correlations with criminal thinking—suggesting they may group with psychological and social dysfunction to form the extended inter/intra psychosocial dysfunction construct discussed above. Physical health did not tend to be strongly correlated with criminal thinking and analyses assessing suppression effects (discussed below) in which physical health was analyzed in relation to criminal thinking did not reveal the same type of relationship that the psychosocial dysfunction variables had with criminal thinking and thus was not included in the extended psychosocial dysfunction construct.

Regression analyses were then conducted to confirm the ability of criminal thinking and psychosocial dysfunction to predict treatment motivation. Simple linear regression models predicting motivation are illustrated in Table 4. Criminal thinking was predictive of treatment motivation in every group (e.g. betas ranging from -.171 to -.372) and explained between 1.4% and 5.3% of the variance in motivation. Psychological dysfunction was also a significant predictor of treatment motivation for every group, betas ranging from .148 and .226 and explained between 1.5% and 6.8% of the variance in motivation. Social dysfunction was predictive of motivation in three of the four groups, betas ranging between .081 and .147

explaining between 0.5% and 2.4% of the variance in motivation. Social dysfunction was not predictive of treatment motivation for the Men Long Term group, but suppression analysis (discussed below) demonstrates it to be a good predictor when controlling for criminal thinking. Dysfunctional social networks was a significant predictor of motivation in all four groups, betas ranging from .081 to .121 and explaining between 0.7% and 2% of the variance in motivation. Physical health was a significant predictor in the Women's Regular and the Men's regular groups explaining between 0.6% and 1.6% of the variance, but was not significant for the other two groups. Lastly, age was a significant predictor of motivation for three of the four groups explaining between 0.2% and 0.5% of the variance in motivation, but was not a significant predictor for women with special needs.

Variance explained in motivation by physical health and age was trivial and was likely significant due to overpowered models. The reader will note that variance explained by other predictors was not always impressive, but suppression effects (discussed below) reveal that the importance of these variables becomes greater when considered in terms of criminal thinking (e.g. non-significant Social dysfunction variable in Men Long term group becomes significant when controlling for criminal thinking). These suppression effects were not observed in physical health or age, and thus their insignificance remained intact, even when controlling for criminal thinking. Because they did not share this relationship with criminal thinking like the others, they were excluded from further reporting.

Table 4

Simple linear regression models (by group) of motivation on each individual predictor

Group	Predictor	Beta	*SE*	*t*	R^2
	Criminal Thinking	-.171	.037	-4.62***	.014
	Psych Dysfunction	.165	.023	7.28***	.033
Women	Social Dysfunction	.099	.025	4.03***	.010
Regular	Dys. Soc. Networks	.108	.019	5.74***	.021
	Physical Health	.011	.004	3.05**	.006
	Age	-.004	.002	-2.50*	.004
	Criminal Thinking	-.265	.052	-5.12***	.039
Women	Psych Dysfunction	.226	.033	6.85***	.068
Special	Social Dysfunction	.147	.037	3.92***	.024
Needs	Dys. Soc. Networks	.092	.029	3.10**	.015
	Physical Health	.00	.004	1.19	.002
	Age	-.004	.002	-1.47	.003
	Criminal Thinking	-.274	.035	-7.90***	.029
	Psych Dysfunction	.178	.024	7.55***	.026
Men	Social Dysfunction	.081	.025	3.31***	.005
Regular	Dys. Soc. Networks	.121	.019	6.30***	.019
	Physical Health	.021	.004	5.91***	.016
	Age	.005	.002	3.33***	.005
	Criminal Thinking	-.372	.031	-12.13***	.053
Men	Psych Dysfunction	.148	.024	6.28***	.015
Long	Social Dysfunction	.025	.024	1.03	.000
Term	Dys. Soc. Networks	.081	.018	4.40***	.007
	Physical Health	.004	.004	1.11	.001
	Age	.003	.001	2.19*	.002

Aim 2 outcomes

Regression models including one psychosocial dysfunction variable (e.g. psychological dysfunction), criminal thinking, and a product term between the psychosocial dysfunction were used to test for moderation of criminal thinking on the dysfunction—treatment motivation relationship. Initial results revealed either non-significant interaction terms or interaction terms accounting for less than 1% of variance in motivation. Samples were then restricted based on criminal thinking levels (i.e. above 1SD below the mean, above the mean, and over 1SD above the mean) to determine if the moderation effects only occurred after certain levels of criminal thinking were present. Despite these efforts, effect sizes either remained smaller than the .001 or were less than statistical power for the particular subsample could detect. Data from these analyses are not shown.

Aim 3 outcomes

Results of motivation being regressed on age yielded trivial effects sizes— explaining less than 1% of the variance in motivation for each group and are not reported here. Additionally, moderated regression models including age by psychosocial dysfunction interaction terms yielded nominal effects, and thus did not support the hypothesis associated with this aim. There were some small effects when criminal thinking was regressed on age.

When criminal thinking was regressed on age in the Women Regular group, results revealed that increases in age predicted decreases in criminal thinking, b = -.007 (SE = .001), $t(1)$ = -6.88, $p < .001$, R^2= .022. When criminal thinking was regressed on age in the Women Special Needs group, results also revealed that increases in age predicted decreases in criminal thinking b = -.005 (SE = .002), $t(1)$ = -2.84, p = .005, R^2 = .011. Likewise, when criminal thinking was regressed on age in the Men's Regular group, results revealed that increases in age predicted

decreases in criminal thinking $b = .71$ ($SE = .001$), $t(1) = -10.13$, $p < .001$, $R^2 = .029$. Age, however, was not a significant predictor of criminal thinking in the Men Long-term group. These results provide moderate support for the hypothesis that increased age predicts decreased criminal thinking and may have some clinical value.

Supplemental findings

Secondary analyses conducted during Aim 1 revealed two important findings that provide substantial clarification to the seemingly contradictory relationship between psychosocial dysfunction, criminal thinking, and treatment motivation. **Differential relationships** of psychosocial dysfunction and criminal thinking with the problem recognition and treatment readiness components of motivation ease the confusion because the opposing influences that criminal thinking and psychosocial dysfunction have on motivation are parsed out to differing components of the motivation construct. Although criminal thinking and psychosocial dysfunction both fall under the dysfunction "umbrella", they appear to represent two separate classes of dysfunction which differentially relate to treatment motivation. **Suppression effects** observed when psychosocial dysfunction and criminal thinking are used together to predict motivation demonstrate that a substantial portion of the positive relationship between psychosocial dysfunction and criminal thinking is irrelevant to motivation and allows their opposing influences on motivation to be more plausible.

Differential relationships. Analyses in which the regression models illustrated in Table 4 were performed on the individual components of motivation revealed that that these two classes of variables differentially related to problem recognition and treatment readiness. Whereas psychosocial dysfunction variables tended to be better predictors of problem recognition, criminal thinking tended to be a better predictor of treatment readiness. A package

for R software, based on procedures outlined in Howell (1997), was used to test for significant differences of correlation strengths of two predictor variables on a criterion variable in a dependent sample. This was done in two stages. The first stage tested for differences in the relative strengths of criminal thinking and a dysfunction variable to a given component of motivation. In the regular women's group (WR), for example, PSY's correlation with problem recognition (r=.252) is significantly greater ($p < .05$) than Criminal thinking's correlation with problem recognition (r = -.014). Conversely, Criminal Thinking's correlation with treatment readiness (r = -.210) is significantly greater ($p<.05$) than PSY's correlation with treatment readiness (r = .028). Though this trend was generally true, there were a couple of notable exceptions. In the Women's special needs group, dysfunctional social networks' correlation strength to problem recognition (r = .122). In the Men Long-term group, dysfunctional social networks was actually more weakly correlated with problem recognition (r = .129) than was criminal thinking (r = -.130). Significant differences for these two cases may be artifacts of the large sample sizes. In every instance criminal thinking was more strongly correlated with treatment readiness than psychosocial dysfunction variables. These results are summarized in Table 5.

Table 5

Displays significant differences in Psychosocial Dysfunction variables (r_1) and Criminal Thinking's (r_2) correlations with components of motivation (Problem Recognition/Treatment readiness

		Problem Recognition			Treatment Readiness		
Group	Variable	r_1	r_2(CT)	*t*	r_1	r_2(CT)	*t*
Women	Psych Dysfunction	.252	-.014	9.58**	.028	-.210	8.49**
Regular	Social Dysfunction	.174	-.014	7.89**	.030	-.210	10.22**
	Dys. Soc. Networks	.182	-.014	7.06**	.049	-.210	9.44**
Women	Psych Dysfunction	.315	-.115	9.48**	.135	-.220	7.62**
Special	Social Dysfunction	.215	-.115	9.20**	.047	-.220	7.30**
Needs	Dys. Soc. Networks	.122	-.115	5.18**	.102	-.220	7.19**
Men	Psych Dysfunction	.242	-.042	11.81**	.033	-.267	12.56**
Regular	Social Dysfunction	.160	-.042	9.74**	.056	-.267	16.22**
	Dys. Soc. Networks	.191	-.042	9.63**	.046	-.267	13.23**
Men	Psych Dysfunction	.208	-.130	16.99**	.000	-.269	13.42**
Long	Social Dysfunction	.094	-.130	11.83**	.077	-.269	19.11**
Term	Dys. Soc. Networks	.129	-.130	12.01**	.024	-.269	13.84**

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

Similar analyses were then performed to test relative correlations strengths of motivation predictor variables (PSY, SOC, DSN and CT) with problem recognition and treatment readiness. That is, it tested whether the predictor variable correlated more strongly with problem recognition or treatment readiness. Psychosocial dysfunction in the Women's regular group, for example, correlated more strongly with problem recognition (r = .249) than it did with treatment readiness (r = .030). Criminal thinking, on the other hand, correlated more strongly with treatment readiness (r = -.208) than it did with problem recognition (r = -.013). In every case but one psychosocial dysfunction variables correlated more strongly with problem recognition than with treatment readiness. In the Women's special needs group, dysfunctional social networks was not significantly more correlated with problem recognition (r = .113) than with treatment readiness (r = .101). In every case criminal thinking was more correlated with treatment

readiness than it was with problem recognition. These analyses were used to support findings reported in Table 5 and summarized in appendix D.

Suppression effects. Figure 6 demonstrates, in the Women Regular group, a cooperative suppression effect that helps explain how criminal thinking and psychosocial dysfunction can be positively correlated, yet have opposing influences on treatment motivation. Notice two things in the figure: 1) the beta weights of psychosocial dysfunction and Criminal thinking demonstrate a substantial increase from when they are in prediction models of motivation alone to when they are in prediction models of motivation together, and 2) the variance explained by model three (both predictors) is greater than the sum of the variance explained by models one and two. The beta weights increase because, when controlling for each other, the shared variance between psychosocial dysfunction and criminal thinking that is irrelevant to motivation shrinks the predictive portion of each thereby increasing the proportion of predictive variance to explained variance.

$$\beta_{y\,1\cdot 2} = \frac{r_{y1} - (r_{y2})(r_{12})}{1 - R^2_{12}}$$

$$\beta_{M\ psd\cdot ct} = \frac{.189 - (-.117)(.550)}{1 - .302} \approx .359$$

model	Variable	DF	Standardized Beta	t value	p value	R2
1	Intercept	1	0	42.29	<.0001	
	PSD	1	.189	7.58	<.0001	.036
2	Intercept	1	0	53.06	<.0001	
	CT	1	-.117	-4.64	<.0001	.014
3	Intercept	1	0	43.71	<.0001	
	PSD	1	.359	12.52	<.0001	.104
	CT	1	-.312	-10.89	<.0001	

Figure 6

This is important because it demonstrates that most of the shared variance between psychosocial dysfunction and criminal thinking is irrelevant to motivation. So the total shared variance between psychosocial dysfunction and criminal thinking is 30.2%, but 82% of that shared variance is unrelated to motivation. This finding substantially alleviates the problem of psychosocial dysfunction and criminal thinking having a strong positive correlation with each other but opposing influences on motivation. The same finding was found across the other groups. Table 6 below shows the R^2 explained by each predictor alone, the sum of those, the R^2 explained in motivation by the two predictors in one model, and the discrepancy in what was expected and what was observed. The discrepancy represents the unique portion of variance in motivation explained only by the two predictors used together (the portion in which all three circles overlap in Figure 6). The total R^2 between PSD and CT is the sum of the shared variance irrelevant to motivation and the shared variance relevant to motivation (the discrepancy). As noted, the percent of shared variance between psychosocial dysfunction and criminal thinking irrelevant to motivation is quite large, ranging from 64% to 82%.

Table 6
Shared variance between criminal thinking, psychosocial dysfunction, and treatment motivation

Model	Variable(s)	R^2 explained in motivation			
		WR	WSN	MR	MLT
1	PSD	.036	.052	.030	.010
2	CT	.014	.038	.031	.053
	Sum	.050	.090	.061	.063
3	PSD + CT	.104	.166	.129	.122
	Discrepancy	.054	.076	.068	.059
Shared Variance between Psychosocial dysfunction and Criminal Thinking in relation to Motivation					
	Total R^2 Between PSD & CT	.302	.214	.273	.294
	PSD & CT R^2 Irrelevant to MOT	.248	.138	.205	.235
	% Shared Variance Irrelevant to MOT	82%	64%	75%	80%

Although these findings are important in alleviating the confusion about psychosocial dysfunction and criminal thinking being positively related with opposing influences on motivation (i.e. much of the positive relationship is unrelated to motivation), the unique variance in motivation by the two predictors together is substantial in relation to the unique variance explained by each predictor alone. In many cases the portion only explained by the two predictors together is equal to or greater than the sum of the unique variance explained by each predictor. Although these findings aren't directly relevant to answering the dilemma posited in this paper, they have important treatment implications. Regression tables including individual psychosocial dysfunction variables on motivation are included in Appendices B, C, and D.

Discussion

The current study sought to resolve a seemingly contradictory relationship among psychosocial dysfunction, criminal thinking, and treatment motivation. That is, criminal thinking and psychosocial dysfunction systematically increasing together is perplexing when considering the inverse influences they have on treatment motivation. It was hypothesized that the well-established predictive utility of psychosocial dysfunction on treatment motivation (e.g. Griffith, 1998; Hiller, 2009) would be replicated in large and diverse samples, and that this relationship would function differently at varying levels of criminal thinking.

Some differences did exist between groups on the variables of interest and the relationships between them. The Men Long Term group, for example, demonstrated significantly less motivation than all of the other groups. This group also exhibited the least psychological and social dysfunction, which partially explains the reduced levels of motivation. The Men Regular unit exhibited the highest level of criminal thinking (which the other groups did not differ significantly on). This was unexpected in terms of Walters (2003) findings on prisonization which suggest that greater prison contact increases criminal thinking. In addition to differences among variables there were some small variations between groups on the relationships among variables, but the general finding was that the dilemma shown in the literature existed within all groups. Despite these differences results indicated that the perplexing situation noted in the literature existed in each subgroup supporting the hypothesis outlined in Aim 1.

Aims 2 and 3 were designed to answer the stated dilemma but results did not strongly support these hypotheses. Although supplemental findings (discussed below) help explain the posited dilemma, the moderation hypotheses retain theoretical support and should not be easily

dismissed. Evidence suggests that moderation or interactions in a "noisy" research environment are often elusive even when backed by sound theory (Aquinis, Beaty, Boik, & Pierce, 2005). In fact, in their meta-analysis, Aquinis and colleagues suggested that meaningful effect sizes for moderators in applied research can be quite small; the median effects size in their study being a mere .002. Caution should be taken, therefore, in concluding that criminal thinking does not moderate the psychosocial dysfunction—treatment motivation relationship.

Nevertheless, two supplemental findings presented themselves which help resolve the problem. First, criminal thinking and psychosocial dysfunction differentially predict varying components of motivation. Whereas, psychosocial dysfunction variables are more predictive of problem recognition, criminal thinking is more predictive of treatment readiness. Secondly, in most cases the majority of shared variance between psychosocial dysfunction variables and criminal thinking is simply unrelated to motivation.

Differential relationships

Findings that psychosocial dysfunction and criminal thinking are predictive of different components of motivation are robust. In every case, dysfunction variables were better predictors of problem recognition than they were of treatment readiness. This is not surprising since one's problems are a likely prerequisite to being able to recognize them. What is less clear is if or how these influence treatment readiness. It may be that their influence serves to raise problem recognition to a threshold which moves the client from the pre-contemplation stage (denial of problems) into the contemplation stage (recognition of problems), but their utility largely ends there. In fact, although desire for help and treatment readiness are important predictors of engagement, problem recognition is not (Hiller et al. 2002), indicating that a positive role for psychosocial dysfunction is limited beyond its role in driving problem recognition. The same

trend is noted with dysfunctional social networks. Where dysfunctional social networks before treatment predict increases in problem recognition (Hiller et al. 2009) post-treatment dysfunctional social networks are shown to predict poor post-treatment outcomes (Broome, Simpson, & Joe, 2002). That is, psychosocial dysfunction is important in terms of an individual recognizing a need to change, but psychosocial dysfunction must be met with new psychological and behavioral repertoires.

Results were less clear for criminal thinking's predictive abilities. Whereas the trend remained that criminal thinking was a better predictor of treatment readiness than it was for problem recognition, the strength of its relationship to problem recognition in two of the four groups was comparable to that of psychosocial dysfunction. Specifically, in the Women's Special Needs group criminal thinking's correlation with problem recognition was not significantly different from the dysfunctional social networks variable. The same was true for both dysfunctional social networks and social dysfunction in the men's regular group. It is important to note that, although the correlation of criminal thinking with problem recognition was close to that of certain dysfunction variables, criminal thinking's relative predictive abilities continued to be greater for treatment readiness.

These results are important in terms of Griffith et al. (1998) in which dysfunctional family and peer relationships are demonstrated to influence motivation through psychosocial dysfunction. Social networks represent an important function in both persistence (Best et al. 2003) and desistence (Valente, Gallaher, & Mouttapa, 2004) of crime. Whereas the influences of dysfunctional relationships have a positive influence on motivation, like psychosocial dysfunction, their benefits are lost beyond their ability to signal a drug abuser that their drug use is causing them problems. Broadly speaking, dysfunctional social networks and psychosocial

dysfunction represent interpersonal and intrapersonal dysfunction, respectively. It is important to remember that there is a dynamic interplay among these variables. While efforts to reduce one may reduce another, ignoring one may very well reinstate the other.

Suppression Effects

Another important finding in terms of clarifying this dilemma is that most of the relationship shared between psychosocial dysfunction and criminal thinking is simply unrelated to motivation. That is, the confusion was that two positively correlated variables—criminal thinking and psychosocial dysfunction—had inverse influences on treatment motivation. After removing the variance unrelated to motivation, the correlation between these constructs was much weaker. Whereas this helps answer the perplexing relationship among these variables, these suppression effects show that criminal thinking and psychosocial dysfunction variables are better predictors when considered together than when they are considered alone. It appears that dysfunction is not created equal and that only specific types of dysfunction are positive contributors to motivation for substance abuse treatment. The current study proposed that psychosocial dysfunction was a good predictor provided it wasn't in the presence of criminal thinking, but this may have been oversimplified. It may be that much of psychosocial dysfunction found in this population is caused by criminal thinking or vice versa. Walters (2006) reminds us that criminal thinking largely consists of cognitive distortions, and we must remember this dysfunction serves to protect the continuation of conduct inconsistent with an offender's beliefs. That is, just because something is dysfunctional does not mean it isn't adaptive. Correction should be made, however, to alter adaptations which are inconsistent with societal norms.

Limitations and Future Directions

One major limitation to the current study is its cross-sectional design. Although prediction models were based on an approximate 1 month time lag between predictor measures being taken and criterion measures taken (i.e. motivation was measured approximately 1 month after the predictors were measured), this still represents a relative "snap-shot" in time and so causal conclusions should be made with reservation. Additionally, the measures were self-report and are subject to misrepresentation. As discussed previously, detecting moderators in a "noisy" research environment can be difficult and thus the non-experimental design represents some limitation.

Future studies should identify and eliminate potential confounds which may be masking otherwise meaningful effects. The issue of control in non-experimental designs is always in question and perhaps especially warranted here. An experimental design could potentially be implemented to test the theory behind our hypothesis (edifying the seemingly mediocre effects) and results applied to the present population. The lack of equivalent comparison groups between men and women's units (i.e. no long-term women's and no special needs men's) in the current study also made it difficult to interpret certain results and differences that may be due to undocumented program demographics. Addressing these concerns in the future may provide data to make more definitive claims of criminal thinking having an influence on the psychosocial dysfunction—treatment motivation relationship.

Treatment implications

Criminal thinking has been shown to have a negative relationship with treatment motivation and engagement. Understanding the dynamics of criminal thinking and how these cognitions interrelate with dimensions of treatment is important. Subsequently, two practical

implications present themselves. First, criminal thinking has been shown to increase through a process called prisonization. Walters (2003) demonstrated that naïve inmates developed, in the first six months of prison, criminal thinking patterns that came to approximate the patterns of experienced inmates. This was thought to be an adaptive response to the prison environment. Considering the deleterious influence that criminal thinking may have on treatment, it may be prudent to use diversionary tactics for offenders scoring low on criminal thinking thus avoiding the initiation of such maladaptive thinking patterns that might later increase intervention demands addressing more intense patterns of criminal thinking. Secondly, having a more complete picture of criminal thinking will put emphasis on developing and/or improving upon interventions specifically targeting criminal thinking.

Concluding Remarks

Although initial reflection on the criminal thinking—psychosocial dysfunction—treatment motivation relationship seemed contradictory, results from the current study have helped to explain some of this mystery. It appears that criminal thinking and psychosocial dysfunction share a relationship largely unrelated to treatment motivation. Additionally, the components of motivation that each of these affect, (i.e. problem recognition and treatment readiness) represent a unique phase in an individual's path to change. Whereas psychosocial dysfunction tends to be important in moving someone from the pre-contemplation stage to the contemplation stage, its utility largely ends there. Criminal thinking, on the other hand, tends to interfere with someone's readiness to engage in treatment, but does not strongly influence a person's ability to recognize problems. It may be that people high in criminal thinking are able to recognize problems, but beliefs about uniqueness and inequality may limit their willingness to take the necessary steps to change. By furthering our understanding about the specifics of how

criminal thinking influences the treatment process, we can improve upon interventions and help alleviate the problem of addiction among those with these erroneous thinking patterns.

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Appendix A

Displays relative correlations strengths of predictor variables with components of motivation (Problem recognition and Treatment Readiness)

		PR	TR	
Group	Variable	r_1	r_2	t
Women	Psych Dysfunction	.249	.030	9.39**
Regular	Social Dysfunction	.174	-.029	8.59**
	Dys. Soc. Networks	.183	.056	5.33**
	Criminal Thinking	-.013	-.208	8.27**
Women	Psych Dysfunction	.317	.140	5.50**
Special	Social Dysfunction	.209	.050	4.81**
Needs	Dys. Soc. Networks	.113	.101	.356
	Criminal Thinking	-.112	-.217	3.16*
Men	Psych Dysfunction	.248	.041	11.54**
Regular	Social Dysfunction	.171	-.045	11.99**
	Dys. Soc. Networks	.189	.043	7.98**
	Criminal Thinking	-.054	-.267	11.93**
Men	Psych Dysfunction	.207	-.002	13.28**
Long	Social Dysfunction	.094	-.078	10.75**
Term	Dys. Soc. Networks	.130	.023	6.62**
	Criminal Thinking	-.129	-.269	8.90**

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

Appendix B

Social Dysfunction and Criminal Thinking on Motivation

Group	Model	Estimate	SE	*t*	R^2 *Exp.*	R^2 *Obs.*	% Difference
WR	SOC	.099	.025	4.03***	--	.010	
(n=1543)	CT	-.171	.037	-4.62***	--	.014	
	SOC + CT	.226	.029	7.90***	.024	.052	117
		-.354	.043	-8.22***			
WSN	SOC	.147	.037	3.92***	--	.024	
(n=643)	CT	-.265	.052	-5.12***	--	.039	
	SOC + CT	.339	.041	8.17***	.063	.130	106
		-.512	.058	-8.86***			
MR	SOC	.081	.025	3.31**	--	.005	
(n=2124)	CT	-.274	.034	-7.90***	--	.029	
	SOC + CT	.258	.028	9.14***	.034	.065	91
		-.472	.040	-11.70***			
MLT	SOC	.025	.024	1.03	--	.000	
(n=2647)	CT	-.372	.031	-12.13***	--	.053	
	SOC + CT	.219	.027	8.22***	.053	.076	43
		-.514	.035	-14.75***			

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

Appendix C

Psychological Dysfunction and Criminal Thinking on Motivation

Group	Model	Estimate	SE	*t*	R^2 *Exp.*	R^2 *Obs.*	% Difference
WR	PSY	.165	.022	7.28***	--	.033	
(n=1543)	CT	-.171	.037	-4.62***	--	.014	
	PSY + CT	.231	.024	9.70***	.047	.070	49
		-.301	.038	-7.85***			
WSN	PSY	.226	.033	6.85***	--	.068	
(n=643)	CT	-.265	.052	-5.12***	--	.039	
	PSY + CT	.285	.033	8.71***	.107	.141	32
		-.372	.051	-7.37***			
MR	PSY	.178	.024	7.55**	--	.026	
(n=2124)	CT	-.274	.034	-7.90***	--	.029	
	PSY + CT	.284	.025	11.57***	.055	.086	56
		-.427	.036	-11.82***			
MLT	PSY	.148	.024	6.28***	--	.015	
(n=2647)	CT	-.372	.031	-12.13***	--	.053	
	PSY + CT	.318	.025	12.93***	.068	.109	60
		-.547	.033	-16.74***			

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

Appendix D

Dysfunctional Social Networks and Criminal Thinking on Motivation

Group	Model	Estimate	SE	*t*	R^2 *Exp.*	R^2 *Obs.*	% Difference
WR	DSN	.108	.019	5.74***	--	.021	
(n=1543)	CT	-.171	.037	-4.62***	--	.014	
	DSN + CT	.163	.020	8.21***	.035	.055	57
		-.292	.039	-7.46***			
WSN	DSN	.092	.030	3.10**	--	.015	
(n=643)	CT	-.265	.052	-5.12***	--	.039	
	DSN + CT	.152	.030	5.01***	.054	.076	41
		-.346	.053	-6.49***			
MR	DSN	.121	.019	6.39***	--	.019	
(n=2124)	CT	-.274	.034	-7.90***	--	.029	
	DSN + CT	.193	.020	9.92***	.048	.072	50
		-.396	.036	-10.98***			
MLT	DSN	.081	.018	4.40	--	.007	
(n=2647)	CT	-.372	.031	-12.13***	--	.053	
	DSN + CT	.180	.019	9.49***	.060	.084	40
		-.479	.032	-14.88***			

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

Appendix E

TCU MOTFORM (MOTivation)

Scales and Item Scoring Guide

Scoring Instructions. Items shown below from this assessment are *re-grouped by scales*, and response categories are 1=Strongly Disagree to 5=Strongly Agree. Scores for *each scale* are calculated as follows (and no more than half of the items for any scale can be missing).

1. Find and reverse the scoring for *reflected items* (i.e., those designated with ®) by –
    a. subtracting the response value (1 to 5) for this item from "6",
    (e.g., if the response is "2", the *revised* score is "4" [i.e., 6-2=4]),
2. Sum the response values of all non-missing items for each scale,
3. Divide the sum of item responses by the number of items included (yielding an average),
4. Multiply this average by 10 (in order to *rescale* the score so it ranges from 10 to 50)
    (e.g., an average response of "2.6" for a scale therefore becomes a score of "26").

TREATMENT NEEDS/MOTIVATION SCALES

A. Problem Recognition (PR)

5. Your drug use is a problem for you.
8. Your drug use is more trouble than it's worth.
10. Your drug use is causing problems with the law.
11. Your drug use is causing problems in thinking or doing your work.
16. Your drug use is causing problems with your family or friends.
20. Your drug use is causing problems in finding or keeping a job.
24. Your drug use is causing problems with your health.
28. Your drug use is making your life become worse and worse.
33. Your drug use is going to cause your death if you do not quit soon.

B. Desire For Help (DH)

1. You need help dealing with your drug use.
12. It is urgent that you find help immediately for your drug use.
13. You will give up your friends and hangouts to solve your drug problems.
22. Your life has gone out of control. 26. You are tired of the problems caused by drugs.
30. You want to get your life straightened out.

C. Treatment Readiness (TR)

2. You need to be in treatment now.
4. This treatment gives you a chance to solve your drug problems.
6. This kind of treatment program is not helpful to you. ®
18. This treatment program gives you hope for recovery.
21. You want to be in drug treatment.
25. You are ready to leave this treatment program. ®
27. You are at this treatment program only because it is required. ®
35. You are not ready for this kind of treatment program. ®

D. Pressures for Treatment Index* (PT – not scored as single scale)
3. You have family members who want you to be in treatment.
9. You are concerned about legal problems.
14. You feel a lot of pressure to be in treatment.
17. You expect to be sent to jail or prison if you are not in treatment.
29. You have serious drug-related health problems.
32. Several people close to you have serious drug problems.
34. You have legal problems that require you to be in treatment.

E. Treatment Needs (TN) Index
7. You need help with your emotional troubles.
15. You need individual counseling sessions.
19. You need educational or vocational training services.
23. You need group counseling sessions.
31. You need medical care and services.

F. Accuracy (Attentiveness)
36. Please fill in the "Uncertain" box as your response for this question.

Appendix F

TCU CTSFORM (Criminal Thinking Scales)

Scales and Item Scoring Guide

Scoring Instructions. Items shown below from this assessment are *re-grouped by scales*, and response categories are 1=Strongly Disagree to 5=Strongly Agree. Scores for *each scale* are calculated as follows (and no more than half of the items for any scale can be missing).

1. Find and reverse the scoring for *reflected items* (i.e., those designated with ®) by – a. subtracting the response value (1 to 5) for this item from "6",
   (e.g., if the response is "2", the *revised* score is "4" [i.e., 6-2=4]),
2. Sum the response values of all non-missing items for each scale,
3. Divide the sum of item responses by the number of items included (yielding an average),
4. Multiply this average by 10 (in order to *rescale* the score so it ranges from 10 to 50)
   (e.g., an average response of "2.6" for a scale therefore becomes a score of "26").

A. Entitlement (EN)*

9. You have paid your dues in life and are justified in taking what you want.
22. You feel you are above the law.
23. It is okay to commit crime in order to pay for the things you need.
24. Society owes you a better life.
32. Your good behavior should allow you to be irresponsible sometimes.
33. It is okay to commit crime in order to live the life you deserve.

B. Justification (JU)*

7. You rationalize your actions with statements like "Everyone else is doing it, so why shouldn't I?"
11. When being asked about the motives for engaging in crime, you point out how hard your life has been.
16. You find yourself blaming the victims of some of your crimes.
25. Breaking the law is no big deal as long as you do not physically harm someone.
26. You find yourself blaming society and external circumstances for the problems in your life.
35. You justify the crimes you commit by telling yourself that if you had not done it, someone else would have.

C. Power Orientation (PO)*

4. When people tell you what to do, you become aggressive.
10. When not in control of a situation, you feel the need to exert power over others.
13. You argue with others over relatively trivial matters.
14. If someone disrespects you then you have to straighten them out, even if you have to get physical.
15. You like to be in control.
20. You think you have to pay back people who mess with you.

28. The only way to protect yourself is to be ready to fight.

D. Cold Heartedness (CH)

1. You get upset when you hear about someone who has lost everything in a natural disaster. ®
6. Seeing someone cry makes you sad. ®
12. You are sometimes so moved by an experience that you feel emotions you cannot describe. ®
17. You feel people are important to you. ®
27. You worry when a friend is having problems. ®

E. Criminal Rationalization (CN)

5. Anything can be fixed in court if you have the right connections.
8. Bankers, lawyers, and politicians get away with breaking the law every day.
18. This country's justice system was designed to treat everyone equally. ®
19. Police do worse things than do the "criminals" they lock up.
30. It is unfair that you are locked-up when bankers, lawyers, and politicians get away with their crimes.
34. Prosecutors often tell witnesses to lie in court.

F. Personal Irresponsibility (PI)

2. You are locked-up because you had a run of bad luck.
3. The real reason you are locked-up is because of your race.
21. Nothing you do here is going to make a difference in the way you are treated.
29. You are not to blame for everything you have done.
31. Laws are just a way to keep poor people down.
36. You may be a criminal, but your environment made you that way.

*A revised "Psychological Inventory of Criminal Thinking Styles (PICTS)" scale, taken from Walters, G. D. (1998). Changing lives of crime and drugs: Intervening with substance-abusing offenders. New York: John Wiley & Sons.

Appendix G

TCU PSYFORM (PSYchological functioning)

Scales and Item Scoring Guide

Scoring Instructions. Items shown below from this assessment are *re-grouped by scales*, and response categories are 1=Strongly Disagree to 5=Strongly Agree. Scores for *each scale* are calculated as follows (and no more than half of the items for any scale can be missing).

1. Find and reverse the scoring for *reflected items* (i.e., those designated with ®) by – a. subtracting the response value (1 to 5) for this item from "6",
   (e.g., if the response is "2", the *revised* score is "4" [i.e., 6-2=4]),
2. Sum the response values of all non-missing items for each scale,
3. Divide the sum of item responses by the number of items included (yielding an average),
4. Multiply this average by 10 (in order to *rescale* the score so it ranges from 10 to 50) (e.g., an average response of "2.6" for a scale therefore becomes a score of "26").

PSYCHOLOGICAL FUNCTIONING SCALES

A. Self-Esteem (SE)

2. You have much to be proud of.
6. You feel like a failure. ®
10. You wish you had more respect for yourself. ®
19. You feel you are basically no good. ®
25. In general, you are satisfied with yourself.
29. You feel you are unimportant to others. ®

B. Depression (DP)

5. You feel interested in life. ®
12. You feel sad or depressed.
14. You feel extra tired or run down.
20. You worry or brood a lot.
22. You feel hopeless about the future.
32. You feel lonely.

C. Anxiety (AX)

1. You have trouble sleeping.
7. You have trouble concentrating or remembering things.
8. You feel afraid of certain things, like elevators, crowds, or going out alone.
9. You feel anxious or nervous.
15. You have trouble sitting still for long.
28. You feel tense or keyed-up.
30. You feel tightness or tension in your muscles.

D. Decision Making (DM)

3. You consider how your actions will affect others.
4. You plan ahead.
13. You think about probable results of your actions.
16. You think about what causes your current problems.
18. You think of several different ways to solve a problem.
21. You have trouble making decisions. ®
23. You make good decisions.
26. You make decisions without thinking about consequences. ®
33. You analyze problems by looking at all the choices.

E. Expectancy (EX)

11. You are likely to feel the need to use drugs in the next few months. ®
17. You are likely to drink alcohol in the next few months. ®
24. You are likely to relapse in the next few months. ®
31. You are likely to have problems in quitting drug use. ®

F. Accuracy (Attentiveness)

27. Please fill in the "Disagree" box as your response for this question.

Appendix H

TCU SOCFORM (SOCial functioning)

Scales and Item Scoring Guide

Scoring Instructions. Items shown below from this assessment are *re-grouped by scales*, and response categories are 1=Strongly Disagree to 5=Strongly Agree. Scores for *each scale* are calculated as follows (and no more than half of the items for any scale can be missing).

1. Find and reverse the scoring for *reflected items* (i.e., those designated with ®) by – a. subtracting the response value (1 to 5) for this item from "6", (e.g., if the response is "2", the *revised* score is "4" [i.e., 6-2=4]),
2. Sum the response values of all non-missing items for each scale,
3. Divide the sum of item responses by the number of items included (yielding an average),
4. Multiply this average by 10 (in order to *rescale* the score so it ranges from 10 to 50) (e.g., an average response of "2.6" for a scale therefore becomes a score of "26").

SOCIAL FUNCTIONING SCALES

A. Hostility (HS)

8. You have carried weapons, like knives or guns.
10. You feel a lot of anger inside you.
12. You have a hot temper.
13. You like others to feel afraid of you.
15. You feel mistreated by other people.
24. You get mad at other people easily.
28. You have urges to fight or hurt others.
36. Your temper gets you into fights or other trouble.

B. Risk Taking (RT)

3. You only do things that feel safe. ®
16. You avoid anything dangerous. ®
18. You are very careful and cautious. ®
26. You like to do things that are strange or exciting.
30. You like to take chances.
33. You like the "fast" life.
34. You like friends who are wild.

C. Social Support (SS)

1. You have people close to you who motivate and encourage your recovery.
5. You have close family members who want to help you stay away from drugs.
6. You have good friends who do not use drugs.
9. You have people close to you who can always be trusted.
17. You have people close to you who understand your situation and problems.
20. You work in situations where drug use is common. ®
21. You have people close to you who expect you to make positive changes in your life.

25. You have people close to you who help you develop confidence in yourself.
31. You have people close to you who respect you and your efforts.

D. Social Desirability Scale (SD)

2. You have never deliberately said something that hurt someone's feelings.
4. You are sometimes irritated by people who ask favors of you.
7. When you do not know something, you do not at all mind admitting it.
11. You sometimes try to get even rather than forgive and forget.
14. You are always willing to admit it when you make a mistake.
19. There have been occasions when you took advantage of someone.
22. You can remember "playing sick" to get out of something.
23. No matter who you are talking to, you are always a good listener.
27. You have felt like rebelling against people in authority even when they were right.
32. Occasionally, you gave up doing something because you thought too little of your ability.
35. You sometimes feel resentful when you do not get your way.

E. Accuracy (Attentiveness)

29. Please fill in the "Agree" box as your response for this question.

Appendix I

TCU A-FMFRForm (Adult-FaMily and FRiends)

Item Scoring Guide and Scales

Scoring Instructions. Items shown below from this assessment are *re-grouped by scales*, and response categories are 1=Strongly Disagree to 5=Strongly Agree. Scores for *each scale* are calculated as follows (and no more than half of the items for any scale can be missing).

1. Find and reverse the scoring for *reflected items* (i.e., those designated with ®) by – a. subtracting the response value (1 to 5) for this item from "6",
   (e.g., if the response is "2", the *revised* score is "4" [i.e., 6-2=4]),
2. Sum the response values of all non-missing items for each scale,
3. Divide the sum of item responses by the number of items included (yielding an average),
4. Multiply this average by 10 (in order to *rescale* the score so it ranges from 10 to 50) (e.g., an average response of "2.6" for a scale therefore becomes a score of "26").

FAMILY SCALES A. Family Relationships

1. Your family got along together.
2. You really enjoyed being together.
6. You had serious talks about each other's interests and needs.
7. Your family helped each other deal with problems.
8. You got blamed or fussed at about things YOU did or did not do. ®
9. You and your family often had disagreements. ®
10. You had serious arguments or fights in your family. ®

B. Family Drug Use

3. Your family drank alcohol together.
4. You got drunk together.
5. You used other (illegal) drugs together.

PEER SCALES A. Peer Socialization

11. Your friends spend time together with their families eating meals or watching TV.
12. They liked being with their families.
13. Your friends usually worked regularly on a job.
14. They felt hopeful about their future.
16. Your friends liked to get drunk. ®

B. Peer Criminality

15. They got into loud arguments or fights with other people.
17. They used other (illegal) drugs.
18. They traded, sold, or dealt drugs.
19. Your friends did other things against the law.

20. Some spent time in “gang” activities.
21. Some got arrested or had problems with the law.

Sources:
Based on Rounsaville et al. (Eds.). (1993). *Diagnostic Source Book*. NIH Pub 93-3508. Also see Joe, Simpson, Greener, & Rowan-Szal (2004). *Psychological Reports*, *36*(2), 215-234.

Appendix J

TCU HLTHForm (HeaLTH)

Item Scoring Guide

Scoring Instructions. Items (with response categories of 1=None of the time to 5=All of the time) represent Kessler's psychological distress scale (K10) and physical health functioning. 1.*Psychological distress* items (Q 12-21) are summed to define a "K10 total score" (10-50); a. scores of 25-29 indicate "high" distress (Andrews & Slade, 2001), and b. scores of 30-50 indicate "very high" psychological distress (Baille, 2005). *Physical health* items (Q 1-11) capture specific physical health information and although they do not form a single-construct scale these responses can be summed or averaged to reflect a "physical health problems severity index" (see Rowan-Szal et al., 2011).

Physical Health questions

1. How many TIMES IN THE PAST YEAR have you gone to a hospital or clinic or seen a doctor or nurse for health problems? None 1 time 2-3 times 4-10 times

During the PAST YEAR, how often have you had any of these problems or types of diseases

None of the time (1) A little of the time (2) Some of the time (3) Most of the time (4) All of the time (5)

2. stomach problems or ulcers?
3. bone/joint problems?
4. kidney infection or problems?
5. bladder infection or problems?
6. liver or gall bladder problems?
7. intestinal or bowel problems?
8. heart disease or problems?
9. sexually transmitted disease (STD)?
10. skin disease or skin problems?
11. other medical or physical problems?

Psychological Distress (K10) Scale

During the PAST 30 DAYS, how often did you feel

None of the time (1) A little of the time (2) Some of the time (3) Most of the time (4) All of the time (5)

12. tired out for no good reason?
13. nervous?
14. so nervous that nothing could calm you down?
15. hopeless? 16. restless or fidgety?
17. so restless that you could not sit still? 18. depressed?
19. so depressed that nothing could cheer you up?
20. that everything was an effort?
21. worthless?

K10 scale: Kessler, Barker, Colpe et al. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry, 60*(2), 184-189. [Also see Andrews, G. & Slade, T. (2001) *Australian NZ J Public Health, 25 (6),* 494-497; and Baillie, A. (2005). *Social Psychiatry and Psychiatric Epidemiology, 40,* 743-748].
Also see Rowan-Szal, Joe, Bartholomew, Pankow, & Simpson (2011). Brief Trauma and Mental Health Assessments for Female Offenders in Addiction Treatment. *Journal of Offender Rehabilitation*.

Appendix K

TCU A-RSKFORM

Instructions: Please mark answers to the series of questions listed below.

1. What is your current age?
2. What was your date of admission to THIS program or facility?
3. What is your gender? .....Male ⎵ Female
4. Are you Hispanic or Latino?.....No Yes
5. Are you? [MARK ONE]
   American Indian/Alaska Native
   Asian
   Native Hawaiian/Pacific Islander
   Black/African American
   White
   More than one race
   Other (specify)
6. How many years of school have you completed – that is, the highest grade?
   None, 1-6, 7-9, 10-11, 12 or GED, over 12
7. What is your current legal marital status?
   Single (never married)
   Married or living with a partner
   Separated
   Divorced
   Widowed
8. How many children do you have (only include your biological children)?
   None,1, 2, 3, 4 or more
9. How much of the time in the PAST 6 MONTHS before entering this program or facility were you LOCKED UP (i.e., not living in the 'free world")?
   None, Less than 1 month, 1-3 months, 4-5 months, All 6 months
10. When you entered this treatment program or facility, when was the last time you had lived in the "free world" for AT LEAST 6 MONTHS?
    Under a month ago, 1-5 months ago, 6-11 months ago, 1-3 years ago, Over 3 years ago

In the 6 months before entering this program or facility (or being "locked up"), were you ever –

11. employed full time (35+ hrs/week)? .....⎵*No* ⎵*Yes*
12. unemployed and NOT looking for work? .....⎵*No* ⎵*Yes*
13. receiving any public financial support (food stamps, disability, public assistance? *No* ⎵*Yes*
14. on parole or probation? .....⎵*No* ⎵*Yes*
15. treated in an emergency room? .....⎵*No* ⎵*Yes*
16. treated for a mental health problem? .....⎵*No* ⎵*Yes*
17. treated for an alcohol use problem? .....⎵*No* ⎵*Yes*
18. treated for illegal drug use? .....⎵*No* ⎵*Yes*
19. arrested? .....⎵*No* ⎵*Yes*
20. in jail or prison? .....⎵*No* ⎵*Yes*

Based on Rounsaville et al. (Eds.). (1993). Diagnostic Source Book. NIH Pub 93-3508 Also see Joe, Simpson, Greener, & Rowan-Szal (2004). *Psychological Reports, 36*(2), 215-234.

VITA

Aaron Michael Cherry was born on the 16th day of December, 1977, in Searcy, Arkansas. His parents were Joe and Juanita Cherry and he had two siblings Joe Jr. and Wendy. Aaron completed a high school equivalency in 1995 and, in 2010, proudly graduated Summa Cum Laude from Abilene Christian University with a Bachelor of Applied Studies degree with an emphasis in Psychology.

While completing his bachelor's degree, Aaron gained experience in treating addicted substance abusers at the Serenity Foundation in Abilene, Texas and extended those foundations to the treatment of eating disorders at Shades of Hope in Buffalo Gap, Texas. During his final semester at Abilene Christian, he enrolled and was accepted to pursue graduate studies at Texas Christian University.

Concomitant with his undergraduate degree in psychology, and his interests in the field of addictions, Aaron secured a Research Assistant position at the Institute of Behavioral Research, where he assists in addiction research aimed at improving the effectiveness of drug abuse treatment through the implementation of evidenced based practice.

Aaron married his lovely wife Christine and joined her family of four children, Andrew, Joseph, James, and Bea in December 2011.

ABSTRACT

INFLUENCES OF CRIMINAL THINKING ON THE RELATIONSHIP BETWEEN PSYCHOSOCIAL DYSFUNCTION AND TREATMENT MOTIVATION

by Aaron Cherry, M.S., 2012
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Research suggests that motivation for drug abuse treatment increases as psychological and social problems increase, but decreases as criminal thinking increases. Despite these two constructs having opposing influences on motivation, they are positively correlated such that high amounts of one are associated with high amounts of the other. The current study demonstrated these confounding relationships in a large data set including 7,623 men and women from 8 correctional-based treatment centers from two states. Although the hypothesis that criminal thinking would moderate the psychosocial dysfunction—treatment motivation relationship was not strongly supported, two revealing findings presented themselves. First, criminal thinking and psychosocial dysfunction differentially predict different stages of treatment motivation. Secondly, suppression effects reveal that most of the relationship between psychosocial dysfunction and criminal thinking is unrelated to treatment motivation, and thus their high correlation with each other and inverse relationships to motivation are less challenging. Implications for treatment are discussed.