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Mental Health Pathology, Sustance Use Disorders, and Criminality in the Tarrant County Treatment Alternatives to Incarceration Program Probationer Population: Implications Regarding Mental Health Screening, Assessment, and Treatment Referral Practices

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Effinger, William L. Mental Health Pathology, Substance Use Disorders, and Criminality in the Tarrant County Treatment Alternatives to Incarceration Program Probationer Population: Implications Regarding Mental Health Screening, Assessment, and Treatment Referral Practices. Master of Science in Clinical Research, May 2009, 86 pp, 14 tables, 2 figures, bibliography 94 titles.

The purpose of this study was to highlight the magnitude and severity of mental health pathology in the Tarrant County Treatment Alternatives to Incarceration Program (TC-TAIP) probationer population and its significant associations with substance use and criminality.

The results of this study report a heavy presence of current, symptomatic mental health pathology that is associated with increased criminality. The relationship between mental health pathology and probationer criminality was mediated by substance use.

This study concludes that TC-TAIP screening and referral practices must include comprehensive mental health screenings to make appropriate, individualized assessment/treatment referrals for probationers.

MENTAL HEALTH PATHOLOGY, SUBSTANCE USE DISORDERS, AND CRIMINALITY IN THE TARRANT COUNTY TREATMENT ALTERNATIVES TO INCARCERATION PROGRAM PROBATIONER POPULATION: IMPLICATIONS REGARDING MENTAL HEALTH SCREENING, ASSESSMENT, AND TREATMENT REFERRAL PRACTICES

THESIS

Presented to the Graduate Council of the Graduate School of Biomedical Sciences

University of North Texas Health Science Center at Fort Worth

in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

William L. Effinger, B.A.

Fort Worth, Texas

May 2009

ACKNOWLEDGMENTS

I would like to thank all of the members on the Mental Health Screening and Treatment Initiative research team, everyone at the Tarrant County Community Supervision and Corrections Department, and everyone at the Primary Care Research Institute. I thank them for all of their time and assistance that made it possible to complete this thesis and for their persistent focus and dedication to the cause.

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CHAPTER I

INTRODUCTION

Individuals with co-occurring disorders have high rates of suicide, medical problems, homelessness, unemployment, and incarceration [1, 2]. Probationers with co-occurring disorders represent a particularly troublesome population. They are more likely to violate the conditions of their probation sentences, are more likely to be repeat offenders [3], and are more likely to be incarcerated for a violent crime [4]. The human, social, and economic costs of untreated mental illnesses and co-occurring disorders take a toll on the individual experiencing them, the family, children in the family, the school, the workplace, the community, the State and, ultimately, the Nation as a whole [5]. “Improving the Nation's public health demands prompt attention to the problem of co-occurring disorders [5]."

Many historical factors have led to the current epidemic of psychiatric diseases and co-occurring disorders in the criminal justice system. Many public mental health hospitals closed in the 1960s [6] with the invention and wide-spread availability of effective psychotropic drugs. This led to an emphasis on the community-based outpatient treatment of the mentally ill, but appropriate outreach services and mental health treatment networks were not made available to many individuals suffering from mental illnesses [6-8]. Most importantly, the high rate of co-occurring substance use disorders among those with mental illnesses has been shown to be a generalized mediating factor increasing the likelihood that an individual will be arrested [9]. Restricted insurance coverage for mental health problems and the passage of stricter laws and

law enforcement with longer sentences for drug related crimes perpetuate this epidemic [6-8, 10]. “The epidemic of psychiatric disorders in the U.S. prison system represents a national public health crisis [11].”

Nowhere is the need for a solution to this problem more preeminent than in the Community Supervision and Corrections Departments of the Texas Criminal Justice System, the largest State correctional system in the United States [11, 12]. Increasing recognition of this problem has been accompanied by an increase in mental health courts and other diversion strategies and programs designed to direct mentally ill offenders to the appropriate treatment services and supervision they need to recover prior to incarceration, especially those with co-occurring disorders [9-11, 13, 14]. Substance use disorder Treatment Alternatives to Incarceration Programs (TAIPs) are one such diversion strategy.

Substance use disorder TAIPs are now present in most large criminal justice system programs in every State. By enacting these smart policies and building the currently existing substance use disorder Texas Treatment Alternatives to Incarceration Program (Texas-TAIP), Texas saved $210.5 million in the 2008-2009 fiscal biennium, and if no additional prisons need to be built, the State will save another $233 million [12, 15]. A cost-effectiveness analysis indicated that for every $1 invested by the state in Texas-TAIP treatment services, the State experiences a $2.86 return resulting from reduced recidivism costs [16]. The effectiveness of pre-incarceration substance use disorder Treatment Alternatives to Incarceration Programs (TAIPs) has been demonstrated by numerous studies in diverse offender populations across the nation [17-20]. Effective TAIPs decrease criminal recidivism [21-23], the number of inmates in the criminal justice system [24], and criminal justice expenditures [25]. They improve the quality and cost-effectiveness of our criminal justice system.

Increased substance use disorder TAIP success rates are associated with decreased criminal recidivism [16, 26] and criminal justice costs to the State [12]. Published literature shows that Texas-TAIP probationers completing treatment are much less likely to be re-arrested and put back on probation or incarcerated. Only 7% of offenders completing three or more months of Texas-TAIP ordered outpatient substance use disorder treatment programs were incarcerated within 18 months compared to 28% of offenders that failed to enter or complete three months of their Texas-TAIP ordered treatment [16, 26].

The general effectiveness of substance use disorder TAIPs has been well established, but each individual program is performing optimally only insofar as its substance abusing probationers are successfully completing their TAIP ordered substance use disorder treatment programs. Criminal justice substance use disorder TAIPs are effective, but their performance must not be overstated. TAIP program treatment success rates are not universally high. Many offenders fail to enter or drop out shortly after entering treatment, and relapse rates are high [16, 26, 27].

In 2002, Texas-TAIP counselors provided in-house services or referrals for drug treatment for 22,815 probationers with substance abuse problems. A majority of these probationers, 65.9% (15,031 of 22,815), successfully completed their Texas-TAIP ordered substance use disorder treatment program [16, 26]. However, 34.1% failed. There is room for significant improvement.

Studies have consistently reported that for an individual suffering from a current, symptomatic substance use disorder as well as a current, symptomatic co-occurring mental illness, treatment must address both disorders simultaneously for either treatment of the substance use disorder or the mental illness to be most effective [28-31]. Probationers in the

Tarrant County probation population are currently being screened systematically for substance use disorders in the Tarrant County Treatment Alternatives to Incarceration Program (TC-TAIP). TC-TAIP probationers are at an increased risk for having comorbid, untreated psychiatric disorders, yet TC-TAIP probationers are not currently being systematically screened for other mental illnesses or co-occurring disorders. The results from this study report preliminary data to assess the need for a mental health screening and treatment program in the TC-TAIP.

CHAPTER II

SPECIFIC AIMS

Hypotheses

1. Using published, previously validated, self-report mental health screening instruments, high prevalences of mental health pathology, substance use disorders, and co-occurring disorders will be detected in this research study's sample of TC-TAIP probationers.
2. Presence of mental health pathology is significantly associated with the presence of substance use disorders.
3. Severity of mental health pathology is significantly associated with the presence of substance use disorders.
4. Presence of mental health pathology, substance use disorders, and co-occurring disorders are significantly associated with probationer criminality.
5. Severity of mental health pathology, substance use disorders, and co-occurring disorders are significantly associated with probationer criminality.

Specific Aims

1. To report the prevalence of internalizing disorders, externalizing disorders, substance use disorders, co-occurring disorders, adult attention deficit/hyperactivity disorder (ADHD), depressive disorders, anxiety disorders, and bipolar disorder in this study's probationer population sample
2. To determine if there is a significant difference in the proportion of probationers identified as suffering from current, symptomatic internalizing disorders, externalizing disorders, adult ADHD, depression, anxiety disorders, or lifetime bipolar disorder in probationers with versus without current, symptomatic substance use disorders
3. To determine if there is a significant difference in the severity of current, symptomatic internalizing disorders or externalizing disorders in probationers with versus without current, symptomatic substance use disorders
4. To determine if there is a significant difference in number of self-reported lifetime arrests between probationers with vs. without current, symptomatic internalizing disorders, externalizing disorders, substance use disorders, co-occurring disorders, adult ADHD, depression, anxiety disorders, or lifetime bipolar disorder
5. To determine if a significant association exists between severity of internalizing, externalizing, substance use, or co-occurring disorders and number of self-reported lifetime arrests

CHAPTER III

BACKGROUND AND SIGNIFICANCE

Texas Treatment Alternatives to Incarceration Program

The Texas Treatment Alternatives to Incarceration Program (Texas-TAIP) is a probation sentencing jail-diversion program that serves Texas probationers experiencing substance abuse problems. Current programs in 58 Texas Community Supervision and Corrections Departments provide services to 127 Texas counties. Texas-TAIPs provide chemically dependent offenders with crucial services such as screening, assessment, referral and placement into approved chemical dependency treatment program.

Tarrant County Treatment Alternatives to Incarceration Program

The Tarrant County Treatment Alternatives to Incarceration Program (TC-TAIP) is a member of the Texas-TAIP and performs substance use disorder assessments for about 500 probationers every month in Tarrant County. Probationers in need of chemical dependency services are treated in house or are referred for treatment to an approved facility. The TC-TAIP performs substance use disorder assessments at seven different locations in Tarrant County. A majority of these assessments are performed at the downtown Fort Worth location at 200 W. Belknap, Fort Worth, TX, 76102, which is a convenient, central location accessible by public transportation and was the primary site of this project. Master degree level, Licensed Chemical Dependency Counselors (LCDCs) at the downtown Fort Worth location TC-TAIP perform

substance use disorder assessments for about 300 Tarrant County probationers every month.In 2002, 61.5% (22,815 of 43,930) of probationers screened in Texas-TAIPs had a substance use disorder that required treatment [16]. Furthermore, research suggests 50 to 80% of individuals entering substance use treatment may have at least one comorbid psychiatric disorder [32-36], and offender populations, in general, are expected to have an increased risk over the general population for having untreated mental illnesses and co-occurring disorders [4].

Mental health pathology disorder sub-types

Probationers in this study were screened for internalizing disorders, externalizing disorders, substance use disorders, and co-occurring disorders. Prior research has shown in general population studies [37-41] that symptoms of common psychiatric disorders vary according to three primary dimensions: 1) internalizing disorders (e.g., symptoms of depression, anxiety, somatic disorder, traumatic distress, suicide), 2) externalizing disorders (e.g., symptoms of attention deficit, hyperactivity, conduct and other impulse control disorders), and 3) substance use disorders (e.g., symptoms of abuse, dependence, other substance induced health or psychiatric problems). While each specific psychiatric disorder is unique, disorders within the same dimension often share etiology, consequence, treatment, and outcomes [42]. Thus, grouping disorders into internalizing, externalizing, and substance use disorders often helps to clarify their common patterns within a population.

Internalizing disorders

Internalizing disorders include mood and thought disorders that are grouped together because their symptoms are usually directed inward and manifest externally with withdrawal and

isolation from society. The onset of internalizing disorders is usually spread throughout the life course, so their cumulative prevalence increases with age [42]. Internalizing disorders include symptoms of depression, anxiety, somatic disorder, traumatic distress, and suicidality. Treatments for internalizing disorders often include a combination of counseling such as cognitive behavioral therapy and desensitization and medications[43].

Depression is distinguished by mood dysregulation with symptoms of recurrent depressed affective episodes that occur throughout the lifetime [44]. Depressed mood may include loss of interest in activities, sleep problems, fatigue or loss of energy, feelings of guilt, diminished concentration and /or recurrent thoughts of death or suicide[45]. The onset of depression is usually in the second or third decade of life, but the onset of the first affective episode can occur throughout the lifetime[46]. It has been shown that antidepressant medications are effective in treating and preventing recurring episodes of depression.

Anxiety disorder is a collective term that refers to one of the following: panic disorder, generalized anxiety disorder, agoraphobia without panic disorder, specific phobia, social phobia, posttraumatic stress disorder, obsessive-compulsive disorder, and separation anxiety disorder. Anxiety is a natural reaction to stress, however it is classified as anxiety disorder when it becomes excessive and chronically disabling. The symptoms of severe anxiety include a collection of physical and emotional manifestations such as heart palpitations, fatigue, nausea, or headaches and “feelings of doom, trouble concentrating, and restlessness”[45]. In 2005, the *Prevalence, Severity, and Comorbidity of 12-Month DSM-IV Disorders in the National Comorbidity Survey Replication* study reported anxiety disorders (18.1%) were the most prevalent class of psychiatric disorders[35]. Generalized anxiety disorder is diagnosed when a person worries excessively about a variety of everyday problems for at least 6 months [45, 47].

Post traumatic stress disorder (PTSD) is a type of anxiety disorder that may develop after exposure to traumatic events that threaten or cause physical harm. In some cases it can also be from profound psychological and emotional trauma, apart from any actual physical harm. Often, however, incidents involving both things are found to be the cause. For PTSD, the inciting incident is usually remembered. Although 50% to 90% of people encounter trauma in their lifetime [48, 49] , about 8% develop PTSD [48-50]. Vulnerability to PTSD comes from an interaction of biological diathesis, early childhood developmental experiences, and trauma severity. Symptoms of PTSD include persistent and sometimes frequent flashbacks or nightmares of the event that can last for years after the original event[45]. Avoidance of stimuli associated with the trauma are characteristic, and sleep problems, anger, and hypervigilance are often present. Many forms of psychotherapy have been advocated for anxiety disorders, and antidepressant medications have shown to be helpful in decreasing undesirable symptoms [51, 52].

Somatic disorders, also known as somatoform disorders, are characterized by physical symptoms that mimic disease or injury for which there is no identifiable physical cause such as pain, nausea, depression, and dizziness[45]. Somatoform disorder is a condition in which the symptoms are related to psychological factors. Patients with this disorder often become very worried about their health because the doctors are unable to find a cause for their health problems. Their symptoms are similar to the symptoms of other illnesses and may last for several years. People who have somatic disorders are not faking their symptoms. The pain that they feel is real, and they feel what they say they are feeling. A diagnosis of a somatic disorder implies that psychological factors are a large contributor to the symptoms' onset, severity and duration.

Suicidality is a major mental health concern among those with internalizing disorders and is associated with psychological factors such as difficulty coping with depression, the inescapable fear associated with anxiety, or other mental disorders and life pressures. Studies show a high prevalence of mental health pathology disorders, from 98% to 87% in suicide victims [53, 54]. Depression, bipolar disorder, and substance abuse are the most common [55].

Externalizing disorders

Externalizing disorders are grouped together because their symptoms are usually directed outward and manifest externally with symptoms such as tantrums, acting out, inappropriate language, or inappropriate behavior. The onset of externalizing disorders is in childhood or adolescence, and the prevalence of these disorders generally decreases with age. Externalizing disorders, however, do persist into adulthood, including adult ADHD [42]. These disorders are most common among adolescents but are still common in about one in five adults in substance abuse treatment [43]. Externalizing disorders include ADHD, conduct disorders, and other impulse control disorders including oppositional defiant disorder and intermittent explosive disorder. Treatments for externalizing disorders often include a combination of counseling such as cognitive behavioral therapy, contingency management, dialectical behavior therapy, or multisystemic therapy[43]. Often increased structure in the environment, contingency management, and medications can be helpful.

ADHD is a major childhood disorder, but has been shown to persist late into adult life [35, 56, 57]. Symptoms include difficulty staying focused and paying attention, difficulty controlling behavior, and hyperactivity[45]. Treatments can relieve many of the disorder's symptoms, but there is no cure. With treatment, most people with ADHD can be successful in

school and lead productive lives. Treatments include medication and various types of psychotherapy and education or training to help with symptom management. For many with ADHD, medications have a calming effect, reduce hyperactivity and impulsivity, and improve their ability to focus, work, and learn. Left untreated, however, ADHD may increase addictive vulnerability and clinical severity for adults with substance use problems [58, 59]. ADHD is a risk factor for early initiation of substance use and abuse [60]and also a risk factor for having a more severe substance use disorder, a more protracted substance use disorder course[61], and lower remission rates [58, 61, 62].

Bipolar disorder

Bipolar disorder has been estimated to affect more than 5 million Americans—about 3 out of every 100 adults [35]. Onset is usually early in the second decade of life. Bipolar disorder is an episodic illness that can be characterized by acute depressive episodes characteristic of a severe internalizing disorder, or by manic or hypomanic episodes, which are more characteristic of an externalizing disorder. Mania is characterized by extremely elevated mood, energy, unusual thought patterns and sometimes psychosis. Symptoms of mania include rapid speech, racing thoughts, decreased need for sleep, hypersexuality, euphoria, impulsiveness, grandiosity, and increased interest in goal-directed activities [45]. Psychotic episodes with delusions and hallucinations have been associated with extreme manic episodes. In order to be diagnosed with mania, a person must experience a state of elevated or irritable mood, as well as other symptoms, for at least one week, but less if hospitalization is required [45]. The diagnosis of Bipolar I disorder requires one or more full manic episodes with or without major depressive episodes. Depressive episodes are not required for the diagnosis of Bipolar I disorder, but depressive

episodes do frequently occur in persons with Bipolar I disorder. Hypomania is generally a moderate level of mania, characterized pressured speech and activity, along with decreased need for sleep. Bipolar II disorder is characterized by hypomanic episodes rather than actual manic episodes, and must have at least one major depressive episode to be diagnosed[45]. Suicide among people suffering from bipolar disorder is higher than average – often an impulse, which is due to the sufferer's extreme mood swings, or also possibly an outcome of delusions occurring during an episode of mania or psychotic depression. Treatments typically consist of mood stabilizers, psychotherapy, and involuntary commitment when there is a risk of harm to oneself or others, as is most commonly seen in severe manic episodes. Prognosis is heavily dependent on medication adherence. Comorbid anxiety, ADHD, and substance abuse are common and may worsen the course and prognosis and increase criminality and mortality due to intoxication, recklessness, and accidents [44].

Substance use disorders

Substance use disorder is the most common and clinically significant co-morbidity among clients with severe mental illnesses. Substance use disorders include substance abuse and substance dependence. In 2004, the annual prevalence of any substance use disorder was 9.35% with the rates of substance abuse exceeding those of dependence [63]. Substance abuse is defined in terms of the negative social consequences of excessive substance use. [2] Substance abuse environments are often characterized by recurring adverse social consequences secondary to the pathological use of a medical or non-medical agent. Substance abuse can progress to addiction or substance dependence. Substance dependence is defined as a persistent maladaptive pattern of substance use regardless of associated use problems and leading to significant

impairment[64]. Repetitive and chronic use can result in physiologic dependence characterized by tolerance to the drug's effect and withdrawal symptoms when it is discontinued or reduced[64]. Treatments often include a combination of counseling such as cognitive behavioral therapy, motivational interviewing, community reinforcement approach, functional family therapy and medications for the management of withdrawal, maintenance, and craving reduction [43].

Co-occurring disorders

Co-occurring disorder is defined as having a substance use disorder as well as a comorbid psychiatric disorder. Co-occurring disorders are associated with poor treatment response, homelessness and other adverse outcomes [30]. Behavioral challenges, such as aggressiveness, anger management, disruptive behavior, impulsivity, and problems with affective regulation are the norm rather than exception, as is criminal justice system involvement [65, 66]. Co-occurring disorders are a major public health crisis in the criminal justice system as the current system is not prepared to offer the complicated and resource intensive services needed for those with co-occurring disorders to recover.

Mental health pathology prevalences among probationers

Many studies have been published reporting the prevalence rates of mental illnesses in prison populations. Only several prevalence studies have reported rates of mental illnesses in probation populations [67-69].

The Bureau of Justice Statistics (BJS) published the first landmark study documenting the estimated prevalence rates of mental illnesses in the United States probation population in 1999.

This special report, the "Mental Health and Treatment of Inmates and Probationers" (NCJ-174463), was written by BJS statistician Paula M. Ditton [69]. The BJS reported that 16 percent of those on probation reported that they either had a mental condition or had stayed overnight in a mental hospital, unit, or treatment program. This study was an important landmark study, however, it suffered from one very important flaw. Probationers were asked to report if they had ever had a prior diagnosis of a psychiatric disorder or if they had ever been hospitalized in a psychiatric hospital for any reason. The survey questionnaire used for this study was not a mental health screening tool. Therefore, this BJS prevalence study likely underestimated the true prevalence rates of mental health pathology in the United States probation population. Many undiagnosed and untreated mental illnesses were not reported or detected.

Lurigio, et al. (2003) published a report entitled, the *Standardized Assessment of Substance-Related, Other Psychiatric, and Comorbid Disorders among Probationers* in the Journal of Offender Therapy and Comparative Criminality reporting an epidemiological research study performed in Illinois that estimated the prevalence of mental health pathology, substance use disorders, and their co-occurrences in a representative state-wide sample of 627 adult probationers [68]. A standardized interviewing procedure was performed using a comprehensive, validated mental health screening instrument, the Mini International Neuropsychiatric Interview 2.2, which enabled the researchers to detect undiagnosed psychiatric conditions as well as self-reported, previously diagnosed disorders. The prevalences of current, symptomatic psychiatric disorders reported in this Illinois probationer population were 13.2% for a major depressive episode, 3.0% for a manic episode, 3.2% for post-traumatic stress disorder, 11.2% for a psychotic disorder, and 9.4% for a mood disorder with psychotic features. The prevalence of life-time psychiatric disorders reported in this study were 6.7% for a major, recurrent depressive

episode, 7.5% for a manic episode, 13.9% for a hypomanic episode, 18.8% for a psychotic disorder, and 15.9% for antisocial personality disorder.

The prevalence rates of psychiatric disorders among probationers reported in this study were higher than those reported in the BJS prevalence study. This is likely due to the use of a mental health screening instrument, which enabled the researchers to detect undiagnosed as well as reported, diagnosed psychiatric disorders in the sample of probationers. Significantly higher percentages of psychiatric disorders were detected in substance abusing probationers versus non-substance abusing probationers[68].

TC-TAIP probationers are a high risk population for untreated mental illnesses

High rates of co-occurring psychiatric disorders among those with substance use disorders have been consistently reported in many research studies [4, 13, 42, 68, 70, 71]. Sixty percent of Texas-TAIP probationers are expected to suffer from a substance use disorder that needs treatment [69], and 50 to 80 percent of substance abusing probationers are expected to have at least one comorbid psychiatric disorder [4, 32-36, 69].

The main problem that this thesis aims to more clearly define is that many probationers with co-occurring untreated psychiatric disorders may be entering TC-TAIP ordered substance use disorder treatment programs without receiving the appropriate, individualized mental health treatment plans needed for recovery. Decreased success rates in TAIP ordered substance use disorder treatment programs are associated with increased criminal recidivism [16] and State costs [12].

Substance use disorders, mental health pathology, and criminality

Links between substance use and criminality have been well established in the literature [27]. Links between mental health pathology and criminality, however, are more complicated and remain less clear. Describing significant associations between mental health pathology and criminality has been difficult as this association may be significantly mediated by the presence and severity of substance use disorders in a particular study population [9], and significant associations that do exist may vary by mental health pathology type and severity. This study aimed to highlight the magnitude of the problem of untreated mental illnesses and co-occurring disorders in the TC-TAIP probationer population and to more fully characterize the role of substance use disorders as a mediating variable on the relationship between untreated mental illness and criminality.

This study was performed by an osteopathic medical student completing a Primary Care Research Fellowship at the Primary Care Research Institute at the University of North Texas Health Science Center at Fort Worth. This study was approved by the University of North Texas Health Science Center's Institutional Review Board.

CHAPTER IV

RESEARCH DESIGN AND METHODS

Study Design

This study used a cross-sectional design using one survey testing procedure. The 72-question Mental Health Screening Tool (MHST) survey was used to record probationers' socio-demographic characteristics, to screen for mental health pathology and substance use disorders, and to record measures of probationer criminality.

Study Population

Subjects were Texas probationers in the Tarrant County Treatment Alternatives to Incarceration Program (TC-TAIP). The downtown Fort Worth TC-TAIP facility was chosen as prior research suggested an increased prevalence of untreated mental illnesses and co-occurring disorders in this population. Probationers are referred to the TC-TAIP because they have been determined to be at risk for having a substance use disorder. Probationers are referred to the TC-TAIP for a substance use disorder assessment by a Licensed Chemical Dependency Counselor (LCDC). Probationers are sent to the TC-TAIP because they are being supervised for a drug related offense, have had a prior substance abuse history, have tested positive for substance abuse, or to verify that the probationer does not have a substance abuse issue if the probation officer is concerned that the probationer may have a substance use disorder.

Participants were required to be TC-TAIP probationers, able to read and write in English, and agree to participate in the study. Participants were excluded in the analysis if personal identifiers were discovered on the study survey (such as a name or an identification number), if the participant did not complete at least 50% of the study survey or the dependent variable section of the survey (self-reported number of lifetime arrests), or if the participant was not 18 years of age or older.

Recruitment of Participants

Probationers presenting at the downtown Fort Worth TC-TAIP facility prior to their scheduled substance use disorder assessment interview with a LCDC were asked to participate in this study by TC-TAIP office staff. Potential participants were handed the study survey with a study information sheet (see Appendix A) attached. Potential participants were asked to read the study information sheet and participate in the study by completing the study survey.

All efforts were made to prevent perceived coercion or obligation for subjects to participate. The recruiter carefully explained to any potential volunteer that the research was completely anonymous, voluntary, and that the study survey instrument did not have any "identifiers" for complete confidentiality. The recruiter also explained that participants could withdraw from the study at any time and that their full participation in the study would not benefit, harm, or impact their particular case that led to referral to the TC-TAIP.

If the probationer refused, a blank yellow sheet of paper was collected to record the non-response rate. Participants were allowed to complete the study survey at their own pace in a private space provided at the TC-TAIP facility. Participants were asked to drop completed

surveys in a locked opaque survey collection box. Recruitment of participants occurred from August 2008 to November 2008.

Survey Design

The 72-question Mental Health Screening Tool (MHST) survey (see Appendix B) was created for this study by performing extensive literature searches to collect sensitive and specific brief mental health screening instruments that could be combined into one short mental health screener to provide a comprehensive mental health screen. It is a self-report survey instrument designed to be completed in 15 minutes. The survey utilizes simple best choice response questions, yes or no response questions, Likert Scales, and entering numbers or marking response boxes.

Question numbers 1 through 6 record the client's age, sex, ethnicity, highest level of education completed, annual household income, and the number of persons living in the household. These questions also screen for special needs circumstances such as homelessness and whether the person is jobless, on disability, or seeking employment.

Questions 7 through 26 are the published, validated *Global Appraisal of Individual Needs Short Screener, or GAIN-SS* [32, 43, 72]. The GAIN-SS is a 20-question screening instrument that provides scores on four different generalized mental health pathology measures including internalizing disorders, externalizing disorders, substance use disorders, and future crime and violence risk. Each measure includes five questions, and each question has four possible responses including 'Never', 'Lifetime', 'Within the past year', and 'Within the past month'. For the internalizing disorders measure, the externalizing disorders measure, and the substance use disorders measure, a positive screening score was considered if ≥ 3 questions were marked

positive within the past year. A severity score for each of these measures was also recorded by using the GAIN-SS. For each question, a question score of 0 was given for a 'Never' response, 1 was given for a 'Lifetime' response, 2 was given for a 'Within the past year' response, and 3 was given for a 'Within the past month' response. The sum of the five question scores for each measure on the GAIN-SS provided a severity score for each measure [32, 43, 72].

Question numbers 27 through 32 are the *Adult ADHD Self-Report Scale (ASRS-v1.1)* from the World Health Organization Composite International Diagnostic Interview. The adult ADHD self report scale (ASRS) is an 18 question screening tool for adult ADHD based on established criteria published in the Diagnostic and Statistical Manual published by the American Psychiatric Association [45]. The 6-item short form of the ASRS (ASRS v1.1) was developed from its 18 question predecessor. A score of ≥4 of 6 positive questions is a positive score on the ASRS v1.1. resulting in a positive screen. The ASRS v1.1 has demonstrated a sensitivity of 68.7 and a specificity of 99.5 for screening for adult ADHD [73].

Question numbers 33 through 35 are the *Published 3-Question Depression Screener*. A two-question initial screening test [74] for depression was developed and validated based on the *Diagnostic and Statistical Manual of Mental Disorders,* 4th edition, text revision [45] using established criteria for the diagnosis of depression. A third question was subsequently added to the screening test that considerably improved the test's specificity [75]. A positive response to either question number 33 or number 34, plus a positive response to question number 35 has demonstrated a sensitivity of 96% and specificity of 89% for a diagnosis of depression [23]. This yields a positive likelihood ratio of 9.1 and a negative likelihood ratio of 0.05 [23].

Question numbers 36 and 37 are the *Published 2-Question Anxiety Disorder Screener (GAD-2).* The 2 question anxiety disorder screener is a short version of a seven question

screening instrument, the GAD-7 used to screen for anxiety disorders [76]. The 2 question anxiety disorder screener has a high sensitivity and specificity for detecting generalized anxiety disorder (GAD) in a primary care setting. It also has good sensitivity and specificity for screening for other anxiety disorders. The GAD-2 has two questions with four boxes for answer choices for each question representing “not at all”, “several days”, “over half the days”, and “nearly every day. Two questions are asked about various different anxiety symptoms and the survey taker is to report how often these symptoms occur. The boxes are scored 0 to 3, from left to right, and the sum of the two questions represents the final score. Using a cut off score of ≥ 3 as a positive screen, the GAD-2 has a sensitivity of 86% and a specificity of 83% for detecting generalized anxiety disorder, a 76% sensitivity and 81% specificity for detecting panic disorder, a 70% sensitivity and 81% specificity for detecting social anxiety disorder, and a 59% sensitivity and 81% specificity for detecting post-traumatic stress disorder [77].

Question numbers 38 through 50 are the published *Mood Disorder Questionnaire (MDQ)*. The MDQ is a screening tool developed to screen for bipolar disorder. Answer responses are yes/no. Using a cut-off score of ≥ to 3 positive responses as a positive screen, the MDQ has demonstrated a sensitivity of 71.0% and specificity of 68.0% in correctional settings with a high prevalence of bipolar disorder. Question numbers 51 through 71 are additional questions to record the participants self-reported psychiatric and substance use history, psychiatric medications, self-reported criminal history including number of self-reported lifetime arrests, and motivation for treatment.

Data Collection and Analysis

Survey collection boxes were collected from the TC-TAIP facility and returned to the Primary Care Research Institute (PCRI) at the University of North Texas Health Science Center at Fort Worth (UNTHSC) by the medical student investigator. The PCRI is located in the Patient Care Center (PCC) on the UNTHSC campus, on the second floor. The study surveys collected from the TC-TAIP were stored in Room 262 in the PCC building at UNTHSC, which is a locked and secured office within the PCRI.

Study surveys with any personal identifiers were excluded from the study and immediately destroyed in a paper shredder. All data entry and analyses occurred at one computer station in room 262 at the PCRI. The only data used for this study were the participants' answers to the questions included on this study survey.

Statistical Analysis

All statistical analyses were performed using SPSS version 15.0. The Pearson Chi-Square Test of Independence (χ^2) was used to test for a significant difference in proportions between groups identified as suffering from current, symptomatic internalizing disorders, externalizing disorders, adult ADHD, depression, anxiety disorders, or lifetime bipolar disorder in probationers with versus without current, symptomatic substance use disorders.

An Independent Samples *t*-test for Equality of Means (two-tailed) was calculated to test for a significant difference between the severity of current, symptomatic internalizing disorders or externalizing disorders in probationers with versus without current, symptomatic substance use disorders. The Levene's Test for Equality of Variances was used to test for equality of variances between groups, and skewness and kurtosis values were used to test for normality

before the *t*-test was performed. Values of the skewness and kurtosis of the distribution of data between -1.0 and +1.0 satisfied the criteria to be a normal distribution for this study.

Previous studies reported that 'number of lifetime arrests' data are often positively skewed [78]. Number of lifetime arrests data was positively skewed and leptokurtic in this study, as expected, with a skewness of 4.743 and a kurtosis of 33.076. A log 10 transformation of the variable data was performed to produce a normal curve with a skewness of .827 and a kurtosis of .210. The log 10 of the variable data was used for all significance tests including number of self-reported lifetime arrests as the dependent variable.

An Independent Samples *t*-test for Equality of Means (two-tailed) was calculated to test for a significant difference in mean number of self-reported lifetime arrests between probationers with versus without current, symptomatic internalizing disorders, externalizing disorders, substance use disorders, co-occurring disorders, adult ADHD, depression, anxiety disorders, or lifetime bipolar disorder.

Pearson's correlation coefficient (r) was calculated to test for significant associations between severity of internalizing, externalizing, substance use, or co-occurring disorders and self-reported number of lifetime arrests.

The linear regression analyses performed were described by Baron et al. (1986) to assess for the presence of a mediating variable among a set of variables[79]. This analysis was used by Swartz et al. (2007) to explain the generalized mediating effect of substance use on the relationship between mental illness and arrest [9]. Bivariate descriptive analyses of the associations between mental health pathology disorder status, substance use disorder status and severity, and number of lifetime arrests were performed. Linear regression models were then performed to regress number of lifetime arrests on a set of predictors including mental health

pathology disorder status and severity; sociodemographic variables including age, gender, race/ethnicity, income, and education level; but not substance use disorder status or severity. The purpose of these models were to assess the unmediated associations between the mental health pathology disorders and number of lifetime arrests. Unstandardized betas and standard errors were reported to measure the strength and direction of significant associations. A second set of linear regression models was then generated for each mental health pathology disorder that included substance use disorder status and severity as additional covariates and the changes in the betas for the mental health pathology disorders were assessed between the unmediated and mediated models.

Sample size analysis

For hypothesis 1, based on data reported in Lurigio, et. Al, (2003), the expected proportions of mental health pathology disorders were 25% for internalizing disorders, 20% for externalizing disorders, 25% for substance use disorders, 15% for co-occurring disorders, 19% for adult ADHD, 17% for Depression, 20% for anxiety disorder and 34% for bipolar disorder. Utilizing the desired confidence level of 95%, interval width of +/- 6%, and the expected proportion yielding the largest minimum sample size, which was .34, the total sample size needed was n = 239 probationers.

For hypothesis 2 the expected proportions of current disorders in substance abusing vs. non-substance abusing probationers was 15% versus 30% for internalizing disorders, 14% versus 24% for externalizing disorders, 10% versus 24% for adult ADHD, 10% versus 20% for depression, 10% vs. 25% for anxiety disorders, and 10% versus 20% for bipolar disorder. To detect a significant difference between groups using an alpha, of .05 and a beta, of .20, the

minimum required sample size needed was 118 for internalizing disorders, 238 for externalizing disorders, 110 for adult ADHD, 197 for depression, 97 for anxiety disorder, and 197 for bipolar disorder. Based on these calculations, the minimum needed sample size to detect a significant difference between all group proportions in this hypothesis test was n =238.

No existing literature was identified to conduct sample size analyses for hypotheses 3, 4, or 5. Therefore a post-hoc power analysis was conducted based on the results of the first 50 surveys collected for this study to determine if a sufficient sample size was obtained with adequate power to detect a significant difference for these 3 hypotheses.

For hypothesis 3 the average severity score for internalizing disorders was 7.4 with a standard deviation of 4.3 for probationers with substance use disorders versus 3.4 with a standard deviation of 4.3 in probationers without substance use disorders. The difference between means was 3.1. The average severity score for externalizing disorders was 4.2 with a standard deviation of 3.2 for probationers with substance use disorders versus 0.72 with a standard deviation of 4.2 in probationers without substance use disorders. The difference between means was 3.48. To detect a significant difference between groups using an alpha, of .05 and a beta, of .20, the minimum required sample size needed was 31 for internalizing disorders and 19 for externalizing disorders.

For hypothesis 4, the mean number of lifetime arrests in this sample was reported as 2.56 with a standard deviation of 1.88. Based on data collected in a sample of 325 clients assigned to a Psychiatric Probation and Parole Service in a large urban center (Solomon et al., 1999), mean number of lifetime arrests was reported to be 6.67 with a standard deviation of 9.65. This provided a rough estimate for the expected mean and standard deviation for the number of lifetime arrests of probationers with mental illnesses. The estimated difference between the two

means was 4.11. Calculating the minimum necessary sample size for the comparison of two means with an alpha, of .05 and a beta, of .20, a difference of 4.11, and standard deviations of 9.65 and 1.88 yielded n = 45.

For hypothesis 5, the Pearson correlation coefficient between disorder severity and number of lifetime arrests was r=.551 for internalizing disorders and r=.198 for externalizing disorders. Calculating the minimum necessary sample size to detect a significant association with an alpha, of .05 and a beta of .20 yielded n = 23 for internalizing disorders and n = 197 for externalizing disorders.

CHAPTER V

RESULTS

Response

Participant recruitment included inviting 302 TC-TAIP probationers to participate in the study. Thirty-six probationers refused to participate, and 266 agreed to participate. Therefore, the recruitment rate for this study was 88.1%. Fifteen additional surveys were excluded because the surveys were not at least 50% completed, so 251 completed surveys were collected. The response rate was 83.1%. Prior to data analysis, three additional surveys were excluded because the age reported on the survey was under the age of 18, and seven additional surveys were excluded and destroyed because personal identifiers were included on the survey. 241 completed surveys were used for data analysis. Figure 1 is the participant flow diagram.

Sociodemographic Information

The characteristics of the study population are presented in Table 1. The mean age of the sample population of 241 TC-TAIP probationers was 29.5 years, with a standard deviation of 10.6 years. A majority of the participants were male (68.5%), white (54.4%), and had a high-school education (60.6%). Fifteen percent were jobless, looking for employment.

Hypothesis 1:

Using published, previously validated, self-report mental health screening instruments, high prevalences of mental health pathology, substance use disorders, and co-occurring disorders will be detected in this research study's sample of TC-TAIP probationers.

Prevalences of the mental health pathology disorders identified in this sample of TC-TAIP probationers are presented in Table 2. Mental health screening instruments designed to detect current, symptomatic disorders were used with the exception of the MDQ, which is designed to detect the lifetime incidence of bipolar disorder. Therefore, the incidence of current, symptomatic disorders as well as the incidence of lifetime psychiatric disorders was reported with the exception of bipolar disorder. The lifetime incidence of bipolar disorder was reported. The prevalences of current, symptomatic disorders detected were 27.4% for internalizing disorders, 8.3% for externalizing disorders, 22.0% for substance use disorders, 14.9% for co-occurring disorders, 8.3% for adult ADHD, 21.6% for depression, and 17.4% for anxiety disorders, and 2.1% for suicidal ideation. The prevalences for lifetime psychiatric disorders detected were 47.7% for internalizing disorders, 26.6% for externalizing disorders, 41.9% for substance use disorders, 26.6% for co-occurring disorders, 19.9% for adult ADHD, 34.9% for depression, and 26.6% for anxiety disorders, 19.5% for bipolar disorder, and 9.5% for suicidal ideation.

Hypothesis 2:

Presence of mental health pathology is significantly associated with the presence of substance use disorders.

The proportion of probationers identified as suffering from current, symptomatic internalizing disorders, externalizing disorders, adult ADHD, depression, anxiety disorders, or lifetime bipolar disorder in probationers with versus without current, symptomatic substance use disorders are presented in Table 3. A significantly larger percentage of probationers were identified as suffering from current, symptomatic internalizing disorders ($p<.001$), externalizing disorders ($p<.001$), adult ADHD ($p<.001$), depression ($p<.001$), anxiety disorders ($p<.001$), and lifetime bipolar disorder ($p<.001$) in probationers identified as suffering from a current, symptomatic substance use disorder versus not.

Hypothesis 3:

Severity of mental health pathology is significantly associated with the presence of substance use disorders.

The difference in the mean severity of current, symptomatic internalizing disorders or externalizing disorders in probationers with versus without current, symptomatic substance use disorders is presented in Table 4. The severity of internalizing and externalizing disorders are measures of mental health pathology severity measured by the GAIN-SS. Scores range from a minimum of zero to a maximum of fifteen. As measured by using the GAIN-SS, the mean severity of current, symptomatic internalizing disorders was 8.7 in probationers identified as having a substance use disorder versus 3.5 in probationers that were not ($p<.001$). The mean

severity of externalizing disorders was 4.9 in probationers identified as having a substance sue disorder versus 1.7 in probationers that were not ($p<.001$).

Hypothesis 4:

Presence of mental health pathology, substance use disorders, and co-occurring disorders are significantly associated with probationer criminality.

The difference in mean number of self-reported lifetime arrests between probationers with versus without current, symptomatic internalizing disorders, externalizing disorders, substance use disorders, co-occurring disorders, adult ADHD, depression, anxiety disorders, or lifetime bipolar disorder is presented in Table 5. Significantly higher mean number of lifetime arrests were reported by probationers identified as suffering from current, symptomatic internalizing disorders ($p<.001$), externalizing disorders ($p=.001$), substance use disorders ($p=.002$), co-occurring disorders ($p=.005$), depression ($p=.016$), and bipolar disorder ($p=.018$) versus not. No significant difference was detected between groups for current, symptomatic anxiety disorders ($p=.633$) or adult ADHD ($p=.130$).

Hypothesis 5:

Severity of mental health pathology, substance use disorders, and co-occurring disorders are significantly associated with probationer criminality.

Associations between severity of internalizing, externalizing, substance use, or co-occurring disorders and self-reported number of lifetime arrests are presented in Table 6. A significant positive, direct association was identified between the mental health disorder severity scores and self-reported number of lifetime arrests for internalizing disorders ($p=.001$),

externalizing disorders ($p<.001$), substance use disorders ($p<.001$), and co-occurring disorders ($p<.001$). These data report significant associations between lifetime arrests and current, symptomatic mental health pathology disorders and between arrest and substance use disorders.

Simple linear regression

Table 7 shows the betas and standard errors for the simple linear regression models that used number of self-reported lifetime arrests as the dependent variable and mental health pathology disorders as the independent variable. The relationships were strongest for internalizing disorder status (beta=0.179, $p<0.001$) and externalizing disorder status (beta=0.231, $p=0.001$) with externalizing disorder status being the strongest predictor of number of lifetime arrests. Sociodemographic variables did exhibit significant associations with number of lifetime arrests. Being in the race/ethnicity category of other was directly associated with number of lifetime arrests (beta=.222, $p=.046$), and being a high school graduate was inversely associated with number of lifetime arrests (beta=-.114, $p=.020$). Age was significant as trend and was directly associated with number of lifetime arrests (beta=.003, $p=.092$).

Multiple linear regression

The data in Table 8 present linear regression models using number of lifetime arrests as the dependent variable and mental health pathology disorder status as the main independent predictor variable. In these models, additional sociodemographic covariates were added including age, gender, race/ethnicity, income, and education. Data in the first set of columns in Table 8 report the betas and standard errors for the linear models including the sociodemographic covariates but excluding substance use disorder status and severity as covariates. After the

addition of the sociodemographic covariates, the betas were still positive and significant for all the mental health pathology disorders tested except for adult ADHD and anxiety disorder. Internalizing disorder status (beta=0.198, $p<0.001$) and externalizing disorder status (beta=0.229, $p=0.001$) were still the strongest predictors of number of lifetime arrests. Data in the second set of columns in Table 8 report the change in betas and standard errors for the second set of models that included substance use disorder status and severity as additional covariates to the linear regression models. Tables 9 to 14 present the full linear regression models for each mental health pathology disorder type tested with and without the substance use covariates included.

The inclusion of substance use disorder status and severity reduced the betas for every mental health pathology disorder tested. For externalizing disorder status, depression, and bipolar disorder the beta value was no longer significant after substance use disorder status and severity were entered into the linear regression model. For these disorders, substance use disorder status and severity made the association between the mental health pathology disorder and number of lifetime arrests not significant. Therefore, most of the increase in risk for having an increased number of arrests can be accounted for by substance use disorder status and severity.

The magnitude of the beta was decreased for internalizing disorder status, but it remained significant (beta=0.140, $p=0.006$) after substance use disorder status and severity were included in the model. Substance use did mediate the relationship by increasing the likelihood of arrest among those with internalizing disorders. However, it is important to realize that internalizing disorder status is still an independent predictor of increased number of lifetime arrests even in the absence of substance use.

CHAPTER VI

DISCUSSION

Mental health pathology prevalences and substance use disorder

The results of this study report that there was a heavy presence of current, symptomatic mental health pathology present in this study's sample of TC-TAIP probationers. An important finding discovered in this study is the high prevalence of co-occurring mental health pathology among probationers identified as having current, symptomatic substance use disorders. Among these probationers, 67.9% were identified as suffering from a current, symptomatic internalizing disorder, 28.3% from an externalizing disorder, 20.8% from adult ADHD, 50.9% from depression, and 34.0% from an anxiety disorder. Probationers presenting to the TC-TAIP with current, symptomatic substance use disorders are the probationers most likely to be referred to a TC-TAIP substance use disorder treatment program. These probationers are the TC-TAIP's target treatment population, yet they are not being screened routinely for untreated mental illnesses or co-occurring disorders except for substance use disorders.

These data support that current, symptomatic co-occurring mental health problems are common for TC-TAIP probationers with current, symptomatic substance use disorders entering TC-TAIP substance use disorder treatment programs. These findings are consistent with prior research that has shown that clients entering substance abuse treatment programs are more likely to suffer from co-occurring mental health disorders [42, 80, 81]. In Australia, the National Survey of Mental Health and Well Being reported that two-thirds of individuals identified as

having a drug-use disorder also suffered from another mental health pathology disorder [82]. Diamond et al. (2006) reported that 72% of adolescent marijuana users endorsed two or more psychiatric syndromes when entering treatment [83]. Dennis et al. (2006) stated that 70 to 80% of people entering substance abuse treatment have one or more co-occurring psychiatric disorders [32], and Chan et al. (2008) reported that 78 to 90% of individuals in treatment for a substance use disorder endorsed having symptoms consistent with having an internalizing or externalizing disorder [42]. Lurigio et al. (2003) reported that the prevalences of psychiatric disorders among substance-abusing probationers for current, symptomatic disorders were 16.9% for depression, 4.5% for mania, 9.4% for hypomania, 4.9% for post-traumatic stress disorder, and 12.7% for mood disorder with psychotic features [68]. TC-TAIP probationers in this study sample identified as having a current, symptomatic substance use disorder were significantly more likely to suffer from a mental health pathology disorder than were probationers that were not identified as suffering from a substance use disorder for every mental health pathology disorder included in this research study.

Mental health pathology severity and substance use disorder

Probationers with substance use disorders were significantly more likely to suffer from more severe internalizing as well as externalizing disorders. Internalizing disorders were more common than externalizing disorders in this sample of TC-TAIP probationers. The severity of both were significantly and positively associated with substance use disorder status. These findings are consistent with prior research showing that increasingly severe co-morbid mental health problems are associated with increasingly severe patterns of substance use [42, 80, 84, 85], and that substance use is consistent with increasingly severe mental health pathology

symptomology [42]. Lurigio et al. (2003) reported higher prevalences of mental health pathology disorders among substance-abusing probationers versus non-substance abusing probationers for depression, mania, hypomania, suicide risk, post-traumatic stress disorder, and antisocial personality disorder [68]. Chan et al. (2008) reported that the severity of internalizing and externalizing disorders were significantly and positively associated with substance use [42].

Mental health pathology, substance use disorder, and lifetime arrests

Correlation analysis revealed that mental health pathology disorder status was significantly and positively associated with number of lifetime arrests for all disorders included in this study except for anxiety disorders and adult ADHD. Furthermore, severity of mental health pathology disorder was significantly and positively associated with number of self-reported lifetime arrests for every mental health pathology disorder type severity including internalizing disorders, externalizing disorders, substance use disorders, and co-occurring disorders.

These findings are consistent with prior literature reporting that persons with more severe manifestations of mental health disorders are the most likely individuals to be arrested [9] and that substance use increases the risk for criminal activity among those with serious mental illnesses [9, 86, 87]. Solomon et al. (1999) reported that lifetime arrests were positively associated with episodes of mania and number of lifetime psychiatric hospitalizations [88]. These findings support the theory that generalized mental health pathology disorder symptom severity rather than psychiatric diagnosis type may also be an accurate predictor of number of lifetime arrests and criminal recidivism. The fact that measures of generalized mental health pathology (as well as substance use disorder status and severity) may be better predictors of

increased criminality rather than specific psychiatric diagnosis has important policy implications. Valid, reliable measures of generalized mental health pathology such as the GAIN-SS are much easier to administer quickly than longer instruments designed to detect specific psychiatric diagnoses.

The mediating effect of substance use disorder status and severity

The results of this study report that the betas describing the relationships between mental health pathology disorders and numbers of lifetime arrests decreased with the addition of substance use disorder status and severity into the linear regression models. The correct interpretation of this data is that substance use among those with mental illness accounts for much of the increased risk for arrest among those with mental illness. This finding is consistent with a recent study performed by Swartz et al. (2007) that reported that substance use mediates the association between mental health pathology and past-year arrest among the mentally ill increasing the risk of a past-year arrest [9]. Baillargeon et al. (2009) reported that prison inmates with major psychiatric disorders including major depressive disorder, bipolar disorders, schizophrenia, and non-schizophrenic psychotic disorders were substantially more likely than those without to have had previous incarcerations [11]. Among those with mental illness, the predisposition to develop substance use disorders is great. The exacerbation of psychiatric symptoms that accompany substance use, involvement in the world of illegal drug trade, and the increased risk of committing crimes such as robbery or theft to obtain drug money have all been cited as contributing factors[9, 86]. Further research to more clearly define the contributory role each specific drug type substance use disorder in this generalized mediating effect is warranted.

TC-TAIP probationers are not currently being screened for mental illnesses

Probationers in the TC-TAIP probation population are currently being screened for substance use disorders by Licensed Chemical Dependency Counselors (LCDCs). TC-TAIP probationers are not currently being screened for other mental illnesses or co-occurring disorders. There are many barriers to providing routine mental health care screening services to TC-TAIP probationers. TC-TAIP LCDCs are only trained to recognize and assess probationers suffering from substance use disorders. They are not trained to recognize, diagnose or treat probationers suffering from mental illnesses or co-occurring disorders, hence the presence of an identification blind spot is real and results in the system missing valuable opportunities for early intervention before problems escalate into more serious illnesses and their costly societal consequences to the community and state. Hiring psychiatrists to perform comprehensive psychiatric assessments for all incoming probationers would be unrealistic, too expensive, and not cost-effective because many probationers may not need further psychiatric assessments or treatment. The barrier to efficiently and effectively screening mental health disorders is a nation-wide problem. It is also a common problem among all seven county TC-TAIP facilities and other state probation departments. Investigators at the PCRI have initiated a project to solve this problem, The Mental Health Screening and Treatment Initiative (MHSTI).

The Mental Health Screening and Treatment Initiative (MHSTI)

The current goal of the MHSTI project is to provide comprehensive, routine mental health screenings for all Tarrant County Treatment Alternatives to Incarceration Program (TC-TAIP) probationers and to improve upon and standardize TC-TAIP assessment/treatment referral practices. This will be a key step towards developing a comprehensive treatment program for this

underserved population. Currently, there is no validated, efficient, and comprehensive mental health screening instrument that has been customized for use in the TC-TAIP.

Researchers at the Primary Care Research Institute at UNTHSC have been working to create one. Literature searches were performed for published, validated mental health screening instruments, which were subsequently assessed for psychometrics strength versus brevity, usability, scope, content validity, quality measures, and information yield complexity. The winners were compiled into a brief 72-question Mental Health Screening Tool (MHST) including the *Global Appraisal of Individual Needs – Short Screener (GAIN-SS)* and four specific psychiatric disorder screeners to screen for adult ADHD, Depression, Anxiety, and Bipolar disorder.

The GAIN-SS: disorder type, referral type, and priority status

The GAIN-SS, included as questions 7 through 26 of the MHST study survey (see Appendix B), is a short 5-minute screener that LCDCs may use to screen TC-TAIP probationers for the presence and severity of co-occurring mental health disorders [43]. The GAIN-SS detects probationers with internalizing, externalizing, substance use, and co-occurring disorders [43]. The GAIN-SS could be used as a quick, efficient mental health screening instrument to determine the specific individualized type of mental health assessment/treatment referral needed for each TC-TAIP probationer. The scoring sheet for the GAIN-SS is included as the GAIN-SS portion of the Mental Health Screening Tool (MHST) - Scoring Sheet (see Appendix C). The GAIN-SS could be used to distinguish between TC-TAIP probationers needing further mental health assessment/treatment referral services and those that do not [43]. The GAIN-SS could also be used as a periodic measure of behavioral health change over time [43].

The Four Quadrant Model: disorder severity, locus of care, and system service coordination

In addition to considering disorder type, referral type, and priority status, disorder severity is also a very important thing to consider. Disorder severity should determine the mental health care system locus of care for each probationer [89]. Each probationer's disorder'(s) severity determines the level of integrated mental health care services the probationer will need to succeed in treatment. The National Association of State Mental Health Program Directors (NASMHPD) and the National Association of State Alcohol and Drug Abuse Directors (NASADAD) co-sponsored the *National Dialogue on Co-occurring Mental Health and Substance Abuse Disorders* to reach a consensus on screening and making treatment referrals for people with co-occurring disorders [89]. Participants in the National Dialogue developed a conceptual framework with four categories corresponding to co-occurring disorder type and severity (see Figure 2). Category one includes less severe mental health disorders and less severe substance disorders, category two includes more severe mental health disorders combined with less severe substance use disorders, category three includes less severe mental health disorders combined with more severe substance disorders, and category four includes more severe mental health disorders combined with more severe substance use disorders [89]. Regardless of specific diagnosis, individuals with co-occurring disorders fall into one of four categories according to the severity of their mental health and substance use disorder(s). This four category model can be used as a general guideline by which to determine the appropriate mental health care treatment system locus of care needed. Setting one includes primary health care settings, school-based clinics, and community programs; setting two includes the mental health system; setting three includes the substance abuse system; and setting four includes in-patient dual-diagnosis

treatment programs, state hospitals, jails, prisons, forensic units, emergency rooms, and homeless services programs.

Based on the severity of the co-occurring disorders and the location of their care the following levels of mental health care treatment system coordination among the substance abuse, mental health, and primary health care system treatment providers was recommended by the participants at the *National Dialogue*. This model also fits the 4 Quadrant Model (see Figure 2). For patients in level one, consultation and informal relationships among providers such as an occasional phone call is recommended to ensure mental health and substance abuse needs of the patient are met with a focus on early identification, engagement, prevention, and early intervention. For probationers with level two and three disorders, however, collaboration is recommended between agencies such as interagency staffing conferences where representatives of both substance abuse and mental health agencies may contribute to the design of a coherent, comprehensive mental health care treatment referral network. For level 4, integrated services are recommended at one treatment setting where professionals can work together to build a single treatment regimen [89].

Limitations

The results of this study should be interpreted with caution. This study was an observational study and suffered from several methodological limitations. This study was a cross-sectional study. Therefore, results will only be able to be stated in terms of the strengths of the associations and causality can not be determined based on the results of this study. The results of this study and prior literature suggest that mental health pathology and substance use are both contributors to criminal activity. Future studies need to be developed to determine

whether linkage to mental health treatment services will lead to better substance use disorder treatment outcomes for TC-TAIP probationers, decreased criminal recidivism, and/or decreased criminal justice costs to the State of Texas.

The mental health screening instruments included in this study survey are not as valid as performing diagnostic psychiatric interviews to make psychiatric diagnoses – these brief screening instruments can not generate a psychiatric diagnosis. Therefore, the determinations made by these screening instruments will contain some degree of error, but based on the validation studies cited for these instruments included in the study survey, these errors are expected to be small. One exception recognized is that the Mood Disorder Questionnaire designed to screen for Bipolar disorder may lose specificity by producing false positives in a substance abusing population due to the incidence of substance-induced mania.

Sample data collected for this study was collected from one population of TC-TAIP probationers at the downtown Fort Worth TC-TAIP facility. Samples derived from a single clinical population with high prevalences of pathology are subject to Berkson's fallacy [90], which means that associations observed in this study's population sample of TC-TAIP probationers that are at a high-risk for being substance-abusers may not be applicable to a general probation population sample.

All data recorded in this study was self-reported. Many of these characteristics or behaviors, such as mental health and substance use disorders' symptoms and criminality are stigmatized or may be seen as 'socially undesirable', and are likely to be underreported [91-93]. Data to be collected in this study was anonymous, so it will not be possible to conduct a validity check using the probation department's arrest records. While research on self-report arrests has

found that they are often times underreported, other studies have demonstrated that self-reported arrest data are still reasonably accurate and useful for research purposes [94].

CHAPTER VII

CONCLUSION

"The human, social, and economic costs of untreated mental illnesses and co-occurring disorders take a toll on the individual experiencing them, the family, children in the family, the school, the workplace, the community, the State and, ultimately, the Nation as a whole [5]." Investigators hope that this study will help to shed light on the magnitude of the problem of untreated mental illnesses and co-occurring disorders in pre-incarceration offender populations and draw new attention to a very old problem – the repeated jailing of the mentally ill. The first step to providing treatment for these individuals is recognizing that they may have a disorder. Until TC-TAIP probationers receive routine mental health screenings many probationers with untreated mental illnesses and co-occurring disorders will not receive the individualized treatment plans they need to recover.

Mental health screening programs are needed in high-risk criminal justice populations before incarceration is sentenced. Screening and referral practices for substance use disorders performed by the TC-TAIP must also include screening for the presence [32, 43] and severity [89] of co-occurring mental illnesses, and this information must be taken into account when making appropriate, individualized substance use and mental health assessment/treatment referrals for probationers. The individual psychiatric disorder screening instruments included in this study's survey, the MHST, are sensitive and specific mental health screening tools that can be used to quickly and efficiently screen large numbers of probationers for untreated mental

illnesses and co-occurring disorders. This is especially true for the 20-question GAIN-SS, which can be administered in 3-5 minutes, and screens reliably for internalizing disorders, externalizing disorders, substance use disorders, and co-occurring disorders.

Individuals with untreated co-occurring psychiatric disorders are very common among TC-TAIP probationers with substance use disorders entering TC-TAIP ordered substance use disorder treatment programs. Probationers with severe co-occurring disorders need more intensive treatment services designed to simultaneously address both disorders in order for treatments to be most effective [28-30, 89]. Decreased success rates in TC-TAIP substance use disorder treatment programs are associated with increased crime, criminal justice costs to the State, and greater costs to our community.

A model has been proposed using the GAIN-SS as a mental health screening tool to assist TC-TAIP LCDCs in providing efficient, comprehensive mental health screenings for all TC-TAIP probationers and making appropriate mental health care referrals for the probationers most in need of mental health care services to recover. Clinicians can use clinical indicators such as behavioral challenges and overall mental health severity (as measured using the GAIN-SS) to help identify and support TC-TAIP probationers with co-occurring disorders.

Figure 1. Participant Flow Diagram (N= 241)

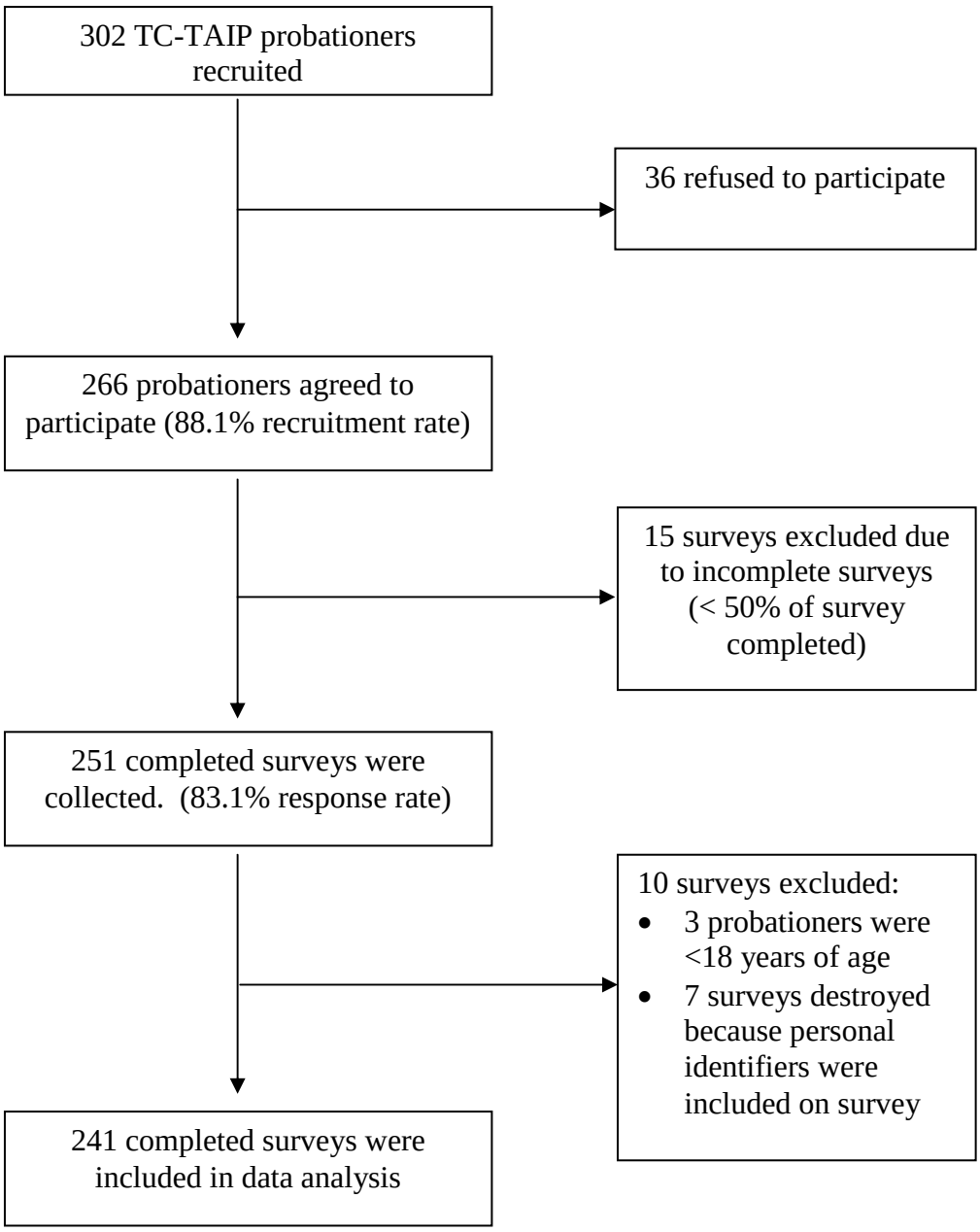

Figure 1. Participant Flow Diagram

*TC-TAIP, Tarrant County – Treatment Alternatives to Incarceration Program. The recruitment rate of this study was 88.1%. Surveys that were ≤50% completed were considered incomplete and excluded. The response rate of this study was 83.1% Surveys were excluded if personal identifiers were included on the survey or if probationers were under the age of 18. 241 completed surveys were used for data analysis.

Figure 2. Four Quadrant Conceptual Framework

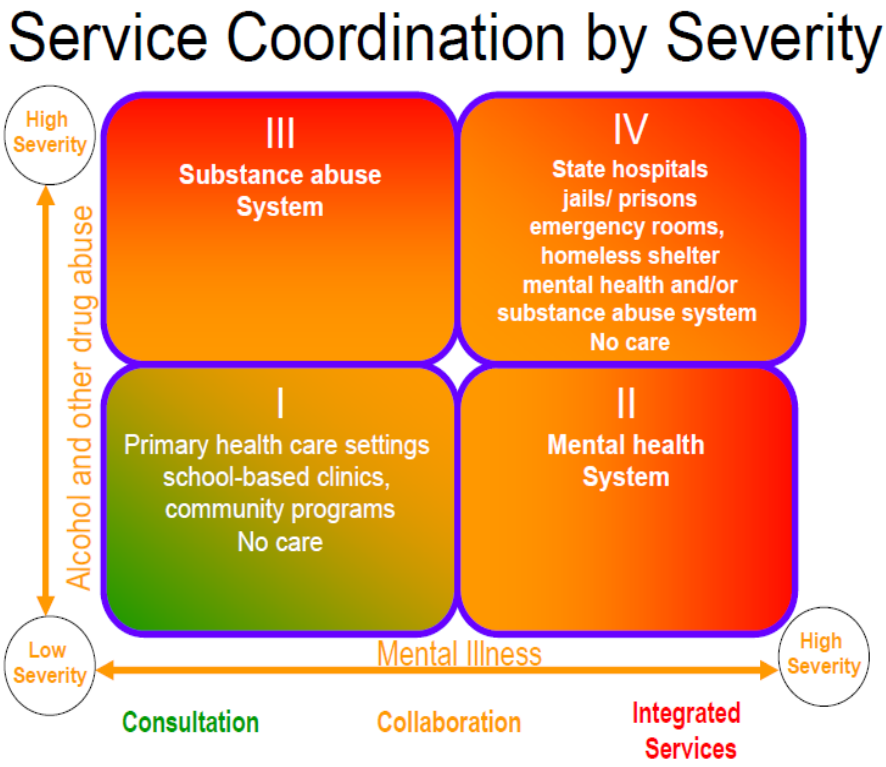

Figure 2. Four Quadrant Conceptual Framework for co-occurring disorders within a behavioral health care system*

*National Association of State Mental Health Program Directors and National Association of State Alcohol and Drug Abuse Directors. (1999). National dialogue on co-occurring mental health and substance abuse disorders. Alexandria, VA and Washington, DC: NASMHPD/NASADAD.

Table 1. Sociodemographic characteristics (N=241).

	mean (SD)
Age	29.5 (10.6)
Years of education	12.2 (1.8)
	n (%)
Gender	
Male	165 (68.5)
Female	76 (31.5)
Race/ethnicity	
White	131 (54.4)
Hispanic	66 (27.4)
African American	36 (14.9)
Other	8 (3.3)
Employment status	
Jobless, looking for employment	37 (15.4)
Jobless, student	8 (3.3)
Jobless, on disability	5 (2.1)
Jobless, not looking for employment	5 (2.1)
Employed	186 (77.1)
Income ($)	
0 to 19,999	123 (51.0)
20,000 to 39,999	52 (21.6)
40,000 to 59,999	28 (11.6)
> 60,000	38 (15.8)
Education	
Grade 1 to 12	95 (39.4)
High school graduate	66 (27.4)
College	80 (33.2)

Table 2. Mental health pathology prevalences (N=241)

	Positive Disorder
	n (%)
Current disorders	
Internalizing disorder	66 (27.4)
Externalizing disorder	20 (8.3)
Substance use disorder	53 (22.0)
Co-occurring disorder	36 (14.9)
Adult ADHD	20 (8.3)
Depression	52 (21.6)
Anxiety disorder	42 (17.4)
Suicidal Ideation	5 (2.1)
Lifetime disorders	
Internalizing disorder	115 (47.7)
Externalizing disorder	64 (26.6)
Substance use disorder	101 (41.9)
Co-occurring disorder	64 (26.6)
Adult ADHD	48 (19.9)
Depression	84 (34.9)
Anxiety disorder	64 (26.6)
Bipolar disorder	47 (19.5)
Suicidal Ideation	23 (9.5)

Table 3. Mental health pathology prevalences by substance use disorder status (N=241)

	Negative	Positive	Total sample	χ^2	*p* value*
	n (%)				
Overall	188 (78)	53 (22)	241 (100)		
Current psychiatric disorder status					
Internalizing disorder	30 (16.0)	36 (67.9)	66 (27.4)	56.1	<.001
Externalizing disorder	5 (2.7)	15 (28.3)	20 (8.3)	35.7	<.001
Adult ADHD	9 (4.8)	11 (20.8)	20 (8.3)	13.9	<.001
Depression	25 (13.3)	27 (50.9)	52 (21.6)	34.6	<.001
Anxiety disorder	24 (12.8)	18 (34.0)	42 (17.4)	12.9	<.001
Lifetime psychiatric disorder status					
Bipolar disorder	26 (13.8)	21 (39.6)	47 (19.5)	17.5	<.001

* Chi square analysis

Table 4. Mental health pathology severity by substance use disorder status (N=241).

	Negative	Positive	Total sample	*p* value*
	mean (SD)			
Current psychiatric disorder severity				
Internalizing disorder	3.5 (3.6)	8.7 (3.8)	4.6 (4.2)	<.001
Externalizing disorder	1.7 (2.3)	4.9 (3.2)	2.4 (2.8)	<.001

* *t* – test analysis, SD= standard deviation

Table 5. Mean number of lifetime arrests by mental health pathology disorder status (N=241)

	Negative	Positive	*p* value*
	Mean number of lifetime arrests (Log 10)		
Current psychiatric disorder status			
Internalizing disorder	2.20 (0.24)	3.73 (0.42)	<.001
Externalizing disorder	2.45 (0.27)	4.45 (0.50)	.001
Substance use disorder	2.38 (0.26)	3.45 (0.41)	.001
Co-occurring disorder	2.45 (0.27)	3.56 (0.42)	.005
Adult ADHD	2.54 (0.28)	3.45 (0.39)	.130
Depression	2.45 (0.27)	3.23 (0.38)	.016
Anxiety disorder	2.64 (0.29)	2.52 (0.31)	.633
Lifetime psychiatric disorder severity			
Bipolar disorder	2.39 (0.26)	3.57 (0.40)	.018

* *t* – test analysis

Table 6. Correlation between mental health pathology disorder severity and number of lifetime arrests (N=241).

	r*	***p* value**
Current psychiatric disorder severity		
Internalizing disorder	.221	.001
Externalizing disorder	.346	<.001
Substance use disorder	.252	<.001
Co-occurring disorder	.311	<.001

**r*, Pearson's correlation coefficient

Table 7. Bivariate Analysis of Independent Predictors (N=241)

	Lifetime arrests	
	B (S.E.)	*p*-value
Current psychiatric disorder status		
Internalizing disorder	.179 (.043)	<.001
Externalizing disorder	.231 (.070)	.001
Substance use disorder	.157 (.047)	.001
Co-occurring disorder	.153 (.054)	.005
Adult ADHD	.108 (.071)	.130
Depression	.115 (.047)	.016
Anxiety disorder	.025 (.052)	.633
Current psychiatric disorder severity		
Internalizing disorder severity	.016 (.005)	.001
Externalizing disorder severity	.037 (.007)	<.001
Substance use disorder severity	.022 (.005)	<.001
Co-occurring disorder severity	.114 (.026)	<.001
Lifetime psychiatric disorder status		
Bipolar disorder	.136 (.049)	.018
Sociodemographic covariates		
Age	.003 (.002)	.092
Gender		
Male	-	-
Female	-.005 (.042)	.899
Race/ethnicity		
Caucasian	-	-
African American	.019 (.046)	.672
Hispanic	-.045 (.057)	.427
Other	.222 (.111)	.046
Income ($)		
0 to 19,999	-	-
20,000 to 39,999	.057 (.051)	.263
40,000 to 59,999	.061 (.064)	.340
> 60,000	-.036 (.057)	.521
Education		
Grade 1 to 12	-	-
High school graduate	-.114 (.049)	.020
College	-.030 (.046)	.510

B, unstandardized beta; S.E., standard error;

Table 8. Linear regression models of mental health pathology disorder status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Current psychiatric disorder status				
Internalizing disorder	.198 (.044)	<.001	.140 (.051)	.006
Externalizing disorder	.229 (.071)	.001	.123 (.078)	.116
Adult ADHD	.100 (.071)	.158	.013 (.073)	.859
Depression	.128 (.049)	.009	.050 (.053)	.352
Anxiety disorder	.034 (.052)	.519	-.024 (.053)	.647
Lifetime psychiatric disorder status				
Bipolar disorder	.141 (.049)	.005	.087 (.051)	.090

B, unstandardized beta; S.E., standard error
All models included the following covariates: gender, age, race/ethnicity, income, and education level. Additional substance use covariates included substance use disorder status and severity.

Table 9. Linear regression model of internalizing disorder status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Current psychiatric disorder status				
Internalizing disorder	.198 (.044)	<.001	.140 (.051)	.006
Substance use covariates				
Substance use disorder status	-	-	.039 (.077)	.612
Substance use disorder severity	-	-	.010 (.009)	.259
Sociodemographic covariates				
Age	.002 (.002)	.375	.001 (.002)	.461
Gender				
Male	-	-	-	-
Female	-.038 (.042)	.363	-.032 (.042)	.447
Race/ethnicity				
Caucasian	-	-	-	-
African American	.042 (.046)	.378	.055 (.046)	.238
Hispanic	-.032 (.058)	.581	-.032 (.057)	.578
Other	.213 (.110)	.054	.219 (.110)	.046
Income ($)				
0 to 19,999	-	-	-	-
20,000 to 39,999	.079 (.050)	.117	.080 (.050)	.108
40,000 to 59,999	.050 (.063)	.052	.058 (.063)	.360
> 60,000	.013 (.060)	.822	.013 (.060)	.831
Education				
Grade 1 to 12	-	-	-	-
High school graduate	-.140 (.048)	.004	-.137 (.048)	.004
College	-.061 (.049)	.213	-.057 (.049)	.238

B, unstandardized beta; S.E., standard error

Table 10. Linear regression model of externalizing disorder status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Current psychiatric disorder status				
Externalizing disorder	.229 (.071)	.001	.123 (.078)	.116
Substance use covariates				
Substance use disorder status	-	-	.066 (.077)	.396
Substance use disorder severity	-	-	.012 (.009)	.203
Sociodemographic covariates				
Age	.002 (.002)	.202	.002 (.002)	.332
Gender				
Male	-	-	-	-
Female	-.023 (.042)	.593	-.019 (.042)	.645
Race/ethnicity				
Caucasian	-	-	-	-
African American	.015 (.047)	.750	.044 (.047)	.356
Hispanic	-.042 (.059)	.471	-.038 (.058)	.515
Other	.176 (.113)	.120	.205 (.112)	.069
Income ($)				
0 to 19,999	-	-	-	-
20,000 to 39,999	.063 (.051)	.220	.070 (.050)	.164
40,000 to 59,999	.069 (.065)	.291	.070 (.064)	.274
> 60,000	-.017 (.061)	.782	-.008 (.060)	.898
Education				
Grade 1 to 12	-	-	-	-
High school graduate	-.121 (.048)	.013	-.125 (.048)	.010
College	-.053 (.050)	.289	-.050 (.049)	.305

B, unstandardized beta; S.E., standard error

Table 11. Linear regression model of adult ADHD status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Current psychiatric disorder status				
Adult ADHD	.100 (.071)	.158	.013 (.073)	.859
Substance use covariates				
Substance use disorder status	-	-	.074 (.077)	.342
Substance use disorder severity	-	-	.015 (.009)	.106
Sociodemographic covariates				
Age	.003 (.002)	.138	.002 (.002)	.319
Gender				
Male	-	-	-	-
Female	-.012 (.043)	.773	-.012 (.042)	.767
Race/ethnicity				
Caucasian	-	-	-	-
African American	.016 (.048)	.732	.050 (.047)	.292
Hispanic	-.044 (.060)	.468	-.037 (.058)	.527
Other	.221 (.114)	.054	.231 (.111)	.039
Income ($)				
0 to 19,999	-	-	-	-
20,000 to 39,999	.057 (.052)	.271	.069 (.051)	.176
40,000 to 59,999	.052 (.066)	.433	.062 (.064)	.334
> 60,000	-.018 (.062)	.777	-.007 (.060)	.902
Education				
Grade 1 to 12	-	-	-	-
High school graduate	-.110 (.049)	.026	-.121 (.048)	.012
College	-.045 (.051)	.376	-.045 (.049)	.360

B, unstandardized beta; S.E., standard error

Table 12. Linear regression model of depression status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Current psychiatric disorder status				
Depression	.128 (.049)	.009	.050 (.053)	.352
Substance use covariates				
Substance use disorder status	-	-	.069 (.077)	.376
Substance use disorder severity	-	-	.013 (.009)	.153
Sociodemographic covariates				
Age	.002 (.002)	.210	.002 (.002)	.340
Gender				
Male	-	-	-	-
Female	-.021 (.043)	.618	-.017 (.042)	.690
Race/ethnicity				
Caucasian	-	-	-	-
African American	.011 (.047)	.823	.045 (.047)	.349
Hispanic	-.032 (.059)	.594	-.033 (.058)	.569
Other	.235 (.113)	.038	.235 (.111)	.036
Income ($)				
0 to 19,999	-	-	-	-
20,000 to 39,999	.070 (.052)	.178	.073 (.051)	.152
40,000 to 59,999	.060 (.065)	.360	.064 (.064)	.314
> 60,000	.001 (.062)	.983	.000 (.061)	.996
Education				
Grade 1 to 12	-	-	-	-
High school graduate	-.127 (.049)	.010	-.126 (.048)	.009
College	-.054 (.050)	.288	-.049 (.049)	.320

B, unstandardized beta; S.E., standard error

Table 13. Linear regression model of anxiety disorder status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Current psychiatric disorder status				
Anxiety disorder	.034 (.052)	.519	-.024 (.053)	.647
Substance use covariates				
Substance use disorder status	-	-	.075 (.078)	.332
Substance use disorder severity	-	-	.016 (.009)	.083
Sociodemographic covariates				
Age	.003 (.002)	.134	.002 (.002)	.333
Gender				
Male	-	-	-	-
Female	-.011 (.044)	.795	-.009 (.042)	.825
Race/ethnicity				
Caucasian	-	-	-	-
African American	.014 (.048)	.763	.052 (.047)	.273
Hispanic	-.043 (.060)	.474	-.035 (.058)	.544
Other	.231 (.115)	.045	.228 (.111)	.042
Income ($)				
0 to 19,999	-	-	-	-
20,000 to 39,999	.057 (.052)	.276	.067 (.051)	.185
40,000 to 59,999	.049 (.066)	.456	.061 (.064)	.337
> 60,000	-.023 (.062)	.716	-.008 (.060)	.894
Education				
Grade 1 to 12	-	-	-	-
High school graduate	-.110 (.049)	.027	-.123 (.048)	.011
College	-.040 (.051)	.519	-.045 (.049)	.358

B, unstandardized beta; S.E., standard error

Table 14. Linear regression model of bipolar disorder status, substance use disorder status and severity, and number of lifetime arrests (N=241)

	Substance use covariates excluded		Substance use covariates included	
	B (S.E.)	*p*-value	*B* (S.E.)	*p*-value
Lifetime psychiatric disorder status				
Bipolar disorder	.141 (.049)	.005	.087 (.051)	.090
Substance use covariates				
Substance use disorder status	-	-	.068 (.077)	.379
Substance use disorder severity	-	-	.013 (.009)	.158
Sociodemographic covariates				
Age	.003 (.002)	.109	.002 (.002)	.262
Gender				
Male	-	-	-	-
Female	-.013 (.042)	.759	-.015 (.042)	.723
Race/ethnicity				
Caucasian	-	-	-	-
African American	.024 (.047)	.610	.051 (.047)	.277
Hispanic	-.034 (.059)	.566	-.032 (.058)	.576
Other	.214 (.113)	.059	.224 (.111)	.044
Income ($)				
0 to 19,999	-	-	-	-
20,000 to 39,999	.061 (.051)	.235	.071 (.050)	.161
40,000 to 59,999	.075 (.065)	.251	.076 (.064)	.235
> 60,000	-.004 (.061)	.944	.001 (.060)	.980
Education				
Grade 1 to 12	-	-	-	-
High school graduate	-.113 (.048)	.020	-.121 (.048)	.012
College	-.057 (.050)	.255	-.054 (.049)	.271

B, unstandardized beta; S.E., standard error

APPENDIX A:

SURVEY COVER SHEET

PARTICIPANT RECRUITMENT STATEMENT

2008 Comprehensive Mental Health and Wellbeing Survey

Tarrant County – Treatment Alternatives to Incarceration Program

Participant Recruitment Statement

The Department of Family Medicine at The University of North Texas Health Science Center at Fort Worth (UNTHSC) is starting a study to examine how many adults that are on Probation have symptoms of Substance Use Disorders and Mental Illnesses. We was conducting these studies in an effort to determine how widespread or prevalent different disorders may actually be in adults.

First you should know, this is a completely voluntary survey. Whether you choose to fill-out the survey or not will in ***no*** way affect your current "case" either positively or negatively. There is ***no*** benefit from completing the survey, and there is ***no*** penalty for refusing/declining to do the survey. You will not be asked to sign *anything*. This survey is a research study that is being performed by researchers at The University of North Texas Health Science Center at Fort Worth (UNTHSC). All of the information from this study is for research purposes only. This information is for the researchers at UNTHSC only and will not be made available to anyone that works for the Tarrant County Probation Department.

We would like to ask that you volunteer some of your time to help us better understand the characteristics of probation populations by honestly and anonymously answering these questions. This is a 71-question survey that is easily filled out by circling the correct answers and by making marks the boxes provided. There is ***no*** name required on this survey or any other information that would allow someone to directly connect the survey back to you or any other person. Some of the history questions do get personal, but you ***don't*** have to answer any questions you don't wish to. The information that is requested is not in enough detail to be traced-back or attached to any one person. We hope that you can be as honest as possible as we are looking at the possibility that mental illnesses and substance use disorders may in fact be causing or contributing to problems many adults have. It is very important to look at factors of past medical history, past treatment history and criminal history to see if we can find clues on how much different mental illnesses and substance use disorders may contribute to adult problems.

If you choose to participate in this important study, you will go into a private space, take the survey on paper and drop the finished or printed survey into a large container with other surveys. Remember, you may choose to quit the survey at any time or answer only those questions that you feel you want to. The answers on this survey will ***only be used for research*** and not available to any other persons than the researchers. If you have any questions about this research study, you may contact the Principal Investigator of this project, Dr. Mann, at 817-926-2641. If you have any questions about your rights as a research participant in this study, you may contact Dr. Brian Gladue, Chairman of the Institutional Review Board at 817-735-0409.

Principle Investigator:
Christopher R. Mann, DO

If you feel like you are having a mental health crisis that you need immediate help for please call the Tarrant County Mental Health Care Crisis Hotline. This service provides mental health emergency support 24-hours a day, 365 days a year and is the first point of contact to begin eligibility assessment.

24-hour Crisis Hotline: 817- 335-3022 or call toll free 1-800-866-2465.

APPENDIX B:

MENTAL HEALTH SCREENING TOOL (MHST)

SURVEY

2008 Comprehensive Mental Health and Wellbeing Survey

Tarrant County – Treatment Alternatives to Incarceration Program

Medical History

1) Age:_____

2) Sex: M or F

3) Race/Ethnicity: Circle the racial/ethnic group to which you belong.
   a. White
   b. African-American
   c. Hispanic
   d. American Indian/Native American
   e. Native Hawaiian/Pacific Islander
   f. Other

4) Education: Circle the highest level of education you completed.
   a. Grade 1-9
   b. Grade 10-12
   c. High School Graduate
   d. Some College
   e. College Graduate
   f. Graduate School

5) Number of People that live in your household
   a. Homeless
   b. 1
   c. 2
   d. 3
   e. 4 or more

6) Average Yearly Income for Everyone in your household Combined
   a. Jobless, not looking for employment
   b. Jobless, looking for employment
   c. Jobless, on disability
   d. Jobless, student
   e. $ 0 - $19,999
   f. $20,000 - $39,999
   g. $40,000 - $59,999
   h. $60,000 – $79,999
   i. ≥ $80,000

2008 Comprehensive Mental Health and Wellbeing Survey

The following questions are about common psychological, behavioral or personal problems. These problems are considered significant when you have them for two or more weeks, when they keep coming back, when they keep you from meeting your responsibilities, or when they make you feel like you can't go on. After each of the following statements, please tell us the last time you had this problem, if ever, by responding in the past month, 2-12 months ago, 1 or more years ago, or never.

Please Mark the Appropriate Box

When was the last time you had significant problems…	**Never**	**1 or more years ago**	**2 – 12 Months Ago**	**Past Month**
7) …with feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future?				
8) …with sleep trouble, such as bad dreams, sleeping restlessly or falling asleep during the day				
9) …with feeling very anxious, nervous, tense, panicked or like something bad was going to happen?				
10) …when something reminded you of the past, and you became very distressed and upset?				
11) …with thinking about ending your life or committing suicide?				

When was the last time you did the following things two or more times?	**Never**	**1 or more years ago**	**2 – 12 Months Ago**	**Past Month**
12) Lie or con to get things you wanted or to avoid having to do something?				
13) Have a hard time paying attention at school, work or home?				
14) Have a hard time listening to instructions at school, work or home?				
15) Been a bully or threatened other people?				
16) Start fights with other people?				

2008 Comprehensive Mental Health and Wellbeing Survey

The following questions are about common psychological, behavioral or personal problems. These problems are considered significant when you have them for two or more weeks, when they keep coming back, when they keep you from meeting your responsibilities, or when they make you feel like you can't go on. After each of the following statements, please tell us the last time you had this problem, if ever, by responding in the past month, 2-12 months ago, 1 or more years ago, or never.

Please Mark the Appropriate Box

When was the last time...	**Never**	**1 or more years ago**	**2 – 12 Months Ago**	**Past Month**
17) …you use alcohol or drugs weekly?				
18) …you spend a lot of time either getting alcohol or drugs, using alcohol or drugs, or feeling the effects of alcohol or drugs (high, sick)?				
19) …you keep using alcohol or drugs even though it was causing social problems, leading to fights, or getting you into trouble with other people?				
20) …your use of alcohol or drugs cause you to give up, reduce or have problems at important activities at work, school, home or social events?				
21) … you have withdrawal problems from alcohol or drugs like shaking hands, throwing up, having trouble sitting still or sleeping, or use any alcohol or drugs to stop being sick or avoid withdrawal problems?				

When was the last time you...	**Never**	**1 or more years ago**	**2 – 12 Months Ago**	**Past Month**
22) …had a disagreement in which you pushed, grabbed, or shoved someone?				
23) …taken something from a store without paying for it?				
24) …sold, distributed or helped to make illegal drugs?				
25) …driven a vehicle while under the influence of alcohol or illegal drugs?				
26) …purposely damaged or destroyed property that did not belong to you?				

2008 Comprehensive Mental Health and Wellbeing Survey

Please check the box that best describes how you have felt and conducted yourself over the past 6 months.	**Never**	**Rarely**	**Some times**	**Often**	**Very Often**
27) How often do you have trouble wrapping up the final details of a project once the challenging parts have been done?					
28) How often do you have difficulty getting things in order when you have to do a task that requires organization?					
29) How often do you have problems remembering appointments or obligations?					
30) When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					
31) How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					
32) How often do you feel overly active and compelled to do things, like you were driven by a motor?					

During the past month:

33) Have you often been bothered by feeling down, depressed, or hopeless? …….....Yes or No

34) Have you often been bothered by little interest or pleasure in doing things? …….…….....Yes or No

35) Is this something with which you would like help? ..... (Yes, today) … (Yes, but not today)… (No)

Over the last 2 weeks, how often have you been bothered by the following problems?	**Not at all**	**Several days**	**Over half the days**	**Nearly every day**
36) Feeling nervous, anxious, or on edge**?**				
37) Not being able to stop or control worrying**?**				

2008 Comprehensive Mental Health and Wellbeing Survey

Please circle Yes or No to these questions.

Has there ever been a time when you were not your usual self AND…

38) .. you felt so good or so hyper that other people thought you were not your normal self or you were so hyper that you got into trouble? ……..Yes or No

39) ...you were so irritable that you shouted at people or started fights or arguments? ……...Yes or No

40) ...you felt much more self-confident than usual? ……Yes or No

41) ...you got much less sleep than usual and found you didn't really miss it? …….Yes or No

42) ...you were much more talkative or spoke faster than usual? …… Yes or No

43) ...thoughts raced through your head or you couldn't slow you mind down? …….Yes or No

44) ...you were so easily distracted by things around you that you had trouble concentrating or staying on track? …….Yes or No

45) ...you had much more energy than usual? ……...Yes or No

46) ...you were much more active or did many more things than usual? ……..Yes or No

47) ...you were much more social or outgoing than usual; for example, you telephoned friends in the middle of the night? ……...Yes or No

48) ...you were much more interested in sex than usual? ……..Yes or No

49) ...you did things that were unusual for you or that other people might have thought were excessive, foolish, or risky? ……...Yes or No

50) ...spending money got you or your family into trouble? …….Yes or No

---

Please Mark the Appropriate Box

Has a mental health professional ever told you that you:…

51) … have ever had an Alcohol Related Substance use Disorder?……..Yes or No

52) … have ever had a Drug Related Substance Use Disorder? ……...Yes or No

53) How many years in your life have you had an alcohol related Substance Use Disorder? (0,1,2,3..etc.) ..

54) How many times have you been treated for an alcohol related Substance Use Disorder? (0,1,2,3.. etc.)..

55) How many years in your life have you had a drug related Substance Use Disorder? (0,1,2,3.. etc.) . . . .

56) How many times have you been treated for a drug related Substance Use Disorder? (0,1,2,3.. etc.) . . . .

2008 Comprehensive Mental Health and Wellbeing Survey

Please Circle Yes or No

Has a mental health professional ever told you that you have:

57) Depression? ……Yes or No

58) An Anxiety Disorder? ……....Yes or No

59) Bipolar Disorder (manic-depressive illness)? ……Yes or No

60) Attention Deficit/Hyperactivity Disorder (ADD or ADHD)? ……Yes or No

61) Schizophrenia or Psychotic disorder? ……Yes or No

When is the last time, if ever, that you took any of these medications?	**Never**	**1 or more years ago**	**2 – 12 Months Ago**	**Past Month**	**Currently**
62) Treatment for depression (Zoloft, Paxil, Prozac, Effexor, Lexapro, etc)?					
63) Treatment for anxiety (Valium, Xanax, Klonopin, BuSpar, etc.)?					
64) Treatment for Bipolar Disorder or anti-mania agents (Depakote, Eskalith, Lithium, etc.)?					
65) Treatment for Attention Deficit/Hyperactivity Disorder (Straterra, Ritalin, Concerta, Adderall, etc)?					
66) Treatment for Schizophrenia or anti-psychotics (Clozaril, Respirdal, Olanzapine, Geodon, Haldol, etc)?					

2008 Comprehensive Mental Health and Wellbeing Survey

Please enter the appropriate number in the box below. For example (0,1,2,3…)

67) How many times in your life have you been arrested and charged with the following:

shoplifting, vandalism		weapons offense		arson		contempt of court	
parole/probation violations		burglary, larceny, breaking and entering		rape		restraining order	
drug charges		robbery		homicide, manslaughter		Other	
forgery		assault		prostitution		How many of these charges resulted in conviction?	

Please enter the appropriate number in the box below. For example (0,1,2,3…)

68) How many months did you spend on probation in the past two years (0-24 months)? . . ☐

69) How many months have you been on probation in your lifetime? . . ☐

70) How many months did you spend incarcerated (in jail or in prison) in the past two years (0-24 months)? . . ☐

71) How many months have you been incarcerated (in jail or in prison) in your lifetime?. . . ☐

Please Circle all that apply.

72) Do you feel like you need to be referred to a mental health care service provider for treatment for a mental illness or substance use disorder that you may have?……Yes, mental illness
.....Yes, substance use disorder
…….No

If you feel like you are having a mental health crisis that you need immediate help for please call the Tarrant County Mental Health Care Crisis Hotline. This service provides mental health emergency support 24-hours a day, 365 days a year and is the first point of contact to begin eligibility assessment.

The phone number for the Tarrant County Mental Health Crisis Hotline is 817- 335-3022 or call toll free 1-800-866-2465.

APPENDIX C:

MENTAL HEALTH SCREENING TOOL (MHST)

SCORE SHEET

Mental Health Screening Tool - Score Sheet

What is today's date (MM/DD/YYYY): .....____/____/_____
Site ID: _____ Site Name: _____
Staff ID: _____ Staff Name: _____
Client ID: _____ Client Name: _____

Internalizing Disorders Screener: IDScr
Number of *Yes's* on questions 7 to 11:
IDSscr: _____ Is this ≥ 3? Yes or No

If YES on the IDScr or the EDScr

A Mental Health (MH) referral is highly recommended to assess for an undiagnosed or untreated mental illness.

MH Referral:
Yes or No

Externalizing Disorders Screener: EDScr
Number of *Yes's* on questions 12 to 16:
EDScr: _____ Is this ≥ 3? Yes or No

If YES on the MH Referral and on the SA Assessment

A referral to a specialist trained to perform dual-diagnoses assessments is recommended to assess for Co-occurring disorders (COD).

_____

Substance Use Disorders Screener: SDScr
Number of *Yes's* on questions 17 to 21:
SDScr: _____ Is this ≥ 3? Yes or No

If YES on the SDScr

A Substance Abuse (SA) assessment is recommended.

SA Assessment:
Yes or No

Crime/Violence Risk Screener: CVScr
Number of *Yes's* on questions 22 to 26: CVScr: __Is this 4 or 5? …High Crime/Violence Risk → High Priority
Is this 2 or 3? … Moderate Crime Risk→Moderate Priority
Is this 0 or 1? … Low Crime/Violence Risk → Low Priority

Suicide Risk
If *Yes* on question 11, High Risk for Suicide. High Risk for Suicide? ….. Yes or No?..... If *Yes*→ High Priority
(High Risk for Suicide is an automatic High Priority Issue)

Referral Categories: 1-10 (Circle the Referral Recommended on the Chart and on the List)

10. COD Referral: High Crime/Violence or Suicide Risk
9. COD Referral: Moderate Crime/Violence Risk
8. COD Referral: Low Crime/Violence Risk
7. SA Referral: High Crime/Violence or Suicide Risk
6. SA Referral: Moderate Crime/Violence Risk
5. SA Referral: Low Crime/Violence Risk
4. MH Referral: High Crime/Violence or Suicide Risk
3. MH Referral: Moderate Crime/Violence Risk
2. MH Referral: Low Crime/Violence Risk

1._No Referral

Information for Mental Health Care Service Provider

Client ID: _____ Referring Institution: _____

Client Name: _____ Receiving Institution:_____

Referral Recommended: MH__ SA __ COD ___None____ **Priority:** High Moderate Low

Referral Category Code Number: _____ **Suicide Risk:** Yes or No

Mode: 1-Administered by staff
2-Administered by other
3-Self Administered

Additional Information for Mental Health Care Service Provider

- Total marks in the shaded boxes in questions 27 through 32 ____ is ≥ 4?.....**High Risk for AD/HD: Yes or No**
- Is there a *Yes* on questions 33 or 34? ____
  If a *Yes* on questions 33 or 34 PLUS a *Yes* on question 35? …….**High Risk for Depression: Yes or No**
- For questions 36 and 37:
  (Not at all = 0, Several days = 1, Over half the days = 2, Nearly every day = 3)
  If Total on questions 36 plus 37 _____ is ≥ 3? ……....**High Risk for Anxiety d/o: Yes or No**
- If ≥ 3 *Yes's* on questions 38 through 50? …….….**High Risk for Bipolar d/o: Yes or No**

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