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Validating the Substance Abuse Subtle Screening Inventory for Identifying Substance Abuse Among Adolescents in a Residential Treatment Center

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ABSTRACT

VALIDATING THE SUBSTANCE ABUSE SUBTLE SCREENING
INVENTORY FOR IDENTIFYING SUBSTANCE ABUSE
AMONG ADOLESCENTS IN A RESIDENTIAL
TREATMENT CENTER

by

Ann Carol Singler

Chair: Jimmy Kijai

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: VALIDATING THE SUBSTANCE ABUSE SUBTLE SCREENING
INVENTORY FOR IDENTIFYING SUBSTANCE ABUSE AMONG
ADOLESCENTS IN A RESIDENTIAL TREATMENT CENTER

Name of researcher: Ann Carol Singler

Name and degree of faculty chair: Jimmy Kijai, Ph.D.

Date completed: November 2003

Purpose

This study examines the construct validity of the Substance Abuse Subtle

Screening Inventory for Adolescents (SASSI-A) as a substance-abuse screening

instrument for dual-diagnosed adolescents in a residential treatment center.

Method

Using archival records of 336 subjects from a long-term residential treatment

center, this study applied a two-group comparison method to examine the construct

validity of the SASSI-A for screening substance abuse among adolescents in a residential

treatment center. Residents were initially clinically assessed by a state certified

counselor as either substance abuser/chemically dependent or non-substance

abuser/chemically dependent. At this residential treatment center, the clinical assessment

included a full review of the resident's clinical and medical file, consult with the

resident's family if possible, welfare and/or probation staff, the primary therapist and

other residential staff, and an assessment interview. Scale scores and decision rules for

the SASSI-A were then compared to the classification by clinical assessment.

Underlying structure of the SASSI-A was also examined through principal component

analysis.

Results

Independent t tests for the SASSI-A subscales scores showed significant

differences in the mean scores between those clinically assessed as substance

abuser/chemically dependent and those who were not. Those who were classified as

chemically dependent using SASSI-A Decision Rules #1, #2, #3, and #4 were also likely

to be clinically assessed as substance abuser/chemically dependent. For this sample,

there was insufficient remaining subjects to test the utility of Decision Rules #5 and #6.

Classification by clinical assessment and by SASSI-A was unrelated to demographic

variables. In comparing the end results of the SASSI-A Decision Rules classification

versus the results of those clinically assessed, there was an overall classification

agreement of 78.6%. Principle component analysis with varimax rotation resulted in

three meaningful underlying factors.

Conclusions

Compared to classification by clinical assessment, the SASSI-A appears to be a valid screening instrument for identifying substance abuse/chemical dependency among adolescents in a residential treatment center.

Andrews University

School of Education

VALIDATING THE SUBSTANCE ABUSE SUBTLE SCREENING
INVENTORY FOR IDENTIFYING SUBSTANCE ABUSE
AMONG ADOLESCENTS IN A RESIDENTIAL
TREATMENT CENTER

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Ann Carol Singler

November 2003

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INVENTORY FOR IDENTIFYING SUBSTANCE ABUSE
AMONG ADOLESCENTS IN A RESIDENTIAL
TREATMENT CENTER

A dissertation
presented in partial fulfillment
of the requirements for the degree
Doctor of Philosophy

by
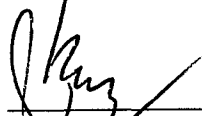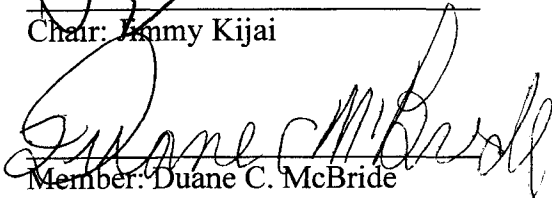
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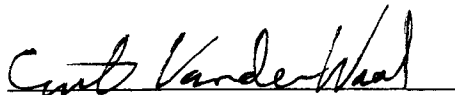
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With deepest gratitude to my devoted husband, Bill, and my children,
Mike, Jennifer, and Daniel, for their patience and support.

To my family and especially my grandmother for the belief
that I could actually finish.
And to my friends who have stood by me
from the beginning of this journey.
With love to all of you.

In honor of my mother,
who died August 6, 2003.

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CHAPTER I

INTRODUCTION

Background and Context for the Study

The use of alcohol and other illegal drugs remains a significant problem among America's adolescents. "Substance abuse in children and adolescents has rapidly become one of the most critical problems facing health care and mental health care workers dealing with this age group today" (Piacentini & Pataki, 1993, p. 133). "There has indeed been a sharp increase in marijuana use, but most alarming is the increase in all illicit drug use by the early adolescent population (Crowe & Sydney, 2000). The peak annual prevalence rate for eighth graders is now almost double that of 1991 (Jaffe & Mogul, 1998, p. 187).

According to the 1998 National Household Survey on Drug Abuse published by The Substance Abuse and Mental Health Services Administration (SAMHSA), 10.5 million current drinkers were ages 12-20. Of this group, 5.1 million engaged in binge drinking, meaning that they drank five or more drinks on one occasion during that 30-day period. The survey showed that among 12th-graders, 54.1% acknowledged use of illicit drugs during their lifetime. In response to the survey's report that overall illicit drug use declined among young people ages 12-17, the former Department of Health and Human Services Secretary, Donna Shalala, stated, "Too many young people are still using drugs,

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and we must continue to build on our promising efforts to push the rate of drug use down even further" (SAMHSA, 1999, paragraph 2).

It would seem obvious that substance abuse poses a serious threat to the emotional and physical development of the adolescents and seriously impairs their education. "Substance abuse is directly associated with the three major causes of adolescent mortality: accidents (primarily motor vehicle accidents); homicide; and suicide" (Schwartz & Wirtz, 1990, p. 38). Jaffe and Mogul (1998) reported that "80 percent of teenage deaths are a result of accidents, homicides, and suicides with 50 percent of these being drug- or alcohol-related" (p. 191). Often these adolescents exhibit other maladaptive behaviors and emotional issues in addition to substance abuse and are at high risk for continued maladaptive behaviors. "In fact, a recent national longitudinal study found that early initiation of drinking in adolescence was strongly related to later alcohol abuse and dependence" (Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999, p. 185). Semlitz (1996) reported that illicit drug use had an adverse affect on employment, marriage, and health, and enhanced the effect of delinquency. In a study by James, Lonczak, and Moore (1996), the adolescents were

> found to have a number of serious problems in all areas assessed, which include the following: academic (e.g., staying in school, number of credits earned, and absenteeism), familial (e.g., amount of family strife and relocation), and social/personal (e.g., unplanned pregnancies and discipline/legal problems). (p. 18)

The association between adolescent substance abuse and participation in other risk behaviors, including antisocial acts, is well documented (Crowe & Sydney, 2000; Ouellette et al., 1999). "In 1997, there were approximately 2.8 million juvenile arrests" (Lyons, Baerger, Quigley, Erlich, & Griffin, 2001, p. 69). Various studies have indicated

that between 70 and 95% of juveniles involved in the justice system have used alcohol and other drugs (Center for Substance Abuse Treatment, 1995). Authors Dembo, Pacheco, Schmeidler, Fisher, and Cooper (1997) document the increase in juvenile crime with much of it being drug related. They state, "High risk youths, particularly substance use involved youths entering the juvenile justice system, consume a large and growing amount of national, regional, state and local resources as they grow older" (Dembo et al., 1997, p. 2). "Evidence suggests that drug misuse behaviors reduce the probability that youth will abandon delinquent behavior" (Lopez, 1997, p. 46).

Given the negative consequences of substance-abusing adolescents' involvement in crime and the likelihood that untreated youth follow a trajectory of increased crime and substance abuse into early adulthood, the societal costs of this antisocial behavior are significant (Schoenwald, Ward, Henggeler, Pickrel, & Patel, 1996). Among the costly consequences of adolescent substance abuse are risky sexual behavior and the possibility of contracting human immunodeficiency virus and other sexually transmitted diseases (Weinberg, Rahdert, Collive, & Glantz, 1998).

Guy (1997) writes concerning how "dually diagnosed clients require more services and consequently generate higher costs than singly diagnosed clients" (p. 2). With each diagnosis compounding the other, dual-diagnosed clients tend to be higher users of resources and services. This is the case at the residential center for seriously emotionally and behaviorally disturbed youth where I worked. A large percentage of these adolescents had multiple previous placements and treatments, and yet were again in an out-of-home placement with taxpayers paying the cost.

For an alarming number of these youths, substance abuse issues had not been identified or treated. "Identifying youths with substance use and related problems, and placing them as early as possible into intervention services, would benefit them and help reduce the enormous costs to society of crime and drug abuse" (Dembo et al., 1997, p. 4). According to the Center for Substance Abuse Treatment, "such early identification and intervention can help to reduce both long-term care needs and the burden on the criminal justice system, thereby lessening long-term costs" (Center for Substance Abuse Treatment, 1993, p. 9). "Detection of substance abuse among psychiatrically impaired adolescents is crucial" (Martino, Grilo, & Fehon, 2000, p. 58).

As more referral agencies are demanding positive out-comes from placement, it has become crucial that substance abuse issues be identified and treated while the adolescent is in residential treatment. With the increasing cost-cutting required (in terms of budgets and number of personnel), screening for substance abuse issues at the onset of residential treatment requires that the screening be quick, efficient and yet through. This substance abuse identification process requires reliable and valid screening instruments.

Rationale

When presented for mental health services, adolescents create a treatment challenge unlike those of adults. Adolescents most often are forced into treatment due to external factors such as the legal system, school system, welfare system, or parental demand. To compound the difficulty of the assessment and treatment process, adolescents with undiagnosed dual disorders can have a devastating effect on the treatment environment, leaving both adolescent patient and staff feeling frustrated and bewildered by treatment failures.

Substance abuse has a significant co-occurrence with other psychiatric disorders and behavioral problems (Martino et al., 2000; Weinberg, et al., 1998). Conduct disorder, depression, and hyperactivity are commonly comorbid in substance-abusing adolescents (Streett, 1995). In a study by Caton, Gralnick, Bender, and Simon (1989) of the adolescents in a long-term residential facility, 51% were dual- diagnosed patients.

According to Piazza (1996), "Identifying substance use disorders among psychiatric patients has important implications for treatment planning" (p. 216). "These disorders are so pervasive and the consequences so dire that treatment practitioners and researchers must discover innovative approaches that will offer adolescents greater opportunities for successful outcomes" (Streett, 1997, p. 19). According to Guy (1997), "accurate diagnosis of substance use in psychiatric patients is difficult, due to the lack of standard assessments and/or denial on the client's part. Only a few studies have used more than one method to detect substance use" (p. 3). "Providers of adolescent mental health services are in need of prevalence data and instruments that can assist in screening for alcohol and other drug use problems" (Piazza, 1996, p. 215). "Given the serious nature of and high degree of overlap between these two disorders, it is imperative that pediatricians and other health care professionals working with adolescents conduct an evaluation for the other disorder when the presence of either depression or substance abuse is suspected or confirmed" (Piacentini & Pataki, 1993, p. 146). "Pediatricians seeing adolescents who have a suspected or confirmed depression, should as a matter of course conduct an evaluation for substance abuse problems as well" (Piacentini & Pataki, 1993, p. 133).

It was estimated that almost 20,000 children and youth under the age of 18 were in residential treatment in the late 1980s (Pfeifer & Strzelecki, 1990). By the late 1990s, almost half a million children resided in out-of-home placement in this country (Rosen, 1999). These adolescents placed in residential facilities already belong to a high-risk group. "The existence of aggressive, destructive, anti-social behaviors, and severe emotional problems in such children is commonplace within residential settings" (Rosen, 1999, p. 657). The nature of their problems has resulted in their inability to remain at home. Most had not been attending school regularly and therefore missed exposure to school alcohol-and-drug education and prevention.

> As a group, adolescents in residential facilities have multiple risk factors for AOD [alcohol and drug] use, with most falling somewhere on the continuum from experimental use to dependency. It is often thought that institutionalized adolescents cannot obtain alcohol and other drugs, but access is available through home visits, friends and family visiting the facility, facility staff, and, with the exception of the locked correctional facility, from authorized and unauthorized trips "off campus." The latter category includes runaway incidents, cutting class or skipping an activity and briefly leaving the facility, and authorized work in the community. (Morehouse & Tobler, 2000, p. 2)

Youth surveyed in New York residential facilities in the late 1980s were more likely to use drugs, and at a much earlier age, than high-school youth nationwide (Morehouse & Tobler, 2000). The authors also noted that lifetime use of marijuana ranged from 53% to 83% for the institutionalized youth, compared with 33% of nationwide seniors. Of special note, it was their finding that institutionalized youth did not stop using drugs on their own (Morehouse & Tobler, 2000).

"Screening instruments are used to identify the potential presence of SUDs as a preliminary step toward a more detailed, comprehensive assessment" (Kaminer & Bukstein, 1998, p. 359). "Given the high correlation between psychological difficulty and

substance use disorders, all teens receiving mental health assessment should also be systematically screened" (Center for Substance Abuse Treatment, 1999, p. 10) for substance abuse. Based on a sound screening and assessment strategy, the need for treatment and appropriate interventions is generated. At first glance, choosing an appropriate screening tool has been an easier task in the last decade, as more instruments are on the market. However, choosing a screening instrument that is appropriate for the particular population to be tested and is well researched and valid, as well, is not as easy.

Ross (1994) suggests the following instruments that have established reliability and validity: Addiction Severity Index (ASI), Problem-Oriented Screening Instrument for Teenagers (POSIT), Adolescent Problem Severity Index (APSI), Personal Experience Inventory (PEI), and Adolescent Drug Abuse Diagnosis (ADAD). Kaminer and Bukstein (1998) identify the Cut Down; Annoyed; Guilty; Eye Opener (CAGE), Problem Oriented Screening Instrument for Teenagers (POSIT), Drug Use Screening Inventory (DUSI), and Personal Experience Screening Questionnaire (PESQ). The Substance Abuse and Mental Health Services Administration (1999) recommends eight screening instruments for use with adolescents. All had been evaluated on practical considerations, that is, cost, age-appropriate language and wording, ease of administration, producing quantifiable information, and were judged to have established reliability and validity. None of these above recommendations include the Substance Abuse Subtle Screening Inventory for Adolescents.

Published research studies on the validation of the SASSI-A are meager and present with mixed or poor findings. Risberg, Stevens, and Graybill presented a 1995 study validating the SASSI-A with an adolescent residential, chemical abuse treatment

population. This sample included only those adolescents placed in treatment for chemical dependency and did not address the implications of screening adolescents who also presented with psychiatric disturbances. These researchers found that the SASSI-A classified the adolescents better than chance and that the discriminative validity of the SASSI-A was not any better than the DSM-III-R diagnoses. A 1996 study by Dr. Nick Piazza tested the concurrent validity of using the SASSI-A with adolescents placed in an inpatient psychiatric facility. "The results of this study would appear to support using the SASSI for identifying adolescent psychiatric patients with coexisting substance use disorders" (Piazza, 1996, p. 221). However, of this adolescent sample 57% lived in a home with two parents (32% with both parents and 25% with a stepfamily) and 95.5% paid for the treatment through insurance or self-pay. The authors recommended that further studies focus on differing diagnostic groups, particularly depression, and with various socioeconomic levels.

Rogers, Cashel, Johansen, Sewell, and Gonzalez (1997) claimed that the SASSI-A had not been cross-validated for use in clinical and forensic settings. Using a sample of 317 adolescent offenders, they found a 68.4% of false positives. They claimed the SASSI-A had low to moderate correlations with interview-based data on substance abuse impairment and recommended that the instrument not be used to classify adolescents as chemically dependent and not be used as a screening device. As there were only 19 non-users in this sample, the authors recommended that further studies include a larger sample of non-users. This is the only validation study found to have used factor analysis to investigate underlying dimensions of the SASSI-A.

Bauman, Merta, and Steiner published a study in 1999 on further validating the SASSI-A using 207 adolescents at either a residential treatment center or at an alternative high school and found that "the validity of the SASSI as a screening instrument for adolescent chemical dependency is questionable" (Bauman et al., 1999, p. 68). The results also indicated that the SASSI scale DEF (Defensiveness, a measure of test-taking defensiveness) was of little utility in identifying depression, and the scale COR (Correctional, a measure of general acting out) was not associated with clinical diagnoses of disruptive disorders. This study included only the mood disorder of depression and suggested further studies might want to include dysthymia as well. Although the initial sample was 93 adolescents, the authors refer to the results being based on a sample size of 79 to 85.

It would appear that the SASSI-A is in need of further validation before it can be respectfully recommended as a valid instrument for residential adolescents. This study intends to address several of the limitations of the above previous studies by using a large sample size of dual-diagnosed adolescents who have been placed in residential treatment through the courts, either by welfare or juvenile justice systems. All are representative of lower socioeconomic, mostly one-parent, home environments. The diagnosis of dysthymia is included in the mood disorders for this study.

Purpose of the Study

As managed care increasingly dominates treatment needs, it behooves a mental health facility and therapist to find well designed, reliable, and valid screening tools for adolescent substance abuse. In was hoped this study would identify whether the SASSI-A is such an instrument for adolescents in a residential setting. The purpose of this study

was to examine the construct validity of the SASSI-A as a screening instrument for residential adolescent substance abuse. Specifically, (a) to what extent does the SASSI-A differentiate between those clinically assessed as substance abusers/chemically dependent and those that were not? And (b) to what extent does the SASSI-A decisions rules agree with the clinical assessment classification? In this study, I examined the construct validity of the SASSI-A by examining theory-consistent group differences and, through factor analysis, SASSI-A's underlying structures (Gregory, 1996).

Research Questions

The principal research question is "Is the SASSI-A a valid substance abuse screening instrument for dually diagnosed residential adolescents?"

The specific research questions are:

1. Is there a relationship between residential adolescents classified as substance abusers/chemically dependent by SASSI-A decision rule #1 (Face Valid Alcohol *or* Face Valid Other Drugs raw score of 12 or more) and those residential adolescents classified as substance abusers/chemically dependent by clinical assessment?

2. Is there a relationship between residential adolescents classified as substance abusers/chemically dependent by SASSI-A decision rule #2 (Obvious Attributes *or* Subtle Attributes *T* score of 70 or more) and those residential adolescents classified as substance abusers/chemically dependent by clinical assessment?

3. Is there a relationship between residential adolescents classified as substance abusers/chemically dependent by SASSI-A decision rule #3 (Obvious Attributes *and* Subtle Attributes *T* scores of 60 or more) and those residential adolescents classified as substance abusers/chemically dependent by clinical assessment?

4. Is there a relationship between residential adolescents classified as substance abusers/chemically dependent by SASSI-A decision rule #4 (Defensiveness raw score of 10 or more *and* Defensiveness 2 raw score of 4 or more) and those residential adolescents classified as substance abusers/chemically dependent by clinical assessment?

5. Is there a relationship between residential adolescents classified as substance abusers/chemically dependent by SASSI-A decision rule #5 (Defensiveness *and* Obvious Attributes *T* scores of 60 or more *and* Defensiveness 2 raw score of 5 or more) and those residential adolescents classified as substance abusers/chemically dependent by clinical assessment?

6. Is there a relationship between residential adolescents classified as substance abusers/chemically dependent by SASSI-A decision rule #6 (Defensiveness *and* Subtle Attributes *T* scores of 60 or more *and* Defensiveness 2 raw score of 5 or more) and those residential adolescents classified as substance abusers/chemically dependent by clinical assessment?

Significance of the Study

In order to provide proper treatment for residential adolescents who are substance abusers, the problem must first be identified. Early identification through the use of valid, cost-effective screening instruments, followed by appropriate assessment and treatment, is necessary to help the substance-abusing adolescent back to his/her age-appropriate developmental track. Without intervention, the adolescent cannot effectively meet the demands and roles of adolescence and negotiate the transitions to adulthood. "Because substance use changes the way people approach and experience interactions, the adolescent's psychological and social development are compromised, as is the

formation of a strong self-identity" (Center for Substance Abuse Treatment, 2001, p. xxv). The Center for Substance Abuse Treatment (1993) lists the following potential outcomes from a preliminary screening of adolescents:

1. Enhancing and improving the young person's quality of life

2. Increasing the young person's participation in society

3. Reducing long-term care needs

4. Reducing burden on the criminal justice system

5. Lessening long-term care costs

6. Providing cost-effective referrals for needed services (p. 9).

In a residential setting where adolescents are already placed with multiple psychiatric diagnoses, the screening and identification of an additional substance abuse problem is crucial for treatment planning and for any treatment success. If a substance abuse problem is undiagnosed, the adolescent's treatment is compromised. In addition, knowledge of a substance abuse problem is critical for the adolescent who may be prescribed psychotropic medication. Therefore, it is prudent for a residential center to find a valid, quick, cost-effective screening instrument that will accurately identify substance abuse in this population. Providing SASSI-A is a valid instrument for this residential population, it would save the agency both in time and money.

Definition of Terms

The following terms are defined as used in this study:

Adolescent: The broadest possible definition of "adolescent" is an individual 11 to 21 years of age. This definition captures the great majority of the physical, emotional, and behavioral changes associated with adolescence (Center for Substance Abuse

Treatment, 1999). As the SASSI-A manual recommends the instrument's use for ages 12 to 18 years of age, this is the age range of the subjects for this study.

Substances: "Substances" and "drugs," unless otherwise specified, refer to illicit drugs (marijuana, cocaine, hallucinogens, methamphetamines, etc.) and alcohol and inhalants. Some of the studies mentioned in this paper have also included tobacco products.

Substance Abuse/Chemical Dependency: "One of the primary problems hampering research in adolescent substance abuse has been the lack of an agreed upon definition of what constitutes abuse" (Piacentini & Pataki, 1993, p. 135). Bukstein and Kaminer (1994) also document the lack of agreement on a definition of adolescent substance abuse and defined substance abuse as a generic term indicative of pathological use of alcohol and/or other drugs. Martin, Langenbucher, Kaczynski, and Chung (1996) note the inadequacies of current *DSM-IV* classifications and criteria as applied to adolescents. Even the *Diagnostic and Statistics Manual of Mental Disorders* (*DSM-IV*) does not identify criterion values for adolescent substance abuse and dependency. The *DSM-IV* does expand the criterion of maladaptive patterns of substance use to require clinically significant impairment or distress such as recurrent use resulting in failure to fulfill major role obligations and recurrent substance-related legal problems (Bukstein & Kraminer, 1994). Jaffe and Mogul (1998) concur that the "diagnosis of substance abuse requires a maladaptive pattern of recurrent use resulting in significant levels of distress or impairment in functioning resulting in failure to meet major role obligations" (p. 189). The 1993 *Screening and Assessment of Alcohol- and Other Drug-Abusing Adolescents* defines substance abuse or alcohol and other drug (AOD) abuse as "the use of AODs at a

level that creates problems in one or more areas of functioning for the young person and requires intervention" (p. 4). The SASSI-A is designed to screen adolescents for potential substance-related disorders. Upon further assessment, an adolescent may be found to be a regular substance abuser, "defined as the use of psychoactive substances that increases risk of harmful and hazardous consequences" (Center for Substance Abuse Treatment, 1999, p. 4) or may be found to be dependent, "defined as a pattern of compulsive seeking and using of substances despite the presence of severe personal and negative consequences" (Center for Substance Abuse Treatment, 1999, p. 4).

Disruptive Behavior Disorders: The diagnoses of Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD). "Because CD and ODD fall into the broader category of disruptive behavior disorders, they are often combined for research, theory, and teaching purposes" (Kronenberger & Meyer, 1996, p. 78).

Mood Disorders: The diagnoses of Major Depression and Dysthmia. For the purposes of this study, Bi-Polar Disorder is not included.

Dual Diagnosis or CoMorbidity: "Researchers have long been aware that many drug abusers also have serious mental disorders, a status referred to as dual diagnosis or comorbidity" (Swan, 1997, p. 17).

Screening: A process that identifies adolescents at risk for substance abuse/chemical dependency. In an adolescent residential population, all of whom are already at risk, the screening process is concerned with measuring the severity of the problem and determining the need for a comprehensive assessment (Center for Substance Abuse Treatment, 1999).

Delimitation

The population of this study included only adolescents ages 12 to 18 years who were placed in a northern Indiana residential center for severely emotionally and behaviorally disturbed children and adolescents. These subjects came from the state of Indiana and from surrounding states. This study is a validation of the SASSI-A in identifying substance-related disorders among multiple diagnosed adolescents placed in a residential setting.

Limitations

As the SASSI-A is a self-report instrument, it has all the limitations of such self-reports, including the tendency for the respondent to choose socially desirable responses (faking good or faking bad), acquiescence (tendency to answer yes or true), and deviation (tendency to give unusual or uncommon responses) (Anastasi, 1982; Sapsfore & Jupp, 1996). The population of adolescents in this study is not a randomly selected population. The sample came from a northern Indiana residential center, which limits any results to this population. An additional limitation is the fact that the adolescents were placed in the residential center having already been diagnosed with multiple *DSM-IV* disorders.

Organization of the Study

Chapter 1 has presented the background and rationale for this study, the statement of purpose and research questions, the conceptual and theoretical framework, the significance of the study, definition of terms, delimitation, and limitations of this study. Research literature is presented in chapter 2 regarding substance-abusing adolescents-characteristics; dual-diagnosed adolescents-prevalence; adolescent substance abuse

screening instruments-validity studies; and the SASSI-A-validity studies. Chapter 3

details the methodology including the design of the study, the null hypotheses, the sample

and population, instrumentation, procedure, and data analysis to be used. The

presentation and analysis of data are included in chapter 4. Chapter 5 presents the

summary, implications, limitations, and recommendations.

CHAPTER II

REVIEW OF RELATED LITERATURE

Substance-Abusing Adolescents--Characteristics

In the National Institute of Mental Health-sponsored Epidemiologic Catchment

Area community survey, the "probability of onset of drug/alcohol abuse or dependence

peaked in the 15- to 19-year-old range" (Jaffe & Mogul, 1998, p. 189). "In contrast to

adults, adolescents often do not give up the drug of the previous stage but continue to use

it along with the new drug" (Jaffe & Mogul, 1998, p. 189). According to Crowe and

Sydney (2000):

> Youth in the general population have reported steadily rising levels
> of alcohol and other drug use since 1992, but levels of use have not
> returned to the peak rates reported in the 1980's. Youth are
> beginning to use alcohol and other drugs at earlier ages, and use
> increases steadily with age. As youth perceive that alcohol and
> other drugs are less harmful than they previously believed or their
> attitudes about the use of alcohol and other drugs become less
> negative, their use of these substances increases. (p. 2)

Based on the 1999 National Household Survey on Drug Abuse, "nearly 9 percent

of those who used marijuana for the first time at age 14 or younger used drugs as an

adult" ("National Substance Use Survey Indicates," 2000, p. 1329). The survey results

highlight the importance of drug use interventions among people in younger age groups,

according to Barry McCaffrey, then National Drug Control Policy Director ("National

Substance Use Survey Indicates," 2000). The

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Monitoring the Future study documented that 12[th]graders reported use of psychoactive

substances throughout their lives, and the most frequently reported substances used were

alcohol at 81.7%, cigarettes at 65.4%, marijuana at 49.6%, stimulants at 16.5%, inhalants

at 16.1%, and hallucinogens at 15.1% (Johnston, O'Malley, & Bachman, as cited in

Crowe & Sydney, 2000).

> Regardless of whether the chemical abuse is a cause or a consequence to the
> adolescent problems, it appears that these adolescents struggle to maintain
> adequate functioning in one or more of the following domains: family
> functioning, legal status, school performance and behavior, employment
> (especially if they are school dropouts), peer-social relationships, and psychiatric
> status. (Kaminer, Bukstein, & Tater, 1991, p. 220)

Meyers, McLellan, Jaeger, and Pettinati (1995) agreed: "It is well documented

that alcohol/drug abuse coincides with problems in many other functional areas, although

cause and effect are often difficult to distinguish" (p. 182). Adolescents who have a

family background of alcohol or drug abuse and who have had psychologically stormy or

trouble childhoods are especially at risk for substance abuse and related life issues.

Morehouse and Tobler (2000) found that research on children of alcoholics or substance-

abusing parents were less likely to reduce their own alcohol or drug use, pointing to the

need for special identification and treatment of these children and adolescents.

Substance-abusing adolescents have been described as immature, exhibiting poor

impulse control, incapable of delaying gratification or tolerating discomfort (Jainchill,

Yagelka, Hawke, & DeLeon, 1999). "Individual adolescent characteristics correlated

with substance abuse include genetic predisposition, psychiatric symptomatology, low

self-esteem, low assertiveness (i.e., inability to set limits with peers and feel comfortable

asserting own opinions and needs), and previous experience with drugs, alcohol, or other

antisocial activities" (Pickrel & Henggeler, 1996, p. 203). "Lacking in social skills and unable to solve problems other than by aggressive responses, they are eternally vigilant, fearing attack, and chronically vulnerable to real and imagined slights from others" (Rosen, 1999, p. 660). They seem to have a sense of hopelessness and are unable to contemplate having a future.

Jainchill et al. (1999) believed that the tendency for adolescents to have a sense of invulnerability was heightened by substance-abusing adolescents whose lifestyles reflected "an extreme disregard for negative consequences" (p. 171). Attitudes often thought of as developmental for adolescents, as self-centerness, risk-taking, and rejection of adult/societal values, contribute to their poor insight about the consequences of substance abuse. "Rather than weighing options and potential outcomes, most of the children respond to frustration and conflict with anger and aggressive behavior" (Rosen, 1999, p. 669).

Authors Giancola, Mezzich, Clark, and Tarter (1999) found clinical data supporting their understanding of a pattern of cognitive distortions in dual-diagnosed substance-abusing adolescents. These cognitive distortions took the form of increased catastrophizing, overgeneralization, personalization, and selective abstraction and are related to aggressive behavior (Giancola et al., 1999). According to Weinberg, et al. (1998), high-risk children frequently exhibit "executive cognitive dysfunction or disorders of behavior self-regulation: difficulties with planning, attention, abstract reasoning, foresight, judgment, self-monitoring, and motor control" (p. 255). "A great deal is at stake intellectually as well. Abstract thinking, propositional logic (the ability to form hypotheses and consider possible solutions), and metacognition (the ability to think

about the thought process itself) are essential abilities that develop during the adolescent years--abilities blunted by alcohol and drug use" (Center for Substance Abuse Treatment, 1999, p. 1).

Most adolescents are resistant when placed in treatment. "The adolescent must know that his or her resistance is expected and that it is all part of the denial phase of the disease process" (Substance Abuse and Mental Health Services Administration [SAMHSA], 1995, p. 27). Denial, defensiveness, and rebellion against authority run high with substance-abusing adolescents. "These features of the disorder can certainly affect assessment results, both instrument scores and interview responses" (Risberg et al., 1995, p. 26). The increased emotionality of adolescence may also serve to exacerbate denial and defensiveness. "The defensiveness of these students appears to have interacted with other risk factors, behaviors, and outcomes; thus increasing the potential for deleterious consequences" (James et al., 1996, p. 18). Breaking through the denial and defensiveness is a necessary component of assessment and treatment. "This step in the treatment process will give the clinical staff an understanding of the needs of the client, the motivation for treatment, and what substance use and other mental disorders may be present" (SAMHSA, 1995, p. 13).

Dual-Diagnosed Adolescents--Prevalence

"Clients presenting for mental health counseling frequently have co-existing or secondary substance-related disorders. Among adult alcoholics, psychopathology was the single most important factor predicting treatment outcome" (Kaminer et al., 1991). Numerous studies in the field suggest that the number of concurrent psychiatric and

substance abuse disorders is growing (Kaminer & Frances, 1991; Regier, Farmer, & Ras,

1990). In the 1990 Petchers and Singer study of 260 adolescent psychiatric patients,

about 82%

admitted to some drinking, while 59.2% admitted some drug use. In this same study,

"just over half of the sample (51.4%) reported being drunk at least once within the

previous two months and 28.3% reported being high on drugs at least once within the

same time period" (Petchers & Singer, 1990, p. 49).

Jaffe and Mogul (1998) state that adolescent substance abusers "are also 40

percent to 90 percent more likely to have comorbid psychiatric disorders when compared

to the general adolescent population" (p. 188). In the 1996 Methods for the

Epidemiology of Child and Adolescent Mental Disorders (MECA) Study, among the 401

"adolescents with current SUD, 76.0% (70.0% of females, 80.0% of males) also had an

anxiety, mood, or disruptive behavior disorder" (Kandel et al., 1999, p. 695). In the 1993

Oregon Adolescent Depression Project's (OADP) assessment of lifetime comorbidity,

"more than twice as many adolescents with lifetime SUD had a lifetime anxiety, mood, or

disruptive behavior disorder" (Kandel et al., 1999, p. 696).

There has been some speculation that those adolescents with dual diagnoses may

be prone to earlier substance use and other harmful behaviors. Costello, Erkanli,

Federman, and Angold (1999) in their longitudinal study of adolescents found that the

"mean age of first reported use of any substance was 8.9 years $(SD = 3.8)$." They

discovered that "depression was strongly associated with substance use and abuse"

(Costello et al., 1999, p. 305), and that "depressed boys had significantly higher rates of

every type of substance use than nondepressed boys" (p. 305).

The relationship between mood disorders and adolescent substance abuse is unclear and is complicated in part by the mood-altering effects of many abused substances (Weinberg et al., 1998). However, the presence of either depression or substance abuse places an adolescent at significant risk for the development of the other, and both disorders are associated with increased risk of suicide (Piacentini & Pataki, 1993). "Depression, which is a potent risk factor for the development of substance abuse, can likewise seriously impair normal development in affected youth, especially those in which the disorder goes unrecognized and/or untreated" (Piacentini & Pataki, 1993, p. 133).

It is well known that depression is often associated with substance abuse and conduct disorder. Researchers at the Harvard University School of Public Health studied 300 substance-abusing adolescents in residential treatment (Buka & Deykin, 1992). "They found that substance abuse and other psychiatric disorders occur together far more often than would be expected by pure chance" (Buka & Deykin, 1992, p. 1). "Thirty-eight percent of the subjects had at least one current psychiatric disorder and 62 percent reported having had one at some time" (Buka & Deykin, 1992, p. 2). Depression and dysthymia were more frequent among the female adolescents than the males (Burke & Deykin, 1992). Among the entire study group, almost three-fourths of the adolescents had been arrested (Buka & Deykin, 1992).

In Greenbaum, Prange, Friedman, and Silver's (1991) study of 547 residential adolescents, it was found that conduct disorder and depression were associated with substance abuse, with the highest prevalence of substance abuse in those adolescents diagnosed with both disorders. Of 156 adolescents on a dual-diagnosis unit, 71% were

diagnosed with conduct disorder and 31% with major depression (Bukstein, Glancy, & Kaminer, 1992). In another study of adolescent psychiatric outpatients, the adolescent substance abusers had higher rates of mood and disruptive behavior disorders than the non-substance abusers (Wilens, Biederman, Abrantes, & Spencer, 1997).

"There appears to be an approximately linear relationship between the frequency of use of alcohol, tobacco, and illicit drugs and the likelihood of having an emotional disorder, especially conduct disorder" (Kandel et al., 1999, p. 694). In the 1996 Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) study, the disruptive behavior disorders were the most common comorbid psychiatric disorders (Kandel et al., 1999). Having researched various studies, Dembo et al. (1997) found that the rates of drug use among youth entering juvenile justice systems were consistently higher than national population rates for youths. Kronenberger and Meyer (1996) state that disruptive behavior disorders (conduct disorder and oppositional defiant disorder) are the most common psychiatric disorders seen in children and adolescents and are often associated with a number of other Axis I and II disorders. "Clinical populations of adolescents with SUDs show rates of conduct disorder regularly ranging from 50% to almost 80%" (Kaminer & Bukstein, 1998, p. 353).

The direct pharmacological effects of certain substances such as alcohol, amphetamines, and cocaine may increase the likelihood of aggressive behavior, which are exacerbated by the use of multiple drugs simultaneously and/or the presence of a preexisting psychopathology (Kaminer & Bukstein, 1998). Disney, Irene, Elkins, McGue, and Iacono (1999) reported that of the 674 girls and 626 boys in the longitudinal

Minnesota Twin Family Study, "substance use disorders were much more prevalent among adolescents with conduct disorder" (p. 1518).

In Myers, Burket, and Otto's 1993 study of hospitalized conduct-disorder-diagnosed adolescents, a majority also met the criteria for substance abuse, ADHD, Major Depressive Disorder, and/or a personality disorder. Brown, Gleghorn, Schuckit, Myers, and Mott (1996) reported an approximate 50% comorbidity rate of conduct disorder and substance abuse among their adolescent subjects. In Risberg et al.'s 1995 study of 107 chemical abuse treatment adolescents, 88.8% had one or more legal charges and 78.5% were either on court supervision or probation.

Of 95 substance-abusing adolescents involved in a Midwest city's court system, 11% of the males and 36% of the females were diagnosed with a major depressive episode at some point in their lives (Halikas, 1990). Piacentini and Pataki (1993) discuss a study of patients in a child and adolescent psychiatric clinic in which "significantly more subjects with major depression reported using drugs and alcohol than did their nondepressed counterparts" (p. 139). In this same study, the depressed youth had a 67% lifetime rate of illicit drug use other than marijuana compared to 8% for the nondepressed youth (Piacentini & Pataki, 1993).

"Research about the comorbidity of adolescent substance abuse and psychiatric disorders within population-based and clinical samples suggests that substance abuse is likely to occur at higher rates among adolescents who have behavioral and psychological problems" (Martino et al., 2000, p. 57). The prevalence of psychiatric comorbidity in substance-abusing adolescents adds to the clinical heterogeneity and difficulty in treatment of this population (Kaminer et al., 1991). "The high prevalence of these

disorders among mental health clients supports universal screening of clients" (Piazza,

Martin, & Dildine, 2000, p. 218). Adger and Werner (1994) also urge health-care

providers to screen all patients for substance abuse in determining the need for further

assessment and/or intervention. "Failure to at least screen for a substance use problem

could lead to misdiagnosis and failure to provide the client with the most appropriate

treatment" (Piazza et al., 2000, p. 218). Psychiatric disorders may have had an onset

preceding or consequent to the onset of substance abuse. "Thus, one cannot expect to

treat substance abuse/dependency without treating the comorbid psychiatric disorders and

vice-versa" (Jaffe & Mogul, 1998, p. 189). An adolescent residential program that

acknowledges and assesses comorbidity will be far more successful in its treatment

planning and outcome.

Adolescent Substance Abuse Screening Instruments--Validity Studies

Background

The first screening instruments developed to assess adolescents focused mainly on

alcohol and were modified from adult models of assessment (Weinberg et al., 1998).

They inappropriately did not consider developmental differences or differences in alcohol

and drug use patterns (Weinberg et al., 1998). In their research from the Center of

Alcohol Studies at Rutgers University, White and Labouvie (1989) lament that

"screening tools for assessing negative consequences and for diagnosing problem

drinking among adolescents are virtually absent" (p. 31). "The progressive nature of the

disease, medical complications, physical dependence and other chronic symptoms are

less clearly associated with adolescent alcohol problems" (White & Labouvie, 1989, p. 30), making use of adult measures or adult criteria inappropriate.

As early as 1990, Winters was calling for a well-developed, standardized assessment "because of the expanding demands and strains on the adolescent chemical dependency service delivery system" (p. 487). Winters's 1990 review of available adolescent-specific screening tools turned up only two: the Adolescent Alcohol Involvement Scale and the Youth Diagnostic Screening Test. Both had been validated to some degree against clinical judgment, but were still considered limited in their clinical value (Winters, 1990). In addition, both screened only for alcohol use.

According to Kaminer et al. (1991), there is an urgent need for a reliable method of evaluating the severity of adolescent chemical abuse and problems related to chemical abuse" (p. 219). A screening instrument was needed that could be used in diverse settings by a variety of service providers, including teachers, probation officers, school counselors, social workers, and mental health counselors. Even though substance experimentation and use is a common phenomenon among adolescents, among adolescent substance abusers, use fluctuates over time and does not match the progression of an adult abuser. "Therefore, a desirable screening instrument is one that picks out youth who will have continuing problems, so that the limited resources available for helping youth can be targeted to those in greatest need" (Orenstein, Davis, & Wolfe, 1995, p. 126). A cost-effective and empirically validated screening instrument can facilitate assessment and appropriate diagnosis and treatment planning.

To meet this need, the early 1990s saw an increase in adolescent alcohol and other drug screening instruments being developed. These early screening instruments ranged from structured interviews to self-administered self-report questionnaires.

Individual interviews and/or self-reports continue to be the most widely used method of screening for substance abuse, particularly for large-scale studies where there are economic limitations and time constraints (Swadi, 1990). Tarter, Laird, Bukstein, and Kaminer in their 1992 study stated that "the self-report method, particularly if used for the screening of disorder, is very useful for quantifying simultaneously substance abuse and related disorders" (p. 236).

In Orenstein et al.'s 1995 study, the researchers concluded that the two instruments studied were not by themselves any better at diagnosing adolescent substance abuse "than by asking youth directly about the types of drugs they are using, their frequency of use, and whether they become drunk or high" (p. 129). However, Winters, Stinchfield, and Henly (1996) caution that no self-report instrument alone is completely accurate or feasible in all situations. Myers, Stewart, and Brown's (1998) data included the adolescents' self-report coupled with independent corroborative interviews. "Previous studies have established that alcohol and drug abusers can provide reliable drinking and drug use data with use of similar procedures (assurance of confidentiality, multiple sources of data, corroborative interviews)" (Myers et al., 1998, p. 482).

Piazza et al. in 2000 reported that mental health counselors are most likely to rely on self-report questionnaires or personal inventories for screening. "The National Institute on Alcohol Abuse and Alcoholism (NIAAA) has determined that using such questionnaires is helpful in detecting problems and has endorsed their use (1993)"

(Piazza et al., 2000, p. 219). Meyers et al. (1995) believe that clinical interviews are an essential part of assessment and treatment planning. "The use of well-designed questionnaires and interviews can yield an accurate, realistic understanding of the teenager and the problems he is experiencing" (Center for Substance Abuse Treatment, 1999, p. 22).

The use of a semi-structured instrument compared to a free-form interview "has been shown to increase the number of clinical observations, improve the quality and reliability of diagnoses, and provide a more comprehensive clinical evaluation" (Meyers et al., 1995, p. 183).

As a result of the adolescent's self-report screening instrument, the validity of the information needs to be evaluated from various other sources (Center for Substance Abuse Treatment, 1999). "Clinically, an in-depth drug use history, along with psychiatric and physical examinations, remains the mainstay for diagnosis and treatment planning" (Weinberg et al., 1998, p. 257). Methods for assessing alcohol and drug use have included the standard urine, blood, and breath testing and reports by clients and collateral informants (Fals-Stewart, Farrell, Freitas, McFarlin, & Rutigliano, 2000). Along with this information, multiple collateral information is sought. Weinberg et al. (1998) called for more research on the relationship between the validity of adolescent self-reported drug use and the context in which the screen was administered.

The Adolescent Drug Involvement Scale (ADIS)

The Adolescent Drug Involvement Scale (ADIS) was designed as a brief research and screening instrument to measure the level of drug involvement on a continuum from

minimal use to abuse and dependence. It was adapted from Mayer and Filstead's

Adolescent Alcohol Involvement Scale. Using 453 adolescents referred to substance

abuse programs, Moberg and Hahn (1991) found that the ADIS correlated highly (r =

.79) with self-reports of level of drug use, with the subject's perceptions of severity of

their problem (r = .79), and with clinical assessments (r = .75). Data gathered from the

self-report survey included demographic data, perceptions of family and peer substance

use, alcohol and drug use, treatment, social service and legal history, and school/work

performance (Moberg & Hahn, 1991). The clinical assessment was provided by the

counseling staff (most with Master's level training and certified as alcohol and drug

counselors (Moberg & Hahn, 1991). The researchers recommended that the ADIS be

tested further on inner-city minority youth and with drug-free youth as well.

The Comprehensive Addiction Severity Index for Adolescents (CASI-A)

The Comprehensive Addiction Severity Index for Adolescents (CASI-A) is a

multidimensional, semi-structured interview and is used as a comprehensive clinical

assessment of adolescent substance use and psychosocial problems. It is a modification

of the adult assessment, ASI. The CASI-A is not a screening instrument. It is included

here for the purpose of mentioning Meyers et al.'s (1995) validation study of 103

adolescents receiving psychiatric and/or substance abuse treatment. To assess concurrent

validity, an extensive chart review was completed (Meyers et al., 1995). The researchers

found high rates of concordance between information extracted from clinical charts and

information which was initially reported during the CASI-A interview, with the substance

abuse module having the highest overall agreement (Meyers et al., 1995.). The authors

admit there is preliminary validity and report that revisions to the instrument were in process in those areas where the correspondence between information on the CASI-A and information from clinical records was less than 75% or where alpha coefficients were less than .6 (Meyers et al., 1995).

The Devereux Scales of Mental Disorders (DSMD)

The Devereux Scales of Mental Disorders (DSMD) is a 1994 revised version of the Devereux Adolescent Behavior Rating Scale and is normed on a nationally representative sample of adolescents ages 13 to 18. The 110-item behavioral questionnaire is completed by parents and produces scores on six scales: Conduct, Delinquency, Anxiety, Depression, Autism, and Acute Problems. "Each item is rated on a scale from 1 (never) to 5 (very frequently) of severity with reference to the past month" (Curry & Ilardi, 2000, p. 580). According to Curry and Ilardi (2000), the initial diagnostic criterion validity study included only single-diagnosed adolescents, "although most youths in treatment settings have more than one diagnosis [Curry & Craighead, 1990]" (p. 579). Therefore, the purpose of this convergent validity study was to determine if the DSMD was sensitive to adolescent comorbidity, specifically four types of disorders (anxiety, oppositional or conduct disorder, major depression, and substance abuse or dependence) (Curry & Ilardi, 2000). Excluded in this study were those adolescents diagnosed with mental retardation, bipolar disorder, or actively psychotic (Curry & Ilardi, 2000).

For the 108 psychiatric inpatient adolescent subjects (most of whom were Caucasian and middle class), the "DSMD scales were compared to parent-report,

interview-based, self-report and diagnostic measures" (Curry & Ilardi, 2000, p. 578). The researchers hypothesized that particular scales would correlate more with the other measures and that diagnostic validity would be stronger for behavior disorders versus internalizing disorders (affect and anxiety). The researchers reported that the DSMD was superior for classification of substance abuse and had promise as a measure of disruptive behavior disorders and substance abuse. It is worthy to note that the DSMD did not demonstrate validity when compared to adolescent self-report. The researchers attributed the lack of agreement to limited parental awareness of adolescent internal states.

Drug Abuse Screening Test for Adolescents (DAST-A)

The DAST-A was derived from modification of the adult version of the Drug Abuse Screening Test (DAST) originally developed by H. A. Skinner in 1982. The DAST-A, a 27-item self-report screening instrument, takes about 5 minutes to administer. The items are face-valid, relating specifically to negative consequences from drug use. All items that are endorsed in the direction of increased drug use problems are added with a resulting total score from 0 to 27.

In Martino et al.'s (2000) attempt to study the psychometric properties of the DAST-A, their sample consisted of 194 adolescents admitted to an inpatient evaluation unit. The mean age was 15.9, 83.5% were Caucasian, and most were insured privately (Martino et al., 2000). The most frequently assigned psychiatric diagnoses were dysthymia at 39%, major depression at 38%, conduct disorder at 21%, and oppositional defiant disorder at 18%. Of these subjects, 43% received a DSM-IV substance-related diagnosis.

The diagnoses were obtained by clinical consensus "based on a review of each subject's history and presenting data by a multidisciplinary treatment team consisting of experienced attending psychiatrists, nurses, and clinicians" (Martino et al., 2000, p. 61). "Medical record data, corroboration with family and referral sources, and staff observations were routinely integrated into the process of making diagnostic determinations" (p. 61). In order to establish concurrent validity, DAST-A scores were compared to subjects' diagnoses of drug dependence, drug abuse, alcohol abuse or dependence, and no substance-related disorders, regardless of psychiatric diagnoses (Martino et al., 2000).

The researchers concluded that the DAST-A is a "valid screening instrument for detecting drug abuse problems among adolescents in psychiatric inpatient settings" (Martino et al., 2000, p. 66). "Regarding concurrent validity, the DAST-A significantly converged with measures hypothesized to be related to adolescent drug abuse" (p. 66). This instrument also demonstrated concurrent validity by "its ability to predictably vary in total score magnitude among groups with different degrees and types of substance abuse" with an $F(3,190)=50.35, p=0001$ (p. 66).

Drug and Alcohol Problem (DAP) Quick Screen

The 30 items on this brief screening test originated from an adult-based questionnaire, from suggestions from experts in adolescent medicine, and from the senior author's experience as medical director of an adolescent drug abuse treatment program (Schwartz & Wirtz, 1990). In this study, the DAP was completed by 341 adolescents who were patients at a five-pediatrician group practice which served predominantly

upper-middle-class White families (Schwartz & Wirtz, 1990). The researchers concluded that the DAP is well accepted by middle-class suburban adolescents and their parents. However, the authors state, "Ideally, questionnaires that purport to assess problems with substance abuse should be validated by direct interview techniques with those who have a high score and a matched control group of respondents with a low score" (Schwartz & Wirtz, 1990, p. 42). They also encouraged cross-validation by obtaining information from parents, close friends, and school personnel.

Following this study, an abbreviated 14-item DAP version was administered to 146 adolescent patients at two pediatric practices (Schwartz & Wirtz, 1990). These subjects were predominantly Black and middle class. Along with the DAP, the subjects completed a questionnaire regarding the frequency of substance use and history of treatment for substance problems and a modified CAGE four item questionnaire. Schwartz and Wirtz (1990) found that the predictive value of a positive DAP score (6 or more) was 47%. "Those respondents who had high DAP scores and who did not admit to frequent use of alcohol or drugs were believed to be infrequent nor nondrug users who were angry, usually oppositional, and often in frequent or violent conflict with parents and school authorities" (p. 43). The predictive value of a negative DAP score (5 or less) was 100%, meaning that none of the self-identified alcohol/drug abusers had a low DAP score. The authors believe the DAP can identify many adolescents who are in jeopardy.

Drug Use Screening Inventory (DUSI)

In 1990 Tarter presented a procedure for systematically identifying adolescents with suspected substance abuse. This instrument incorporates 10 domains within 149

items and uses a decision-tree approach. The 10 domains include: Substance Use,

Behavior Problems, Health Status, Psychiatric Disorder, Social Skills, Family System,

School, Work, Peer Relations, and Leisure and Recreation. Each domain produces a

problem-density score indicating the severity of disturbance and ranges from 0% to 100%

(Tarter & Hegedus, 1991). The overall problem index score reflects overall general

severity of disturbance and is arrived at by averaging all the positive responses across all

the domains.

Content validity was examined in Tarter et al.'s 1992 study using 25 adolescents

in a substance abuse treatment program. The content validity was determined by

comparing the DUSI Substance Abuse scale against a checklist of symptoms. Significant

correlations were found for 8 of the 10 domains with the highest correlation being for the

Substance Use scale ($r =. 72$) (Tarter et al., 1992). "Futhermore, the highly significant

association between the overall problem density score of the DUSI and the total number

of substance abuse symptoms ($r =. 61$) illustrates that this overall index measures drug

problem severity in adolescents" (Tarter et al., 1992, p. 235).

Guttman Scale of Adolescent Substance Use

The Guttman Scale is unidimensional and based on a developmental sequence of

substance use (Andrews, Hops, Ary, Lichtenstein, & Tildesley, 1991). It assumes "that if

an individual uses a particular substance, the individual uses all of the substances earlier

in the scale" (Andrews et al., 1991, p. 558). The researchers hypothesized that as

adolescent substance use increased, family cohesion and relationship quality would

decrease, and family conflict would increase. The adolescents completed a self-report

questionnaire regarding the extent of their substance use and other behavioral problems, and provided an air sample testing validity of their report of tobacco use. The parents completed The Child Behavior Checklist (Andrews et al., 1991). Both the adolescent and parent completed the Conflict Behavior Questionnaire and the Family Environment Scale. "Of the 756 adolescents, 73.2% had used alcohol, 54.7% had smoked cigarettes, 34.9% had smoked marijuana, and 14.2% had used at least one hard drug" (Andrews et al., 1991, p. 561). "The properties of this scale were excellent indicating that substance use is unidimensional and cumulative" (p. 557). The researchers also found that the "level of involvement in substance use covaried with the adolescents' perceptions of their 'deviance' and to a lesser extent with the parents' perceptions of the behavior problems of the adolescent" (p. 568).

Perceived-Benefit Scales

The Perceived-Benefit of Drinking and Drug Use Scales were tested on 260 admissions to an adolescent inpatient psychiatric unit in the 1990 study by Petchers and Singer. It had previously been tested with an urban and a rural high-school population (Petchers & Singer, 1990). These scales were developed to be a quick, easy-to-administer instrument for clinical settings. Convergent validity was established by examining the relationship between the scale scores and self-reports, clinical judgments, and the Adolescent Alcohol Involvement Scale (AAIS). According to the study, "clinical judgments about substance abuse rendered by two certified alcoholism counselors classified 73.9% of the patients chemically dependent or substance abusers and 26.1% non-abusers" (p. 50). There was a correlation coefficient of .49 ($p < .0005$ level) between

the Perceived-Benefit of Drinking and the AAIS, suggesting a positive, moderate-strength relationship between these two instruments. The scales' strong relationships with self-reported substance abuse and with clinical judgments led the authors to recommend that the Perceived-Benefit Scales be used as part of the routine screening and evaluation of inpatient psychiatric adolescents.

Personal Experiences Inventory (PEI)

The Personal Experience Inventory (PEI) was developed at the Center for Adolescent Substance Abuse and is a multi-scale self-report, which measures adolescent substance abuse severity and related psychosocial risk factors. According to Winters et al. (1996,) prior research with this instrument has shown promising reliability and initial validity. Previous validity studies have compared the PEI to alternate self-report measures and have included normal versus clinical groups (Winters et al., 1996). In the 1993 Winters, Stinchfield, and Henly study of 165 adolescents from a metropolitan county alcohol and drug evaluation unit, the PEI was matched with the new structured diagnostic interview for evaluating *DSMIII-R* substance use disorders, with the Adolescent Diagnostic Interview, and with treatment referral recommendations. The referral recommendations were derived from assessment material (full chart) conducted by staff and an independent senior drug treatment professional (Winters, Stinchfield, & Henly, 1993). "Results indicated that the PEI Basic Problem Severity scales were significantly related to groups defined by DSM-III-R criteria for substance use disorders and by treatment referral recommendations" (Winters et al., 1993, p. 534).

The Winters et al. 1996 study was designed to expand on the convergent validity

(by including interview data from multiple sources, such as parents, counselor, and

client) and to examine predictive validity (by including two measurement points of intake

and 1 year follow-up) (Winters et al., 1996). The 140 subjects were adolescent referrals

to a drug evaluation program. The client interview was structured and included the

following domains: drug use frequency, legal problems, school problems, home

problems, and mental health status. Counselors conducted a semi-structured interview

with the clients and with the parents, rating client drug use severity on: global rating,

consequences of drug use, drug use symptoms, and referral recommendations. Parents

completed a checklist addressing their son/daughter's drug use consequences and

perception of how the family environment had been adversely affected by their

adolescent's drug use. Correlation coefficients of .50 and above were used as indicative

of the relationship of the PEI with related constructs (alternative measures of problem

severity). "PEI scales were highly correlated with the direct measure of drug use

frequency; intake coefficients (r) had a range of .53-.76, and follow-up coefficients

showed a nearly identical range ($r =. 52-.77$)" (Winters et al., 1996, p. 44). Per the

study, counselor ratings converged highly with the PEI, whereas parent ratings showed

considerably lower associations with the PEI.

Problem Oriented Screening Instrument for Teenagers (POSIT)

This screening instrument is the first step in the Adolescent Assessment and

Referral System designed by Rahdert in 1991. This screening instrument was designed to

detect adolescent drug use or abuse along nine related domains: Physical Health, Mental

Health, Family Relations, Peer Relations, Education, Social Skills, Vocation, Leisure and

Recreation, and Aggressive Behavior and Delinquency. It is composed of 139 items,

which are endorsed either as "Yes" or "No."

In Hall, Richardson, Spears, and Rembert's 1998 study of the POSIT, both

concurrent (criterion related) and construct validity were established with a sample of 42

adolescents. Twenty-one drug users were recruited from drug treatment centers, and 21

abstainers were recruited from local churches. This small sample was disproportionately

White (81%).

The authors reported "strong support for the criterion related validity" for the

POSIT by being able to correctly differentiate between the users and abstainers on all 10

domains as compared with self-reporting drug use (Hall et al., 1998). There were

varying results on the different domains for construct validity ranging from strong

support on Substance Use, Mental Health, and Aggressive Behavior/Delinquency

domains to little support for Peer Relations, Vocation, and Leisure and Recreation.

However, they conclude by saying: "The results of our study provide excellent support

for the concurrent validity of the POSIT and good support for construct validity" (Hall et

al. 1998, p. 58).

<center>Problem Recognition Questionnaire (PRQ)</center>

The Problem Recognition Questionnaire (PRQ) was developed by K. C. Winters,

G. A. Henly, and R. D. Stinchfield in 1987 as a 24-item self-report used to measure

adolescent motivation for drug use change and readiness for treatment. Although it is not

specifically a screening instrument to detect substance abuse, it is an example of the

researchers' attempt to address the needs of adolescent substance abusers. As has been common practice, this questionnaire is "an adaptation and extension of an adult measure of alcoholic denial" (Cady, Winters, Jordan, Solberg, & Stinchflield, 1996, p. 78). "The items are formatted on a 4-point scale, consisting of strongly disagree, disagree, strongly agree, and agree" (Cady et al., 1996, p. 78).

The Cady et al. (1996) study to "establish the reliability, factor structure, and predictive validity of the PRQ" (p. 77) is a good example of researchers' attempts to verify an instruments' validity. Adolescents from both residential and nonresidential treatment settings were included. There was little diversity in the sample of 234 adolescents, as "the majority of participants were white (82.9%), male (60.7%), and currently in school (82.5%)." This study focused on reliability and predictive validity but did discover a higher level of accurate self-reporting than may be generally assumed typical of substance-abusers (Cady et al., 1996). Client/parent agreement was found to be 86.7%, kappa .74, and agreement with the Adolescent Diagnostic Interview and the Personal Involvement with Chemicals Scale was 95.5%, kappa .91 (Cady et al., 1996). The authors encouraged future studies to include a wider sample of adolescents.

Teen Addiction Severity Index (T-ASI)

The Teen-Addiction Severity Index (T-ASI) is a structured interview that is a modification of the adult Addiction Severity Index. Kaminer and Frances (1991) assert that it is a reliable instrument that provides a practical framework for organizing treatment. The T-ASI assesses seven domains: chemical use, school status, employment-support status, family relationships, peer-social relationships, legal status, and psychiatric

status (Kaminer et al., 1991). It can be given by a skilled, trained technician to

adolescents ages 12 and older with IQs in the normal range. Kaminer et al. in their 1991

study of 25 adolescent substance abusers, particularly with a dual-diagnosis, found the

average interrater reliability across the scales to be 0.78. All correlations exceeded 0.70

with the exception of family relationships. Establishing interrater reliability was thought

to be the first step in examining the psychometric properties of the T-ASI. The

researchers recommended further research on the validity and prognostic utility,

especially with different ethnic groups and demographic settings.

<div align="center">

Substance Abuse Subtle Screening Inventory
Adolescent Version--Validity Studies

</div>

The SASSI-A represents a unified effort to develop a substance abuse screening

instrument to detect defensiveness and denial and to incorporate both direct and indirect

measures. Winters (1990) suggested that a standardized instrument that includes a

measure of defensiveness and denial would help offset the potential problems of

adolescent defiance and lack of insight.

The instrument is comprised of two direct or face validity scales, one for alcohol

use (Face Valid Alcohol, FVA) and the second for other drug use (Face Valid Other

Drugs, FVOD). In addition, there are six indirect or subtle scales. Four of the scales

include: Obvious Attributes (OAT), a willingness to admit to symptoms; Subtle

Attributes (SAT), a measure of subtle personal patterns; Defensiveness (DEF), a measure

of test-taking defensiveness; and Defensiveness Dependent vs. Defensiveness Non

Dependent (DEF2), a measure designed to separate defensive substance-abusing

individuals from defensive non-abusing individuals. The last two sets of scales are

comprised of two provisional scales called Correctional (COR), a measure of general acting out, and Random Answering Pattern (RAP), a measure of deviant response sets.

According to the SASSI-A manual, 25 adolescent programs were involved in the development of the inventory (Miller, 1990). Validation data were divided between validation of the Decision Rules or classifying chemically dependent adolescents from non-abusing adolescents and validation of individual subscales. Validation data for the Decision Rules were given in percentages of agreement with counselor judgment of chemical dependency. There was no information on what defined "counselor" or on what basis counselor judgment was made. The manual refers to the validation of the two face-validity scales as "not of 'predictive' but concurrent validity" (Miller, 1990, ch. 8, p. 15). For the subtle scales, the manual states that no reliability information is provided as the authors had not yet obtained test-retest data. Internal estimates of reliability for the subtle scales were "not reported because some readers found them misleading" (Miller, 1990, p. 17). The manual states, "The discriminate function analyses are designed to sacrifice inter item correlation for increased power and efficiency and reduced redundancy" (Miller, 1990, p. 18). As in the Decision Rules, percentages of counselor agreement are given for each subtle measure.

Prior to a 1992 dissertation (using the SASSI-A along with the MMPI in predicting sexual abuse and substance abuse in adolescents) by Fox, there had been no other SASSI-A studies with an adolescent psychiatric population. This study was not a validation study.

The *Journal of Child and Adolescent Substance Abuse* presented a study in 1995, which further validated the SASSI-A with an adolescent residential, chemical abuse

treatment population. Although the SASSI-A was in the early stages of validation,

Risberg et al. (1995) saw value in its potential use.

> The intent of this study was to corroborate established norms, explore possible
> relationships between SASSI and MMPI scale scores, and investigate
> relationships among sociodemographic valuables (e.g., reported physical, sexual
> and emotional abuse, family history of chemical abuse, history of depression)
> and SASSI scale scores. (p. 27)

Initially, the subjects participated in an interview, which included the SASSI-A and

sociodemographic information (Risberg et al., 1995). An accompanying adult (parent or

probation officer) was present during the interview, and additional information was

gathered from collaborative sources. If admitted for residential treatment, the adolescents

then also completed the MMPI.

In this study, the SASSI classified 79.4% of the adolescents as chemically

dependent. Risberg et al. (1995) found that the SASSI-A classified the adolescents better

than chance and that the discriminative validity of the SASSI-A was not any better than

the DSM-III-R diagnoses (82%). On the SASSI-A, the classification is either chemically

dependent or non-chemically dependent, therefore the decision tree of the SASSI-A does

not distinguish between non-users, experimental users, or substance abusers. Of the

subjects, 18% were given a *DSMIII-R* diagnosis of abuse. "Although the SASSI did

classify 79.4% of the sample as dependent, it should be utilized in conjunction with a

biopsychosocial clinical assessment and information/reports from important others,

particularly in a setting with a high base rate" (Risberg et al., 1995, p. 35).

At an alpha level of .01, DEF scores were negatively correlated with MMPI scales

4 (-.32), 6 (-.27), 7 (-.25), and 8 (-.25). "Low DEF scores appeared to be related to higher

levels of reported distress and psychopathology" (Risberg et al., 1995, p. 34). Miller

(1990) reported that low DEF scores suggest depressive symptoms. In this study a history of suicide ideation was significantly related to SASSI low DEF scores. At an alpha level of .01, SAT was positively correlated with MMPI scales F (.28), 4 (.26), 6 (.30), 7 (.33), and 8 (.35), indicating that adolescents with high SAT scores tend to have personality traits similar with chemical abusers (Risberg et al., 1995). In addition, "higher SAT scores were associated with an earlier onset of chemical abuse" (Risberg et al., 1995, p. 36). Gender, age, and education were found not to be related to SASSI scale scores (Risberg et al., 1995).

The authors suggested that future research include corroborating information along with the self-report data, behavioral assessments, and laboratory date (i.e., urine drug analysis) (Risberg et al., 1995). As this study's subjects were 90.7% Caucasian, it was also recommended that further validation be done with a more culturally or racially diverse population. Additional studies with various treatment groups/modalities and including comparison groups are also suggested.

The 1996 issue of *Substance Use and Misuse* presented a study by Dr. Nick Piazza testing the concurrent validity of using the SASSI-A with adolescents placed in an inpatient psychiatric facility. With a sample of 203, the SASSI-A was administered by a certified chemical dependency counselor and compared to the hospital's standard interview, which was conducted by Dr. Piazza. "The results of this study would appear to support using the SASSI for identifying adolescent psychiatric patients with coexisting substance use disorders" (Piazza, 1996, p. 221). "The agreement rates between SASSI results and interviewer results were impressive: 86.3% for participants with chemical abuse problems and 93.1% for participants without chemical abuse problems" (Risberg

et al., 1995, p. 27). This study's overall concurrence rate of 90.20% seemed to hold true

regardless of the patient's gender (Piazza, 1996) and independent of psychiatric problems

(Risberg et al., 1995).

In March of 1997, the *Criminal Justice and Behavior* published "Evaluation of

Adolescent Offenders with Substance Abuse: Validation of the SASSI with Conduct-

Disordered Youth." The authors (Rogers, Cashel, Johansen, Sewell, & Gonzalez)

claimed that the instrument had not been cross-validated for use in clinical and forensic

settings. Using a sample of 317 adolescent offenders, they found 68.4% false positives,

but reported that the instrument was moderately effective in identifying non-admitting

substance abusers (75.6%). They claimed the SASSI-A had low to moderate correlations

with interview-based data on substance abuse impairment. The recommendation was that

the instrument not be used to classify adolescents as chemically dependent and not be

used as a screening device.

Bauman et al. published a study in 1999 on further validating the SASSI-A using

114 adolescents at an alternative high school and 93 adolescents in a residential treatment

center. Their first hypothesis was that the SASSI-A would discriminate between the two

groups, with the residential adolescents being at higher risk for substance abuse issues.

The adolescents in the high school were administered the SASSI-A in groups of 30 and

followed up individually; whereas the adolescents in residential treatment were

individually administered the SASSI-A.

Using Chi-square analysis, a significant difference ($x2 = 10.375$; ($p = .001$) was

found in the rates of chemical dependency between the two groups, with the residential

treatment adolescents having a greater proportion of individuals classified as chemically dependent (Bauman et al., 1999).

The second part of this study investigated the criterion validity of clinical diagnoses compared to the SASSI-A (Bauman et al., 1999). They were able to use only 79 of the residential adolescents, as the remaining had not been given a clinical diagnosis prior to the SASSI-A. "Agreement between the SASSI classification and the interviewer classification was found for 62% of participants" (Bauman et al., 1999, p. 61). "The SASSI classified 28 individuals as chemically dependent when the clinicians did not (p. 65). Of those 28 adolescents, 8 had self-reported alcohol and/or drug use in the 99th percentile. Therefore the diagnosis of chemically dependent was made on their self-report and not on their responses to the subtle scales.

The authors further note that the SASSI-A "may not be effective in distinguishing between abuse and dependency in adolescents" (Bauman et al., 1999, p. 66). In this study, the SASSI-A classified 19 adolescents as dependent whereas these same adolescents were diagnosed as abusers by the clinicians. In the conclusion, the authors report that the SASSI-A was found to have limited evidence of validity and was found to be questionable. However, they also stated, "The prevalence of dual diagnosis in the adolescent population underscores the need for clinicians to be especially careful in screening this group, and the SASSI appears to provide useful information" (Bauman et al., 1999, p. 68).

CHAPTER III

METHODOLOGY

Purpose of the Study

The purpose of this study was to examine the construct validity of the Substance

Abuse Subtle Screening Inventory for Adolescents (SASSI-A) as a substance

abuse/chemical dependency screening instrument for adolescents in a residential

treatment center. This chapter details the methodology of this study including the

purpose of the study, design, sample, instrumentation, procedure, null hypotheses, and

data analysis used.

Design of the Study

The research design was a non-experimental two-group comparison study. There

was no direct control of the independent variables. The intent was to compare the

SASSI-A Decision rules classification of non-chemical dependent and chemically

dependent with a classification obtained by a semi-structured assessment interview

including information from collateral sources. In addition, principal component factor

analysis was used to test construct validity on SASSI-A's.

The independent variables included the residential facility's classification of

adolescents as substance abusers/chemically dependent or not substance

abusers/chemically dependent (which included non-users or experimenters) determined

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by the clinical assessment process. A non-user is one who has never used alcohol or other substances, and an experimenter is one who may have tried alcohol and/or other substances on only a few occasions but has not used with any regularity. Substance abuse screenings/assessments were made by the facility's Indiana state-certified alcohol and drug abuse counselor.

The dependent variables included the SASSI-A's Decision rules' classification of the subject into "classify nondependent" and "classify chemical dependent" and the following scale scores on the SASSI-A: FVA, FVOD, OAT, SAT, DEF, and DEF2.

The demographic variables included the subjects' gender, age, and race.

Sample

The sample for this study was a non-probability sample. The 336 subjects in this study included male and female adolescents who were admitted from 1991 through 1999 to a long-term residential facility for seriously emotionally and behaviorally disturbed children and adolescents. The facility included a substance abuse program as part of its overall programming, recognizing that these emotionally and behaviorally disturbed adolescents are at high risk for substance abuse. Although the facility accepts individuals 6 to 18 years olds, only 12- to 18-year-olds are included in this study, as this is the acceptable age group recommended for administration of the SASSI-A. Only those who completed valid SASSI-A (RAP score of 0) were included in this study. Also excluded in this study were those residents who, at the time of assessment, were determined by the treatment team to be psychologically unstable (i.e., suicidal, psychotic, extremely aggressive).

Instrumentation

The adolescent version of the Substance Abuse Subtle Screening Inventory

(SASSI-A), published in 1990 by Dr. Glenn Miller, is designed as a screening device "in

identifying chemically dependent individuals even when they are in denial or deliberately

trying to conceal evidence of their problem" (Miller, 1990, p. 8-1). Later guidelines sent

with the SASSI-A packets address the focus of the instrument as identifying those who

have substance-related disorders. The SASSI-A is an 81-item questionnaire, which is

appropriate for ages 12 through 18. The SASSI-A takes approximately15 minutes to be

completed. Each adolescent was administered the SASSI-A by a state-certified

alcohol/drug counselor.

The instrument is comprised of two face-validity scales, one for alcohol use (Face

Valid Alcohol, FVA) and the second for other drug use (Face Valid Other Drugs,

FVOD). The FVA scale is comprised of 12 items, and the FVOD is comprised of 14

items. Both scales (total of 26 items) use Likert-type questions in directly assessing

negative consequences of alcohol and drug use.

The next set of six scales consists of 55 true-false criterion-keyed questions. Four

of the scales include: Obvious Attributes (OAT), a willingness to admit to symptoms;

Subtle Attributes (SAT), a measure of subtle personal patterns; Defensiveness (DEF), a

measure of test-taking defensiveness; and Defensiveness Dependent vs. Defensiveness

Non Dependent (DEF2), a measure designed to separate defensive substance-abusing

individuals from defensive non-abusing individuals. The last two criterion-keyed scales

represent the third category of scales, which are provisional in nature. These two scales

are called Correctional (COR), a measure of general acting out, and Random Answering

Pattern (RAP), a measure of deviant response sets. Most of these 55 items are not obviously related to alcohol and other drugs.

For both the face-validity and criterion-keyed scales, raw scores are converted into T scores. The SASSI-A then uses an objective Decision rules bases for its dichotomous classification, classifying the client as either non-dependent or chemically dependent. The provisional scale of COR is not used in the Decision rules for classifying the adolescent as chemically dependent or not chemically dependent. The provisional scale RAP is likewise not used in the decision making process, but was designed to indicate a potentially invalid response set. Clients who are classified on the SASSI-A as being chemically dependent are said to have a high probability of having a substance-related disorder. The SASSI-A does not specifically distinguish between chemical abuse and chemical dependency. However, the authors encourage further evaluation for those adolescents not classified as chemically dependent but have moderate elevations on FVA, FVOD, OAT, and/or SAT, suspecting substance abuse problems. A sample of SASSI-A scale items can be found in Appendix A.

According to the SASSI-A manual, 25 adolescent programs were involved in the development of the inventory (Miller, 1990). Validation data were divided between validation of the Decision Rules or classifying chemically dependent adolescents from non-abusing adolescents and validation of individual subscales. Validation data for the Decision Rules were given in percentages of agreement with counselor judgment of chemical dependency. There was no information on what defined "counselor" or on what basis counselor judgment was made. The manual refers to the validation of the two face-validity scales as "not of 'predictive' but concurrent validity" (Miller, 1990, p. 15). For

the subtle scales, the manual states that no reliability information is provided, as the authors had not yet obtained test-retest data. Internal estimates of reliability for the subtle scales were "not reported because some readers found them misleading" (Miller, 1990, p. 17). The manual states, "The discriminate function analyses are designed to sacrifice inter item correlation for increased power and efficiency and reduced redundancy" (Miller, 1990, p. 18). As in the Decision rules, percentages of counselor agreement are given for each subtle measure.

Following publication of the SASSI-A, the first validation study presented in the literature was in 1995 in the *Journal of Child and Adolescent Substance Abuse* in which the SASSI-A was validated using an adolescent residential, chemical abuse treatment population. In this research the SASSI-A was validated against an interview and collaborative sources for recommendation for admission into a residential chemical abuse treatment program. Risberg et al. (1995) found that the SASSI-A classified the adolescents better than chance and that the discriminative validity of the SASSI-A was not any better than the DSM-III-R diagnoses (82%). "Although the SASSI did classify 79.4% of the sample as dependent, it should be utilized in conjunction with a biopsychosocial clinical assessment and information/reports from important others, particularly in a setting with a high base rate" (Risberg et al., 1995, p. 35). The authors suggested that future research include corroborating information along with the self-report data, behavioral assessments, and laboratory date (i.e., urine drug analysis) (Risberg et al., 1995). As this study's subjects were 90.7% Caucasian, it was also recommended that further validation be done with a more culturally or racially diverse population.

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followed up individually; whereas the adolescents in residential treatment were individually administered the SASSI-A.

Using Chi-square analysis, a significant difference ($x2 = 10.375$; $p = .001$) was found in the rates of chemical dependency between the two group, with the residential treatment adolescents having a greater proportion of individuals classified as chemically dependent (Bauman et al., 1999).

Their second part of this study investigated the criterion validity of clinical diagnoses compared to the SASSI-A (Bauman et al., 1999). "Agreement between the SASSI classification and the interviewer classification was found for 62% of participants (Bauman et al., 1999, p. 61). "The SASSI classified 28 individuals as chemically dependent when the clinicians did not" (Bauman et al., 1999, p. 65). Of those 28 adolescents, 8 had self-reported alcohol and/or drug use in the 99th percentile. Therefore the diagnosis of chemically dependent was made on their self-report and not on their responses to the subtle scales. The authors concluded that the SASSI-A had limited evidence of validity and was found to be questionable.

Of the four validation studies presented above (and also found in more detail in chapter 2), all validated the SASSI-A against information gathered in an interview. Several emphasized seeking information from additional collaborative sources. Two studies (1995 and 1996) found the SASSI-A to be a valid instrument when used with adolescents in a residential chemical abuse treatment facility and with an inpatient psychiatric population. The later studies in 1997 and 1999 found questionable validity in adolescent offenders and adolescents in residential treatment.

Procedure

Data Collection

Permission to obtain data was granted in 1990 orally through Sylvia Sebert, MS,

COO, and Mike James, MA, the Senior Associate Director. Permission was also granted

orally through the following succeeding direct supervisors, Brad Laird, MA, LMFT, in

1993, Joe Bleich, MS, in 1997, and Mary Kowalski, MSW, LCSW, in 1998. I obtained

the data through existing archival records. All closed files from 1991 to 1999 were

reviewed. Each subject was given a numerical code number in order to assure

confidentiality of all the information.

Each resident was seen by the facility's state-certified alcohol and drug abuse

counselor for the initial screening and, if needed, for the assessment process. While

employed at this facility, I was in the position of Addictions Coordinator from 1989 to

1992 and in the position of Division Director from 1992 to 1996. During that time, I

supervised an additional state-certified alcohol and drug abuse counselor. This

Addictions Counselor had been employed in the field for over 4 years.

From 1996 to 2000, I served as the lone addictions counselor. I received initial

certification as a State Certified Alcoholism Counselor in 1986, the Certified Alcohol and

Drug Abuse Counselor certification in 1989, and the National Certified Addiction

Counselor II certification in 1991. I have been employed in the field of addictions since

1985.

As is typical in most agencies, initial screening is used to minimize the costs

associated with full assessments (Hall et al., 1998). Upon admission each resident was

administered the in-house screening. A copy of this screening can be found in

Appendix A. In 1998 this questionnaire was revised and is included in Appendix A.

Following the screening, a review of the resident's pre-placement file was conducted and

the primary therapist contacted. The pre-placement file consist of a biopsychosocial

report, discharge summaries from prior placements and hospitalizations, current legal

issues, and current psychological or psychiatric evaluations. Based on this information,

the resident may be determined as a non-user or a non-experimenter and, therefore, not in

need of substance abuse services. For the purposes of this research only, all residents

were administered the SASSI-A. However, results of the SASSI-A were not used in the

decision-making process regarding recommendations for substance abuse treatment.

An example of such a "not recommended for substance abuse services" case (see

Appendix B) is a 16 1/2-year old African American female who was placed with the

diagnoses of Major Depression, Dysthymic Disorder, Oppositional Defiant Disorder,

Parent-Child Relational Problem, and Learning Disorder. This resident has been in out-

of-home placements since August of 1997. She was sent to an adolescent group home

and two stays in detention during 1997, followed by a 5-month stay in another residential

facility. This was followed by an almost 2-year residential placement at Midwest Center

for Youth prior to this current placement. This adolescent's mother did not want her to

return home, so the discharge planning was for independent living. Mother moved out of

state with this resident's two younger siblings. She never has known her father.

Upon admission, this resident presented with a negative attitude, threats to peers,

oppositional behavior, and a negative self-image. Depressive symptoms included flat

affect, periods of sadness, withdrawn, and sleep disturbance. She tended to act out

sexually and had poor impulse control. This resident had a past history of physical aggression, nightmares, and suffered from physical abuse and neglect by her mother. There were past allegations of sexual abuse by mother's fiancé.

Within 1 day of placement, this resident was given the in-house substance abuse screening. She denied having any experiences with alcohol or drugs and denied that there was any history of substance abuse issues. Her preplacement file was reviewed with no mention of substance use issues for the adolescent or her family. The primary counselor confirmed that to her knowledge there were no issues with alcohol or drugs, therefore she was not recommended for substance abuse treatment services.

If the in-house screening, preplacement file review, or consult with the primary therapist identified or led to suspected potential substance abuse issues, the resident was determined to be in need of a full assessment. This was completed by the state-certified alcohol and drug abuse counselor and included information on alcohol/drug history, signs and symptoms of dependency, patient's perception of use, past alcohol/drug education/counseling/treatment, family history related to substances, mental health issues, environment, and relationship issues. This semi-structured assessment also covered the following life areas: spiritual/religion, sexual, social/peers, recreational/leisure activities, school, legal, employment/finances, and psychological. Health-related information was obtained from the resident's medical file. This assessment form can be found in Appendix A. The use of these domains in an addiction assessment is well documented and is recommended in the *Screening and Assessment of Alcohol-and Other Drug-Abusing Adolescents* published by the Center for Substance Abuse Treatment (1993).

As part of the multiple assessment process, a full file review was conducted,

which included the preplacement file (information sent by the placing agency, including

information regarding past hospitalizations and placements; biopsychosocial report;

current legal issues; and current psychiatric and/or psychological assessment), clinical

file (placement information, past psychiatric and/or psychological assessments, school

information, weekly staffing notes, incident reports, unit staff notes, primary therapist

progress notes, etc.), and medical file (health history; lab reports, including urine drug

screen; physicals; etc.). Collateral data obtained in these files included:

psychological/psychiatric evaluations, past treatment histories, court reports, welfare

reports, psychosocial reports, school reports, family assessments, medical information,

and laboratory testing results. As is recommended by the Center for Substance Abuse

Treatment (1993),

> The comprehensive assessment process for adolescents with AOD
> problems should involve many different approaches, such as:
> 1. Interviews
> 2. Observations
> 3. Specialized testing and physical exam
> 4. Review of previous evaluations, treatment, and case documentation
> 5. Family interviews
> 6. Family involvement and access to other key informants. (p. 18)

A resident was determined to be in need of substance abuse treatment if he/she

was classified as a substance abuser or chemically dependent. This classification was

based on information obtained in the screening, collateral data, and assessment interview.

An example of such a "recommended for substance abuse services" case (found in

Appendix B) is a soon-to-be 16-year-old African American male who was placed by

probation with the diagnoses of Conduct Disorder, Marijuana Dependence, and

Dysthymic Disorder. He had a history of truancy, defiance, gang participation, curfew violations, and theft. He presented with a blunted affect, lack of insight, and dysphoric mood. This adolescent was described as being easily influenced by his peers and lacking in parental supervision. He had been in the juvenile center for 2 months prior to this placement. Prior to detention, this young man lived with his mother and father, and discharge plans were for reunification.

As this resident arrived with a diagnosis of Marijuana Dependence, the initial in-house substance abuse screening was eliminated, and he was scheduled for a full assessment. A file review documented two separate charges of possession of marijuana and a cocaine possession charge. The Psychological Evaluation noted that this resident had a long substance abuse history. In this evaluation he admitted to symptoms of marijuana dependence and alcohol abuse, as well as theft and drug selling. He admitted that his father abused alcohol and marijuana. This resident had no prior substance abuse counseling or treatment, therefore he was recommended for substance abuse treatment.

<div align="center">Procedure for Validating the SASSI-A</div>

Standard procedures for validation studies include content, criterion or construct-related evidence (see Gregory, 1996). In this study, I examined the construct validity of the Substance Abuse Subtle Screening Instrument – Adolescent (SASSI-A) as a tool for identifying substance abuse/chemical dependency. According to Gregory (1996), there are several approaches to construct validity: test homogeneity, appropriate developmental changes, theory-consistent group differences, theory-consistent intervention effects, convergent and discriminant validation, and factor analysis.

In test homogeneity, one examines if the "test items or subtests are homogeneous and therefore measure a single construct" (Gregory, 1996, p. 119). The validity of an instrument can also be established by examining whether or not the underlying theory of the construct being measured is consistent with developmental changes. In the 'theory consistent group differences' approach, the task is to determine of group differences on test scores are theory-consistent. For 'theory-consistent intervention effects', research is conducted to ascertain if 'intervention effects on test scores are theory-consistent' (Gregory, 1996, p. 119). Convergent evidence demonstrates the identified construct to be highly correlated with a related but different measurement of the construct. Discriminant evidence demonstrates that the construct is less correlated with measures of different traits, using the same or different instruments. Factor analysis applied to a set of variables in which the researcher is interested in discovering "which variables in set form coherent subsets that are relatively independent of one another. Variables that are correlated with one another but largely independent of other subsets of variables are combined into factors" (Tabachnick & Fidell, 1996, p. 635).

Two of the above approaches to construct validity were used in this study: theory-consistent group differences and factor analysis, and to be specific, principal component analysis. The question behind construct validation is that "Based on the current theoretical understanding of the construct which the test claims to measure, do we find the kinds of relationships with nontest criteria that the theory predicts?" (Gregory, 1996, p. 119). In the case of this study, are there significant differences on the SASSI-A test scores between those clinically assessed as substance abusers/chemically dependent from those who were clinically assessed as not substance abusers/chemically dependent.

That is, adolescents who are thought to be substances abusers/chemically dependent (through clinical assessment) should score significantly higher on the SASSI-A than those who are thought to be not substance abusers/chemically dependent. Furthermore, those identified as being substance abusers/chemically dependent by SASSI-A decision rules should also be classified as being substance abusers/chemically dependent through some independent criteria, which, in this study, is the clinical assessment process (described earlier in this chapter).

A principal component factor analysis with Varimax rotation was performed on the 48 items of the SASSI-A that comprise the subtle scales used for the Decision Rules Classification of Chemically Dependent or Non Chemically Dependent. Those scales include OAT (Obvious Attributes), SAT (Subtle Attributes), DEF (Defensiveness), and DEF2 (Defensiveness Dependent vs. Defensiveness Non Dependent. This analysis was undertaken in order to confirm that each of the scales did reflect the underlying processes intended. This is the second approach to construct validity used in this study.

According to Tabachnick and Fidell (1996), principal component analysis is "the solution of choice for researchers who are primarily interested in reducing a large number of variables down to a smaller number of components" (p. 664). Furthermore, it is "also a recommended first step in factor analysis where it reveals a great deal about probable number and nature of factors" (p. 664). Varimax rotation was used because it "offers ease of interpretation, describing, and reporting results" (Tabachnick & Fidell, 1996, p. 666). This is the most commonly used rotation and seeks to minimize the complexity of factors by maximizing variance of loadings on each factor. However, it does assume that the factors are somewhat uncorrelated or independent. Nevertheless, with a large sample size,

a fairly clear pattern of correlation should emerge, and therefore, a stable solution tends

to appear regardless of the rotation technique used (Tabachnick & Fidell, 1996, p. 666).

The number of factors extracted was guided by using only components that have

eigenvalues of 1 or greater and by examining the scree plot (see Tabachnick & Fidell,

1996). Rotated factors were interpreted by considering only the items with loadings of

0.32 or higher and by giving items with the highest loadings the greatest weight in factor

interpretation (Furtcher, 1954; Tabachnick & Fidell, 1996). For the purpose of this study,

two conditions had to be met for factor interpretations. First, there had to be factorial

evidence in the form of factor loadings of 0.32 or higher. Second, the item had to appear

logically congruent with the interpreted meaning of the scale.

Null Hypotheses

The research questions were answered through the testing of the following six

hypotheses, stated in the null form:

Hypothesis 1: There is no relationship between classification as substance

abusers/chemically dependent by clinical assessment and by SASSI-A Decision Rule #1.

Hypothesis 2: There is no relationship between classification as substance

abusers/chemically dependent by clinical assessment and by SASSI-A Decision Rule #2.

Hypothesis 3: There is no relationship between classification as substance

abusers/chemically dependent by clinical assessment and by SASSI-A Decision Rule #3.

Hypothesis 4: There is no relationship between classification as substance

abusers/chemically dependent by clinical assessment and by SASSI-A Decision Rule #4.

Hypothesis 5: There is no relationship between classification as substance

abusers/chemically dependent by clinical assessment and by SASSI-A Decision Rule #5.

Hypothesis 6: There is no relationship between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision rule #6 and those classified by clinical assessment.

Data Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) computer program. All subjects whose files contained missing data on their SASSI-A screening profile forms were eliminated at the beginning of data retrieval. I collected and entered all data in order to minimize errors. Any data entry errors were corrected prior to analysis.

Descriptive statistics were calculated for the demographic variables of gender, age, and race and for the variables of Mood Disorders and Disruptive Behavior Disorders. For the categorical variables, frequencies and interquartile ranges were calculated. Mean, median, and standard deviations were run for the one continuous variable.

To test the research questions 1-6, Chi-Squares were used to determine if there was a significant difference between the independent variables of the facility's classification and the dependent variables of SASSI-A's Decision rules classification. Principal component analysis was employed to test the underlying factor structure of the four subtle scales that are used in SASSI-A's Decision rules classification. Since the COR and RAP scales do not impact the Decision rules classification, the items making up those scales were not included in this study. Therefore of the total 55 subtle scales' items, only 48 items were used in the factor analysis.

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to validate the SASSI-A as a chemical dependency

screening instrument for adolescents placed in a residential facility. This chapter details

the description of the sample used in this study, as well as the testing of the hypotheses.

Description of the Sample

Demographic data collected in this study included gender, race, and age. As seen

in Table 1, the sample was fairly equally represented on gender with males accounting

for 195 (58%) and females for 141 (42%) of the sample. Subjects ranged in age from 12

to 18 years old with the mean age being 14.9 ($SD = 1.37$). Ages 13 to 16 years of age

accounted for a majority (85.1%) of the sample.

Of the 336 subjects, 195 (58%) were Caucasian, 103 (30.7%) were African

American, 22 (6.5%) were Hispanic, 14 (4.2%) were Bi-Racial, and 2 (0.6%) were Asian.

Of the 14 Bi-Racial residents, 2 were of African American and Puerto Rican parents, with

the remaining 12 of African American and Caucasian parents. One Cambodian male and

one Thai female represented the two Asian residents.

In terms of diagnosis, 150 (44.6%) were diagnosed with a Mood Disorder (Major

Depressive Disorder or Dysthymic Disorder) and 263 (78.3%) were diagnosed with a

62

Disruptive Behavior Disorder (Oppositional Defiant Disorder or Conduct Disorder). Of

the 336 subjects, 108 (32.1%) were diagnosed with both a Mood Disorder and a

Disruptive Behavior Disorder. Seventy-two subjects (21.4%) were diagnosed

additionally with Attention Deficit Hyperactive Disorder.

Table 1

Demographic Characteristics of the Sample

Variable	N	%
Gender		
Male	195	58.0
Female	141	42.0
Age		
12	16	4.8
13	39	11.6
14	74	22.0
15	80	23.8
16	93	27.7
17	29	8.6
18	5	1.5
Race		
Caucasian	195	58.0
African American	103	30.7
Hispanic	22	6.5
Biracial	14	4.2
Asian	2	0.6
Diagnosis		
Mood Disorders	150	44.6
Disruptive Behavior Disorders	263	78.3
Both Mood & Disruptive Behavior Disorders	108	32.1
Attention Deficit Hyperactive Disorder	72	21.4

The breakdown of Mood Disorders and Disruptive Behavior Disorders by gender revealed that proportionately more males were diagnosed with a Disruptive Behavior Disorder than females. In terms of the Disruptive Behavior Disorders, 162 (83.07%) of the males were given the diagnosis compared to 101 (71.63%) of the females. However, the split was fairly even with the Mood Disorders. Eighty-eight (45.12%) of the males and 62 (43.9%) of the females were diagnosed with a Mood Disorder.

Of the 108 residents diagnosed with both a Disruptive Behavior Disorder and Mood Disorder, 68 (63%) were males and 40 (37%) were females. The diagnoses of both a Mood Disorder and a Disruptive Behavior Disorder were divided proportionately among the seven age categories with the majority of the 108 cases (74.1%) falling in the 14-16 age categories. In terms of race, 59 (54.6%) were Caucasians, and 34 (31.5%) were African American. The remaining 15 were equally divided between the Hispanic (n = 7) and Biracial (n = 8) race categories.

It is interesting to note that of the 72 subjects diagnosed with Attention Deficit Hyperactive Disorder, 62 (86.1%) were male versus 10 (13.9%) female. Of these 72 subjects, 47 (65%) were Caucasian and 19 (26%) were African American. The majority (65%) of those subjects diagnosed with ADHD fell in the 14-to-16 age categories.

Of further note, 31 (9%) subjects were diagnosed with mental disorders other than Mood Disorders or Disruptive Behavior Disorders. Eight of these 31 (26%) subjects had a diagnosis of Bipolar Disorder and 2 (6%) had an Impulse Control Disorder diagnosis. The remaining 21 (68%) subjects received diagnoses ranging from Adjustment Disorder, Sexual Abuse (Victim), to Schizoaffective Disorder.

Table 2 provides the breakdown of demographic data by those adolescents who

were classified as substance abusers/chemically dependent by clinical assessment and those adolescents who were classified as chemically dependent by the SASSI-A.

As seen in Table 2, those males (35.7%) who were classified as substance abusers/chemically dependent by clinical assessment were proportionate to those males who were classified as chemically dependent by SASSI-A (33.3%). Likewise, there were 28% of the females who were classified substance abusers/chemically dependent by clinical assessment to 34.4% who were classified as chemically dependent by SASSI-A. A similar pattern was seen across the variable age.

In terms of race, there was a proportionate number of Caucasians, African Americans, Hispanics, Biracials, and Asians who were classified as substance abusers/chemically dependent by clinical assessment as there were those who were classified as chemically dependent by SASSI-A.

For Mood Disorders, 96 (28.6%) were classified as substance abusers/chemically dependent by clinical assessment versus 83 (24.7%) who were classified as chemically dependent by SASSI-A. The majority of diagnoses fell in the Disruptive Behavior Disorders category with 170 (50.6%) being classified by clinical assessment as substance abusers/chemically dependent and 150 (44.6%) classified as chemically dependent by SASSI-A. An almost exact percentage of ADHD were classified as substance abusers/chemically dependent by clinical assessment at 13.7% ($n = 46$) as were classified as chemically dependent by SASSI-A at 13.1% ($n = 44$).

Table 2

Demographic Characteristics for Classified as Substance Abusers/Chemically Dependent by Clinical Assessment and SASSI-A

Variable	Clinical Assessment		SASSI-A	
	N	*%*	*N*	*%*
Gender				
Male	120	35.7	112	33.3
Female	94	28.0	82	24.4
Age				
12	10	3.0	11	3.3
13	23	6.8	29	8.6
14	36	10.7	39	11.6
15	52	15.5	41	12.2
16	65	19.3	53	15.8
17	24	7.1	18	5.4
18	4	1.2	3	0.9
Race				
Caucasian	130	38.7	130	38.7
African American	55	16.4	42	12.5
Hispanic	15	7.0	13	3.9
Biracial	13	3.9	9	2.7
Asian	1	0.3	0	0
Diagnosis				
Mood Disorders	96	28.6	83	24.7
Disruptive Behavior Disorders	170	50.6	150	44.6
Attention Deficit Hyperactive Disorder	46	13.7	44	13.1

**Demographic Characteristics and Classification as Substance Abuser/
Chemically Dependent**

To rule out demographic and diagnostic differences, a series of chi-square tests

was conducted for gender, race, and diagnosis. An independent t-test was conducted for

age for those subjects classified as substance abusers/chemically dependent by clinical

assessment and as chemically dependent by SASSI-A as the independent variables. All

were conducted at the .05 significance level.

Table 3 shows the relationship between gender and substance abuse/chemically

dependent classification by clinical assessment and chemically dependent classification

by SASSI-A. The chi-square test suggests that the proportion of male and female

subjects classified by clinical assessment is about the same regardless of gender. About

two-thirds of both males and females were classified as being substance

abusers/chemically dependent when the clinical assessment was used. Slightly fewer

(about 60%) of both male and female subjects were classified as being chemically

dependent when SASSI-A was used. It appears that SASSI-A may be slightly

conservative in identifying substance-abusing adolescents in a residential facility.

Table 4 shows the relationship between race and substance abuse/chemical

dependency classification by clinical assessment and chemical dependency classification

by SASSI-A. The race categories of Hispanic, Bi-Racial, and Asian were grouped into a

new category of Other due to the low numbers in each. Within those who were classified

as substance abusers/chemically dependent by clinical assessment, the chi-square test

suggests that there are a disproportionate number among the race groups. Two-thirds of

Caucasians received a clinical assessment of substance abuse/chemically dependent,

Table 3

Relationship Between Gender and Classification by Clinical Assessment and SASSI-A

Gender	No		Yes		df	x^2	p
	#	%	#	%			
Clinical Assessment							
Male	75	38.5	120	61.5			
Female	47	33.3	94	66.7			
					1	0.093	0.335
SASSI-A							
Male	83	42.6	112	57.4			
Female	59	41.8	82	58.2			
					1	0.017	0.895

whereas 53.4% of African-Americans were diagnosed as such. The largest percentage (76.6%) was seen for Other.

For those subjects classified by SASSI-A, the chi-square test suggests that there was also a disproportionate number among the ethnic groups. Again two-thirds of Caucasians received a classification of chemically dependent, whereas 40.8% of African-Americans were classified as such. The ethnic group Other received a larger percentage (57.9%) than the African-American group.

In comparing the ethnic groups who were classified as substance abusers/ chemically dependent by clinical assessment with those classified as chemically

Table 4

Relationship Between Race and Classification by Clinical Assessment and SASSI-A

Race	No		Yes		df	x^2	P
	#	%	#	%			
Clinical Assessment							
Caucasian	65	33.3	130	66.7			
African-American	48	46.6	55	53.4			
Other	9	23.7	29	76.3			
					2	8.084	0.018
SASSI-A							
Caucasian	65	33.3	130	66.7			
African-American	61	59.0	42	40.8			
Other	16	42.1	22	57.9			
					2	18.515	.000

dependent by SASSI-A, it appears as if the two are fairly proportional for Caucasians. However, in this adolescent residential facility, SASSI-A appears to be more conservative in identifying chemical dependency for ethnic groups other than Caucasians.

Table 5 shows the relationship between Mood Disorder and substance abuse/chemical dependency classification by clinical assessment and chemical dependency classification by SASSI-A. The chi-square test suggests that the number of subjects diagnosed with a Mood Disorder versus those not diagnosed with a Mood Disorder were equally classified as being substance abusers/chemically dependent regardless of the Mood Disorder diagnosis.

Again, there was no significant difference for those Mood Disordered subjects in

being classified as substance abusers/chemically when SASSI-A was used. In comparing

those assessed as chemically dependent, it appears that SASSI-A may be slightly

conservative in identifying substance-abusing/chemically dependent adolescents in a

residential facility who have also been diagnosed with a Mood Disorder.

Table 5

Relationship Between Mood Disorders and Classification by Clinical Assessment and SASSI-A

	No		Yes				
Mood Disorders	#	%	#	%	*df*	x^2	*p*
Clinical Assessment							
No	68	36.6	118	63.4			
Yes	54	36.0	96	64.0			
					1	0.011	0.916
SASSI-A							
No	75	40.3	111	59.7			
Yes	67	44.7	83	55.3			
					1	0.642	0.423

Table 6 shows the relationship between Disruptive Behavior Disorder and

substance abuse/chemical dependency classification by clinical assessment and chemical

dependency classification by SASSI-A. The chi-square test suggests that the proportion

of subjects not diagnosed with a Disruptive Behavior Disorder and those with a

Disruptive Behavior Disorder were classified by clinical assessment as being substance

abusers/chemically dependent regardless of having a Disruptive Behavior diagnosis or

not. As seen in Table 7, 60.3% of those who did not have a Disruptive Behavior

Diagnosis were clinically assessed as substance abusers/chemically dependent, whereas

64.6% of the subjects having a Disruptive Behavior Disorder were clinically assessed as

substance abusers/chemically dependent.

Slightly fewer (about 60%) subjects with Disruptive Behavior Disorder and of

those without Disruptive Behavior Disorder were classified as chemically dependent

when SASSI-A was used. It appears as if the SASSI-A may be slightly conservative in

identifying chemically dependent adolescents in a residential facility who are diagnosed

with a Disruptive Behavior Disorder.

Table 6

Relationship Between Disruptive Behavior Disorders and Classification by Clinical Assessment and SASSI-A

Disruptive Behavior Disorders	No		Yes		df	x^2	p
	#	%	#	%			
Clinical							
No	29	39.7	44	60.3			
Yes	93	35.4	170	64.6			
					1	0.470	0.493
SASSI-A							
No	29	39.7	44	60.3			
Yes	113	43.0	150	57.0			
					1	0.246	0.620

Table 7 shows the relationship between ADHD and substance abuse/chemical

dependency classification by clinical assessment and chemical dependency classification

by SASSI-A. The chi-square test suggests that the number of subjects diagnosed with

ADHD (63.9%) and those not diagnosed with ADHD (63.6%) who were classified as

being substance abusers/chemically dependent by clinical assessment were equally

proportional. When the SASSI-A was used, there was a fairly proportional number of

subjects classified as chemically dependent who were diagnosed with ADHD (61.1%)

versus those not diagnosed with ADHD (56.8%).

However, in comparing those diagnosed with ADHD with the clinical assessment

and the SASSI-A, the SASSI-A appears to be more conservative in classifying substance-

abusing adolescents in a residential facility.

Table 7

Relationship Between ADHD and Classification by Clinical Assessment and SASSI-A

ADHD	No		Yes		df	x^2	p
	#	%	#	%			
Clinical Assessment							
No	96	36.4	168	63.6			
Yes	26	36.1	46	63.9			
					1	0.002	0.968
SASSI-A							
No	114	43.2	150	56.8			
Yes	28	38.9	44	61.1			
					1	0.427	0.513

Table 8 shows the relationship between age and substance abuse classification by clinical assessment and by SASSI-A. There was a significant difference ($p<0.05$) in age between those classified as substance abusers/chemically dependent and those not classified as substance abusers/chemically dependent by clinical assessment. However, there was no significant difference ($p>0.05$) in age for those classified as chemically dependent and those not classified as chemically dependent by SASSI-A. The mean age for those diagnosed as substance abusers or chemically dependent by clinical assessment was 15.1 versus the mean age of 14.8 for those classified as chemically dependent by SASSI-A. It would appear as if the SASSI-A is less sensitive to age than the clinical assessment.

Table 8

Independent t-Test for Age

Variable	n	X	SD	t	df	p
Classified by Clinical Assessment				-2.91	334	.004
No	122	14.6	1.269			
Yes	214	15.1	1.395			
Classified by SASSI-A				1.02	324.03	.308
No	142	15.0	1.255			
Yes	194	14.8	1.441			

Classification by Clinical Assessment and SASSI-A Scores

Prior to testing the Null Hypotheses, several *t*-tests for independent samples were

run to examine if there were significant differences between those classified as chemically dependent and those who were not on the six SASSI-A subscales (Face Valid Alcohol, Face Valid Other Drugs, Obvious Attributes, Subtle Attributes, Defensiveness, Defensiveness Dependent vs. Defensive Non-Dependent). As shown in Table 9, significant differences between the two groups (substance abusers/chemically dependent versus not substance abusers/chemically dependent as classified by clinical assessment) were found in all six of the SASSI-A subscales (p <0.05). Substance-abusing/chemically dependent adolescents were significantly higher on Face Valid Alcohol, Face Valid Other Drugs, Obvious Attributes, Subtle Attributes, and Defensiveness Dependent vs. Defensiveness Non-Dependent than those not classified as chemically dependent. Those classified as not substance abusers/chemically dependent were higher on Defensiveness than those classified as chemically dependent. Effect sizes (Hinkle, Wiersma, & Jurs, 2003) range from small (0.32) for DEF to moderate (0.53) for OAT, and large for FVA (1.02), FVOD (1.44), SAT (1.14), and DEF2 (0.80). These results suggest that the SASSI-A subscales do differentiate between clinically assessed chemically dependent adolescents from those who are not.

Testing the Hypotheses

Null Hypothesis 1: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and by the SASSI-A decision rule #1.

As a reminder, SASSI-A Decision Rule #1 is based on having a raw FVA (Face Valid Alcohol) or FVOD (Face Valid Other Drugs) of 12 or more. The

Table 9

Independent t Test Results for Classified by Clinical Assessment

Variable	n	X	SD	t	df	p	Effect Size
FVA				10.01	327.26	0.00	1.02
No	122	3.03	4.53				
Yes	214	9.28	6.89				
FVOD				14.33	330.95	0.00	1.44
No	122	3.26	5.38				
Yes	214	14.19	8.58				
OAT				4.69	334	0.00	0.53
No	122	10.85	3.39				
Yes	214	12.68	3.47				
SAT				10.71	297.78	0.00	1.14
No	122	2.62	1.82				
Yes	214	5.05	2.27				
DEF				-2.78	334	0.006	0.32
No	122	6.11	3.01				
Yes	214	5.24	2.59				
DEF2				7.09	334	0.00	0.80
No	122	4.59	2.19				
Yes	214	6.41	2.30				

Note. FVA=Face Valid Alcohol; FVOD=Face Valid Other Drugs; OAT=Obvious Attributes; SAT=Subtle Attributes; DEF=Defensiveness; DEF=Defensiveness Dependent vs. Defensiveness Non Dependent.

chi-square test of association was calculated (alpha = 0.05) comparing substance abuse/chemical dependency classification by clinical assessment and chemical dependency classification by SASSI-A Decision Rule #1. Table 10 shows the results of the chi-square test and suggests that there is a relationship between classification by clinical assessment and classification by SASSI-A Decision Rule #1 ($X^2_{(1)}$ = 74.404, p = .0000). Thus, the Null Hypothesis is rejected.

As shown in Table 10, 142 of 336 adolescents were classified as substance abusers/chemically dependent by SASSI-A Decision Rule #1. Of the 142 subjects, 128 (90.1%) were classified as substance abusers/chemically dependent by clinical assessment. Of the 336 adolescents, 194 were classified as non-substance abusers/chemically dependent by SASSI-A. Of these 194, 108 (55.7%) were also classified as non-substance abusers/chemically dependent by clinical assessment. Thus, 236 (70.2%) of the 336 adolescents were correctly classified using the SASSI-A Decision Rule #1.

Hypothesis 2: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and by the SASSI-A decision rule #2.

As a reminder, SASSI-A Decision Rule #2 is based on having an OAT or SAT T score of 70 or more. The chi-square test of association was calculated (at alpha = 0.05) comparing substance abuse/chemical dependency classification by clinical assessment and chemical dependency classification by SASSI-A Decision Rule #2. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rule #1 were eliminated from the pool of subjects.

Table 10

Chi-Square Test of Independence for Hypothesis 1

| | Decision Rule # 1 | | | | | |
| | No | | Yes | | Total | |
Clinical Assessment	#	%	#	%	#	%
No	108	55.7	14	9.9	122	36.3
Yes	86	44.4	128	90.1	214	63.7
Total	194	100	142	100	336	100

Note. X^2=74.404; df=1; p=.000.

Table 11 shows the results of the chi-square test, which suggests that there is a

relationship between classification by clinical assessment and classification by SASSI-A

Decision Rule #2 ($X^2_{(1)}$ = 14.243, p = .000). Thus, the Null Hypothesis was rejected.

As shown Table 11, 34 of the remaining194 adolescents were classified as

substance abusers/chemically dependent by SASSI-A Decision Rule #2. Of the 34

subjects, 25 (73.5%) were classified as substance abusers/chemically dependent by

clinical assessment. Of the 194 adolescents, 160 were classified as non-substance

abusers/chemically dependent by SASSI-A Decision Rule #2. Of these 160, 99 (61.9%)

were also classified as non-substance abusers/chemically dependent by clinical

assessment. Thus, 124 (63.9%) of the 194 adolescents were correctly classified using the

SASSI-A Decision Rule #2.

Table 11

Chi-Square Test of Independence for Hypothesis 2

	Decision Rule # 2					
	No		Yes		Total	
Clinical Assessment	#	%	#	%	#	%
No	99	61.9	9	26.5	108	55.7
Yes	61	38.1	25	73.5	86	44.3
Total	160	100	34	100	194	100

Note. $X^2 = 14.243$; $df=1$; $p=.000$.

Hypothesis 3: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and by the SASSI-A Decision Rule #3.

As a reminder, SASSI-A Decision Rule #3 is based on having an OAT and SAT T score of 60 or more. The chi-square test of association was calculated (at alpha = 0.05) comparing substance abuse/chemical dependency classification by clinical assessment and chemical dependency classification by SASSI-A Decision Rules #3. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rules #1 and #2 were eliminated from the pool of subjects.

Table 12 shows the results of the chi-square test and suggests that there is a relationship $(X^2_{(1)} = 3.837, p = .050)$. The Null Hypothesis was rejected.

As shown Table 12, 5 of the remaining160 adolescents were classified as substance abusers/chemically dependent by SASSI-A Decision Rule #3. Of the 5

subjects, 4 (80%) were classified as substance abusers/chemically dependent by clinical assessment. Of the 160 adolescents, 155 were classified as non-substance abusers/chemically dependent by SASSI-A Decision Rule #3. Of these 155, 98 (63.2%) were also classified as non-substance abusers/chemically dependent by clinical assessment. Thus, 124 (77.5%) of the 160 adolescents were correctly classified using the SASSI-A Decision Rule #3.

Table 12

Chi-Square Test of Independence for Hypothesis 3

| | Decision Rule # 3 | | | | | |
| | No | | Yes | | Total | |
Clinical Assessment	#	%	#	%	#	%
No	98	63.2	1	20	99	61.9
Yes	57	36.8	4	80	61	38.1
Total	155	100	5	100	160	100

Note. X^2=3.837; df=1; p=.050.

Hypothesis 4: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and by the SASSI-A Decision Rule #4.

As a reminder, SASSI-A Decision Rule #4 is based on having a DEF raw score of 10 or more and DEF2 score of 4 or more. The chi-square test of association was calculated (at alpha = 0.05) comparing substance abuse/chemical dependency

classification by clinical assessment and chemical dependency classification by SASSI-A

Decision Rule #4. Based on a decision tree model, those adolescents classified as

substance abusers/chemically dependent by Decision Rules #1, #2, and #3 were

eliminated from the pool of subjects. See Table 13.

Table 13

Chi-Square Test of Independence for Hypothesis 4

	Decision Rule # 4				
	No		Yes		Total
Clinical Assessment	#	%	#	%	#	%
No	95	66.4	3	25.0	122	63.2
Yes	48	33.6	9	75.0	57	36.8
Total	143	100	12	100	155	100

Note. X^2=8.174; df=1; p=.004.

Table 13 shows the results of the chi-square test and suggests that there is a

relationship between classification by clinical assessment and classification by SASSI-A

Decision Rules #4 ($X^2_{(1)}$ = 8.174, p = .004). The Null Hypothesis was rejected.

As shown in Table 13, 12 of the remaining 155 adolescents were classified as

substance abusers/chemically dependent by SASSI-A Decision Rule #4. Of the 12

subjects, 9 (75%) were classified as substance abusers/chemically dependent by clinical

assessment. Of the 155 adolescents, 143 were classified as non-substance abusers/chemically dependent by SASSI-A Decision Rule #4. Of these 143, 95 (66.4%) were also classified as non-substance abusers/chemically dependent by clinical assessment. Thus, 104 (67.1%) of the 155 adolescents were correctly classified using the SASSI-A Decision Rule #4.

Hypothesis 5: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and by the SASSI-A Decision Rule #5.

As a reminder, SASSI-A Decision Rule #5 is based on having both DEF and OAT T scores of 60 or more. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rules #1, #2, #3, and #4 were eliminated from the pool of subjects.

The chi-square test of association could not be calculated for Hypothesis #5 because SASSI-A Decision Rules #5 classified no subjects as chemically dependent. See Table 14.

Table 14

Chi-Square Test of Independence for Hypothesis 5

| | Decision Rule # 5 | | | | | | |
| | No | | Yes | | Total | | |
Clinical Assessment	#	%	#	%	#	%
No	95	66.4	0	0	95	66.4
Yes	48	33.6	0	0	48	33.6
Total	143	100	0	0	143	100

Hypothesis 6: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and by the SASSI-A Decision Rule #6.

As a reminder, SASSI-A Decision Rule #6 is based on having both DEF and SAT T scores of 60 or more. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rules #1, #2, #3, #4, and #5 were eliminated from the pool of subjects.

The chi-square test of association could not be calculated for Hypothesis #6 because SASSI-A Decision Rules #5 classified only one subject as chemically dependent. See Table 15.

Table 15

Chi-Square Test of Independence for Hypothesis 6

Clinical Assessment	Decision Rule # 6					
	No		Yes		Total	
	#	%	#	%	#	%
No	95	66.9	0	0	95	66.4
Yes	473	33.1	1	100	48	33.6
Total	142	100	1	100	143	100

In comparing the end results of the SASSI-A decision rules classification versus the results of those clinically assessed, there was an overall classification agreement of 78.6% (264). As seen in Table 16, 122 of the 336 adolescents were clinically assessed as not substance abusers or chemically dependent. Of the 122 subjects, 96 (78.7%) were correctly classified as non chemically dependent by SASSI-A. Two hundred fourteen of the 336 subjects were classified as substance abusers/chemically dependent by clinical assessment. Of these, 168 (78.5%) were correctly classified as chemically dependent by SASSI-A.

Table 16

Chi-Square Test of Independence for Overall Classification

	SASSI-A					
	No		Yes		Total	
Clinical Assessment	#	%	#	%	#	%
No	96	28.6	26	7.7	122	36.3
Yes	46	13.7	168	50.0	214	63.7
Total	142	42.3	194	57.7	336	100

Note. X^2 =104.16; df=1; p=.000.

Construct Validity of the SASSI-A

As mentioned in chapter 3, principal component analysis with varimax rotation was used to examine the construct validity of the SASSI-A. A series of analyses was conducted, but a three-factor solution was settled on, as this appeared to identify the most meaningful factors according the criteria stipulated above. With Varimax rotation, the first factor had loadings ranging from .308 to .614. This factor accounted for 9.678% of the variance. As seen in Table 17, these 16 items appeared to represent underlying structures representative of clinical symptoms not directly related to substance abuse. For example, this factor is defined by such items as Being worn out for no special reason, Often restless, No good, Often sick to my to stomach, Life is boring, etc. Only one of these items was on the Subtle Attributes (SAT) scale, and most were a mixture of Obvious Attributes scale (OAT) with four representing the Defensiveness scales. As the items seem to more accurately represent symptoms of depression, anxiety, ADHD, and

other clinical diagnoses rather than obvious signs of substance abuse/chemical dependency, this factor would be better described as Clinical Symptoms.

The second factor loading after Varimax rotation ranged from -.305 to -.622, accounting for 6.504% of the variance. As seen in Table 18, of these 11 items, 4 items came from the Obvious Attributes (OAT) scale, 3 from the Subtle Attributes (SAT) scale, and 4 from the Defensiveness scales. Although this factor does include items directly related to substance abuse (drunk too much alcoholic drink), overall this factor appears to better represent underlying structures representative of oppositional behaviors or symptoms of the Disruptive Behavior Disorders. For example, this factor is defined by such items as like to obey rules, well behaved in school, break more rules than peer, etc.

The third factor loading after Varimax rotation ranged from .344 to .729. This factor accounted for 6.178% of the variance. As seen in Table 19, this factor is defined by such items as Substance abuse keeping me from getting what want, Drank in the morning, and Felt scared because of family member's using. These seven items appear to represent underlying structures representative of overt symptoms of substance abuse/chemical dependency. Although these items were obvious attributes of substance abuse, only one item was on the Obvious Attributes (OAT) scale. Three of the items were from the SAT (Subtle Attributes) scale and the other three were on the Defensiveness 2 scale.

Table 17

Principal Component Analysis With Varimax Rotation--Factor 1

Item #	Scale	Items	Loadings
10	OAT	Worn out for no special reason	0.614
42	DEF	Often restless or jumpy	0.575
26	OAT	No good for anything at all	0.565
16	OAT	Feel as if people look at me weird	0.560
9	OAT	Hard time sitting still	0.530
46	DEF2	Angry because people don't treat me right	0.523
17	OAT	Often sick to my stomach	0.504
24	OAT	Not in charge of the way I act	0.492
23	OAT	Life is boring	0.483
12	DEF	Not get much done because not up to it	0.482
44	SAT	No sleep for days at a time	0.450
30	OAT	Something wrong with my memory	0.420
34	OAT	Done things not remembered	0.405
45	DEF	Sat when should have been working	0.334
55	OAT	Rarely talk about feelings or worries	0.326
39	OAT	Most people will lie	0.308

Note. OAT=Obvious Attributes; SAT=Subtle Attributes; DEF=Defensiveness; DEF=Defensiveness Dependent vs. Defensiveness Non Dependent.

Table 18

Principal Component Factor Analysis With Varimax Rotation--Factor 2

Item #	Scale	Items	Loadings
14	SAT	Like to obey rules	-0.622
13	OAT	Listen to people older than me	-0.592
35	DEF	Used alcohol or pot too much or too often	-0.582
4	OAT	Well behaved in school	-0.453
20	OAT	Drunk too much alcoholic drink	0.445
32	DEF	Don't remember things done	-0.410
27	SAT	Break more rules than peers	0.366
19	SAT	Never done dangerous thing for fun	0.340
15	OAT	Wanted to run away from home	0.325
21	DEF	People sometimes get confused	-0.323
47	DEF2	Substance use keeping me from what I want in life	-0.305

Note. OAT=Obvious Attributes; SAT=Subtle Attributes; DEF=Defensiveness; DEF=Defensiveness Dependent vs. Defensiveness Non Dependent.

Table 19

Principal Component Factor Analysis With Varimax Rotation--Factor 3

Item #	Scale	Items	Loadings
36	SAT	Used alcohol or pot too much or too often	0.729
22	OAT	Drunk too much alcoholic drink	0.666
54	DEF2	Substance abuse keeping from getting what want	0.630
51	SAT	Neglected school work because of substance use	0.613
52	SAT	Drank in the morning	0.475
53	DEF2	Smoke cigarettes regularly	0.350
43	DEF2	Felt scared because of family member's using	0.344

Note. OAT=Obvious Attributes; SAT=Subtle Attributes; DEF=Defensiveness; DEF=Defensiveness Dependent vs. Defensiveness Non Dependent.

Cumulatively, all three factors accounted for 22.360% of the variance. Fourteen items did not load on any factor (Table 20).

As seen in Table 21, independent t-tests were run for all three factors to examine if there were significant differences between those classified by clinical assessment as substance abusers/chemically dependent and each of the factors. This resulted in no significant differences found between the two groups (substance abusers/chemically dependent versus not substance abusers/chemically dependent) for Factor 1 and Factor 2 ($p>.05$). Those classified as substance abusers/chemically dependent were not significantly higher than those not classified as substance abusers/chemically dependent for Factor 1 and Factor 2. A significant difference ($p<.05$) was found between substance abusers/chemically dependent versus not substance abusers/chemically dependent for Factor 3. Those classified as substance abusers/chemically dependent were significantly higher than those not classified as substance abusers/chemically dependent. Effect sizes (Hinkle, Wiersma, & Jurs, 2003) range from small for (0.19) Factor 1 and (0.18) for Factor 2 and large (1.40) for Factor 3.

Table 20

Items Not Loading on Principal Component Analysis

Item #	Scale	Items
2	DEF	Parents sad, anxious or unhappy
3	OAT	Never in trouble at school or with police
6	OAT	Not lived the way should
7	DEF	Friendly with people who do wrong
8	DEF	Not like to daydream
11	DEF2	Everything turning out like in the Bible
18	DEF2	Tried to stay away from people not want to talk to
28	OAT	Not tell on friends if I were caught
29	DEF	Swearing is a serious problem in the schools
31	DEF2	Tempted to hit someone
33	OAT	Never broken an important rule
38	OAT	Some friends have bad reputations
48	DEF2	Take medication for stomach aches
50	DEF	Usually happy

Note. OAT=Obvious Attributes; SAT=Subtle Attributes; DEF=Defensiveness; DEF=Defensiveness Dependent vs. Defensiveness Non Dependent.

Table 21

Independent t-Test Results for Classified by Clinical Assessment and Factors 1-3

Variable	n	Mean	SD	t	df	p	Effect Size
Factor 1				-1.71	3252.83	.089	0.19
No	122	8.15	2.01				
Yes	214	8.55	2.01				
Factor 2				-1.61	264.26	.108	0.18
No	122	5.30	1.20				
Yes	214	5.52	1.27				
Factor 3				-12.55	262.09	.000	1.40
No	122	1.76	1.59				
Yes	214	4.068	1.67				

Summary of Findings

Of the 336 subjects, there was fairly equal gender representation with 195 males

and 141 females. Subjects ranged in age from 12 to 18 years old with the mean age being

14.9 (SD - 1.37). A majority (58%) of the subjects were Caucasian. African Americans

made up 30.7%, and the remaining 11.3% were Hispanic, Bi-Racial, and Asian. In terms

of diagnosis, 78.3% of the subjects were diagnosed with a Disruptive Behavior Disorder

and 44.6% were diagnosed with a Mood Disorder. One hundred and eight subjects

(32.1%) were diagnosed with both a Disruptive Behavior Disorder and a Mood Disorder.

In exploring the demographic data with reference to the independent variable,

there was little difference in the number of males and females who were classified as substance abusers/chemically dependent by clinically assessment (35.7% and 28%) versus classified by SASSI-A (33.3% and 24.4%). Likewise for race and age, there was a similar proportionate number of subjects regardless of being classified by clinical assessment or by SASSI-A. This trend carried through for Disruptive Behavior Disorder, Mood Disorder, and ADHD as well.

Between those substance-abusing/chemically dependent adolescents who were classified by clinical assessment and those classified by SASSI-A, there was an overall agreement of 78.6% (264) and disagreement of 21.4% (72).

To rule out demographic and diagnostic differences, chi-square tests found no significant differences for the independent variables (classified by clinical assessment and by SASSI-A) and gender or diagnosis. For race, there was a significant difference for both independent variables. In looking at the independent t-test for the independent variables and age, there was no significant difference for classified chemically dependent by SASSI-A and age. However, there was a significant difference for classified by clinical assessment and age.

Prior to testing the Null Hypotheses, independent t tests were run for the independent variable classified by Clinical Assessment, comparing the mean scores for each of the six SASSI-A subscales. The mean scores for the dependent variables FVA and FVOD were significantly lower for those who were not classified by Clinical Assessment. There were no significant differences in the mean scores between those classified by clinical assessment and those who were not for the subscales OAT and DEF2. There was a significant difference in the mean scores between those classified by

clinical assessment and those who were not for the subscales SAT and DEF.

Null Hypothesis #1 was rejected. There was a relationship between classification as substance abusers/chemically dependent by clinical assessment and classified by the SASSI-A Decision Rule #1 and those classified by clinical assessment.

Null Hypothesis #2 was rejected. There was a relationship between classification as substance abusers/chemically dependent by clinical assessment and classified by the SASSI-A Decision Rule #2 and those classified by clinical assessment.

Null Hypothesis #3 was rejected. There was a relationship between classification as substance abusers/chemically dependent by clinical assessment and classified by the SASSI-A Decision Rule #3 and those classified by clinical assessment.

Null Hypothesis #4 was rejected. There was a relationship between classification as substance abusers/chemically dependent by clinical assessment and classified by the SASSI-A Decision Rule #4 and those classified by clinical assessment.

Null Hypothesis #5: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and classified by the SASSI-A Decision Rule #5 and those classified by clinical assessment. The chi-square test of association could not be calculated for this hypothesis.

Null Hypothesis #6: There is no relationship between classification as substance abusers/chemically dependent by clinical assessment and classified by the SASSI-A Decision Rule #6 and those classified by clinical assessment. The chi-square test of association could not be calculated for this hypothesis.

Principal component analysis of the SASSI-A's four subscales identified three meaningful factors. The first factor accounted for 9.678% of the variance. The second

factor accounted for 6.504% of the variance and the third factor accounted for 6.178% of

the variance. A review of the three factors' items and their corresponding

subscales revealed that each of the SASSI-A's four subscales did not reflect the intended

underlying processes as defined in the subscales' names and descriptions.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Purpose of the Study

As managed care increasingly dominates treatment needs, it behooves a mental-health facility and therapist to employ well-designed, reliable, valid, and cost-effective screening tools in identifying adolescent substance abuse. The purpose of this study was to examine the validity of the Substance Abuse Subtle Screening Inventory for Adolescents (SASSI-A) as a substance abuse screening instrument for adolescents in a residential treatment center.

Methodology

The research design was a non-experimental two-group comparison study. There was no direct control of the independent variable. The independent variable is clinical assessment where the subjects were classified either as substance abusers or chemically dependent or as non-users or experimenters. The clinical assessment process included screenings, collection of collateral data, and the assessment interview and was conducted by an Indiana state-certified alcohol and drug abuse counselor.

The dependent variables included the SASSI-A's decision rules' classification of the subject into "classify nondependent" and "classify chemical dependent" and the

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following scale scores on the SASSI-A: FVA, FVOD, OAT, SAT, DEF, and DEF2. The demographic variables included the subjects' gender, age, and race.

The 336 subjects in this study included male and female adolescents who were admitted from 1991 through 1999 to a long-term residential facility for seriously emotionally and behaviorally disturbed children and adolescents. I obtained the data through existing archival records.

Each resident was seen by the facility's state-certified alcohol and drug abuse counselor for the initial screening and, if needed, for the clinical assessment. Upon admission each resident was administered the in-house screening. Following the screening, a review of the resident's pre-placement file was conducted and the primary therapist contacted. Based on this information, if the resident was determined to be a non-user or a non-experimenter, he/she was not referred for substance abuse services. If the in-house screening, preplacement file review, or consult with the primary therapist identified or led to suspected substance abuse issues, the resident was determined to be in need of a full clinical assessment. Following the clinical assessment, the resident may be classified as a substance abuser or chemically dependent and in need of substance abuse services.

For the purposes of this research only, all residents were administered the SASSI-A. The adolescent version of the Substance Abuse Subtle Screening Inventory (SASSI-A) is an 81-item screening questionnaire appropriate for ages 12 through 18. The instrument is comprised of two face-validity scales, one for alcohol use (Face Valid Alcohol, FVA) and the second for other drug use (Face Valid Other Drugs, FVOD). The FVA scale is comprised of 12 items, and the FVOD is comprised of 14 items. The next

set of six scales consists of 55 true-false criterion-keyed questions. Four of the scales include: Obvious Attributes (OAT), a willingness to admit to symptoms; Subtle Attributes (SAT), a measure of subtle personal patterns; Defensiveness (DEF), a measure of test-taking defensiveness; and Defensiveness Dependent vs. Defensiveness Non Dependent (DEF2), a measure designed to separate defensive substance-abusing individuals from defensive non-abusing individuals. The last two criterion-keyed scales (Correctional and Random Answering Pattern) represent the third category of scales, which are provisional in nature and were not included in this study.

This study applied two group comparison methods in testing construct validity for determining if there was a significant relationship between classification by clinical assessment of substance abuser/chemically dependent and the SASSI-A's classification of chemically dependent. Construct validity was also explored by examining SASSI-A's four subtle scales' underlying factor structure.

Summary of Major Findings

In examining the demographic characteristics of the subjects with reference to the independent variable, there was little difference in the number of males and females who were classified as substance abusers/chemically dependent by clinical assessment (35.7% and 28%) versus classified chemically dependent by SASSI-A (33.3% and 24.4%). Likewise for those adolescents classified by clinical assessment as substance abusers/chemically dependent and those classified chemically dependent by SASSI-A, there was a similar proportionate number of subjects in the various race and age categories. This trend carried through to the proportion of subjects diagnosed with Mood Disorders, Disruptive Behavior Disorder, and ADHD.

Using both clinical assessment and SASSI-A, a similar proportion of males and females was classified as substance abusers/chemically dependent. Likewise, a similar proportion of subjects diagnosed with a Mood Disorder, a Disruptive Behavior Disorder, or ADHD was classified as substance abusers/chemically dependent. Age was unrelated to classification by SASSI-A, but those classified by clinical assessment as substance abusers or chemically dependent appear to be older than those not classified as substance abusers or chemically dependent. There was a large proportion of Caucasians classified as substance abusers or chemically dependent by clinical assessment. Similarly, a large proportion of Caucasians was classified as chemically dependent by SASSI-A.

Prior to testing the Null Hypotheses, several t-tests for independent samples were run to examine whether there were significant differences between those classified as chemically dependent and those who were not on the six SASSI-A subscales (Face Valid Alcohol, Face Valid Other Drugs, Obvious Attributes, Subtle Attributes, Defensiveness, Defensiveness Dependent vs. Defensive Non-Dependent). Significant differences between the two groups (substance abusers/chemically dependent versus not substance abusers/chemically dependent as classified by clinical assessment) were found in all six of the SASSI-A subscales ($p < 0.05$). Substance-abusing/chemically dependent adolescents were significantly higher on Face Valid Alcohol, Face Valid Other Drugs, Obvious Attributes, Subtle Attributes, and Defensiveness Dependent vs. Defensiveness Non-Dependent than those not classified as chemically dependent. Those classified as not substance abusers/chemically dependent were higher on Defensiveness than those classified as chemically dependent. These results suggest that the SASSI-A subscales do

differentiate between clinically assessed chemically dependent adolescents from those who are not.

Null Hypothesis #1 was rejected. There was a relationship between classification by clinical assessment and by SASSI-A Decision Rule #1. That is, subjects who were classified as substance abusers/chemically dependent by clinical assessment were also likely to be classified as chemically dependent by SASSI-A Decision Rule #1.

Null Hypothesis #2 was rejected. There was a relationship between classification by clinical assessment and by SASSI-A Decision Rule #2. That is, subjects who were classified as substance abusers/chemically dependent by clinical assessment were also likely to be classified as chemically dependent by SASSI-A Decision Rule #2.

Null Hypothesis #3 was rejected. There was a relationship between classification by clinical assessment and by SASSI-A Decision Rule #3. That is, subjects who were classified as substance abusers/chemically dependent by clinical assessment were also likely to be classified as chemically dependent by SASSI-A Decision Rule #3.

Null Hypothesis #4 was rejected. There was a relationship between classification by clinical assessment and by SASSI-A Decision Rule #4. That is, subjects who were classified as substance abusers/chemically dependent by clinical assessment were also likely to be classified as chemically dependent by SASSI-A Decision Rule #4.

Null Hypothesis #5: There is no relationship between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #5 and those classified by clinical assessment. The chi-square test of association could not be calculated for this hypothesis, as SASSI-A Decision Rule #5 did not classify any subject as chemically dependent.

Null Hypothesis #6: There is no relationship between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #6 and those classified by clinical assessment. The chi-square test of association could not be calculated for this hypothesis, as SASSI-A Decision Rule #6 classified only one subject as chemically dependent.

There was an overall agreement of 78.6% (264) between classification by clinical assessment and classification by SASSI-A. That is, relative to the classification by clinical assessment, the SASSI-A correctly classified 168 subjects as substance abusers/chemically dependent and 96 subjects as non-users or experimenters.

Principal component analysis of the SASSI-A's four subtle scales identified three meaningful factors. The first factor consisted of 16 items, which accounted for 9.678% of the variance. These items appeared to represent underlying structures representative of clinical symptoms of depression, anxiety, ADHD, and other clinical diagnoses rather than obvious signs of substance abuse/chemical dependency. Therefore, this factor was labeled Clinical Symptoms.

The second factor consisted of 11 items, which accounted for 6.504% of the variance. Although this factor does include items directly related to substance abuse (drunk too much alcoholic drink), overall this factor appears to better represent underlying structures representative of symptoms of the Disruptive Behavior Disorders. Therefore, this factor was labeled Oppositional Behavior.

The third factor consisted of 7 items, which accounted for 6.178% of the variance. These items appear to represent underlying structures representative of overt symptoms

of substance abuse/chemical dependency and, therefore, this factor was labeled Obvious Substance Abuse Symptoms.

Cumulatively, all three factors accounted for 22.360% of the variance. Fourteen items did not load on any factor. A review of the three factors' items revealed that each of the SASSI-A's four subtle scales did not reflect the intended underlying processes as defined in the subscales' names and descriptions.

Independent t tests were run for all three factors to examine whether they significantly differentiated between those classified by clinical assessment as substance abusers/chemically dependent and those that did not. No significant differences were found between the two groups (substance abusers/chemically dependent versus not substance abusers/chemically dependent) for Factor 1 (Clinical Symptoms) and Factor 2 (Oppositional Behavior). However, for Factor 3 (Obvious Substance Abuse Symptoms) a significant difference was found between those classified by clinical assessment as substance abusers/chemically dependent and those who did not. Those classified as substance abusers/chemically dependent were significantly higher than those not classified as substance abusers/chemically dependent.

Discussion

Gender does not appear to be related to classification as substance abuser/chemically dependent by either clinical assessment or SASSI-A. Likewise diagnoses of Mood Disorder, Disruptive Behavior Disorder, and ADHD do not appear to be related to classification as substance abuser/chemically dependent by either clinical assessment or SASSI-A.

Both classification by clinical assessment and classification by SASSI-A

identified a larger proportion of Caucasians. This finding may be accounted for by the

trend for Caucasians in the general population to use more alcohol and illicit drugs.

According to the 2001 National Household Survey on Drug Abuse, 74.9 percent more

Caucasians than African Americans disclosed a lifetime use of illicit drug use

(SAMHSA, 2003). In addition, "Whites were more likely than any other racial/ethnic

group to report current use of alcohol in 2001" (SAMHSA, 2003). Another possible

explanation is that the SASSI-A may be biased against Caucasians. In the SASSI-A

manual, the author admits that no racial/ethnic information was obtained during the

construction or validation of the inventory.

Age does not appear to be related to classification of chemically dependent by

SASSI-A. However, age was related to classification of substance abuser/chemically

dependent by clinical assessment. Those classified by clinical assessment appear to be

older. The clinical assessment process, including the assessment interview and the

collateral data, allows for the clinical assessment to be more sensitive in obtaining a

complete clinical picture of these adolescents. In addition, those older adolescents tended

to have a longer history of substance abuse and presented with more serious symptoms.

The mean scores for Face Valid Alcohol (FVA) and Face Valid Other Drugs

(FVOD) were significantly higher for those adolescents who were classified as substance

abusers/chemically dependent by clinical assessment. Both of these face-validity scales

produced large effects (FVA - 1.02, FVOS - 1.44). In this residential facility, these two

scales do statistically differentiate between those adolescents who were clinically

assessed substance abusers/chemically dependent from those who were not. The items

for FVA and FVOD are direct questions regarding alcohol and other drug use, to which the adolescent is asked to respond according to the frequency of occurrence. For example, item #1 on the FVA scale reads, "Drank alcohol during the day?" Item #1 on the FVOD scale reads, "Taken drugs to improve your thinking and feeling?" Therefore, it would make sense for those adolescents who were clinically assessed as substance abusers/chemically dependent to also score higher on FVA and FVOD.

The mean scores for Obvious Attributes (OAT), Subtle Attributes (SAT), and Defensiveness Dependent vs. Defensiveness Non-Dependent (DEF2) were significantly higher for those adolescents who were classified as substance abusers/chemically dependent by clinical assessment. In this residential facility, these scales statistically differentiate between those adolescents who were clinically assessed substance abusers/chemically dependent from those who were not.

The OAT subtle scale identifies symptoms of general personal problems, for example, "I have never been in trouble with the principal or with the police." As adolescents who are substance abusers/chemically dependent often have multiple life problems, it is likely they would also score higher on this scale. The SAT subtle scale measures a predisposition to develop chemical dependency, as seen in "I have neglected school work because of drinking or using drugs." Again, it would be likely for those adolescents classified as substance abusers/chemically dependent by clinical assessment to also score higher on this scale. The DEF2 subtle scale is intended to differentiate those defensive chemically dependent adolescents from those defensive non-chemically dependent adolescents, for example, "I can be depended on to do the things I am

supposed to." The adolescents in this residential facility who were classified as substance abusers/chemically dependent could be expected to score higher on this scale.

In terms of the Defensiveness (DEF) scale, although there was a significant difference, the effect size was small (.32). The mean for those adolescents classified as substance abusers/chemically dependent by clinical assessment scale was smaller than for those not classified as substance abusers/chemically dependent. The DEF scale is designed to identify those chemically dependent who are defensive. It would appear as if the adolescents in this residential facility were more likely to be forthcoming with their substance use histories and exhibited less denial regarding their alcohol/drug use.

Null Hypothesis #1, which stated, " There is no difference between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #1 and those classified by clinical assessment," was rejected. SASSI-A Decision Rule #1 is based on having a raw FVA (Face Valid Alcohol) or FVOD (Face Valid Other Drugs) of 12 or more. According to this Decision Rule #1, the adolescents classified were those who readily admitted alcohol and/or drug use by scoring 12 or more on the FVA and/or FVOD scales. As both scales are based on face valid items, they would be expected to highly correlate with a clinical interview.

This Decision Rule result indicates that there is a relationship between those adolescents classified as substance abusers/chemically dependent by clinical assessment and those classified by Decision Rule #1. In this study, 70.2% of the 336 adolescents were correctly classified using the SASSI-A Decision Rule #1. This is in contrast to the SASSI-A manual (Miller, 1990) in which Decision Rule #1 classified only "42% of those judged to be chemical abusers" (p. 17). If one looks at the adolescent samples used in

designing and in the validation of this instrument, one can possibly understand why there is such a discrepancy. The SASSI-A author called upon "samples from treatment and EAP programs and other clinical settings" (Miller, 2000, p. 3), giving no further information regarding the settings; however, it does not appear to have included long-term residential settings for severely emotionally and behaviorally disturbed adolescents as were included in this study. These residential adolescents were more forthcoming regarding their substance abuse.

Null Hypothesis #2, which stated, "There is no difference between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #2 and those classified by clinical assessment," was rejected. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rule #1 were eliminated from the pool of subjects, leaving 194 adolescents who had not been classified by Decision Rule #1.

SASSI-A Decision Rule #2 is based on having an Obvious Attributes or Subtle Attributes scale T score of 70 or more. According to the SASSI-A manual, the OAT scale identifies symptoms of general personal problems (Miller, 1990); therefore adolescents who are in denial of substance abuse/chemical dependency or other personal problems may not score high on this scale. The SAT scale is reported to "measure a personal predisposition to develop dependency on drugs or alcohol" (Miller, 2000, p. 38).

Of the remaining 194 adolescents, this Decision Rule correctly classified 63.9%. The manual reports a 41% correct classification for Decision Rule #2 (Miller, 1990). These appear to be those adolescents who may have denied or minimized alcohol/drug problems, but were willing to admit to other personal problems.

Null Hypothesis #3, which stated, "There is no difference between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #3 and those classified by clinical assessment," was rejected. Decision Rule #3 is based on having an OAT and SAT T score of 60 or more. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rule #1 and #2 were eliminated from the pool of subjects, leaving 160 subjects. Of those 160, 5 adolescents were classified as substance abusers/chemically dependent by SASSI-A Decision Rule #3. Of the 5 subjects, 4 (80%) were classified as substance abusers/chemically dependent by clinical assessment. Of the 160 adolescents, 155 were classified as non-substance abusers/chemically dependent by SASSI-A Decision Rule #3. Of these 155, 98 (63.2%) were also classified as non-substance abusers/chemically dependent by clinical assessment. Thus, 124 (77.5%) of the 160 adolescents were correctly classified using the SASSI-A Decision Rule #3. The SASSI-A manual gives no specific information regarding this particular Decision Rule. However, by lowering the cutoff for the T score, the SASSI-A appears to have captured a segment of adolescents who have substance abuse problems but have attempted to minimize those problems.

Null Hypothesis #4, which stated, "There is no difference between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #4 and those classified by clinical assessment," was rejected. SASSI-A's Decision Rule #4 is based on having a Defensiveness (DEF) raw score of 10 or more and Defensiveness Dependent vs. Defensiveness Non Dependent (DEF2) score of 4 or more. The DEF scale is intended to identify those chemically dependent who are "clearly highly defensive" (Miller, 1990, p. 19) and the DEF2 scale is intended to "separate defensive

CD (chemically dependent) individuals from defensive NA (non addictive) individuals"
(Miller, 1990, p. 19).

Based on a decision tree model, those adolescents classified as substance
abusers/chemically dependent by Decision Rules #1, #2, and #3 were eliminated from the
pool of subjects, leaving 155 subjects. Of these 155 remaining adolescents, 12 were
classified as substance abusers/chemically dependent by SASSI-A Decision Rule #4. Of
the 12 subjects, 9 (75%) were classified as substance abusers/chemically dependent by
clinical assessment. Of the 155 adolescents, 143 were classified as non-substance
abusers/chemically dependent by SASSI-A Decision Rule #4. Of these 143, 95 (66.4%)
were also classified as non-substance abusers/chemically dependent by clinical
assessment. Thus, 104 (67.1%) of the 155 adolescents were correctly classified using the
SASSI-A Decision Rule #4.

The manual reports that DEF and DEF2 identified "6% of those classified as CD
(chemically dependent) by counselors" (Miller, 1990, p. 19) and described these scales as
"not an important determining factor for most profiles" (Miller, 1990, p. 19). In this
study, 3.6% of the total 336 subjects were classified by this Decision Rule. Decision
Rule #4 correctly classified 75% of the remaining subjects not classified in previous
Decision Rules, therefore it would appear as if this Decision Rule does correctly classify
a small remaining segment of substance-abusing/chemically dependent adolescents in
this residential facility.

Providing SASSI-A is a valid instrument, one would expect Decision Rules #1-4
to have a high classification rate related to classification by clinical assessment. In
contrast to previous studies and due to the severity of these adolescents' problems, this

residential facility's access to more in-depth and comprehensive clinical assessment lends it to be sensitive in classifying substance abuse and chemical dependency.

Null Hypothesis #5, which stated, "There will be no difference between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #5 and those classified by clinical assessment," could not be tested for as no subjects were classified chemically dependent by this Decision Rule. SASSI-A Decision Rule #5 is based on having both DEF and OAT T scores of 60 or more. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rules #1, #2, #3, and #4 are eliminated from the pool of subjects, leaving 143 subjects, none of which were classified as chemically dependent by Decision Rule #5. This Decision Rule does appear to be an effective measure in identifying substance abuse/chemically dependent in residential dual-diagnosed adolescents.

Null Hypothesis #6, which stated, "There will be no difference between those residential adolescent substance abusers/chemically dependent classified by the SASSI-A Decision Rule #6 and those classified by clinical assessment," could not be calculated due to Decision Rule #6 classifying only one subject as chemically dependent. SASSI-A Decision Rule #6 is based on having both DEF and SAT T scores of 60 or more. Based on a decision tree model, those adolescents classified as substance abusers/chemically dependent by Decision Rules #1, #2, #3, #4, and #5 are eliminated from the pool of subjects, leaving 143 subjects. This Decision Rule does appear to be an effective measure in identifying substance abuse/chemically dependent in residential dual-diagnosed adolescents.

The SASSI-A manual does not discuss separately Decision Rules #5 or #6, but reports an identification of only 4% classification of those judged to be chemically dependent for DEF with OAT, SAT, and DEF2 (Miller, 1990). It would appear as if Decision Rules #5 and #6 are of little use for subjects in this residential facility. This is partly a function of the severity of these emotionally and behaviorally disturbed adolescents being classified through Decision Rules #1-4.

Between classified by clinical assessment as substance abusers/chemically dependent and classified by SASSI-A as chemically dependent, there was an overall agreement of 78.6%. This is less than the overall agreement rate of 90.20% in Piazza's 1996 study of dual-diagnosed psychiatric inpatient adolescents but more than Bauman et al.'s (1999) agreement rate of 62% for adolescents in an alternative school and in a residential treatment center. The SASSI-A's manual quotes an overall agreement rate of between 90% and 95% (Miller, 1990).

This study produced 13.6% false positives as compared to the 68.4% found by Rogers, Cashel, Johansen, Sewell, and Gonzales in their 1997 study of adolescent offenders and to Bauman et al.'s (1999) finding of 24.7% for adolescents in a residential treatment center. Rogers et al. (1997) took issue with the SASSI-A incorrectly classifying conduct-disordered youth as substance abusers. Bauman et al.'s (1999) findings were based strictly on the definition of chemical dependency.

Compared to the previous four SASSI-A validity studies, it is believed that this study obtained such high percentages and agreement between SASSI-A and clinical assessment due to the nature of the subjects and the in-depth clinical assessment. As the

SASSI-A manual does not report in depth regarding the criteria against which the SASSI-A was measured, it is difficult to account for their 90% and 95% agreement.

Principal component analysis of the SASSI-A's four subtle scales identified three meaningful factors. The first factor accounted for 9.678% of the variance, with the second factor accounting for 6.504% of the variance, and the third factor accounting for 6.178% of the variance. A review of the three factors' items and their corresponding scales revealed that each of the SASSI-A's four subscales did not reflect the intended underlying processes as defined in the subscales' names and descriptions. However, the manual reports that "each of the SASSI subscales is composed of items selected by statistical criteria, and were not intended to measure specific traits" (Miller, 1990, p. 36) and were given the same names as the adult SASSI because "we decided that making up new labels would complicate matters for clinicians who were using both adult and adolescent forms, and make it more difficult to apply" (Miller, 1990, p. 8).

In looking at the three major findings (t-test results, the classification rules, and factor analysis), there are some obvious contradictions. As the t-tests show, generally the subscales significantly differentiated those chemically assessed as substance abusers/chemically dependent form those who were not. In addition, the decision rules for Decision Rules #1 through #4 also demonstrated that they functioned as the authors intended in classifying the adolescents as either chemically dependent or non-chemically dependent. However, the factor analysis gives a different picture of the validity of the SASSI-A, in only identifying three meaningful factors instead of the four scales that make up the SASSI-A's subtle scales. Part of this contradiction is easily explained by the t-tests and hypothesis testing of the Decision Rules incorporating the two face validity

scales of FVA and FVOD, which were not included in the factor analysis. What this contradiction also reveals is the weakness of the subtle scales construction. If one looks at the item content for the four subtle scales, there seems to be enough items directly or indirectly related to substance abuse issues to produce an acceptable accounting in the *t*-tests. In addition, the Decision Rules that use the subtle scales do so in combinations. For the factor analysis, each scale was examined alone.

Conclusions

The aim of a validity study is to ensure that appropriate referrals and treatment planning are made in order to optimize treatment outcomes. As untreated substance abuse in youth is an increasing problem (Crowe & Sydney, 2000) and as untreated dual diagnoses in adolescents often persist or worsen as they move into adulthood, it is critical that the residential facility be able to quickly identify these adolescents. The failure to do so puts the adolescent at further risk for a problematic life and costs society more in the long run.

Given the limited financial resources that residential facilities are facing, choosing a substance abuse screening tool is difficult.

> Logically derived screens seem to be best employed in situations where the motivation to provide an honest self-report is high. Empirically derived screens should probably be employed in situations where the client is unknown to the MHC, where there is a diverse client population, or where clients are likely to be motivated to conceal their problems. (Piazza et al., 2000, p. 7)

The SASSI-A incorporates both components. The question raised in this study is, "Do the logically derived FVOA and FVOD subscales and empirically derived OAT, SAT, DEF, and DEF2 subscales that comprise the SASSI-A produce a valid instrument for adolescents in a residential setting?"

The SASSI-A does gather important information about the substance abuse amount, frequency, type, and nature of their alcohol/drug abuse (through the FVA and FVOD in Decision Rule #1), providing that the adolescent is honest about his/her use. If the adolescent is not honest regarding his/her substance abuse, the subtle scales (OAT, SAT, DEF, and DEF2 through Decision Rules #2-4) are designed to reveal this; however, this study provides contradictory results regarding Decision Rules #2, #3, and #4 versus #5 and #6. In this study Decision Rules #2, #3, and #4 appear to be useful in identifying those adolescents who were less than honest in their reporting of their substance use on FVA and FVOD. However, Decision Rules #5 and #6 appear to be useless.

Given the overall utility of the SASSI-A's Decision Rules classification, I agree with Piazza et al.'s statement: "Using the SASSI should yield valid and reliable results even if the examinee is trying to defeat the screen" (2000, p. 8). However, a word of caution is needed, as in all screening and assessment tools, a well-trained and experienced clinician is needed to address follow-up questioning and gathering of collateral information.

Recommendations

In spite of the weaknesses of the SASSI-A, it does have come clinical utility. The SASSI-A was designed as a screening instrument only, with instructions to assess further for a more accurate clinical picture. From the results of this study, the SASSI-A would most likely identify those adolescents who are willing to be open about their substance use. In the hands of a clinician who is experienced in substance abuse and adolescent issues, the SASSI-A can be a valuable tool. The experienced clinician would know how

to further explore some of the more moderate scale scores that a resistant or defensive adolescent may provide.

Substance abuse or mental health treatment facilities, especially if they have access to collateral data, may find this SASSI-A useful as an initial screening. In examining the answers to the items, clinicians may find valuable information on which to base further questions and discussions. School settings typically refer students to community agencies for suspected substance abuse problems. However, for those schools, which attempt prevention programs, the SASSI-A may be able to help target those students who would most benefit. In the hands of an untrained clinician, the SASSI-A would best be used only as a means of identifying which adolescents to refer for further screening and assessment.

Most of the prior studies utilized adolescent subjects derived from substance abuse treatment centers, juvenile detention centers, school, and psychiatric hospital settings, rather than long-term residential facilities. This study just began to address the issue of identifying substance abuse issues among this difficult dual-diagnoses adolescent population.

It is recommended that future research focus on revising the subtle scales in order to produce a more valid instrument. As logically and empirically derived screening instruments have both assets and limitations, a valid instrument that incorporates both is greatly needed. Some of the items on the SASSI-A use outdated language. This needs to be addressed. As the SASSI-A's original development and validation did not include information about race and ethnicity, it is recommended that further studies be done

exploring the language and structure of the SASSI-A with African American and Hispanic samples.

In addition, the SASSI-A manual uses both chemically dependent and non-abusing adolescent terms and classifies the adolescent as chemically dependent or non-chemically dependent. There is no clear distinction or incorporation of the term substance abuse. It is suggested that the authors examine the decision rules cutoff to indicate substance abuse.

As all the prior studies, including this one, compared the SASSI-A against clinical assessment or judgment, it would be interesting to compare the SASSI-A against the Personality Assessment Inventory or MMPI-A, particularly looking at substance abuse and defensiveness.

APPENDIX A

INSTRUMENTS

Appendix A-1

SASSI-A Sample Items

For the two face validity scales, the respondent is asked to circle the number, which reflects how often he/she has experienced the situation described.

0 = Never   1 = Once or twice   2 = Several Times   3 = Repeatedly

Face Valid Alcohol Scale (FVA)

1. Had more to drink than you intended to?
2. Argued with your family or friends because of your drinking?
3. Lost friends because of drinking?

Face Valid Other Drug Scale (FVOD)

1. Taken drugs to help you feel more at ease with a problem?
2. Gotten really stoned or wiped out on drugs (more than just high)?
3. Felt your drug use has kept you from getting what you want out of life?

For the subtle scale items, the respondent is asked to mark T if the statement is True or Mostly True for him/her or F if the statement is False or Mostly False for him/her.

Obvious Attributes Scale (OAT)

1. I am always well behaved in school.
2. My school teachers have had some problems with me.
3. Some of my friends have bad reputations.

Subtle Attributes Scale (SAT)

1. I like to obey the rules.
2. I have used alcohol or "pot" too much or too often.
3. I have neglected school work because of drinking or using drugs.

Defensiveness Scale (DEF)

1. I can be friendly with people who do many wrong things.
2. I have been tempted to hit someone.
3. I am usually happy.

Defensive Abuser vs. Defensive Non-Abuser Scale (DEF2)

1. I have tried to stay away from people I did not wish to speak to.
2. I always feel sure of myself.
3. At least once a week I take medicine for a stomach ache.

Appendix A-2

ADDICTIONS PROGRAM
SCREENING INSTRUMENT FOR ADOLESCENTS

NAME: _____ UNIT: _____ DATE: _____

AGE/GRADE:_____ ADDICTIONS COUNSELOR:_____

I. **Experimental Stage**
    1. How often do you use drugs or drink?
    2. Do you find it easy to get a "buzz"?
    3. What substances have you used? Alcohol_____ Marijuana_____ Other_____

II. **Abuse Stage**
    4. Have you noticed that you need more to get high than you used to?
    5. Have you ever had a desire to continue using when others have quit?
    6. Do you have regular planned patterns of use?
    7. Have you ever covered up or lied about "your use"?
    8. Do you get defensive when people talk to you about your use?
    9. Have you noticed any personal behavior changes?
        Withdrawal_____ Skipping School_____ Changing Friends_____
    10. Have you ever used alone?

III. **Loss of Control**
    11. Has your use caused you problems?
        Friends_____ Family_____ School_____ Law_____ Job_____
    12. Have you had any blackouts or memory lapses?
    13. Have you noticed any personality changes?
    14. Have you experienced regret or embarrassment about your behavior while using?
    15. Are you concerned about your pattern of use?
    16. Have you ever been hospitalized for your use?
        Where_____ When_____
    17. Have you lost interest in other activities?
    18. Have you made attempts to control your use? How long?

IV. **Dependency**
    19. Do you ever avoid people when using?
    20. Suicidal? What are your feelings about yourself?
    21. Have you ever been on a bender?
    22. Have you noticed any problems with your thought process?
    23. Do you have unpredictable mood swings?
    24. Can you no longer control when or how much you use?

V. **Family/School/Friends**
    25. Who do you live with? _____
    26. Does anyone in your family abuse substances? _____
    27. How well do you get along with your parents? _____
    28. What grades do you get in school?_____
    29. What are your closest friends like? _____

VI. **Resident Needs**
    More in-depth assessment_____
    Does not seem to need D/A service at this time_____

Appendix A-3

ADDICTIONS PROGRAM
SUBSTANCE ABUSE QUESTIONNAIRE (due within 10 days of the admission date)

Name:_____   Unit:_____   Age:_____

Admission Date:_____   Date of Screening:_____

	Alcohol	Marijuana	Inhalants	Acid	Cocaine	IV drugs	Other
1. How often do you use: (If never, skip questions 2 – 16, go to question 16)	___	___	___	___	___	___	___
2. Age first used:	___	___	___	___	___	___	___
3. Last time used:	___	___	___	___	___	___	___
4. It takes more (drug) to make me drunk/high than it used to:	Y N	Y N		Y N		Y N	Y N

5. I use/drink to relax or calm down. .... Yes...............No

6. I sometimes use because I feel angry or frustrated. .... Yes...............No

7. Have you ever lied about your use? .... Yes...............No

8. Does it bother you if somebody tells you that you use too much or should cut down? .... Yes...............No

9. Have you ever used alone? .... Yes...............No

10. Have you ever   passed out? .... Yes...............No

 had hangovers? .... Yes...............No

 sold/dealt drugs? .... Yes...............No

11. Have you ever used/drank at school? .... Yes...............No

12. Have you ever used before going to school? .... Yes...............No

13. Have you ever been caught w/drugs or alcohol or caught using

 at school? .... Yes...............No

 by the police? .... Yes...............No

 by your parents/placement staff? .... Yes...............No

14. Has your alcohol/drug use caused you problems? .... Yes...............No

15. Do you use/drink when you are bored? .... Yes...............No

16. Does anyone in your family abuse alcohol/or other drugs? .... Yes...............No

 Who? _____

17. Recommendations/additional comments from primary counselor. May note levels of confidence in above
information. (optional)_____

_____

_____

This Section Is For Use By The Addictions Counselor
Date Received:_____   Reviewed by: _____
Recommendations: Not in need of addictions services at this time_____   Needs further assessment_____

Date of Form: June 12, 1998
Developed By: Carol Schmaltz

Appendix A- 4

ADDICTIONS ASSESSMENT

I. IDENTIFYING INFORMATION

Name: D.O.B.:   Age:

Placement Date: Date of Assessment:

II. PRESENTING PROBLEM

III. ASSESSMENT

Alcohol/Drug History:

Drugs Used:

DOC:

Patterns:

Age	Drugs/Method	Quantity	Frequency	Last Use

Blackouts	Passing Out	Sick/Hangovers	Lngest Per Not Used

Tolerance	Use Alone	Tried to Control	Withdrawal

Perception of his/her substance abuse:

How long perceived a problem?

Loss of control items identified:

Harmful Consequences:

Personality Changes

Reasons for use:

Previous tx for substance abuse/or other:

Family History:

Substance Abuse History:

Reaction to client's substance abuse:

History of Mental Illness:

Life Areas Affected:

   Spiritual:

   Physical:

   Sexual:

   Psychological/emotional:
   Medications?

   School/Work:

Health:

Legal:

Financial:

Relationships:

Recreational:

Diagnostic Impression:

IV. RECOMMENDATIONS

_____   _____
Carol Singler, MS, CADACII, NCACII, LCSW   Date

APPENDIX B

CASE EXAMPLES

Appendix B-1

Special Considerations	
__ AWOL	__ Major Incidents
__ Billing	__ Medical
__ PRN Medication	__ MI FIA (Needs Assessment)
__ Clothing	X Other – look under agency
__ IN DOE Placement __ Critical Pathways	__ Parental Rights Terminated
X Dr. . Referral x Y __ N	__ Provisional until
__ FACT Program	__ Psychiatric/Hospitalization
__ Family No-Show	__ Special Report
:_ Home Visits/Travel	__ Transition to New Program
__ Illegal Activities	

Face Sheet

ALERT: Sexual acting out

DOB: 08/18/83
Age: 16 Years 5 Months
Sex: F
Race: African American
S.S. #:
IN Medicaid #:
Date of Eligibility: Unknown
Wardship: Yes

Resident #:
Date: 02/08/00
Ht: 5' 3 ½" Wt: 109
Hair: Black
Eyes: Brown
Religion: Baptist
Allergies: NKA
Meds: Birth Control

Contact Persons

Referral Agency: County DFC
Caseworker

Parent/Guardian

Phone #
Fax #
Emergency numbers: See above
Reports sent to: .

Phone #.

Diagnostic impression per   , Ph.D. 11/99: Major Depression, Dysthymic Disorder, Oppositional Defiant Disorder, Parent-Child Relational Problem, Learning Disorder NOS, and GAF=50. TCC diagnostic impression: Dysthymic Disorder, R/O Major Depression, Oppositional Defiant Disorder, Parent-Child Relational Problem, R/O Physical and Sexual Abuse of a Child, R/O Neglect of a Child, Learning Disorder NOS, and GAF=50.Challenge areas: Anger management- argumentative, negative attitude, threatens peers, physical aggression by Hx; Oppositional; Hyper vigilant; Narcissistic; Depressive symptoms- mood swings, flat affect, sadness, withdrawn, negative self-image, trouble falling asleep, nightmares by Hx, anxiety; Disassociative approach to conversations; Sexual acting out; Poor impulse control; Ran away from home at age 14; School problems- frequent changes, learning difficulties; Family issues- physical abuse and neglect by mother (per her reports), alleged sexual abuse by mother's fiancé, physical altercation with mother 7/99, mother moved out of state; Grief issues over recent death of cousin and her newborn child. Previous treatment and placements include: Adolescent Home 8/28/97- 10/17/97, LCJC twice for two days each in 1997, '   Child & Family Services 10/17/97-3/3/98, and   for Youth 3/3/98 to present.

Strengths: Goal oriented, friendly, does well in school

     's family consists of her mother, .   :, and her siblings   .-13 and   -15. She has never known her father,

Discharge plan is independent living as mother does not wish for .   to return home.

     's religious preference is Baptist.

     's scores on intelligence tests are in the Low Average range with a significant V>P split. She last attended school at   , 10th grade classes.

FAMILY THERAPIST: N/A
FAMILY CASEMANAGER: N/A
THERAPIST:
COURT DATE: Permanency Plan Review Hearing 3/24/00 at 1:00 p.m., Court #3
          was placed on .   on 02/08/00.
Face sheet revised by: .   Date:02/09/00

Form revised 08/24/99

Appendix B-1

ADDICTIONS PROGRAM
SUBSTANCE ABUSE QUESTIONNAIRE (due within 10 days of the admission date)

Name: _____ Unit _____ Age: 16 yrs, 5 mos

Admission Date: 02/08/00 Date of Screening: 02/09/00

	Alcohol	Marijuana	Inhalants	Acid	Cocaine	IV drugs	Other
1. How often do you use: (if never, skip questions 2-16, go to question 16)	no	m	no	no	no	no	___
2. Age first used:	___	___	___	___	___	___	___
3. Last time used:	___	___	___	___	___	___	___
4. It takes more (drug) to make me drunk/high than it used to:	Y(N)	Y(N)	Y(N)		Y(N)		Y(N)

5. I use/drink to relax or calm down. .... Yes .... (No)

6. I sometimes use because I feel angry or frustrated. .... Yes .... (No)

7. Have you ever lied about your use? .... Yes .... (No)

8. Does it bother you if somebody tells you that you use too much or should cut down? .... Yes .... (No)

9. Have you ever used alone? .... Yes .... (No)

10. Have you ever   passed out? .... Yes .... (No)

                      had hangovers? .... Yes .... (No)

                      sold/dealt drugs? .... Yes .... (No)

11. Have you ever used/drank at school? .... Yes .... (No)

12. Have you ever used before going to school? .... Yes .... (No)

13. Have you ever been caught w/drugs or alcohol or caught using

                      at school? .... Yes .... (No)

                      by the police? .... Yes .... (No)

                      by your parents/placement staff? .... Yes .... (No)

14. Has your alcohol/drug use caused you problems? .... Yes .... (No)

15. Do you use/drink when you are bored? .... Yes .... (No)

16. Does anyone in your family abuse alcohol/or other drugs? .... Yes .... (No)

Who? aunt drinks occasionally

17. Recommendations/additional comments from primary counselor. May note levels of confidence in above information. (optional) _____

_____

_____

_____

This Section Is For Use By The Addictions Counselor   MrACII ?, CSW
Date Received: 2-09-00 ·   Reviewed by: Craid Kinght MS
Recommendations: Not in need of addictions services at this time ✓   Needs further assessment _____

Date of Form: June 12, 1998
Developed By: Carol Schmaltz

Appendix B-1

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(4 LETTERS) -(NUMBERS)
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<td colspan="2"></td>
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xxxxx</td>
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xxxxxxxxxx</td>
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INIT</td>
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PROV
INIT</td>
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SERVICE</td>
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BALANCE</td>
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DATE</td>
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</table>

SERVICES PROVIDED TODAY						Appointment Cancelled ☐

<table>
<tr>
<td>TIME OF VISIT</td><td>CLINIC</td><td>DIAG CODE</td><td>CPT CODE</td><td>SVC CODE</td><td>SERVICE CODE</td><td>AMOUNT</td><td>STAFF INIT</td><td rowspan="5">NOTE STAFF
TIMES FOR
GROUPS
ON ONE FORM
ONLY. (NOT
ALL FORMS).
THIS BOX IS
REQUIRED.
FILL IN
MINUTES OR
"X" OFF. CAN
NOT BE LEFT
BLANK.</td>
</tr>
<tr><td>3:35pm</td><td>OAK</td><td>25</td><td>0</td><td>20.</td><td>10</td><td>.29</td><td>X</td></tr>
<tr><td></td><td>OAK</td><td>25</td><td>0</td><td></td><td>10</td><td></td><td>X</td></tr>
<tr><td></td><td>OAK</td><td>25</td><td>0</td><td></td><td>10</td><td></td><td>X</td></tr>
<tr><td></td><td>OAK</td><td>25</td><td>0</td><td></td><td>10</td><td></td><td>X</td></tr>
</table>

STAFF SIGNATURE: *C. Dingley MS NCAC II LCSW*

FOCUS Treatment Plan Problem or objective (number and word(s)) or non treatment plan event.	D A R	DATA (What I observed and heard) ACTION (What I did or, plan to do) RESPONSE (Outcome or Results) **YOU HAVE TWENTY LINES IN NOTES BEFORE IT CREATES A 2ND PAGE.** Remember: you need to sign off every Entry with Name and Credentials.
Substance Abuse Screening	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20	File Review- Psychological Evaluation of 11/22/99 – no mention of sub use for or her family. for Youth & Families, monthly tx staffing review of 3/03/98 – no mention of sub ab issues. County FIA Court Review of 12/07/99 –no mention of sub ab issues. *C. Dingley MS NCAC II LCSW*

FEE SLIP   **Name:**
                      Chart NO:

Appendix B-2

DOB: 10/27/81
Age: 15Yrs. 11 Mos.
Sex: Male
Race: African/American
S.S. #: _
M. Caid #:
ALERT: Easily influenced by peers

Resident #:
Admission Date: 09/26/97
Ht. 6 ' 0 " Wt: 154#
Hair: Black
Eyes: Brown
Allergies: NKA
Meds: No

Referral Agency: Co Probation
Caseworker:

Parent:

      is a referral from Lake Co Probation. His most current diagnosis is Conduct Disorder, Marijuana Dependence with Crack Cocaine usuage and Dysthymic Disorder with Suicidal Ideation. Problem areas include: Substance abuse – cannabis; Unsatisfactory performance on probation; Oppositional; School problems - poor grades, truancy, defiance, "Class clown", suspension, expulsion; Gang participation; Family problems – apparent lack of parental supervision, conflict with father; Follower who is easily influenced by his peers; Low motivation to oppose or ignore negative behaviors or criminal activities; Curfew violations; Lying; Theft; Sexual activity; Playing w/ fire when younger; Lack of insight; Blunted affect; Dysphoric mood. He denies any forn of abuse. He is a polite young man who says he wants to change. Before he came to TCC   was at   County Juvenile Center since 7/4/97.

      lives with his mother and father,   and   . He has an older sister, – 17. The discharge plan is reunification with his parents.

      has no religious preference, but was raised in a home with the Baptist religion.

      's scores on intelligence tests were in the Average range with a 22 point Verbal/Performance split. He last attended   High School in 9th grade, regular education.

FAMILY COORDINATOR: 219 879-9506 or 219 259 5666 Ext 711
      Car Phone: 274-6484

      was placed on   Hall on 09/26 /97.

Appendix B-2

ADDICTIONS PROGRAM
ASSESSMENT

I. IDENTIFYING INFORMATION

Name: DOB: 10/27/81   Age: 15 yrs. 11mos.

Placement Date: 9/26/97   Date of Assessment: 10/14/97 & 10/24/97

II. PLACEMENT PROFILE

         is a referral from   County Probation. His most current diagnoses are Conduct Disorder, Marijuana Dependence, and Dysthymic Disorder with Suicidal Ideation. Problem areas include substance abuse, truancy, school expulsion, theft, lying, and gang participation. There has been a lack of parental supervision and conflicts with his father. Prior to placement at   he was at .   County Juvenile Center. Mother and father live in   , Indiana.   has an seventeen year old sister.

III. ASSESSMENT

    Alcohol/Drug History: The   County Juvenile Pre-Dispositional Report of 8/29/97 documented possession of marijuana and cocaine charges on 7/04/97 and a possession of marijuana charge on 8/16/95. The Psychological Evaluation of 8/30/97 stated   's history "suggest a rather long term usage of marijuana and some crack cocaine possession and usage as well." During the preplacement interview of 9/17/97,   admitted to marijuana use beginning at the age of thirteen. From fourteen and a half years old, he stated he smoked almost every day, would smoke on the way to school, would skip school to smoke, and liked being high. He admitted drinking beer only one time. Other drug use was denied.

In this assessment,   admitted use of alcohol and marijuana. Marijuana use began at the age of thirteen. At first he stated he did not like the headache it gave him, but several days later, he smoked again. This time he said he "enjoyed himself with it." From that point on, his marijuana use has been daily. Initially, he smoked two blunts a day. Prior to being placed he reported smoking 5 grams a day. His last marijuana use was on 7/04/97. Alcohol was first used at the age of fourteen. He speculated that he has been drunk about eight to nine times. More often he stated he would drink to get a buzz, then stop. His last reported alcohol use was on 7/03/97. All other drug experimentation or use was denied. In detention,   . claimed to have told a therapist that he used crack/cocaine in order to avoid being sent to a particular facility.

       admitted passing out one time from alcohol drinking. He stated he was fourteen, trying to be tough, and drank a 40 oz. Blackouts and using alone were acknowledged.   acknowledges that there are some things he does not remember. Tolerance with marijuana is indicated.   denied ever experiencing hangovers. With alcohol,   had noticed that he tends to be more aggressive and "ready to fight", but with marijuana he laughs at everything. The longest period he could recall not using any substance, since he began at the age of thirteen, was for four or five days. In reference to his substance abuse,   said it was "fun" and that he did not care about anything when using. After being clean for a number of months,   . stated he has more energy and feels better. Harmful consequences he experienced due to his substance abuse were stealing cars, "gang banging", selling dope, and being put in placement. Because he was around older friends/acquaintances that were smoking marijuana and making a lot of money selling drugs, he said he got greedy.   stated he wanted the money and the cars. According to   , it was an Auntee's boyfriend who turned him on the selling at the age of twelve or thirteen.   denied any prior alcohol/drug education or counseling.

Appendix B-2

Addictions Program/Assessment
p. 2

Family History: In the preplacement interview,   stated that his father drinks a lot. In this assessment,
acknowledged that his father drank and smoked marijuana. He stated that when he got older he never saw his father
smoking marijuana. Although   reported that he respected his mother, when confronted about his using, he
admitted lying to her. He would tell her he would no longer use, then go right out and use. He believed his sister knew
he was using. Because he gave her money, he thought she would not tell on him.

Life Areas: was raised Baptist. He denied his substance abuse caused any conflicts with his religious beliefs
or practices. He denied having ever been physically or sexually abused or having ever attempted suicide.   denied
having accidents and claimed to practice safe sex. When using, he admitted feeling tired more often and getting the
"munchies." Most of   's friends range in age from seventeen to twenty-three, and all smoke marijuana. The
activities he and his friends enjoy are smoking marijuana, shooting dice, and selling drugs. According to   , he sold
drugs for about two years.   also listed basketball, girls, and cards as recreational activities. The only legal job
has had was cutting grass, raking leaves, and shoveling snow for a neighbor.   claims to have not been high when
he stole a car at the age of fourteen. When he began to sell drugs and smoke marijuana in the sixth and seventh grade,
        said his grades drastically declined. He admitted selling and using at school.

Diagnostic Impression: The Substance Abuse Subtle Screening Inventory classified   as chemically dependent.
He received a score of 34 on the Albrandi. A cutoff of 29 is indicative of a severe substance abuse problem. On the
Adolescent Alcohol Involvement Scale,   scored 50. Scores 42 to 57 are in the Alcohol Misuse category. Scores 58
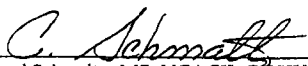to 79 are in the Alcoholic-like Drinkers category.

DSM IV
      305.00 Alcohol Abuse
      304.30 Cannabis Dependence, Early Partial Remission, In a Controlled Environment

IV. RECOMMENDATIONS

is in need of substance abuse treatment.

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Addictions Therapist

12-15-97
Date

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REFERENCE LIST

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May 1985

Ball State University - Muncie, Indiana
B.S. Speech and Hearing - major, Psychology - minor
May 1970

CERTIFICATIONS/LICENSES

Temporary Limited License Psychologist, Michigan - November 2002
Certified Addictions Counselor II, Michigan - November 2002
Certified Clinical Supervisor, Indiana – September 2000
Licensed Clinical Social Worker, Indiana - April 1998
Certified Clinical Social Worker, Indiana - July 1994 - April 1998
National Certified Addiction Counselor II - May 1991
Certified Alcohol and Drug Abuse Counselor, Indiana - September 1989
Certified Alcoholism Counselor, Indiana - September 1986 - 1989

PROFESSIONAL EXPERIENCE

Shepard House, St. Joseph, Michigan
Psychologist, 10/03 to present

LifeWorks Center PLC, Dowagiac, Michigan
Psychologist, 10/02 to 10/03

Addictions Recovery Center, Elkhart, Indiana
Adolescent Therapist, 10/02 to 04/03

East Kentucky Rural Psychology Predoctoral Internship
Appalachian Regional Psychiatric Center, Hazard, Kentucky, 41701
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Predoctoral Intern, 8/01 to 8/02
The Children's Campus Inc., Mishawaka, Indiana, 46544
Addictions Counselor, contractual, 3/00 to 6/01

Joint Educational Services in Special Education, Plymouth, Indiana, 46563
School Based Therapist, 3/00 to 5/00 and 9/00 to 6/01

The Children's Campus Inc., Mishawaka, Indiana, 46544
Addictions Counselor, 3/96 to 3/00

Memorial Regional Rehabilitation Center, South Bend, Indiana, 46601
Doctoral Practicum in Neuropsychology, 1/97 to 8/97

Andrews University Counseling and Psychological Services Center,
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Doctoral Practicum, 9/95 to 1/97

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Logan Center, Semi-Independent Living Program, South Bend, Indiana, 46628
Addictions Consultant, 4/92 to 4/96

Michiana Psychological Associates, Mishawaka, Indiana, 46544
Addictions Consultant, 1990 to 1992

The Children's Campus Inc., Mishawaka, Indiana, 46544
Addictions Coordinator, 9/89 to 8/92

The Children's Campus Inc., Mishawaka, Indiana, 46544
Primary Therapist, 3/87 to 9/89

Renaissance Center for Addictions Treatment, Elkhart General Hospital
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Adolescent Inpatient Coordinator, 7/85 to 3/87

Project Head Start, South Bend, Indiana
Speech and Language Pathologist, 2/71 to 6/73 and 9/82 to 6/83