A Dissertation

entitled

An Assessment of Substance Use Services for Juvenile Offenders

by

Michael J. Wiblishauser

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the

Doctor of Philosophy Degree in Health Education

Dr. Timothy R. Jordan, Committee Chair

Dr. Joseph A. Dake, Committee Member

Dr. James H. Price, Committee Member

Dr. Morris Jenkins, Committee Member

Dr. Patricia Komuniecki, Dean
College of Graduate Studies

The University of Toledo

December 2011
An Abstract of

An Assessment of Substance Use Services for Juvenile Offenders

by

Michael Wiblishauser

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Health Education

The University of Toledo
December 2011

The purpose of this study was to assess the substance use services provided to juvenile offenders in juvenile justice affiliated facilities. The current status of substance use services was evaluated by using the Precaution Adoption Process Model. Perceived barriers and benefits to providing substance use services to juvenile offenders were evaluated by using the Health Belief Model. This study also examined the non-substance use services provided to juvenile offenders.

A sample of 540 facility directors of juvenile justice affiliated facilities was randomly selected from a population of 897 facility directors. These 540 directors were broken into the three groups by the gender of clients they served: 218 coed facilities, 217 male-only facilities, and 105 female-only facilities. A 31-item survey was sent to the directors using a three-wave mailing process and by email. The directors returned 287 completed surveys for a response rate of 53.1% (287/540).

The majority of juvenile justice affiliated facilities (79.4%) were in the maintenance stage of the Precaution Adoption Model in regards to providing substance use services to juvenile justice affiliated facilities. More male-only facilities (88.8%)
reported providing substance use services than either female-only (79.7%) or coed facilities (66.7%). More than one-half (52.3%) of juvenile justice affiliated facilities were not accredited. A small number (3.6%) of facilities offered pharmacological services to their juvenile offenders. Only 37.7% of facilities that had substance use services offered family counseling as a program component. Cognitive behavior therapy (86.4%) and motivational enhancement (54.8%) were the treatment approaches reportedly used most often. A significant number of facilities invested no time in covering violence prevention (29.6%) and the impact of recovery from violence and trauma (29.1%) in their substance use curricula. The most cited perceived benefit to providing services was overall school performance (85.4%). The most cited perceived barrier to providing substance use services was lack of qualified staff (42.9%).

The results indicate that significant differences in services exist by the gender of client served in juvenile justice affiliated facilities. These differences need to be reconciled to ensure that all juvenile offenders are provided with equitable and effective treatment.
Acknowledgements

First and foremost, thanks go to William and Pilar Wiblishauser, my parents, for their undying love and support. I would also like to thank my chairperson, Timothy Jordan, whose mentoring and patience made this a successful dissertation. I like to thank James Price for imparting his public health knowledge to me; I’m a better health educator for it. Thanks go to Joseph Dake for being meticulous and precise; this served me well during the formation of my study’s design. Morris Jenkins’ advice on the legal aspects of my study proved to be invaluable to the success of my study. I would also like to thank Amy Thompson for being so willing to help me improve upon my teaching skills. Tavis Glassman, thank for always being in a good and cheerful mood, it’s contagious. I would like to acknowledge Susan Telljohann for her never failing interest in my progress in the program. I would like to thank Stephen Roberts for his commitment to activism and Debra Boardley for her Methods and Materials class, and Faith Ying-Ling for her classes. I would like to acknowledge Thomas Dunn, whose educational psychology courses, I immensely enjoyed. I would like to thank my colleagues Joann Kleinfelder, Robert Braun, Phillip Welch, Molly McKinney, Jaime Dowling, and Derek Czelga for the friendships and good times. Elissa Falcone whose patience helped with my submission. I would also like to thank and acknowledge Jagdish Khubchandani whose friendship, support, and advice was instrumental for my success in the program.
## Content

**Abstract** .................................................................................................................. iii

**Acknowledgements** .................................................................................................. v

**Contents** .................................................................................................................. vi

**List of Tables** ........................................................................................................... xii

1. **Introduction** ........................................................................................................... 1

    1.1 Background Information .................................................................................. 1

    1.2 Prevalence and Usage of Substance Use Among American Juveniles .......... 3

    1.3 Factors Associated With Substance Use among Female Juvenile Offenders ........................................................................... 5

    1.4 Juvenile Facilities and the Services Provided ............................................... 7

    1.5 Substance Use Services for Juvenile Offenders ............................................. 8

    1.6 Statement of the Problem ............................................................................... 9

    1.7 Purpose of the Study ...................................................................................... 10

    1.8 Research Questions ....................................................................................... 10

    1.9 Definitions of Terms ...................................................................................... 19

    1.10 Delimitations of the Study .......................................................................... 23

    1.11 Limitations of the Study .............................................................................. 24

    1.12 Summary ....................................................................................................... 25
2. Literature Review

2.1 Prevalence of Marijuana Use in Adolescents ....................... 28
2.2 Prevalence of Alcohol Use in Adolescents .......................... 29
2.3 Prevalence of Cocaine Use in Adolescents .......................... 30
2.4 Prevalence of Other Illicit Substance Use in Adolescents ....... 32
   2.4.1 Prevalence of Inhalants in Adolescents ......................... 32
   2.4.2 Prevalence of Heroin Use in Adolescents ...................... 33
   2.4.3 Prevalence of Methamphetamines in Adolescents ........... 33
   2.4.4 Prevalence of Ecstasy in Adolescents ......................... 34
   2.4.5 Prevalence of Injecting Illicit Substances by Adolescents .. 35
2.5 Prevalence of Substance Use in Adolescents by Geographical Regions .. 36
   2.5.1 Factors Associated with High and Low Rates of Substance Use by States .. 36
2.6 Trends in Adolescent Substance Use ................................ 39
   2.6.1 Comparisons of Trends of Substance Use between Adolescent Non-Juvenile Offenders ........................................ 43
   2.6.2 Comparisons of Substance Use Juvenile Offenders and Non-Offenders ......................................................... 44
   2.6.3 Impact of Substance Use on American Society .................. 48
   2.6.4 Factors Associated with Higher Rates of Substance Use in Adolescents ....................................................... 49
   2.6.5 Factors Associated with Higher Rates of Drug Use in
Female Offenders............................................................. 55

2.6.6 Protective Factors for Substance Use in Adolescents............ 57

2.6.7 Protective Factors for Substance Use in Female Adolescents.. 58

2.7 Substance Use Services for Adolescents............................... 60

2.7.1 Characteristics of Ideal Substance Use Services for
Adolescents................................................................. 60

2.7.2 Ideal Features of Substance Use Services for Female Juvenile
Offenders................................................................. 69

2.7.3 The Effectiveness of Substance Use Services for Adolescents 78

2.7.4 Treatment Effectiveness................................................ 80

2.7.5 Components of Substance Use Curriculum in Juvenile
Justice Facilities........................................................... 80

2.7.6 How Typical Substance Use Services Compare to Ideal
Services................................................................. 81

2.7.7 Rates of Substance Use Recidivism in Adolescents............. 83

2.7.8 Contributory and Protective Factors for Recidivism in
Adolescents................................................................. 87

2.8 Prevalence and Trends of Juvenile Arrests in the United States.......91

2.8.1 Demographics of Incarcerated Juvenile Offenders...............92

2.8.2 Rates of Incarceration among Female Juvenile Offenders by
Regions.................................................................93

2.8.3 Trends in Juvenile Delinquency and Incarceration.............94
<table>
<thead>
<tr>
<th>Section Number</th>
<th>Section Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6</td>
<td>Perceived Benefits and Barriers to Substance Use Services</td>
<td>126</td>
</tr>
<tr>
<td>4.7</td>
<td>Time Devoted to Topics Covered in Substance Use Services</td>
<td>128</td>
</tr>
<tr>
<td>4.8</td>
<td>Testing of Hypotheses</td>
<td>128</td>
</tr>
<tr>
<td>4.9</td>
<td>Summary</td>
<td>178</td>
</tr>
<tr>
<td>5</td>
<td>Conclusions</td>
<td>179</td>
</tr>
<tr>
<td>5.1</td>
<td>Summary</td>
<td>179</td>
</tr>
<tr>
<td>5.2</td>
<td>Rejected Hypotheses</td>
<td>182</td>
</tr>
<tr>
<td>5.3</td>
<td>Accepted Hypotheses</td>
<td>192</td>
</tr>
<tr>
<td>5.4</td>
<td>Discussion</td>
<td>199</td>
</tr>
<tr>
<td>5.4.1</td>
<td>Characteristics of Substance Use Services</td>
<td>199</td>
</tr>
<tr>
<td>5.4.2</td>
<td>Characteristics of the Respondents</td>
<td>207</td>
</tr>
<tr>
<td>5.5</td>
<td>Implications</td>
<td>210</td>
</tr>
<tr>
<td>5.6</td>
<td>Recommendations for Future Research</td>
<td>212</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>Appendices</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td>Appendix A: Human Subjects Approval Letter</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td>Appendix B: Survey Instrument</td>
<td>264</td>
</tr>
<tr>
<td></td>
<td>Appendix C: Cover Letter for Content Experts</td>
<td>269</td>
</tr>
<tr>
<td></td>
<td>Appendix D: Cover Letter for 1st Wave of Mailings</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td>Appendix E: Cover Letter for 2nd Wave of Mailings</td>
<td>272</td>
</tr>
<tr>
<td></td>
<td>Appendix F: Cover Letter for 3rd Wave Mailings</td>
<td>274</td>
</tr>
<tr>
<td></td>
<td>Appendix G: Cover Letter for Stability Reliability</td>
<td>276</td>
</tr>
</tbody>
</table>
List of Tables

2.1 The Five States with the Highest Percentages of Reported Substance Use….. 37
2.2 The Five states with the Lowest Percent of Teens Reporting Substance Use ………………………………………………………………………… 38
2.3 Ten Year Trends in Substance Use among American Adolescents ……….. 40
2.4 Ten Year Trends in Substance Use in American Adolescent Females……… 42
2.5 Characteristics of Selected Substance Abuse Treatment Programs…………… 86
3.1 Stability Reliability Scores on Selected Items………………………………… 114
3.2 The Statistical Tests and Hypotheses……………………………………… 117
4.1 Demographic Information of Respondents………………………………… 120
4.2 Characteristics of Juvenile Justice Affiliated Facilities……………………… 122
4.3 Non-Substance Use Services Provided in the Facilities………………….. 123
4.4 Assessment/Screening Methods and Evaluative Processes………………… 125
4.5 Characteristics of Employees……………………………………………… 126
4.6 Perceived Barriers and Benefits to Offering Substance Use Services…… 127
H.1 Substance Use Services Provided In the Facilities………………………… 278
H.2 Hours Invested in Common Substance Use Curricular Topics ………. 280
Chapter 1

Introduction

This introductory chapter presents an overview of issues related to substance use services provided to juvenile offenders in juvenile justice affiliated facilities. This chapter consists of the following major sections: 1) Background Information, 2) Prevalence and Usage of Substance Use among American Juveniles, 3) Factors Associated With Substance Use among Female Juvenile Offenders, 4) Juvenile Facilities and the Services Provided, 5) Substance Use Services For Juvenile Offenders, 6) Statement of the Problem, 7) Purpose of the Study, 8) Hypotheses and Research Questions, 9) Definitions of Terms, 10) Delimitations of the Study, 11) Limitations of the Study and, 12) Summary.

1.1 Background Information

In 2009, juveniles were involved in approximately 1.2 million arrests in the United States (Federal Bureau of Investigation, 2010a). The Federal Bureau of Investigation’s (2010a) 2009 statistics show that the most prevalent types of juvenile
offenses were associated with property crimes (e.g., larceny, arson, burglary, motor vehicle theft). In 2009, juvenile offenders were involved in approximately one-seventh of the total arrests for violent crimes committed in the United States.

Between the years 1988 and 1997, female juvenile arrests increased by 60% the largest increase in arrests of female juveniles recorded in the history of the American juvenile justice system (Chesney-Lind & Shelden, 1998). In 2009, 354,012 female juveniles were arrested for criminal offenses. This represents a 13% decrease in arrests since 2000 (Federal Bureau of Investigation, 2010b). Although the most recent statistics indicate moderate successes in the overall reduction of juvenile arrests, not all areas of criminal activities have decreased. There was a 30.2% increase in the rate of arrests made for female juveniles for robbery between the years of 2000 and 2009 (Federal Bureau of Investigation, 2010b).

Between the years of 2000-2010, there were slight decreases in juvenile arrests for substance use violations. The Federal Bureau of Investigation (2010b) reports that arrests related to substance use violations by females decreased 10.4% between 2000 and 2009. Similarly, arrests attributed to substance use violations committed by male juvenile offenders declined 15.6% over the same ten year period. This trend reverses itself in adulthood where a greater proportion of adult females are more likely to commit drug-related crimes than violent crimes (Miller, 1984). Since 1995, the female juvenile crime rate has increased by 53%; compared to a 32% increase for male offenders. The majority of these offenses were related to the illegal use of substances (Harrison & Beck, 2005). In adult females, there has been a 12.5% increase in drug use violations during the ten year
period of 2000-2009 (Federal Bureau of Investigation, 2010b). The United States Department of Justice (1994) estimated that over 50% of incarcerated adult females committed their offenses while intoxicated or under the influence of other drugs. Therefore, it is very important to treat substance abuse in female juveniles, before they reach adulthood.

Incarcerated juvenile offenders reported higher levels of substance use than juveniles who are not involved in the juvenile justice system (Wilson, Rojas, Haapanen, Duxbury, & Steiner, 2001). According to the National Institute on Drug Abuse (2008), among juveniles arrested for crimes in 2000, approximately 40% of female arrestees tested positive for substance use. An association exists between early substance use and crime status for female juvenile offenders (Prinz & Kerns, 2003). One study found that almost half of females incarcerated in juvenile detention centers had a substance abuse disorder, the most prominent being marijuana use (Teplin, Abram, McClelland, Dulcan, & Meicle, 2002).

1.2 Prevalence and Usage of Substance Use among American Juveniles

In the United States there exists a long history of young people using and abusing both legal and illegal substances. According to the 2010 Monitoring the Future study, approximately 16.7% of American juveniles aged 13-18 were current illicit substance users (Johnston, O’Mailey, Bachman, & Schulenberg, 2011). Also 48.2% of high school twelfth graders have used an illicit drug in their lifetimes (Johnston et al., 2011). For
males in 2008, the rate of using illicit substances was 11.5 %, this was down from the 12.5 % rate in 2007. For females, the rate of reported illicit substance use was 6.4 %, which was an increase from 5.7 % in 2007 (Substance Abuse and Mental Health Services Administration, 2009).

Alcohol consumption among juveniles remains a prominent health issue in American society. Annually more than 5,000 youth less than twenty one years of age die due to the consumption of alcohol (U.S. Department of Health and Human Services, 2005). A national survey found that 72.5% of American teenagers have consumed at least one drink in their lifetimes (Centers for Disease Control and Prevention, 2010). Among females aged 12-17, 42.9% were categorized as current alcohol drinkers and 23.4% as binge drinkers (Centers for Disease Control and Prevention, 2010). The average age in which a female first tries an alcoholic drink is thirteen (U.S. Department of Health and Human Services, 2007).

Marijuana is the most commonly used illicit substance (Centers for Disease Control and Prevention, 2010) and the initial substance reportedly used by the majority of substance users (Substance Abuse and Mental Health Administration, 2009). In 2009, 56% of individuals aged 12 or older reported that marijuana use was their first illicit drug experimentation (Substance Abuse and Mental Health Services Administration 2009). There were 2.2 million individuals aged 12 or older who experimented with marijuana for the first time in 2008 (Substance Abuse and Mental Health Services Administration, 2009). According to the Centers for Disease Control and Prevention (2010), 34.3% of female teenagers reported having smoked marijuana at least once during their lifetimes.
and 16-19% of female teenagers reported smoking marijuana during the last 30 days.

Even though marijuana is frequently reported as the most commonly used illicit substance, adolescents also reported using other illicit substances. In 2008, the number of youth aged twelve or older, discounting marijuana use, reported having used the following drugs: non-medical use of pain relievers (2.2 million), non-medical use of tranquilizers (1.1 million), Ecstasy (0.9 million), inhalants (0.7 million), cocaine (0.7 million) and stimulants (Substance Abuse and Mental Health Services Administration, 2009). In that same year, 15.4% of high school seniors reported abusing a prescription drug. The most commonly abused prescription drug was Vicodin (National Institute on Drug Abuse, 2008).

1.3 Factors Associated With Substance Use among Female Juvenile Offenders

There are a number of factors that contribute to delinquency and substance use among female offenders. Mental illness is one of these factors. Several studies have indicated that mental illness is a contributing factor to both substance use and criminality among female juveniles (Cauffman 2004; Goldstein et al., 2003; Sacks, McKendrick, Hamilton, Cleland, Pearson, & Banks, 2008). A study conducted by Teplin et al. (2002) found that nearly 75% of incarcerated female juvenile offenders met the diagnostic criteria for at least one psychiatric disorder. Females who suffer from depression were at a greater risk for expressing violent behavior and using substances than their non-depressed counterparts (Goodwin, 2006). A positive relationship has been reported
between substance use and antisocial personality disorders in female offenders (van den Bree, Svikis, & Pickens, 2000). Substance use has also been linked with violent behavior in females, once they have entered into adulthood (Weizmann-Henelius, Putkonen, Naukkarinen, & Eronen, 2009).

A past history of sexual and physical abuse is also associated with female juvenile delinquency and substance use (Shin, Hong, & Hazen, 2010). A study by Cauffman, Feldman, Waterman, & Steiner (1998) found that over 50% of incarcerated female juvenile offenders were victims of physical acts of abuse in the past. Female teenagers who reported incidents of coercive sex were 3 times more likely to report having consumed alcohol in the last 30 days than female teens who did not report incidents of coercive sex (Ross, Kurth-Kolars, Krah, Lisansky-Gomberg, Clark, & Niehaus, 2010). The frequency of sexual activity in both female adults and female juveniles has been linked to past substance use. According to the findings from Dunn et al. (2008), female teens that reportedly had four or more sexual partners were more than six times more likely to use cocaine than females who did not engage in sexual activity.

A relationship has been established between current female substance users and family members who use substances (Chartier, Hesselbrock, & Hesselbrock, 2010). Female and male juveniles who witnessed delinquent or substance use behaviors performed by their mothers were more likely to succumb to peer-pressure to experiment with illegal substances (Garnier & Stein, 2002).
1.4Juvenile Facilities and the Services Provided

For the majority of American juvenile offenders, especially females, their first experiences with substance use services will be in a facility that is operated or associated with a state’s juvenile justice system. All states operate residential treatment centers, detention centers, and correctional facilities which serve juveniles convicted of criminal charges related to substance use violations. Private facilities are also contracted by states to provide substance use services to juvenile offenders. *The 2010 American Correctional Association’s National Directory* listed 913 facilities which serve juvenile offenders. The Council of Juvenile Correctional Administrators (2006) reported results from a study that assessed the state of substance use services that were provided by juvenile correctional facilities. They found that approximately 36 out of 46 (78%) juvenile jurisdictions (i.e., governing authorities over juveniles) offered substance use services in one or more of their facilities. The study also found that 29 (63%) of the juvenile jurisdictions reported that the majority of their facilities provided substance abuse treatment.

Juvenile justice facilities offer concurrent services alongside substance use services. Some of these services include mental health services, family therapy, life management skills, educational programs and sexual/STDs education (Young, Dembo, & Henderson, 2007). Thomas, Gourley, & Mele (2005) reported that the current juvenile justice system does not provide adequate behavioral health services and substance use services for juvenile offenders.
1.5 Substance Use Services for Juvenile Offenders

In 2003, an estimated 156,000 American youths were admitted into substance abuse treatment programs (Substance Abuse and Mental Health Services Administration, 2004). There have been successes in the treatment of juvenile offenders with substance use problems. Webb, Burleson, & Ungemack (2002) conducted a mixed gender study which showed evidence of success in treating substance use in juvenile offenders. The researchers discovered that substance abuse treatment significantly reduced the substance use recidivism rate by 32% among recent offenders. They reported that effective treatment could reduce the substance use habit and tendencies among criminally active juvenile offenders.

Adult female offenders continue to have problems receiving adequate treatment for substance use in incarceration facilities. According to Blitz, Wolff, & Papp (2006), incarcerated female offenders are more likely to participate in mental health treatment services than substance use services. The same study also found that women were more likely to receive substance use services while incarcerated than when they were in the community prior to incarceration.

There are no standards for substance use services curricula for juvenile offenders in the United States. Each state develops and uses different curricula for the treatment of substance use. For example, Colorado Human and Health Services uses a curriculum which focuses on the physiological and psychological effects of substance use, stress management, triggers of substance use, and legal issues derived from substance use. South Dakota’s Department of Human Service offers specialty substance abuse treatment
to certain segments of the state’s population (e.g., Native Americans). In Florida, substance abuse treatment is offered with an extensive array of educational and vocational services (Florida Department of Corrections).

1.6 Statement of the Problem

The problem addressed in this study is the paucity of research regarding substance use services provided to female juvenile offenders. The current literature has linked substance use/abuse by female juvenile offenders to criminal activities (Belenko, Sprott, & Petersen, 2004; Loeber, Stouthamer-Loeber, & White, 1999). Substance use services provided to juvenile offenders is associated with reduced rates of female juvenile delinquency and substance use (Sealock, Gottfredson, & Gallagher, 1997). Therefore, it is important to provide effective substance use services to juvenile offenders to decrease substance use and criminality.

The juvenile justice system provides substance use services throughout its facilities or referral facilities to juvenile offenders who are diagnosed with substance use/abuse problems. There is virtually little to no empirical data that describes the substance use services provided to female juvenile offenders in commitment programs. Successful identification and assessment of substance use services is important if effective services are to be offered to this at risk population. To reduce the recidivism rate associated with substance use related crimes, it is crucial that the most effective services be provided to female juvenile offenders.
1.7 Purpose of the Study

The purpose of this study is to assess the breadth and depth of substance use services provided to juvenile offenders in juvenile justice affiliated facilities in the United States. The study will also identify the prevalence of services provided to juvenile offenders. The study will also examine respondents’ perceived barriers and benefits to offering substance use services to juvenile offenders.

1.8 Research Questions

A comprehensive and extensive review of the literature failed to find studies or reports that assessed the opinions and views of program directors regarding the usage, availability, and evaluation of substance use services provided to juvenile offenders in juvenile justice affiliated facilities. Therefore, the following research questions and hypotheses were addressed in the current study:

Research Question # 1: In what stages of implementation of the Precaution Adoption Process Model do program directors, of juvenile justice affiliated facilities, place their substance use services?

Hypothesis 1.1: The majority of program directors will place their substance use services in the “maintenance” stage.

Hypothesis 1.2: There is no statistically significant difference in number of juvenile offenders in current treatment for substance by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.
Hypothesis 1.3: There is no statistically significant difference in the geographical settings of facilities (rural, suburban, urban) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.4: There is no statistically significant difference in the education levels of respondents (graduate vs. non-graduate degrees) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.5: There is no statistically significant difference in facility types (incarceration facilities vs. non-incarceration facilities) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.6: There is no statistically significant difference in the years that respondents have worked at current position by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.7: There is no statistically significant difference in the gender of respondents by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.8: There is no statistically significant difference in the number of full-time employees in juvenile justice facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.9: There is no statistically significant difference in accreditation status (accredited vs. non-accredited) of facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.
Hypothesis 1.10: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.11: There is no statistically significant difference in the number of perceived barriers to offering substance use services by presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Hypothesis 1.12: There is no statistically significant difference in the gender of clients being served (i.e. female-only vs. coed vs. male-only) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

Research Question # 2: What methods of assessment/screening are used to diagnose substance use/abuse/dependence by juvenile justice affiliated facilities that offer substance use services to juvenile offenders?

Hypothesis 2.1: There is no statistically significant difference in the number of full-time employees by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

Hypothesis 2.2: There will be no statistically significant difference in the accreditation status (accreditation vs. non accreditation) of facilities by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

Hypothesis 2.3: There be no statistically significant difference in the proportion of facilities’ budgets will (0-10% vs. 11-100%) spent on substance use services by the
methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

Hypothesis 2.4: There is no statistically significant difference in the gender of clients served by the facility (female-only vs. coed vs. male-only) by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

Research Question #3: How much time (hours) do juvenile justice affiliated facilities invest in common topics found in substance use services curricula for juvenile offenders?

Hypothesis 3.1: There is no statistically significant difference in the number of full time employees by amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics.

Hypothesis 3.2: There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics (on each topic) by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

Hypothesis 3.3: There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics by accreditation status.

Hypothesis 3.4: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs.
moderately covered) invested in selected curricular substance use topics.

Hypothesis 3.5: There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in selected curricular substance use topics.

Hypothesis 3.6: There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in selected curricular substance use topics by education levels (graduate degrees vs. non-graduate degrees) of respondents.

Hypothesis 3.7: There is no statistically significant difference in the amount of time invested (minimally covered vs. moderately covered) in selected curricular substance use topics by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

Research Question # 4: What treatment approaches are used by juvenile justice affiliated facilities as they deliver substance use services to juvenile offenders?

Hypothesis 4.1: There is no statistically significant association between the number of treatment approaches used and number of full-time employees.

Hypothesis 4.2: There is no statistically significant difference in the number of treatment approaches by the proportion of facilities’ budget expenditures (0-10% vs. 11-100%) for substance use services.

Hypothesis 4.3: There is no statistically significant difference in the number of treatment approaches used by accreditation status of facility (accredited vs. non-accredited).
Hypothesis 4.4: There is no statistically significant difference in the number of treatment approaches used by education levels (graduate degrees vs. non graduate degrees) of respondents.

Hypothesis 4.5: There is no statistically significant association between the number of treatment approaches used and the years in being at current positions of respondents.

Hypothesis 4.6: There is no statistically significant difference in the number of treatment approaches used by methods assessment/screening (own/no methods vs. other methods) to diagnose substance use.

Hypothesis 4.7: There is no statistically significant difference in the number of treatment approaches by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

Research Question # 5: What types of substance use services are used by juvenile justice affiliated facilities when delivering substance use services to juvenile offenders?

Hypothesis 5.1: There is no statistically significant association between the number of substance use services used and the number of full-time employees.

Hypothesis 5.2: There is no statistically significant difference in the provision (offered or not offered) of family counseling by gender of the clients served in the facility (female-only vs. coed vs. male-only).
Hypothesis 5.3: There is no statistically significant difference in the provision (offered or not offered) of group substance counseling by gender of the clients served in the facility (females only vs. coed vs. males only).

Hypothesis 5.4: There is no statistically significant difference in the provision (offered or not offered) of individual substance use counseling by gender of the clients served in the facility (females only vs. coed vs. males only).

Hypothesis 5.5: There is no statistically significant difference in the provision (offered or not offered) of educational/informational sessions/classes by gender of the clients served in the facility (female-only vs. coed vs. male-only).

**Research Question #6: What are the barriers that juvenile justice affiliated facilities see to providing substance use services to juvenile offenders?**

Hypothesis 6.1: There is no statistically significant association between the number of perceived barriers to offering substance use services by respondents and the number of full-time employees.

Hypothesis 6.2: There is no statistically significant difference in the number of perceived barriers to offering substance use services by the proportion of facilities’ budgets spent on substance use services (0-10% vs. 11-100%).

Hypothesis 6.3: There is no statistically significant difference in the number of perceived barriers to offering substance use services by respondents by education levels of respondents (graduate degrees vs. non graduate degrees).
Hypothesis 6.4: There is no statistically significant association between the number of perceived barriers to offering substance use services by respondents and years at being in current positions of respondents.

Hypothesis 6.5: There is no statistically significant association between the number of perceived barriers to offering substance use services and the number of juvenile offenders in treatment.

Hypothesis 6.6: There is no statistically significant difference in the number of perceived barriers to offering substance use services by methods of assessment/screening (own/no methods vs. other assessment/screening methods) for diagnosing substance use.

Hypothesis 6.7: There is no statistically significant difference in the number of perceived barriers to offering substance use services by the gender of respondents.

Hypothesis 6.8: There is no statistically significant difference in the number of perceived barriers to offering substance use services by the gender of the clients served by facilities (i.e., females only vs. coed vs. males only.)

Research Question #7: What benefits do program directors of juvenile justice affiliated facilities see to offering substance use services to juvenile offenders?

Hypothesis 7.1: There is no statistically significant association between the number of perceived benefits to offering substance use services and the number of juvenile offenders in treatment.
Hypothesis 7.2: There is no statistically significant association between the number of perceived benefits to offering substance use services and the number of full time employees.

Hypothesis 7.3: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

Hypothesis 7.4: There is no statistically significant difference in the number of perceived benefits to offering substance use services by education levels of respondents (graduate degrees vs. non graduate degrees).

Hypothesis 7.5: There is no statistically significant association between the number of perceived benefits to offering substance use services and years at current position for respondents.

Hypothesis 7.6: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the methods of assessment/screening (own/no methods vs. other assessment/screening methods) to diagnose substance use.

Hypothesis 7.7: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the gender of respondents.

Hypothesis 7.8: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the gender of the clients served by the facility (females only vs. coed vs. males only.)

Research Question #8: Which criteria do respondents use to evaluate the
effectiveness of their substance use services programs for juvenile offenders?

Hypothesis 8.1: The majority of respondents will determine the effectiveness of substance use services program by certain percentages of offenders completing substance use services

Hypothesis 8.2: Facilities that offer formal evaluation of the effectiveness of substance use services will not be statistically significantly different in accreditation status compared to facilities that do not offer formal evaluation.

Hypothesis 8.3: Facilities that offer formal evaluation of the effectiveness of substance use services will not be statistically significantly different in the proportion of facilities’ budgets spent on substance use services than facilities that do not offer formal evaluation of services

Hypothesis 8.4: There is no statistically significant difference in the existence of formal evaluation of the effectiveness of substance use services assessment by the gender of the clients served by the facilities (i.e., females only vs. coed vs. males only.)

1.9 Definition of Terms

Aftercare services- the period of supervision a youth receives after residential placement but prior to their release from custody. The services (ex: substance use counseling, alternative living arrangements, revocation, increased contact with service coordinator) help with the youth offender’s transition back into the community after incarceration (Missouri Department of Social Services: Division of Youth Services, 2006).
**Barriers**- The perceived tangible and psychological costs associated with engaging a particular action. (Glanz, Reimer, & Viswanth, 2008).

**Benefits**- The belief that an action has the potential to reduce risk or serious impact. (Glanz et al., 2008).

**Brief therapy**- “Relies on systematic client assessment, engagement and rapid implementation of behavioral strategies to strategies to change attitudes and address the problems underlying substance abuse” (Drug Strategies, 2003, p.58).

**Coed facilities**- Facilities that serve both male and female juvenile offenders.

**Cognitive behavioral therapy**- “Teaches positive behavioral alternatives to alcohol and other drug use, including refusal skills, anger management, problem-solving, and effective communication” (Drug Strategies, p.58, 2003).

**Effectiveness**- Whether or not respondents believe that their substance use services programs are meeting certain objectives.

**Female-only facilities**- Facilities that only serve female juvenile offenders.

**Formal evaluation process**- Standardized evaluative criteria or procedures used to assess the effectiveness of substance use services.

**Halfway house**- “Provides food, shelter, and vocational, recreational and social services in a supportive, sober, residential environment.” (Drug Strategies, 2003, p. 58).

**Health Belief Model**- A health behavior model is used to explain or predict why people engage or do not engage in particular behaviors, especially health-related behaviors. It is composed of six constructs: perceived severity, perceived susceptibility, perceived barriers, perceived benefits, cues to action, and self-efficacy.
**Juvenile Jurisdiction**- Legal authority to act over juveniles.

**Juvenile justice affiliated facilities**- Facilities which provide court mandated services to juvenile offenders. These may include juvenile correctional facilities, residential treatment facilities, detention centers, half-way houses, and other facilities.

**Juvenile offender**- An individual who is still a minor when arrested for committing a crime. This is usually 17 years of age or lower.

**Maintenance Stage**- The sequential stage in which juvenile justice affiliated facilities provide substance use services to juvenile offenders. This stage is adapted from the Precaution Adoption Process Model, from which a particular behavior has been successfully adopted in this stage (Weinstein & Sandman, 1992).

**Male-only facilities**- Facilities which serve only male juvenile offenders.

**Majority**- In this study, defined as more than 50% of a certain response or measurement.

**Motivational enhancement therapy**- “Helps clients quickly develop strong motivation to curtail substance abuse through therapy consisting of an initial assessment session followed by two to four individual treatment sessions. (Drug Strategies, p. 59, 2003).

**Multidimensional family therapy**- “Addresses adolescent substance abuse in the context of the family, community, peers and other social systems by working intensively with the adolescent and his or her family in a number of settings” (Drug Strategies, p. 59, 2003).

**Multisystemic therapy**- “Addresses comprehensively the multiple determinants of youth and family problems through individualized case management and therapeutic services in
the client’s home environment” (Drug Strategies, p.59, 2003).

**Outpatient treatment**- Non-residential treatment services.

**Precaution Adoption Process Model**- A health behavior model developed to help explain how people come to decisions to take action and how they translate that decision into action. It is composed of 7 sequential stages: 1) Unaware of issue, 2) Unengaged by issue, 3) Deciding about acting, 4) Decided not to act 5) Decided to act, 6) Currently Acting, and 7) Maintenance (Weinstein & Sandman, 1992).

**Relapse**- Occurs when a user resumes a pattern of substance use after a period of abstinence (Lewis, Dana, & Blevins, 2009).

**Residential treatment**- Patients are provided with living arrangements while undergoing treatment services.

**Respondents**- Those individuals who complete and return the survey.

**Self-empowerment training**- “Teaches clients to assert personal control in order to make changes in their lives” (Drug Strategies, 2003, p.59).

**Substance abuse**- “A maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances” (American Psychiatric Association, p. 182, 1994).

**Substance dependence**- “A cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems” (American Psychiatric Association, p. 176 1994).

**Substance use**- Use of any illicit substances at any time.
**Substance use services**- Services offered to juvenile offenders in juvenile justice affiliated facilities (e.g., individual substance use counseling, group counseling, educational substance use services, “other” services).

**Therapeutic community**- “Provides highly structured residential treatment for adolescents with severe substance abuse and other problems for periods ranging from six months to two years” (Drug Strategies, 2003).

**Twelve step approach/programs**- “Builds on Alcoholic Anonymous Twelve Steps to recovery, which views alcohol and other drug abuse as a disease that requires long term management with abstinence as the goal: widely used in treating adolescents, particularly in connection with relapse prevention and continuing care (Drug Strategies, p. 59, 2003).

### 1.10 Delimitations of the Study

The delimitations of this study are as follows:

1. This sample is delimited to program directors of substance use services associated with juvenile justice affiliated facilities in the United States.

2. The sample of respondents from the juvenile justice affiliated facilities was delimited to those found in the 2010 American Correctional Association’s (ACA) 2010 Directory of Adult and Juvenile Correctional Departments, Institutions, Agencies, and Probation and Parole Authorities.

3. The sample was delimited to those who could read the survey in English.
1.11 Limitations of the Study

1. Threats to the external validity of the study may exist due to the possibility of different responses between those who responded and those who did not.

2. The data were self-reported. The responses were associated with views and opinions of respondents and therefore those responses may not reflect the truth pertaining to the issues inquired about on the survey (e.g., forgetting).

3. The responses elicited may include those that the respondents believe that the researcher may expect or desire to record (social desirability).

4. Two states were not included in the study population, which may affect the external validity of the study.

5. Some states’ employees acted as liaison between investigator and respondents (via email). This may have introduced bias (e.g., liaisons changing original responses for more socially desirable ones).

6. The questions on the survey were based on a review of the current literature and opinions of experts. No focus groups were conducted with directors to elicit their ideas prior to the design of the survey.

7. The survey was purposely designed for program directors of substance use treatment in juvenile commitment programs. The survey included specific information related to the study’s purpose. Therefore some information relating to substance use services in juvenile facilities may have been overlooked in the design of the instrument.

8. The study’s survey was constructed with closed ended questions. Therefore it may not
have collected the depth of information available with open ended questions.

9. The directory was not all-inclusive, it was limited to those facilities that were registered with the American Correctional Association. Therefore, there is a possibility that some facilities were omitted from the study population, affecting external validity. The directory was also inaccurate to a degree (1.5% of surveys were undeliverable by postal mail).

1.12 Summary

Substance use has been linked with criminal activities among female juvenile offenders. While arrests for female juveniles have slightly decreased for substance use violations in recent years, substance use continues to be a cause for arrests in females (Federal Bureau of Investigation, 2010). Treating substance use continues to be a challenge for the juvenile justice system.

Marijuana and alcohol continue to be the substances most frequently used/abused among female juveniles (Centers for Disease Control and Prevention, 2010; Substance Abuse and Mental Health Services Administration, 2009; McKelland et al., 2004). Among the various contributing causes for substance use and criminal activity are mental illness and a history of sexual/physical abuse (Cauffman, 2004; Goldstein et al, 2003; Sacks et al., 2008; Harrison, Fulkerson, & Beebe, 1997). Past research has indicated that substance use services for juvenile offenders are available in juvenile justice facilities but many of these services have been evaluated as subpar (Thomas et al., 2005).

Research has indicated that substance use services helps to reduce substance use
in juvenile offenders (Webb et al., 2002). The purpose of substance use services is to provide sufficient and adequate care for youths at risk. Many states have their own standards for creating the curriculum used in substance use services programs. Therefore no universal best practices exists for the creation and implementation of substance treatment for juvenile offenders.
Chapter 2

Literature Review

There is a substantial amount of evidence which indicates that juveniles’ use of illicit substances is associated with higher risks with of criminal activity (Dixon, Howie, & Starling, 2004; Roe-Sepowitz, 2009; Kakar, Friedemann, & Peck, 2002; Lane, 2003; Johansson, 2009; Hickle & Roe-Sepowitz, 2010; Alemagno, Shaffer-King, & Hammel, 2006; Veysey & Hamilton, 2007). Therefore, it is important to assess the substance abuse services offered by juvenile justice affiliated facilities to juvenile offenders who have substance abuse problems. Since there is little research which detail substance abuse treatment currently provided to juvenile offenders, this chapter will offer support for the importance of detailing the current state of substance use services provided to female juvenile offenders in the United States.

Specifically this chapter will address the following topics: 1) Prevalence of Marijuana Use in Adolescents, 2) Prevalence of Alcohol Use in Adolescents, 3) Prevalence of Cocaine Use in Adolescents, 4) Prevalence of Other Illicit Substance Use in Adolescents, 5) Prevalence of Substance Use in Adolescents by Geographical Regions, 6) Trends in Adolescent Substance Use, 7) Substance Use Services for Adolescents, 8)
2.1 Prevalence of Marijuana Use in Adolescents

In the United States, one of the illicit substances most commonly abused by teenagers is marijuana. In 2009, 36.8% of adolescents, ages 14-18, reported having used marijuana at least once within their lifetime and 20.8% admitted to using the drug within the last 30 days (Centers for Disease Control and Prevention, 2010). In contrast, the 2011 Monitoring the Future study which examined the illicit substance use patterns among adolescents during 2010, found that 30.4% of teens reported having smoked marijuana at some point in their lifetimes and 14.8% smoked marijuana in the past 30 days (O’Mailey Bachman, & Schulenberg, 2011). Male teenagers, when compared with female teenagers, reported higher rates of having ever used marijuana, 39.0% to 34.3% (Centers for Disease Control and Prevention, 2010). Males also reported higher rates of having used marijuana in the last 30 days than their female counterparts, 23.4% to 17.9%, respectively (Centers for Disease Control and Prevention, 2010). By the time students reach the end of their high school education, 45.6% of them will have used marijuana at least once within their lifetime (Centers for Disease Control and Prevention, 2010). The reported use of marijuana in the past 30 days increases with grade level of students: 9th grade (15.5%), 10th grade (21.1%), 11th grade (23.2%) and 12th grade (24.6%) (Centers for Disease Control and Prevention, 2010). The Monitoring the Future study also reports that the
proportion of reported marijuana use in the past 30 days increases by grade level: 8th grade (8.0%), 10th grade (16.7%), and 12th grade (20.6%) (Johnston et al., 2011). The number of adolescents who reported using marijuana within the last 30 days differed by racial/ethnic groups: American Indian/Alaskan Native (31.6%), Pacific Islander/Hawaiian (24.8%), Black (22.2%), Hispanic (21.6%), White (20.7%), and Asian (7.5%) (Centers for Disease Control and Prevention, 2010). The number of adolescents who reported having ever experimented with marijuana also varied by racial/ethnic groups: American Indian/Alaska Native (50.8%), Black (41.2%), Pacific Islander/Hawaiian (40.5%), Hispanic (39.9%), White (35.7%) and Asian (13.1%) (Centers for Disease Control and Prevention, 2010).

2.2 Prevalence of Alcohol Use in Adolescents

In 2009, 72.5% of adolescents, ages 14-18, admitted to having ever consumed an alcoholic drink within their lifetimes and 41.8% reported having one or more alcoholic drinks within the last 30 days (Centers for Disease Control and Prevention, 2010). The Monitoring Future Study (2010) found a smaller proportion of teens (53.6%) reporting having ever consumed an alcoholic beverage (Johnston et al., 2011). Alcohol is one of the few substances in which female teenagers reported higher rates of consumption than male teenagers: 74.2% of females and 70.8% of males consumed at least one alcoholic drink within their lifetimes and 42.9% of females and 40.8% of males reported drinking at least one drink within the last 30 days (Centers for Disease Control and Prevention, 2010). By the 12th grade, 79.7% of adolescents reported having consumed at least one
alcoholic beverage within their lifetimes (Centers for Disease Control and Prevention, 2010). Monitoring the Future reports a slightly lower proportion (71%) of 12th graders reporting consumed the minimum of one alcoholic beverage within their lifetimes (Johnston et al., 2011).

As with marijuana, the proportion of adolescents reporting alcohol usage in the last 30 days increases with age/grade level: 9th grade (31.5%), 10th grade (40.6%), 11th grade (45.7%), and 12th grade (51.7%) (Centers for Disease Control and Prevention, 2010). The findings from the Monitoring the Future study also show that the number of teens reporting having consumed alcohol in the past 30 days increased by grade levels: 8th grade (13.8%), 10th grade (28.9%), and 12th grade level (43.5%) (Johnston et al., 2011). Alcohol use is also impacted by adolescents’ racial/ethnic backgrounds: Hispanics (76.6%), American Indians/Alaskan Natives (74%), Whites (73.8%), Blacks (67.6%), Pacific Islander/Hawaiians (68.4%), and Asians (48.9%) reported at least having one alcoholic drink within their lifetimes (Centers for Disease Control and Prevention, 2010). The consumption of alcohol within the last 30 days also differed along racial/ethnic groups: White (44.7%), Hispanic (42.9%), American Indian/Alaskan Native (42.8%), Pacific Islander/Hawaiian (34.8%), Black (33.4%), and Asian (18.3%) students (Centers for Disease Control and Prevention, 2010).

2.3 Prevalence of Cocaine Use in Adolescents

In 2009, 6.4% of adolescents, ages 14-18, experimented with cocaine and 2.8% reported using the drug within the last 30 days (Centers for Disease Control and
Prevention, 2010). In contrast, the Monitoring the Future study (2010) reported that 3.8% of teens admitted having ever used cocaine and 0.9% used it in the last 30 days (Johnston et al., 2011). Males reported higher rates of ever having used cocaine (7.3%) and use within the last 30 days (3.5%) than did females with 5.3% and 2.0%, respectively (Centers for Disease Control and Prevention, 2010). Adolescents’ reporting ever having used cocaine varied by grade level: 9th grade (4.5%), 10th grade (5.6%), 11th grade (7.7%), and 12th grade (7.9%) (Centers for Disease Control and Prevention, 2010). The Monitoring the Future also reports an increase in cocaine use by grade levels: 8th grade (2.6%), 10th grade 3.7%, and 12th grade (5.5%) (Johnston et al., 2011). The use of cocaine within the last 30 days also varied by grade level: 9th grade (2.3%), 10th grade (2.5%), 11th grade (3.3%), and 12th grade (3.0%) (Centers for Disease Control and Prevention, 2010). The Cocaine use (i.e. at least once in their lifetime) also varied by racial/ethnic backgrounds: American Indian/Alaskan Native (10.9%), Hispanic (9.4%), Pacific Islander/Native Hawaiian (8.5%), White (6.3%), Asian (3.9%), and Black (2.9%) (Centers for Disease Control and Prevention, 2010). Lastly, racial/ethnic groups varied on the rates of cocaine used within the last 30 days: Pacific Islander/Hawaiian (7.0%), American Indian/Alaskan Native (6.4%), Hispanic (4.3%), White (2.4%), Black (1.9%), and Asian (2.1%) (Centers for Disease Control and Prevention, 2010).
2.4 Prevalence of Other Illicit Substance Use in Adolescents

2.4.1 Prevalence of Inhalants in Adolescents

Inhalants are characterized as substances that are sniffed or inhaled by users (e.g. glue, aerosol spray cans, paint, gas). In 2009, 11.7% of American teens, ages 14-18, admitted to having ever used inhalants (Centers for Disease Control and Prevention, 2010). The Monitoring the Future study (2010) found similar rates of teens reporting inhalant use when used with illicit substances (12.1%) (Johnston et al., 2011). Female teenagers reported a higher rate (12.9%) of abusing inhalants than their male counterparts (10.6%) (Centers for Disease Control and Prevention, 2010). The rate of reported inhalant use in the last 30 days differed by grade levels: 9th grade (13.0%), 10th grade (12.5%), 11th grade (11.5%), and 12th grade (9.1%) (Centers for Disease Control and Prevention, 2010). The results from the Monitoring Future study also shows that a lower proportion of teens (1.4%) in the 12th grade report having using used inhalants in the past 30 days when compared to 8th graders (3.6%) and 10th graders (2.0%) (Johnston et al., 2011). A reason for the significant discrepancy on the data reported on inhalant use in the last 30 days may be due to the fact that the Monitoring the Future study, unlike the Centers for Disease Control and Prevention, separates inhalant use into two categories: 1) inhalant use including illicit drug use and 2) inhalant use. Inhalant use is impacted by the race/ethnicity of the users: American Indian/Alaskan Native (21.5%), Hispanic (14.0%), Pacific Islander/Native Hawaiian (12.9%), White (11.5%), Asian (9.7%), and Black (8.2%) reported having used inhalants at least once during their lifetimes (Centers for Disease Control and Prevention, 2010).
2.4.2 Prevalence of Heroin Use in Adolescents

In 2009, 2.5% of teenagers in the United States reported having used heroin at least once within their lifetimes (Centers for Disease Control and Prevention, 2010). The Monitoring the Future (2011) reported that 1.4% of teens stated having ever used heroin and 0.4% stated having used the drug in the last 30 days (Johnston et al., 2011). More males (3.2%) reported having ever used heroin than females (1.7%) (Centers for Disease Control and Prevention, 2010). The reporting of having ever used heroin varied by ages of the teenagers: 9th grade (2.1%), 10th grade (2.2%), 11th (3.2%) grade, and 12th grade (2.5%) (Centers for Disease Control and Prevention, 2010). Unlike the Centers for Disease Control and Prevention, the Monitoring the Future reports use of heroin in the past 30 days by grade levels: 0.4% was reported by 8th, 10th, and 12th grade students (Johnston et al., 2011). Heroin use varied by race/ethnicity of the teenagers: Native Americans/Alaskan Natives (6.1%), Hispanics (3.3%), American Indians/Alaskan Natives (3.1%), Asians (2.4%), Blacks (2.2%), and Whites (2.2%) reported using heroin at least once within their lifetimes (Centers for Disease Control and Prevention, 2010).

2.4.3 Prevalence of Methamphetamines in Adolescents

Methamphetamines are also used by American teenagers. The Centers for Disease Controls and Prevention (2010) stated that in 2009, 4.1% of American teens, aged 14-18, had used methamphetamines at least once in their lifetimes. Monitoring the Future (2011) reported almost half as many teens (2.2%) admitting to having ever used methamphetamines (Johnston et al., 2011). A greater percentage of males (4.7%)
reported having ever used methamphetamines than females (3.3%) (Centers for Disease Control and Prevention, 2010). American teenagers’ reporting of ever having used methamphetamines varied by grade level: 9th grade (3.3%), 10th grade (3.7%), 11th grade (5.2%), and 12th grade (4.1%) (Centers for Disease Control and Prevention, 2010). The use of methamphetamines within the past 30 days also varied by grade level: 8th grade (0.7%), 10th grade (0.7%), and 12th grade level (0.5%) (Johnston et al., 2011). The use of Methamphetamine use differs by racial/ethnic groups: American Indians/Alaskan Natives (11.0%), Pacific Islanders/ Hawaiians (7.7%), Hispanics (5.7%), Whites (3.7%), Asians (3.1%), and Blacks (2.7%) used the drug on at least one occasion within their lifetimes (Centers for Disease Control and Prevention, 2010).

2.4.4 Prevalence of Ecstasy in Adolescents

3,4-Methylenedioxymethamphetamine (MMDA) commonly known as “ecstasy,” a substance which typically comes in pill/tablet form, is a popular substance used in teenage social gatherings. In 2009, 6.7% of teens in the United States reported having tried ecstasy at least once during their lifetimes (Centers for Disease Control and Prevention, 2010). The Monitoring the Future study (2010) also found similar rates of teens reporting having ever used ecstasy (5.5%) (Johnston et al., 2011). Ecstasy has been reportedly used at least once by 7.6% of teenage males and 5.5% of teenage girls (Centers for Disease Controls and Prevention, 2010). The use of ecstasy is also influenced by grade level: with 9th graders (4.9%), 10th graders (5.2%), 11th graders (8.7%), and 12th graders (8.0%) reporting using ecstasy on at least one occasion within
their lifetimes. The use of ecstasy in the past 30 days by grade level: 8th grade (1.1%), 10th grade (1.9%), and 12th grade (1.4%) (Johnston et al., 2011). Ecstasy use also varies by race/ethnicity: American Indians/Alaskan Natives (13.3%), Pacific Islanders/Hawaiians (12.0%), Hispanics (8.2%), Whites (6.4%), Blacks (5.1%), and Asians (4.3%) used it at least once during their lifetimes (Centers for Disease Control and Prevention, 2010).

2.4.5 Prevalence of Injecting Illicit Substances by Adolescents

The Centers for Disease Control and Prevention (2010) compiled self-report data on teenagers injecting illicit substances (i.e., any illicit substance by needle) into their bodies. In 2009, 2.1% of American teenagers injected an illegal substance into their bodies at least once in their lifetimes. The rate among females was nearly twice (2.7%) that of males (1.4%) in reporting having injected drugs on at least one occasion during their lifetimes. The use of injected drugs (at least once) varies by grade level: 9th grade (2.0%), 10th grade (2.0%), 11th grade (2.5%) and 12th grade (1.8%). The use of injected substances at least once during adolescents’ lifetimes also differs by race/ethnicity: Pacific Islander/Hawaiian (4.3%), Hispanic (3.1%), American Indian/Alaskan Native (3.0%), Asian (2.6%), Black (2.4%), and White (1.6%)(Centers for Disease Control and Prevention, 2010).
2.5 Prevalence of Substance Use in Adolescents by Geographical Regions

The Substance Abuse and Mental Health Services Administration’s Office of Applied Studies (2008) collected statistics on teenage substance use by geographical regions in the United States. The western region (e.g., California, Utah, Oregon,) had the highest rates of teenagers using the following substances: 10.1% reporting illicit drug use in the last 30 days, 13.7% reporting marijuana use within the last year, and 1.7% reporting cocaine use within the past year. The southern region (e.g., Alabama, Georgia, Arkansas) had the lowest reported rates for the following substances used by teenagers: 8.9% reporting illicit drug use in last 30 days, 11.9% reporting marijuana use in the past year, 6.0% reporting marijuana use in the last 30 days, 8.6% reporting at least one episode of binge drinking in the last 30 days, and 14.2% reporting of having at least one alcoholic drink within the last 30 days.

2.5.1 Factors Associated with High and Low Rates of Substance Use by States

In 2008, substance use by adolescents varied from state to state. The 2008 National Survey on Drug Use and Health conducted by the Substance Abuse and Mental Health Services Administration, collected statistics on American adolescents’ reported substance use habits (Tables 2.1, Tables 2.2)
Table 2.1: Below are the five states with the highest percentage of adolescents reporting using certain illicit substances within the last 30 days.

<table>
<thead>
<tr>
<th>Illicit Drug Use</th>
<th>Alcohol used in the last 30 days</th>
<th>Binge drinking episodes in the last 30 days</th>
<th>Marijuana used in the last 30 days</th>
<th>Cocaine used within the last 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont (13.1%)</td>
<td>Rhode Island (20.7%)</td>
<td>Connecticut (13.5%)</td>
<td>Vermont (17.9%)</td>
<td>Colorado (2.1%)</td>
</tr>
<tr>
<td>Rhode Island (12.4%)</td>
<td>Vermont (20.3%)</td>
<td>Vermont (12.7%)</td>
<td>Rhode Island (17.7%)</td>
<td>Nevada (2.1%)</td>
</tr>
<tr>
<td>Oregon (12.2%)</td>
<td>North Dakota (20.2%)</td>
<td>New Hampshire (12.5%)</td>
<td>Colorado (16.6%)</td>
<td>Arizona (2.1%)</td>
</tr>
<tr>
<td>Colorado (12.1%)</td>
<td>Colorado (19.0%)</td>
<td>North Dakota (12.3%)</td>
<td>Oregon (16.6%)</td>
<td>Alaska (1.7%)</td>
</tr>
<tr>
<td>New Mexico (11.8%)</td>
<td>Montana (18.7%)</td>
<td>Wyoming (11.8%)</td>
<td>Montana (16.3%)</td>
<td>New Mexico (1.7%)</td>
</tr>
</tbody>
</table>

Source: Adapted from The National Survey on Drug Use and Health (2008), The Substance Abuse and Mental Health Services Administration
Table 2.2: Below are the five states with the lowest percentages of adolescents reporting using certain illicit substances within the last 30 days.

<table>
<thead>
<tr>
<th>Illicit drug use</th>
<th>Alcohol used in the last 30 days</th>
<th>Binge drinking episodes in last 30 days</th>
<th>Marijuana used in last 30 days</th>
<th>Cocaine used within the last 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa</td>
<td>Utah (7.1%)</td>
<td>Utah (6.0%)</td>
<td>Mississippi (9.1%)</td>
<td>District of Columbia (0.6%)</td>
</tr>
<tr>
<td>Mississippi</td>
<td>Mississippi (7.3%)</td>
<td>Mississippi (7.0%)</td>
<td>Iowa (9.6%)</td>
<td>Mississippi (0.7%)</td>
</tr>
<tr>
<td>North Dakota</td>
<td>Idaho (7.9%)</td>
<td>South Carolina (7.0%)</td>
<td>Utah (9.7%)</td>
<td>Louisiana (1.0%)</td>
</tr>
<tr>
<td>Georgia</td>
<td>Tennessee (8.1%)</td>
<td>Hawaii (7.1%)</td>
<td>New Jersey (10.5%)</td>
<td>Alabama (1.0%)</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Hawaii (8.2%)</td>
<td>Georgia (7.2%)</td>
<td>North Dakota (10.6%)</td>
<td>Maryland (1.0%)</td>
</tr>
</tbody>
</table>

Source: Adapted from The National Survey on Drug Use and Health (2008), The Substance Abuse and Mental Health Services Administration.

There are several explanations as to why states may differ on the rates of teenage substance use. One explanation is that some states have more stringent controls and regulations than other states when it comes to purchasing alcohol. Kentucky, a state in the mid-south, has some of the lowest drinking rates in the United States. This may be due to the fact that 51 of its counties are “wet/moist” (i.e., allow alcoholic purchases) and 46 are “dry” (i.e., prohibited/restricted alcoholic purchases) (Kentucky Department of Alcoholic Beverage Control, 2009). In Mississippi, which also has one of the lowest rates of
adolescent alcohol consumption, 34 of its 82 counties are legally “dry” (Department of Revenue, State of Mississippi, 2010).

The demographic characteristics of some states also has an impact on teenage substance use. Those states that have larger Native American populations (e.g., Montana and North Dakota) (United States Census Bureau, 2011) are more likely to have higher rates of alcohol consumption. Native American teens suffer the highest rates of reported binge drinking among racial/ethnic groups in the United States (Centers for Disease Control and Prevention, 2010). In contrast, Idaho and Utah, states with sizable populations of Latter Day Saints, report some of the lowest rates of alcohol consumption in the United States.

2.6 Trends in Adolescent Substance Use

In the past ten years in the United States, there has been a decrease in teenagers using/abusing certain substances. The Centers for Disease Control and Prevention (2010) has been tracking substance use rates among American teenagers over a 10 year period and has reported those findings in the 1991-2009 High School Youth Risk Behavior Survey Data (Table 2.3).
Table 2.3: Below are the ten year trends reported for each illicit substance use and the frequency used. Also included are the percentages of change that occurred in those ten years.

Ten Year Trends in Substance Use among American Adolescents

<table>
<thead>
<tr>
<th>Substance use</th>
<th>1999 rate or otherwise stated</th>
<th>2009 rate</th>
<th>+ (-) % change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever consumed an alcoholic drink</td>
<td>81.0%</td>
<td>72.5%</td>
<td>-8.5%</td>
</tr>
<tr>
<td>Alcohol consumed in the last 30 days</td>
<td>50.0%</td>
<td>41.8%</td>
<td>-8.2%</td>
</tr>
<tr>
<td>Ever used marijuana</td>
<td>47.2%</td>
<td>36.8%</td>
<td>-10.2%</td>
</tr>
<tr>
<td>Marijuana used in the last 30 days</td>
<td>26.7%</td>
<td>20.8%</td>
<td>-5.9%</td>
</tr>
<tr>
<td>Ever used cocaine</td>
<td>9.5%</td>
<td>6.4%</td>
<td>-3.1%</td>
</tr>
<tr>
<td>Cocaine used in the last 30 days</td>
<td>4.0%</td>
<td>2.8%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Ever used methamphetamines</td>
<td>9.1%</td>
<td>4.1%</td>
<td>-5.0%</td>
</tr>
<tr>
<td>Ever used inhalants</td>
<td>14.6%</td>
<td>11.7%</td>
<td>-2.9%</td>
</tr>
<tr>
<td>Ever used ecstasy</td>
<td>11.1% (2001)</td>
<td>6.7%</td>
<td>-4.4%</td>
</tr>
<tr>
<td>Ever used Heroin</td>
<td>2.4%</td>
<td>2.5%</td>
<td>+0.1%</td>
</tr>
<tr>
<td>Ever have injected substances into bodies</td>
<td>1.8%</td>
<td>2.1%</td>
<td>+0.3%</td>
</tr>
</tbody>
</table>


The Centers for Disease Control and Prevention (2010) tracked American teenagers’ substance use/abuse for almost 20 years (18 years); from 1991-2009. During this time, there has been an overall decrease in teens reporting ever having consumed an alcoholic drink; from 81.6% in 1991 to 72.5% in 2009. There has been a decrease in teenagers having consumed an alcoholic drink within the past 30 days; from 50.8% in 1991 to 41.8% in 2009. In contrast, from 1991 to 2009 there has been an increase trend
in teenagers reporting having ever used marijuana from 31.3% in 1991 to 36.8% in 2009. There has been an increase in the reporting of teenage marijuana use within the past 30 days; from 14.7% in 1991 to 20.8% in 2009. There has also been an increase in the rate of teenagers reporting having ever used cocaine; from 5.9% in 1991 to 6.4% in 2009.

According to Monitoring the Future (2011), after a decade of steady and consistent declines in drug use by American teenagers, there were small increases in the use of certain drugs from 2009 to 2010 (Johnston et al., 2011). There has been an increase in teens, between the grades of 8-12, reporting having ever used an illicit substance (33.2% in 2009 to 33.4% in 2010). The number of teens reporting having ever used marijuana increased by 1.4% (29.0% in 2009 to 31.4% in 2010). Also, there was a 0.9% increase in ecstasy use (4.6% in 2009 to 5.5% in 2010). According to Monitoring the Future study (2010), the trend of teenagers using methamphetamines has remained stable, with no change in teens reporting having ever used from 2009 to 2010. The Monitoring the Future (2010) reported that heroin use continues to remain low in teenagers. Approximately 1.4% of teens report using heroin at least once in their lifetimes.

One reason for the discrepancy in reported data between the Monitoring the Future Study (2010) and the Centers for Disease Control and Prevention (2010) may be sampling procedures. The Monitoring the Future study (2010), although it used a similar sample size, may have a more representative sample of the American teenage population than the sample used by the Centers for Disease Control and Prevention (2010). The Centers for Disease Control and Prevention’s (2010) sample excluded teenagers from
seven states (i.e., California, Iowa, Minnesota, Nebraska, Ohio, Virginia, and Washington). Some of the excluded states have significant populations (e.g., California, Ohio, and Minnesota). The excluded states may be different in some ways than the other states that have been included (Table 2.4).

Table 2.4: The Centers for Disease Control and Prevention (2010) has been tracking the ten year trends of substance use/abuse by females. The table provides the statistics for the ten year trend of substance use by adolescent females.

<table>
<thead>
<tr>
<th>Substance type</th>
<th>1999 rate or otherwise stated</th>
<th>2009 rate</th>
<th>+ (-) change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever consumed an alcoholic drink</td>
<td>81.7%</td>
<td>74.2%</td>
<td>-7.5%</td>
</tr>
<tr>
<td>Alcohol consumed in the last 30 days</td>
<td>47.7%</td>
<td>42.9%</td>
<td>-4.8%</td>
</tr>
<tr>
<td>Ever used marijuana</td>
<td>43.4%</td>
<td>34.5%</td>
<td>-8.9%</td>
</tr>
<tr>
<td>Marijuana used in the last 30 days</td>
<td>22.6%</td>
<td>17.9%</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Ever used cocaine</td>
<td>8.4%</td>
<td>5.3%</td>
<td>-3.1%</td>
</tr>
<tr>
<td>Cocaine use in the last 30 days</td>
<td>2.9%</td>
<td>2.0%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>Ever used inhalants</td>
<td>14.6%</td>
<td>12.9%</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Ever used ecstasy</td>
<td>10.4% (2003)</td>
<td>5.5%</td>
<td>-4.9%</td>
</tr>
<tr>
<td>Ever used methamphetamine</td>
<td>8.4%</td>
<td>3.3%</td>
<td>-5.1%</td>
</tr>
<tr>
<td>Ever used heroin</td>
<td>1.3%</td>
<td>1.7%</td>
<td>+0.4%</td>
</tr>
<tr>
<td>Ever injected substances into bodies</td>
<td>0.7%</td>
<td>1.4%</td>
<td>+0.7%</td>
</tr>
</tbody>
</table>

The Centers for Disease Control and Prevention (2010) has also been collecting data on female adolescent illicit drug use for almost 20 years (18 years). The 18 year trend of female teenagers using substances mirrors that of the general teenage population. The number of female teenagers reporting having ever used alcohol decreased from 80.9% in 1991 to 74.2% in 2009. There was a decrease in female teenagers reporting having consumed an alcoholic drink within the past 30 days from 48.8% in 1991 to 42.9% in 2009.

The Centers for Disease Control and Prevention (2010) showed that while there have been steady decreases in alcoholic consumption among teenagers, the rates of use for other substances by females have steadily increased during the 18-year time period. There has been an increase in female teenagers reporting ever having used marijuana; from 29.8% in 1991 to 34.2% in 2009. There has also been an increase in the use of marijuana within the last 30 days from 12.5% in 1991 to 17.9% in 2009. There has been an increase in female teenagers admitting to ever having used cocaine from 4.4% in 1991 to 5.3% in 2009. Also, there has been an increase in the trend of female juveniles having used cocaine in the last 30 days from 1.0% in 1991 to 2.0% in 2009.

2.6.1 Comparison of Trends of Substance Use between Adolescent Juvenile Offenders and Adolescent Non-Juvenile Offenders

Juvenile offenders are susceptible to using illicit substances. Juvenile offenders who are detained in correctional or residential types of placement have high rates of substance use. In 2002, 59.7% of male juvenile detainees and 45.9% of female juvenile
detainees (National Institute of Justice, 2003) reported or tested positive for an illicit drug compared to 12.3% of male and 10.9% female juvenile non-detainees (The Substance Abuse and Mental Health Services Administration, 2003). Approximately 57.7% of male juvenile detainees reported or tested positive for marijuana and 32.5% of female juvenile detainees compared to 9.1% of male juvenile non-detainees and 7.2% of female juvenile non-detainees. When assessing cocaine usage in adolescents, 5.5% of male juvenile detainees and 5.1% of juvenile detainees reported or tested positive for cocaine use in contrast to 0.6% of male juvenile non-detainees and 0.6% of female non juvenile detainees. The use of methamphetamine varied among females: with 5.2% of female juvenile detainees reported or tested positive for the substance as did 0.2% of their female counterparts.

2.6.2 Comparisons of Substance Use Juvenile Offenders and Non-Offenders

The use of illicit substances and alcohol has many negative consequences for adolescents. One major consequence of teenage substance abuse has been the impact that it has on individuals’ physical and mental health. Brown, Tapert, Granholm & Delis (2000) found that alcohol dependency in teens may be linked with poorer cognitive performance. Marijuana use also has negative effects on teenagers’ cognitive functioning. Teenagers, who heavily used marijuana, were susceptible to decreased levels of attention, learning, and cognitive processing speed. In addition, teens that used marijuana heavily had marked abnormalities in brain structures and less quality sleep (Jacobus, Bava,
Combined marijuana and alcohol use may possibly lead to deficiencies in users’ ability to learn verbal information. This effect on verbal learning may be caused by the combined substance use that leads to aberrations in the asymmetry of the user’s hippocampus (Medina, Schweinsburg, Cohen-Zion, Nagel & Tapert, 2007).

Adolescents’ substance use can also negatively impact their educational achievement (Roebuck, French, & Dennis, 2004). Adolescents who engaged in binge drinking throughout their high school years were 11% less likely to graduate with a high school diploma than non-binge drinking adolescents (Chatterji & DeSimone, 2005). Adolescents who chronically abused substances in high school were almost 2.5 times less likely to complete high school than adolescents who did not abuse substances (Anderson, Ramo, Cummins, & Brown, 2010). Male juvenile offenders compared to non-juvenile offenders have increased difficulties with peer/family relations, poorer scholastic performance and more behavioral problems (Ronis & Borduin, 2007). Juvenile delinquency negatively impacts both the education of juveniles and their reading/writing abilities (Katsiyannis, Ryan, Zhang, & Spann, 2008). In contrast, reducing substance use may also increase adolescents’ school attendance and ultimately lead to better grades and graduation rates (Engberg & Morral, 2006).

The abuse of substances by adolescents may also have legal and personal ramifications. There is a strong relationship between substance use and juvenile delinquency in adolescents (D’Amico, Edelen, Miles & Morral, 2008; Noyori-Corbett & Moon, 2010; Rainone, Schmeidler, Frank, & Smith, 2006; McBride, Joe, & Simpson,
Those adolescents who used illicit substances were 1.5 times more likely to engage in deviant behavior than adolescents who did not use illicit substances (Dembo, Wareham & Schmeidler, 2007). Middle school students who reported using illicit substances throughout the school year were 73% more likely to engage in high risk sexual behaviors than adolescents who did not use substances (Caminis, Henrich, Ruchkin, Schwab-Stone, & Martin, 2007).

Although, the research does show that substance use is a contributory factor to juvenile delinquency, there are some studies which point to juvenile delinquency co-occurring or contributing to substance use (Spooner, 1999; Martins, Mazzotti, & Chilcoat, 2006; Reboussin, Hubbard, & Ialongo, 2007). One study found that being a member of an illegal street gang was a precursor to substance use in adolescents (Dukes, Martinez, & Stein, 1997). Another study found that the probability of an adolescent being diagnosed with a conduct disorder increased significantly with the occurrence of substance abuse. (Neighbors, Kempton, & Forehand, 1992).

Adolescents’ use of illicit substances has been linked to mental problems (Elkington, Bauermeister, & Zimmerman, 2010). Prolonged cannabis abuse is a potential risk factor for the development of schizophrenia (Rubino & Parolaro, 2008). Adolescents who reported abusing alcohol were 12 times more likely to develop mood disorders than those adolescents who did not report abusing alcohol (Roberts, et al., 2007).

Substance abuse has been cited as a contributing factor to suicidal attempts in adolescents (Cho, Hallfors, & Iritani, 2007; Greydanus & Calles, 2007). Adolescents who had alcohol use disorders and abused hallucinogens were 2.4 and 2.5 times more likely to
have attempted suicide (Kelly, Cornelius, & Clark, 2004). Adolescents who consumed alcohol at pre-teen ages were 2.7 times more likely to have attempted suicide (Swahn, & Bossarte, 2007). One study which looked at the prevalence of suicide among adolescents, found that 17.8% of autopsies performed on African American adolescents and 41% of autopsies performed on White adolescents found cocaine and alcohol ingested before death (Garlow, Purselle, & Heninger, 2007).

Adolescents who used illicit substances were at greater risk for engaging in high risk sexual practices (e.g. unprotected sex) (Bryan & Stallings, 2002). Adolescents who were substance abusers were 54% less likely than those who did not abuse substances to use condoms (Bailey, Gao, & Clark, 2006). One study looked at the relationship between substance use and high risk sexual behavior in juvenile offenders and found that “adolescents who used more marijuana in general as well as specifically in sexual episodes in the 30 days preceding detention reported higher levels of unprotected sex” (Kingree, Braithwaite, & Woodring, 2000, p. 179).

Barnard (2005) states that family problems may also be caused by teenage substance abuse. Many parents, whose children use illicit substances, believe that their teens’ physical and psychological problems are caused by substance use. Family relations may also be harmed as parents give more time and attention to the delinquent child, who has a substance abuse issue, instead of giving time and attention to other family members. Barnard (2005) also states that the impact of an adolescent’s use of illicit substances may also extend to siblings of users. Younger siblings were more likely to use drugs if their older siblings had used drugs.
2.6.3 Impact of Substance Use on American Society

Criminality associated with juvenile delinquency has both economic and personal consequences for the individual(s), victim(s) and American society. In the United States, a juvenile criminal offense costs the crime victim an average of $17,000 to $44,000 (World Health Organization, 2004). When a juvenile drops out of high school and pursues a life of crime and drugs, it may cost $1.7 million in justice system services (Synder & Sickmund, 1999).

In the United States, taxpayers bear the burden for the majority of expenditures associated with substance abuse treatment. According to The National Center on Addiction and Substance Abuse at Columbia University (2009), in 2005, federal, state and local government spending on substance abuse and addiction was $467.7 billion. The federal government spent $357.4 billion taxpayer dollars on preventing and treating substance abuse. Of the $248 billion that the government spent on substance use and addiction; approximately 92.3% was linked to alcohol and tobacco (legal drugs). The National Center on Addiction Substance Abuse found that for every dollar spent by federal and state governments for prevention and treatment of substance abuse and addiction; $59.83 was spent on government programs to rectify problems associated with substance abuse. In 2005, state governments spent $135.8 billion in tax payer dollars for substance abuse and addiction related programs, which was an increase of 13.3% from spending in 1998.

In 2007, in the United States, more than $5.7 billion per year was spent to incarcerate juvenile offenders in residential facilities (Sickmund, Sladky, & Kang, 2008).
Approximately 70% of juvenile offenders are held in state funded, residential facilities which cost on average, $240.99 a day per youth (American Correctional Association, 2008). The three states that had the highest cost per day per juvenile offender were: Connecticut ($726.00), Mississippi ($426.51), and Maine $412.05 (Sickmund et al., 2008).

2.6.4 Factors Associated with Higher Rates of Substance Use in Adolescents

There are many internal and external factors that contribute to substance use/abuse. Family upbringing has a significant impact on adolescents’ substance abuse behaviors (Barrett & Turner, 2006; Kuntsche, & Kuendig, 2006; Horton & Gil, 2008). White male adolescents who lived in households maintained by single mothers were 40% more likely to use marijuana than White male adolescents who lived in households maintained by two parents (Paxton, Valois, & Drane 2007). White male adolescents raised in single father households were 3.4 times more likely to use marijuana than White males living in two-parent households. The authors surmised that these findings might be associated with feelings of social isolation or lack of perceived parental nurturance.

Parental divorce has been linked with increased alcohol experimentation by adolescents (Sartor, Lyskey, Heath, Jacob & True, 2006) and later substance use (Krohn, Penly-Hall, & Lizotte, 2009). Family-related events, which were perceived as adverse, were associated with an increased rate of marijuana use in adolescents (Roberston, Xu, & Stripling, 2010).
The behaviors exhibited by family members may also influence the patterns of substance abuse by adolescents. Epstein, Bang, & Botvin (2007) showed that substance use by older siblings increased the probability of substance use by younger siblings. Younger siblings, with low measured refusal assertiveness levels, imitated the substance use related behaviors of their older siblings. Adolescents, whose fathers were dependent on substances, were more likely to abuse illicit substances than adolescents with non-substance dependent fathers (McCauley-Ohannessian & Hessekbrock, 2008).

Adolescents, aged 12-15, who had mothers who were regular drinkers were 2.5 times more likely to be regular drinkers than adolescents, aged 12-15, whose mothers were not regular drinkers (Scholte, Poelen, Willemsen, Boomsma, & Engels, 2008). In a study by Maggs, Patrick & Feinstein (2008) perceived family strife by adolescents was correlated with their patterns of substance use. The researchers also found that male adolescents, whose parents read to them as children, were less likely to develop alcohol related problems at the age of 16. Adolescents who reported having conflict with parents were 70% more likely to abuse non-medical prescriptions than adolescents who reported less conflict with parents (Herman-Stahl, Krebs, Kroutil, & Heller, 2006).

Adolescents, who had peers who used illicit substances, were more likely to use illicit substances (Mason, Hitchings, McMahon, & Spoth, 2007; Epstein, Bang, & Botvin, 2007; Fite, Colder, & O’Connor, 2006). Adolescents, who used illicit substances, were more likely to be influenced by their peers’ illicit substance abuse habits than of their parents’ substance abuse habits (Windle, 2000). Adolescents, who had parents who were tolerant of illicit substance use, tended to associate with peers who used illicit substances.
D’Amico & McCarthy (2006) were able to establish a connection between perceptions of peers’ illicit substance use habits and adolescents’ use of illicit substances. Those adolescents, who perceived that their peers used illicit substances, were more likely to use illicit substances.

Maltreatment of adolescents (physical/emotional neglect and physical/sexual/emotional abuse), during childhood years, has found to be a contributing factor to substance use in later adolescence (Hussey, Cheng, & Kotch, 2006; Kauffman et al., 2007; Dube, et al., 2006; Shin, Edwards, & Hereen, 2009). A study by Dube Fellitti, Dong, Chapman, Giles, & Anda (2003) examined the impact of adverse childhood experiences on later substance use in adolescents. The study showed that adolescents reporting extensive adverse childhood experiences (e.g., abuse, parental neglect, and parental criminality) were almost 10 times more likely to use illicit substances than adolescents not reporting adverse childhood experiences. Adolescents, who were traumatized in early childhood, were susceptible to developing inhalant abuse disorders (Perron & Howard, 2009). Adolescents with abuse histories (e.g., molestation, abused) were two times more likely to be heavy drug users than adolescents without abuse histories (Bensley, Spieker, Van Eenwyk, & Schoder, 1999).

Adolescents who suffered from psychiatric disorders were at high risks of using or abusing illicit substances (Perron et al., 2009). Bipolar disorder is a risk factor for substance abuse and dependence in adolescents (Wilens et al., 2004). The findings from Cohen, Chen, Crawford, Brook, & Gordon (2007) showed that adolescents diagnosed with schizotypal personality disorders were eight times more likely to use illicit
substances than adolescent without personality disorders. The researchers also found that adolescents with paranoid personality disorders started to use marijuana at the average age of 15, compared to 18 in adolescents without personality disorders.

Conduct behavior disorders have been identified as contributing factors to initiation of illicit substances and use among adolescents (Biederman, Faraone, Wozniak & Monuteaux, 2000; Flory, Millich, Lynam, Leukefield & Clayton, 2003; Van Kammen, Loeber, & Stouthamer-Loeber, 1991). Adolescents diagnosed with conduct behavior disorders were at high risk of having problems stemming from co-occurring use of alcohol and illicit substances (Button, Hyun-Rhee, Hewitt, Young, Corely, & Stallings, 2007). Adolescents with conduct behavior disorders were 11 times more likely to develop a substance use disorder than adolescents without conduct behavior disorders (Cohen et al., 2007). The researchers also indicated that adolescents with conduct behavior disorders started to use marijuana at the average age of 14, compared to age 18 in adolescents without the disorders. Adolescents with histories of conduct problems were twice as likely to be exposed to substances prior to age 15, than adolescents who did not have histories of conduct problems (Odgers, Caspi, Nagin, Piquero, Slutske, Milne et al., 2008).

Elkins, McGue, & Iacono (2007) examined the relationship between teenagers diagnosed with attention deficit hyperactivity disorders and their use of illicit substances. They found that teenagers with attention deficit hyperactivity disorders were more than twice as likely to use illicit substances as teenagers without attention deficit hyperactivity disorders. Approximately, 93% of adolescent substance users, who were diagnosed with
both attention deficit hyperactive disorders and conduct disorders, were diagnosed with non-alcoholic substance dependence compared to 70% for adolescent substance users without attention deficit hyperactivity disorder or conduct disorders (Molina, Bukstein, & Lynch, 2002).

Depression has been linked to substance use in adolescents (Goldstein et al., 2009; Halfors, Waller, Bauer, Ford, & Halpern, 2005; Becker & Grilo, 2005). Children who suffer from depression are at high risk for developing alcohol related problems in early adolescence (Crum, et al., 2008). Depression and substance use also may co-occur in many adolescents (Aseltine, Gore, & Colten, 1998). Teenagers who viewed their lives as less than satisfactory were more likely to use drugs and start at an earlier age than those adolescents who viewed their lives with more satisfaction (Zullig, Valois Huebner, Oeltmann & Drane, 2001). Bender (2007) studied the relationship between asthma and depression in adolescents and the possible impact that both ailments may have on adolescent substance use. He found that asthmatic adolescents who suffered from higher rates of depression were 64% more likely to use cocaine than non-asthmatic adolescents. Clark, De Bellis, Lynch, Cornelius, & Martin (2003) found that major depressive disorders in adolescents, who had alcohol use disorders, may have been in part caused by childhood physical or sexual abuse.

Early use of illicit substances by adolescents is predictive of future illicit substance use. Teenagers, who started drinking alcohol before age 14, were 78% more likely to become alcohol dependent within 10 years of first drinking experiences (Hingson, Heeren & Winter, 2006). Those adolescents who started to drink alcohol at age
13 were most likely to report having alcohol related problems at age 16 (Stueve & O’Donnell, 2005). Adolescents who first consumed alcohol at an early age (i.e. before age 10) outside of a family gathering, were about seven times more likely to develop alcohol related problems than adolescents who never drank alcohol (Warner & White, 2003). Children who smoked more than 10 cigarettes and consumed more than 3 glasses of alcohol by age 14 were more than 2 times likely to develop an ecstasy use problem in later adolescence (Alati, Kinner, Hayatbakhsh, Al Mamun, Najmana, & Williams, 2008).

The media has become an influential factor in the lives of most adolescents in the United States. The media invariably impacts the health of many adolescents (David-Ferdon & Feldman-Hertz, 2007; Brown, 2000; Escobar-Chavez, Tortolero, Markham, Low, Eitel, & Thickstun, 2005). A longitudinal study by Robinson, Chen & Killen (1998) looked at the media’s impact on adolescents’ alcoholic consumption behaviors. The study’s findings indicated that adolescents exposed to music videos which portrayed alcoholic drinks were 47% more likely to drink alcohol than adolescents who did not view the music videos. Primack, Kraemer, Fine & Dalton (2009) established that adolescents who listened to popular music, some songs which may have contained references to marijuana, for four or more hours per day were almost three times as likely to use marijuana as adolescents who listened to music for an hour or less per day. The authors theorized that some songs may contain pro substance use messages which may initiate substance use.

Academic achievement and behavior at school are contributing factors to teenage substance use (Dooley, Prause, Ham-Rowbottom, & Emptage, 2005). Low academic
achievement was a significant predictor of substance use in African-American adolescents (Clark, Belgrave, & Nasim, 2008). Adolescents who had low GPAs and were more popular with classmates were more likely to use marijuana and alcohol than adolescents with higher GPAs and less popular with classmates (Diego, Field & Sanders, 2003). Adolescents who had expectations of going to junior college or lower educational expectations were three and half times more likely to have a substance disorder than adolescents with higher self-academic expectations (Gau, Chong, Yang, Yen, Liang, & Cheng, 2007). African American adolescents who reported having trouble with their school work were 2.6 times more likely to be diagnosed with marijuana abuse/dependence and 3 times more likely to be diagnosed with alcohol dependence than African-Americans who did not report school problems (Gil, Vega, & Turner, 2002).

2.6.5 Factors Associated with Higher Rates of Drug Use in Female Offenders

There are many risk factors for illicit substance use in female juvenile offenders. Traumatizing events (e.g., sexual assault, victimization, abuse,) are contributing factors to substance use in female juvenile offenders (Robertson, Xu, Stripling, 2010). Females, who were abused as children, were at high risk for using illicit substances and engaging in prostitution (Brawn & Roe-Sepowitz, 2008). Females who were maltreated as children were likely to abuse illicit substances which in turn acted as a contributory factor for delinquency (Bender, 2010). Female juvenile offenders who suffered from posttraumatic stress disorders were 3.2 times more likely to have a substance disorder than a female
Female juvenile offenders with mental illnesses are at a high risk for illicit substance use (Sondheimer, 2001). Hussey, Drinkard & Flannery (2007) looked at mental disorders in female juvenile offenders and the associated risk of illicit substance use. The researchers were able to show that female juvenile detainees who suffered from two or more diagnosable mental disorders (77%) and were alcohol dependent (27%) were more likely to use illicit substances than male juvenile detainees, (36% versus 17% respectively). Female juveniles who committed murders were found to have greater mental health problems (e.g. suicidal ideations, depression and anger) and more substance abuse problems than male juveniles who committed murders (Roe & Sepowitz, 2009).

Family interactions play a significant role on the patterns of substance use by female juvenile offenders. Family dysfunction and turmoil (e.g., parental conflicts with teens) lead to higher risks for internalizing/ problems (e.g., mental health disorders) and substance abuse by female juvenile offenders (Gavazzi, Lim, Yarcheck, Bostic, & Scheer, 2008). Hsieh & Hollister (2004) found that female juvenile offenders had more family problems, mental health issues, and sexual abuse experiences than male juvenile offenders.

A history of juvenile delinquency is a predictor of substance use in female adolescents (Tolou-Shams, Brown, Gordon, Fernandez, & Project Shield Study Group, 2007). Female juvenile offenders, just like their male counterparts, who belonged to
street gangs were highly susceptible to illicit substance abuse and illegal activities (Bjerregaard & Smith, 1993). Female juvenile offenders who reported first time use of illicit substances before the age of 12 were 2.7 times more likely than female adolescents without criminal backgrounds to have a co-occurrence of substance related and violent offenses (Prinz & Kerns, 2003).

2.6.6. Protective Factors for Substance Use for Adolescents

Just as there are factors that contribute to adolescent substance use, there are also factors that are protective against adolescent substance use. Some significant protective factors are family relationships and family interactions. Wallace & Fisher (2007) found that African American adolescents, who had parents who disapproved of illicit substance use, were more likely to disapprove of illicit substance use. The researchers reported that the more time families spent with each other, the less likely adolescents were to engage in problem behaviors, substance use, delinquency, and sexual activity (Barnes, Hoffman, Welte, Farrel, & Dintcheff, 2007).

How adolescents view themselves can influence their use of illicit substances. Those adolescents who abstained from using illicit substances scored almost 20 points higher on self-reported quality-of-life measures than those adolescents who currently engaged in illicit substance use (Topolski, Patrick, Edwards, Huebner, Connell, & Mount, 2001). Among minority youth, ages 12-15, high perceived chances of success in life were correlated with lower rates of binge drinking (Griffin, Botvkin, Nichols & Scheier, 2004).
Community and schools may serve as protective factors against adolescent substance use. Cleveland, Feinberg, Bontempo & Greenberg (2008) found that community factors (e.g. community cohesion, community views on substance use) were more protective for younger adolescents and school-related factors were more protective for older adolescents. Adult mentoring, (i.e. non-familial relation) proved to be a protective factor for adolescents’ use of illicit substances. Many adolescents mature without positive family role models or have poor relations with parents; therefore positive non-familial adult mentors were viewed as influential role models (Rhodes, Reddy, & Grossman, 2005).

Religiosity and spirituality have been studied to assess their effectiveness as protective factors against adolescents’ illicit substance use. Sinha, Cnnan, & Gelles (2007) found a negative correlation between adolescents attending worship services and their use of marijuana. They also discovered stronger religious valuation among adolescents was negatively correlated with marijuana use. Miller, Davies, & Greenwald (2000) studied the protective impact that dimensions of religiosity have on adolescent substance use. Those adolescents who measured high on the dimension of “personal devotion,” defined as having an active connection with the “divine,” were 33% less likely to use marijuana and drink alcohol than adolescents who scored lower on the dimension.

2.6.7 Protective Factors for Substance Use in Female Adolescents

Family relationships can serve as a protective factor against female adolescent illicit substance use (Robertson et al. 2010). Females who reported having positive
relationships with their fathers (i.e. good relationship, good communication, father is warm and loving) were 43% less likely to use marijuana than females not reporting positive relationships with their fathers (van den Bree & Pickworth, 2005). Parental support is associated with less likelihood of female adolescents using illicit substances (Simantov, Schoen, & Klein, 2000). Female adolescents, who came from homes in which illicit substance use was not tolerated, reported low rates of alcohol and inhalant use (Schinke, Fang, & Cole, 2008). Female adolescents who ate with family on a regular basis were 51% less likely to use alcohol or drugs than if they did not eat with their family at meal time (Eisenberg, Neumark-Sztainer, Fulkerson, & Story, 2008).

Academics and school associations (i.e., involvement in school events or extracurricular activities) have been studied to assess their effectiveness in protecting female adolescents from substance use. African American female adolescents who reported low academic achievement were 2.6 times more likely to smoke marijuana than those who reported higher academic achievement (Clark et al., 2008). School based programs, which utilized counseling and group sessions can increase female adolescents’ negative views on illicit substances and the consequences associated with usage which consequentially leads to less likelihood of using illicit substances (Froeschle, Smith & Richard, 2007). Some after-school programs can be utilized to help prevent or reduce substance use in high risk adolescents. A group of adolescents, 57% of whom were females, were enrolled in the Positive Youth Development program, an after-school program which taught substance abuse prevention skills to at-risk adolescents. Participants in this program were 63% less likely to consume alcohol upon completion of
the program compared to adolescents who did not participate in the program (Tebes et al, 2007).

Female adolescents who had friends that did not use illicit substances were also less likely to use illicit substances (Maxwell, 2002; Barnes, Mitic, & Leadbeater, 2009). Adolescents who had pro-social friends (i.e., those that do not use illicit substances) had lower rates of illicit substance use (Prinstein, Boergers, & Spirito, 2001). Adolescents who interacted with religious friends stated that they felt inhibited to use illicit substances due to the interactions they have with their religious friends (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002).

2.7 Substance Use Services for Adolescents

2.7.1 Characteristics of Ideal Substance Use Services for Adolescents

Drug Strategies, a nonprofit substance abuse research institute, in their *Treating Teens: A Guide to Adolescent Drug Problems* (2003) identified nine key elements that are important in creating and implementing effective substance abuse treatment programs for adolescents. These elements were identified by an expert panel of leading academics, substance abuse treatment providers, clinical researchers, and adolescent life development experts. The nine key elements are: 1) assessment and treatment matching; 2) comprehensive, integrated treatment approach; 3) family involvement in treatment; 4) developmentally appropriate program; 5) engage and retain teens in treatment; 6) qualified staff; 7) gender and cultural competence; 8) continuing care; 9) treatment outcomes. These elements have been used as graded criteria in past research studies to
evaluate the effectiveness of substance abuse treatment programs provided to adolescents (Henderson, Young, Jainchill, Hawke, Farkas & Davis, 2007; Mark et al., 2006; Branigan, Schackman, Falco, & Millman, 2004).

Assessment and treatment matching is the initial step in finding the best care and resources for the adolescent substance user. As stated by Drug Strategies (2003), treatment experts suggest that substance abuse programs use standard screening instruments, which have been previously tested for validity and reliability, to assess adolescents. The three screening instruments recommended by Drug Strategies are: Substance Abuse Screening Inventory, Personal Experience Screening Questionnaire (PESQ), and Problem Orientated Screening Instrument.

After the initial screening, Drug Strategies (2003) suggests that a comprehensive assessment of the adolescent is important in matching the correct services and resources to be used in treatment. The comprehensive assessment should consist of tools which gather insightful information about the adolescent’s medical, family and psychiatric histories (i.e. bio-psychosocial). Drug Strategies (2003) recommended that the therapist use the results of the assessment to examine the factors that may affect the adolescent’s life, (i.e. which may include their academics, peer relations, socioeconomic issues, and relationships with family members). Ideally, the therapist would use the results from all of the assessments to create an individualized plan for the adolescent. The purpose of the assessment is to determine the needs of the adolescent and which services would be best meet their needs.
Drug Strategies (2003) stated that using comprehensive and integrated treatment approaches are of great importance when administering substance abuse treatment to adolescents. Since substance abuse is often accompanied by other problems, it is important that an “all-encompassing” (i.e. interrelated approach) treatment approach include the services needed to effectively deal with the adolescent’s substance abuse and other interrelated problems. In many adolescents, mental disorders may co-occur with substance abuse. One study found that when treating adolescents for substance abuse, especially adolescents involved with the juvenile justice system, that less than half of adolescents who were identified with treatment needs actually received adequate care (Johnson, Cho, Fendrich, Graf, Kelly-Wilson, & Pickup, 2004). Therefore, for many adolescents, effective substance abuse treatment regimens should also include services that treat mental health disorders or illnesses. Other treatment services may include assisting with learning disabilities, treatment for sexually transmitted diseases, family counseling/therapy, and other services considered essential in treating adolescents.

The third element identified by Drug Strategies (2003) as being important for substance abuse treatment for adolescents is involving the family in the treatment. A family that is fully supportive of the adolescent user’s treatment can increase the odds of success of the treatment. Drug Strategies (2003) states that many adolescents who stopped using illicit substances without formal interventions acknowledged parental support as an important factor in their success. Since family turmoil is a contributing factor to adolescent substance use (Wagner et al., 2010), strengthening family relations may serve as a protective factor for further substance use. Involving the family in
substance abuse treatment also increases the probability of beneficial outcomes for everyone involved in the treatment (Saatcioglu, Erim, & Cakmak, 2006). According to the California Department of Alcohol and Drug Program’s (2003) Youth Treatment Guidelines, family interventions are an important and integral component of the state approved standardized treatment guidelines.

Drug Strategies (2003) stated that effective substance abuse treatment needs to originate from developmentally appropriate programs. Treatment developers need to take into account the rapid developmental change that occurs in adolescents and the behaviors associated with that change (i.e. drug use, sexual activity, defiance of authority). Drug Strategies (2003) recommends that developers need to tailor program activities and services to the needs and concerns of the adolescents. Drug treatment programs must also motivate adolescents to engage in their own treatment.

Drug Strategies (2003) suggested that substance abuse treatment programs must engage and retain their patients. Many adolescents do not seek treatment on their own nor do they successfully complete it. The dropout rates are extremely high for adolescents in substance abuse treatment. Drug Strategies (2003) stated that effective treatment can only occur when the adolescent patient makes an internal commitment to change. To motivate an individual to change his/her behavior, the therapist must foster a relationship based on trust and understanding with the adolescent. It is important to foster an environment in which the adolescent feels comfortable to talk about his/her substance use habits. Adolescents feel more comfortable in seeking and participating in treatment in non-judgmental settings (Stern, Meredith, Gholson, Gore, & D’Amico, 2007). The therapist
must also allow his/her patients to explore their own life problems and guide them to viable solutions. Battjes, Gordon, O’Grady, & Kinlock (2004) found that adolescents stayed longer in treatment if they perceived that they were being treated by competent counselors. Drug Strategies (2003) emphasized the importance of having “tangible, concrete aspects and outcomes if the teen is to remain engaged.”

Drug Strategies (2003) stated that qualified program staff is another essential element for effective substance abuse treatment for adolescents. Since many adolescents have problems which co-occur with substance abuse, it is crucial that staff be trained to deal with these potential problems. Drug Strategies (2003) recommends that a low staff to client ratio helps to create a close therapeutic relationship between client and therapist. It is also important that the other staff (e.g. non-therapists) be educated and trained to assist the therapists in implementing and sustaining the treatment.

Drug Strategies (2003) advised treatment program developers to recognize the socio-cultural change in society. Developers must take into account the cultural norms and customs of their adolescent patients. They must create an atmosphere of tolerance and understanding, to ensure that the patient is able to feel safe and nurtured during their treatment. Drug Strategies (2003) suggested that therapists be aware of how certain cultural backgrounds view or interact with substance use (e.g., substance use tends to increase in Hispanics in accordance with acculturation into society).

According to Drug Strategies (2003), three out of four adolescents relapse to substance use within three months of completion of treatment. Therefore it is crucial that adolescents receive adequate relapse prevention services to help salvage the gains made.
from treatment. Also, referrals will be made to community services/resources to ensure that all of the diverse needs of the adolescents are being treated after treatment.

Lastly, treatment outcomes need to be carefully formulated and progress needs to be measurable. Drug Strategies (2003) strongly urged treatment developers to conduct evaluations on rendered services. This will help ensure that ineffective services are eliminated and effective ones will be improved for future replications. By conducting evaluations, effective programs can increase retention rates and increase patients’ adherence to their treatment.

The most important underlying factor for success in any substance abuse treatment program is to motivate the individual to want to change their maladaptive behavior and to enter treatment. As stated previously by Drug Strategies (2003) internal commitment to change is vital in substance abuse treatment. Often, it takes some time for an individual to realize the severity of his problem before he can make a commitment to change.

Effective substance abuse treatment programs are those that create an environment conducive to increasing the motivation of patients to participate in treatment. Adolescents who perceived that they had a severe substance abuse problem were very likely to be motivated to seek treatment and were likely to report declines in substance use after one year of treatment (Benda & Heflinger, 2007). A study by Battjes, Gordon, O’Grady, Kinlock, & Carswell (2003) found that four out of seven research variables significantly predicted adolescents’ increased motivation to enter substance abuse treatment. The four significant variables were: alcohol and/or other drug related
problems; emotional problems caused by use of alcohol and/or other drugs; engaging in less activities due to use of alcohol and/or other drugs; being incarcerated in a juvenile facility. The four variables point towards adolescents being aware of their problems and their severity.

Since many substance abuse problems for adolescents originate from family-related issues, many effective outpatient programs have integrated family therapy into their interventions. Research has proven that family therapy is one of the most effective types of outpatient treatments for adolescent substance abuse (Williams, Chang, & ACARG, 2000). In a study by Smith, Hall, Williams, An, & Gotman (2006), “Strengths Orientated Family Therapy” (i.e., a family-based intervention which utilizes diverse family-centered services in treatment) was evaluated for its effectiveness in reducing substance abuse in adolescents. The researchers found that 31% of the participants were abstinent after six months of the treatment, which was a significant increase from the 3% of participants who were abstinent at baseline. A substance abuse program utilizing the multidimensional family therapy model was able to reduce (i.e. measuring sample means-days of drug use) adolescent cannabis use from 10.41 days per month at treatment intake to 4.30 days per month after one year of treatment (Liddle, Dakof, Turner, Henderson & Greenbaum, 2008). A study by Liddle, Dakof, Parker, Diamond, Barrett, & Tejeda (2001) assessed the effectiveness of the multidimensional family therapy model, in reducing substance use by adolescents, by comparing its cessation rates to that of adolescent group therapy and multifamily educational intervention. The authors reported that after one year of completed treatment, 45% of adolescents who received
multidimensional family therapy had clinically significant reductions in substance abuse compared to 25% of adolescents who received adolescent group therapy and 32% of adolescents who received multifamily educational intervention.

An important characteristic of successful substance abuse treatment for adolescents is selecting the correct behavioral therapeutic models that form the basis for effective interventions. Cognitive behavioral therapy has been found to be effective in reducing substance use by adolescents in outpatient treatment programs (Deas, 2008). Waldron & Kaminer (2004) conducted a review of past studies that used cognitive behavioral therapy in randomized clinical trials aimed at reducing substance use by adolescents. The majority of the studies showed that group and individual cognitive behavioral therapy interventions were proven to reduce substance use in adolescents. In a study by Vaughn & Howard (2004), which looked at the various models used to decrease substance abuse rates in adolescents, cognitive behavioral group therapy received an “A” rating (i.e. strongest intervention designs and highest desired intervention effect) from a panel of expert reviewers.

Another characteristic of effective adolescent substance abuse treatment programs is contingency management. These interventions operate by providing some sort of incentive or reward that is contingent on the individual completing an objective (Lamb, Kirby, Morral, Gallicka, & Iguchi, 2004). Higgins, Wong, Badger, Ogden, & Dantona (2000) discovered in their study, that after 16 weeks of treatment, those adolescent patients who were treated with contingency management interventions were twice as likely to be abstinent as those adolescents who were not treated with the interventions.
Some substance abuse treatment programs have found success in decreasing adolescent substance use by using motivational incentives (Stitzer, Petry, & Peirce, 2010).

Effective substance abuse treatment programs refer their patients to effective continuing care programs which provide relapse prevention services. Alcoholics Anonymous and Narcotics Anonymous are 12-step programs originally created to assist adults in avoiding relapsing back into substance use. Some of the programs’ components have been modified and adapted for treatment use in other substance abuse treatment programs. Kelly, Dow, Yeterian, & Kahler (2010) conducted a study which examined the impact of Alcoholics Anonymous/Narcotics Anonymous on adolescents’ abstinence of substance use. The authors were able to show that adolescents who attended weekly meetings reported almost twice the “percent days abstinent” (i.e., derived from calculating the number of days without alcohol/drugs by the total number of days in the period and multiplying that number by 10). Chi, Kaskutas, Sterling, Campbell, & Weisner (2009) found that adolescents who attended 20 or more 12-step program meetings within the past six months reported abstinent rates of 71% in contrast to 54.7% of those who did not attend one meeting within the last six months.

Effective programs use medications to assist adolescents in substance abuse treatment. Methadone is a medication which assists opioid users in dealing with withdrawal symptoms and cravings. Bao, Liu, Epstein, Du, Shi, & Lu (2009) conducted a meta-analysis which looked at the effectiveness of methadone in the retention of adolescents in substance abuse treatments. Adolescent patients provided with methadone were 74% more likely to remain in treatment compared to adolescent patients not
provided with methadone. Naltrexone is used to treat individuals with alcohol dependence or addictions. Naltrexone was shown to decrease by one-half the average number of alcoholic drinks consumed in a “drinking day” (i.e., a day in which alcohol is consumed) (Deas, May, Randall, Johnson, & Anton, 2005). Individuals who used acamprosate, another medication used to treat substance dependency, reported three times the “days of abstinence” (i.e., no alcohol consumed in a day) compared to individuals who did not use acamprosate (Niederhofer & Staffen, 2003). Medications combined in treatment may also be effective in treatment. Naltrexone combined with acamprosate has shown some measurable benefits in treating alcohol dependence (Feeney, Connor, Young, & McPherson, 2006).

2.7.2 Ideal Features of Substance Use Services for Female Juvenile Offenders

There is limited research to indicate the ideal characteristics of substance abuse treatment programs for incarcerated female juvenile offenders. Although, there are no specific and universal guidelines for substance abuse treatment for female juvenile offenders, there are several suggested guidelines for successfully treating this population. Molidor, Nissen, & Watkins (2002) recommended nine “key elements” that must be addressed for treating female offenders in juvenile justice affiliated programs. These nine key elements are: 1) staff trained to work with female adolescents; 2) validated screening assessment and other treatment tools; 3) treatment approaches which explore messages received about girls’ roles and expectations and how they are related to substance
use/abuse; 4) family treatment services; 5) special attention paid to sexually abused females and sexual abuse related disorders and support females in getting control over their sexuality; 6) treatment services to build on strengths of females and relapse risks specific to females; 7) treatment methods focused on assisting females into developing drug-free identities; 8) treatment methods to seek out strong women connections in the community to assist in female adolescent transition into post-treatment life; 9) treatment that assists a female to identify the unique ways in which substance use was used as a coping barrier or as self-medication.

As stated previously, screening instruments are of great importance in diagnosing and treating substance use in adolescents. One instrument that is used to screen adolescents for substance use is the Substance Abuse Subtle Inventory. Feldstein & Miller (2007) conducted a review of studies that examined the effectiveness of the Substance Abuse Subtle Inventory in detecting substance abuse disorders. They found that while Substance Abuse Subtle Inventory had high internal consistency on its subscales, it also yielded high rates of false-positives for substance abuse and disorders.

The Problem Orientated Screening Instrument for Teenagers is a “self-reporting multi-problem screening instrument” which screens for problems in troubled adolescents on 10 scales: Substance Use and Abuse, Physical Health Status, Mental Health Status, Family Relations, Peer Relations, Educational Status, Vocational Status, Social Skills, Leisure and Recreation, and Aggressive Behavior and Delinquency (Knight, Goodman, Pulerwitz, & DuRant, 2001, p. 126). The internal consistency coefficients for the various subscales were as follows: substance use and abuse (.87), educational status (.79), mental
health status (.85), aggressive behavior/delinquency scales (.85) and peer relations (.74).

Comprehensive treatment programs are those that provide a vast array of services to assist juvenile offenders in their rehabilitation and have been proven to be successful in reducing substance use in juvenile offenders (Drug Strategies, 2003). Spooner, Mattick, & Noffs (2001) examined the impact of a comprehensive treatment program on reducing adolescent substance use. The program which was given to adolescents (i.e., a significant portion from the juvenile justice system) consisted of the following services: assessment and case management, health education, cognitive-behavioral skills, individual counseling, family program, drug free recreation, and therapeutic community environment. Spooner et al. (2001) documented that after completing the program, participants who reported smoking 10 or more cones of marijuana per day decreased from 48% (pretreatment) to 27% (post-treatment) and those who reported daily heroin use reduced from 49% to 19%, respectively.

Since almost three-fourths of female juvenile offenders have a diagnosable psychiatric disorder (Teplin et al., 2002) and one third of juvenile offenders have co-occurring mental health and substance abuse disorders (Robertson, Dill, Hussan, & Undesser, 2004), an ideal substance abuse program should incorporate mental health services into their treatment. Juvenile correctional facilities must be able to effectively integrate treatment services (e.g. mental health and substance use services) and target specific interventions to high risk individuals (i.e. those with severe drug use/psychiatric histories and criminal backgrounds) (Vaughn, Freedenthal, Jenson, & Howard, 2007).
Cognitive behavior therapy is based on principles that are scientifically based and research has shown to be effective in dealing with a vast array of problems. The approach emphasizes the “here and now,” empowering the individual to learn practical skills to solve their own problems, and to promote constant change (Grazebrook, Garland, & the Board of BABCP, 2005). A review study showed that the majority of cognitive behavioral therapeutic interventions were able to significantly reduce substance use in adolescents (Waldron, Slesnick, Brody, Turner, & Peterson, 2001). A review of randomized studies which examined various substance abuse interventions, found that cognitive behavioral therapy had the strongest empirical evidence for effectiveness in reducing substance use in adolescents (Perepletchikova, Krystal, & Kaufman, 2008). A study by Roberts-Lewis, Palmer, Welch, Wall, & Wiggins (2009) found that a cognitive behavioral approach used in substance abuse treatment significantly improved the measures of behavioral skills (i.e. social involvement, social competence, self-control, pro-social, self-monitoring, over aggression, and relational aggression) in female juvenile offenders. Cognitive behavioral therapy has been showed to be effective when combined with family therapy in reducing substance use in troubled adolescents (Waldron et al., 2001).

Research details the effectiveness of substance abuse treatment for juvenile offenders. Cognitive therapy used with motivation therapy significantly increased the days of reported marijuana abstinence among a mixed population of adolescents (i.e., juvenile offenders and non-juvenile offenders) after treatment (Dennis et al., 2004).

Many juvenile offenders are placed into residential facilities to be treated for
substance abuse. Some of these inpatient substance abuse treatment programs are patterned after therapeutic communities. Therapeutic communities utilize hierarchal treatment models which give increased responsibilities and privileges to patients as they progress through the various treatment stages in the program (United States Department of Health and Human Services, National Institutes for Health, 2002). A successful therapeutic community is one that nurtures and increases patients’ positive changes (e.g., feeling good about self, commitment to stay abstinent) early in the program, therefore increasing treatment retention rates. A therapeutic community that has been used as an effective model for many other therapeutic communities is the Phoenix Academy. Phoenix Academy, originally developed in Phoenix, Arizona, has expanded to 11 programs in 7 states. Juvenile offenders on probation status who were placed into a Phoenix Academy, were more likely to significantly improve on measures of Substance Problem Index (i.e., symptoms of substance abuse listen in the Diagnostic and Statistical Manual of Mental Disorders), Substance Use Density Index (i.e., reported days of use of each one of 12 classes of illicit substances) and Substance Involvement Scale (i.e., range of illicit substances currently used) when compared to juvenile offenders sent to alternative substance abuse treatment facilities (Moral, McCaffrey & Ridgeway, 2004). Individuals were more likely to stay for 90 days of substance abuse treatment at a Phoenix Academy if they showed positive changes within the first 30 days of treatment (Edelen et al., 2007).

The multisystemic therapy model is used to treat adolescent problem behaviors by explaining the influences that the interactions of family and others (e.g. peers, friends,
and community members) have on the individual (Henggler, 1999). Multisystemic therapy borrows its theoretical components from both family systems theories and social learning theories (Henggeler, Melton, Smith, Schoenwald, & Hanley, 1993). Social learning theories are based on the premise that individuals learn by observing the behaviors of others (Bandura, 1977). Family systems are theories which emphasize the importance of interdependency of family members rather than just focusing solely on the individual independent of the family (Gale Encyclopedia of Medicine, 2008). Some substance abuse treatment programs that have used multisystemic therapy, as the basis for their interventions, have witnessed successful declines in illicit substance use in juvenile offenders (Henggeler, Pickrel, & Brondino, 1999; Bukstein 2000; Painter, 2009) and as much as 54% reduction in juvenile arrests (Schaeffer & Borduin, 2005).

Multisystemic therapy has been used to decrease substance use in juveniles from various classes of criminal offenses. Multisystemic therapy reduced substance use by 50% in juvenile sexual offenders after six months of treatment (Letourneau et al., 2009).

Some effective substance abuse treatment programs have integrated family involvement or therapy into their interventions. A study by Chassin, Knight, Vargas-Chanes, Losoya, & Naranjo (2009) examined the impact of family involvement on substance abuse treatment for male juvenile offenders. The authors discovered that family involvement reduced on average, 29% of their deflection scores (i.e., difference between predicted and observed drug use) on reported alcoholic consumption measured on five-point Likert-type scales which measured frequency of alcohol use.
The brief strategic family therapy is one form of family based treatment that has been implemented to reduce substance use in troubled youth. The brief strategic family therapy derives its foundational basis from the family systems theories/models (Szapocznik & Williams, 2000). In one study, juvenile offenders who were treated with a brief strategic family therapy based intervention reported a 36% decrease in the days of marijuana use per month before treatment (Santisteban et al., 2003).

The multiple family group therapy approach integrates group therapy with family therapy in a therapeutic environment with different sets of families. In multiple family group therapy, “the groups focus on interactions occurring within an individual family and interactions between the different families” (Swank & Daire, 2010 p. 241). The multiple family group intervention, used for juvenile offenders in juvenile correctional facilities, not only reduced the criminal recidivism rate by more than 20%, when compared to the national statistics, but also significantly decreased illicit substance use by juvenile offenders (Keiley, 2007).

A key problem for juvenile offenders receiving substance abuse treatment and for adolescents in general, is motivating them to initiate treatment and to later remain in treatment. There are several therapy interventions used to motivate adolescents to both seek and to initiate treatment. One of these interventions is motivational interviewing. Motivational interviewing is client centered counseling style which is directed to elicit behavior change by assisting clients to explore and change any ambivalence in thoughts or behaviors (Rollnick & Miller, 1995). Motivational interviewing has been shown to yield modest success in retaining juvenile offenders in treatment (Stein et al., 2006).
The juvenile drug court model has been used and shown to reduce substance use (Henggeler, Halliday-Boykins, Cunningham, Randall, Shapiro, & Chapman, 2006) and delinquency among adolescents. Juvenile drug courts are those courts which specifically convene on substance violations committed by adolescents. The judge, prosecutors, and the defense attorneys work together to create and implement an effective treatment plan for the adolescent. This team monitors and periodically evaluates the status of the adolescent while he or she undergoes treatment (Sloan & Smykla, 2003). While some studies have shown success for the juvenile drug court model in reducing substance use and delinquency, some have shown that it may not be any more effective than other treatment interventions (Gilmore, Rodriquez, & Webb, 2005). One study showed that while juvenile offenders were less likely to commit a crime while under the juvenile court intervention, those in juvenile court intervention were 2.7 times more likely to use cocaine during their treatment than juvenile offenders from other interventions (Rodriquez & Webb, 2004).

Brief Interventions are used to motivate individuals to initiate substance abuse treatment or to contemplate behavior change (Heather, 1989). A brief intervention that was given to adolescents, between the ages of 14-20, decreased their reported days of drug use by an average of 22 days within a 90-day period. (Breslin, Li, Sdao-Jarvie, Tupker, & Ittig-Deland, 2002). Troubled adolescents, from alternative schools, who were given school based brief intervention sessions, showed a 27% decrease in use of “hard” illicit substances (e.g. cocaine, stimulants, inhalants) compared to no change in
adolescents who did not receive the brief intervention sessions (Grenard, Ames, Wiers, Thush, Stacy, & Sussman, 2007).

Another form of brief intervention is motivational enhancement. It is used to directly challenge harmful ambivalent thinking patterns (e.g., knowing that drugs are harmful but still use them) and to reduce risk by promoting decisive and positive attitudes and practices (Rutledge, Roffman, Mahoney, Picciano, Berghuis, & Kalichman, 2001). Interventions which have used motivational enhancement have been able to decrease substance abuse related problems and the associated consequences (Tevyaw & Monti, 2004).

Many substance abuse programs have incorporated group counseling therapy into their treatment. Some researchers believed that group counseling may not be the ideal treatment for adolescents at high risk for committing delinquency (Dishion, Poulin, & Burraston 2001; Dishion, McCord, & Poulin, 1999). Juvenile offenders placed in group counseling sessions with other juvenile offenders may have their treatment negatively affected by the attitudes or behaviors of their fellow group members (Gifford-Smith, Dodge, Dishion & McCord, 2005). However, some research contradicts these findings. In a study by Waldron, Slesnick, Brody, Turner, & Peterson (2001), group counseling combined with drug/alcohol education and skills training decreased substance abuse by 25% in a group of adolescent users. Juvenile offenders comprised 43% of the program participants.

Some health behavior theories and models have been used with substance abuse treatment with adolescents. The Transtheoretical Model was used to predict which stage
adolescents were in that was more likely to predict dropping out of inpatient substance abuse treatment (Callaghan, Hathaway, Cunningham, Vettese, Wyatt, & Taylor, 2005). The Transtheoretical Model was created to explain the process of behavior change and the techniques that facilitate behavior change (i.e. pre-contemplation, contemplation, preparation, action, and maintenance). The founders of the Transtheoretical Model recommend that interventions and processes of change should be matched to a person’s stage/readiness to change (Prochaska, DiClemente, & Norcross, 1992). A study by Callaghan et al. (2005) found that adolescents had slightly greater treatment attrition rates at the pre-contemplation stage than at contemplation or preparation/action stages.

Lastly, substance abuse programs should also include aftercare services (i.e. a juvenile justice form of parole) and effective case management models which integrate individual services and treatment plans (Belenko et al., 2004). These aftercare services may help decrease the instances of substance use relapse in juvenile offenders if the juvenile justice system treats substance use disorders as chronic illnesses (Chassin, 2008).

### 2.7.3 The Effectiveness of Substance Use Services for Adolescents

Brannigan, Schackman, Falco, & Millman (2004) conducted a national study which examined the different approaches of substance abuse treatment in 144 treatment facilities that served juvenile clients. The two most common approaches were 12-step programs (66%) and cognitive behavioral therapies (57.6%). The following approaches also were used in the treatment facilities: motivational enhancement (19.4%),
multisystemic therapies (18.8%), multidimensional family therapies (13.2%), and therapeutic communities (13.2%). The authors identified the types of substance abuse treatment program settings that were used in the treatment facilities. The two most common setting types were residential (59.0%) and outpatient (58.3%). The three remaining setting types were intensive outpatient (23.6%), day (15.3%), and half-way houses (12.5%).

Brannigan et al., (2004) also examined how accreditation status may affect substance abuse treatment programs in terms of meeting the recommended elements from Drug Strategies (2003). The investigators divided the sample of programs into two groups: accredited and non-accredited. Next, the researchers rated each program on the nine recommended elements. They scored the programs’ elements from a 0 (lowest) to a 5 (the highest). The authors recorded the percentages of programs that scored 4/5 on each of the nine elements. The three elements that received the most 4/5 scores for accredited programs were: qualified staff (56.9%), developmental appropriateness (43.1%), and family involvement (38.9%). The three elements that scored the least 4/5 scores for accredited programs were: outcomes (4.2%), gender and cultural competence (11.1%), and engage and retain (19.4%). The three elements that scored the most 4/5 for non-accredited programs were: qualified staff (50.0%), developmental appropriateness (45.8%), and continuing care (38.9%). The three key elements that scored the least 4/5 scores for non-accredited programs were: outcomes (6.9%), gender and cultural competence (9.7%), and assessment and matching (12.5%).
2.7.4 Treatment Effectiveness

Aos, Miller, & Drake (2006) conducted an evaluation on the effectiveness of the different types of interventions used to reduce juvenile delinquency (per juvenile offender). The evaluation assessed the interventions on the following criteria: effect (i.e. average reduction in rates of delinquency after treatment) and number of studies that used the intervention; benefits to crime victims; benefits to taxpayers; marginal costs; benefits minus costs (i.e. benefits to crime victims + benefits to taxpayers – marginal costs = benefits minus costs). The three treatment interventions with the greatest benefits minus costs per juvenile offender were: multidimensional, adolescent diversion project, and family integrated transitions. On the other side of cost-benefits spectrum, the juvenile wilderness challenge costs society $3,085 per juvenile offender.

2.7.5 Components of Substance Use Curriculum in Juvenile Justice Facilities

Mark et al., (2006) conducted a study with 2,499 substance abuse treatment facilities that were currently treating 10 or more adolescents. The investigators inquired from the facility directors whether the directors used the services that are associated with each of the nine key elements recommended by Drug Strategies (2003) for substance use services. The percentages of directors who reported having provided each of the following services for the element of “assessment and treatment matching” were: assessment comprehensive substance abuse (97%); assessment of mental health (50%); testing HIV (28%); testing for Hepatitis C (19%); testing for STDs (19%). Mark et al.
(2006) also reported the percentages of directors who reported providing the following services for the element of “comprehensive/integrated treatment approaches”: accepts criminal justice clients (93%); accepts persons with HIV/AIDS (93%); accepts co-occurring abuse disorders (92%); accepts pregnant/postpartum women (80%); specific programs/group for co-occurring mental/substance abuse disorders (50%); offers a special program for DUI/DWI (39%); specific program/group for HIV/AIDS (8%).

2.7.6 How Typical Substance Use Services Compare to Ideal Services

Henderson et al. (2007) conducted a national study that assessed the substance abuse treatment services offered to juvenile offenders by treatment facilities. The survey asked facility directors to evaluate the services that were given to juvenile offenders placed in their commitment facilities. The survey measured the directors’ responses by the key elements prescribed for substance abuse treatment for juvenile offenders in the Drug Strategies (2005) report. The 10 key elements for assessing programs used were: systems integration; assessment and treatment matching; recognition of concurring disorders; comprehensive treatment approach; qualified staff; developmentally appropriate program; family involvement in treatment; engage and retain teens in treatment; continuing care; assessment of treatment outcomes. The researchers divided the responses into two types of treatment facilities: institutions (i.e., secure facilities which housed juveniles) and community (i.e., in juveniles’ home communities). Henderson et al. (2007) found that in the institution-based programs, the three key elements that were present most often were: addressing co-occurring disorders (73.5%),
family involvement (70.6%), and use of standardized assessment (70.6%). The three least common elements were: systems integration (2.9%), continuing care (26.5%), and assessment of treatment outcomes (38.2%). The three most common by used elements used in community-based programs were: family involvement in treatment (95.5%), use of standardized assessment (84.1%), and qualified staff (76.1%). The three least common elements used in community-based programs were: developmentally appropriate treatment (13.6%), continuing care (25.0%), and comprehensive services (36.4%).

A study by Mark et al. (2006) also evaluated the substance abuse treatment services provided to adolescents in treatment facilities. The authors analyzed data that were previously collected from a past national study which had examined program directors reporting of the substance abuse treatment services provided to adolescents in treatment programs. The directors used the nine key elements recommended by Drug Strategies (2003) to evaluate the effectiveness of programs’ services. The directors found that only 50% of the facilities utilized recommended comprehensive substance abuse assessments. Approximately 91% of the facilities provided family counseling. However, only 86.7% of the facilities that treated adolescents had substance abuse treatment specifically for their target population. Approximately 84.8% of the facilities provided discharge planning; 82.8% provided aftercare therapy/counseling; and 84.4% provided relapse prevention. Lastly, only 53.1% of facilities offered assistance in getting social services, 35.2%; assisted on finding housing; and 33.2% offered employment counseling and training.
2.7.7 Rates of Substance Use Recidivism in Adolescents

Relapse is a major problem for adolescents who have successfully completed substance abuse treatment (Chung & Maisto, 2006). Relapse is the “resumption of substance use after initial diagnosis and completion of primary treatment for chemical dependency” (Domino et al., 2005, p. 1454). While there have been many recent studies which have examined relapse in adults, “there has been virtually no systematic research on relapse in adolescents” (Maisto, Pollock, Cornelius, Lynch, & Martin, 2003, p. 450). An issue that arises when examining relapse rates among adolescents is how to best separate and measure total abstinence from continuous or sporadic substance use. An individual might not use illicit substances on a daily basis but might only use three to four times on a weekly or monthly basis. For example, it would not be prudent to label an individual who did not use drugs on Monday, as abstinent, if they engaged in substance use on Tuesday. Another problem to measuring relapse may stem from the quantity of illicit substances used that would constitute a true relapse. Does one drink of alcohol, after three weeks of abstinence, truly constitute a relapse especially if no other drinks are consumed for a duration of months? These measurement problems with abstinence have caused much confusion (Miller, 1996).

The definition of substance abuse relapse is important due to the differing “abstinent” rates which are reported by treatment facilities. Therefore careful consideration must be taken in to account when evaluating the abstinent rates reported by substance abuse treatment facilities. Some researchers have tested some of the arbitrary assigned time lines to ascertain which ones most effectively define substance abuse
relapse. Maisto et al., (2003) examined four different definitions that were used to define substance abuse relapse in adolescents who were diagnosed with substance abuse disorders within the last six months. The four definitions, which used 4 days as the period of time to track abstinence, were: 1) any use of alcohol; 2) heavy drinking (5 or more drinks per day); 3) problems associated with any amount of alcohol; and problems associated with heavy drinking. They found that the “any use of alcohol” definition garnered the most responses to alcohol relapse (74%) from adolescents. This confirmed one of the authors’ hypotheses that the most stringent definitions for relapse will yield the highest rates of abstinence. Many studies when evaluating relapse, employ temporal criteria like one year (Maisto, Pollock, Lynch, Martin, & Ammerman, 2001; Shane, Jasiukaitas, & Green, 2003; Winters, Stinchfield, Opland, Weller, & Latimer, 2000) or six months (Cornelius et al., 2003; McCarthy, Tomlinson, Anderson, Marlatt, & Brown, 2005; Williams, Chang, & ACARG, 2000) to evaluate treatment programs’ abstinent rates.

The rates of adolescents relapsing into substance use after treatment varied among treatment programs. Due to the differing criteria used for substance abuse relapse by treatment programs, there were few sources for national statistics pertaining to relapse among adolescents. One study used a sample of adolescents, previously diagnosed with substance abuse disorders. About 3 out of 4 adolescents (77%) reported having used a substance within 18 months of completion of their treatment (Ramo & Brown, 2008). In another study, approximately 15% of adolescents reported little to no use of illicit substances after post treatment duration of two and half years (Tetzlaff, Kahn, Godley,
Godley, Diamond, & Funk, 2005). Other investigators indicated that after one year’s treatment, only 19% of adolescents reported total abstinence (i.e., no substance use whatsoever) but the percentage increased to 44% when adding total abstainers to minor lapsers (i.e., no more than one or two uses of illicit substances in one year) (Winters, et al., 2000). Cornelius et al., (2003) found that two-thirds (66%) of adolescents relapse back into substance use within six months of completing treatment and the average median time to relapse after treatment was 54 days.

Many adolescents who relapsed reported using two illicit substances, marijuana and alcohol (Godley, Dennis, Godley, & Funk, 2004). Alcohol (88%) and marijuana (70%) were the most frequently mentioned illicit substances used during relapse in a sample of post-treatment adolescent substance users (Jainchill, Hawke, & Messina, 2005). One study found that 79% of adolescents used one or more illicit substances after one year of treatment and that alcohol was the initial substance consumed in 46% of the relapse cases (Brown, Tapert, Tate, & Abrantes, 2000). After treatment, some adolescents’ initially used illicit substances, other than marijuana or alcohol, during their first month of reported relapse (Ramo, Anderson, Tate, & Brown, 2005).

The costs of substance abuse treatment programs varied from program to program. The prices ranged from as high as $545 per day for residential treatment at Hazelden Center for Youth and Families to free of charge (i.e. most patients qualify for Medicaid funding) at the Phoenix Academy of Westchester (Drug Strategies, 2003). The costs of providing treatment on a continuous basis for an individual for a full year are $55,700 in residential treatment and $20,045 for outpatient treatment (French, 2003a,
Table 2.5: The following are the selected programs which offer substance use treatment to adolescents. The table includes the program, the intervention services offered, and the average length of stay of adolescent, costs per day for treatment.

<table>
<thead>
<tr>
<th>Program</th>
<th>Intervention type/services</th>
<th>Length of treatment</th>
<th>Costs per patient per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazelden Center for Youth and Families</td>
<td>12-step program</td>
<td>Residential-3 to 4 weeks;</td>
<td>Residential-$545; Outpatient-$360</td>
</tr>
<tr>
<td>Plymouth, MN</td>
<td></td>
<td>Halfway house-60 to 90 days</td>
<td></td>
</tr>
<tr>
<td>Chestnut Health Systems</td>
<td>12-Step program, cognitive behavioral, motivational enhancement, reality &amp; Rogerian therapies</td>
<td>1 month to 6 months</td>
<td>Residential- $495; Day treatment-$350; Intensive counseling-$210</td>
</tr>
<tr>
<td>Bloomington, IL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thunder Road Adolescent Treatment Centers</td>
<td>12-Step program, therapeutic community</td>
<td>Inpatient-1 to 3 months;</td>
<td>Short term inpatient program- $450; Intensive outpatient services-$170</td>
</tr>
<tr>
<td>Oakland, CA</td>
<td></td>
<td>Residential 1 year outpatient 10-12 weeks</td>
<td></td>
</tr>
<tr>
<td>Catherine Freer Wilderness Therapy Expeditions</td>
<td>12-step program, multidimensional family, and wilderness therapies.</td>
<td>Short term residential-21 days</td>
<td>$367</td>
</tr>
<tr>
<td>Albany, OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multidimensional Family Therapy</td>
<td>Multidimensional family</td>
<td>Outpatient-4 to 8 months</td>
<td>$164 per week; intensive version costs $384.</td>
</tr>
<tr>
<td>Miami, FL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phoenix Academy of Westchester</td>
<td>Therapeutic community, cognitive behavioral therapy</td>
<td>1.5 to 2 years</td>
<td>Medicaid-paid for most patients</td>
</tr>
<tr>
<td>Shrub Oak, NY</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.7.8 Contributory and Protective Factors for Recidivism in Adolescents

Treatment retention is of significant importance due to the fact that if substance users do not complete their treatment they may become prone to relapsing into former patterns of substance use. There are many factors that contribute to adolescents relapsing to their pre-treatment patterns of substance use. Some these factors are psycho-social in nature. Social pressure, withdrawal, negative affect, (Cornelius et al., 2003) and low self-restraint (Wilson, et al., 2001) were associated with adolescents relapsing to pre-treatment patterns of substance use. Stress, though underlying reasons remain unclear, is a determinant for substance abuse relapse among adolescents during post treatment. (Sinha, 2001).

Adolescents with psychiatric disorders and illnesses are at high risk for drug relapse (Ramo et al., 2005; Grella, Hser, Joshi, & Rounds-Bryant, 2001; Tomlinson, Brown, & Abrantes, 2004; Shane et al., 2003). Depression has been cited as a significant contributing factor to substance abuse relapse in adolescents. Adolescents who suffered from both major depressive moods and alcohol use disorders had survival times (i.e., duration between treatment completion and relapse) of 19 days compared to 45 days with adolescents who had alcohol use disorders but without major depressive moods (Cornelius et al, 2004). Attention deficit hyperactivity disorder is also a risk factor for substance abuse relapse in adolescents. Adolescent substance users with a probable attention deficit hyperactivity disorder diagnosis were two and half times more likely to suffer from relapse than adolescent substance users without a hyperactivity disorder.
(Latimer, Ernst, Hennessey, Stinchfield, & Winters, 2004). Both depression and attention deficit hyperactivity disorder have been cited as contributing factors for relapse or dropping out of treatment programs (White et al., 2004). In one study of female adolescent substance users, the symptoms of attention deficit hyperactivity disorder decreased after drug treatment but depressive symptoms and substance use returned to pre-treatment patterns. (Whitemore, Mikulich, Ehlers, & Crowley, 2000).

Adolescent substance users with behavioral problems or disorders are at risk for relapse. Those adolescent substance users diagnosed with conduct disorders were more likely to relapse on all categories of illicit substances (Hser, Grella, Collins, & Teruya, 2003). Adolescents having a conduct disorder were 62% less likely to successfully participate in substance use services (Wise, Cuffe, & Fischer, 2001). Four years after treatment, adolescents diagnosed with anti-social personalities were four times more likely to report having consumed alcohol, within the last three months, than adolescents without anti-social personalities (Myers, Stewart, & Brown, 1998).

Treatment attrition, which has many causes, has always been a significant factor in substance use relapse in adolescent users. One national study examining substance abuse treatment outcomes for adolescents found that after 90 days of treatment, more than two out of five adolescents “dropped out” of residential treatment programs and almost three out of four adolescents dropped out of outpatient treatment programs (Hser et al., 2001). Adolescents with emotional problems that are associated with illicit substance use were more likely to drop out of treatment compared to adolescents without emotional problems associated with illicit substance use (Battjes et al., 2004).
Adolescents who were exposed to trauma in the past, but were not diagnosed with Post Traumatic Stress Disorder, were more likely to drop out of treatment in contrast to those adolescents who did not suffer trauma in the past (Jaycox, Ebener, Darnesek, & Becker, 2004).

Just as there are factors that contribute to relapse in adolescents, there are protective factors which safeguard against substance use relapse. Aftercare or continuing care has been cited as a factor increasing abstinence rates in adolescents (Godley, Garner, Passetti, Funk, Dennis, & Godley, 2010). Aftercare, in one study was deemed successful in promoting “new psychosocial factors, which subsequently protect against post treatment relapse” (Latimer, Newcomb, Winters, & Stinchfield, 2000, p. 694). Continuing care has also been successful in reducing environmental risks (e.g., homelessness; living with alcohol or drug use in the home; violent arguments) which in turn helped decrease substance use in adolescents (Garner, Godley, Funk, Dennis, & Godley, 2007). Adolescents who were given assertive continuing care (i.e., involves case management and community reinforcement approaches) were more likely to decrease their pre to post alcoholic drinking patterns from 64% compared to 18% from adolescents who received normal continuing care services (Godley, Godley, Dennis, Funk, & Passetti, 2002).

Support groups (e.g., 12-Step programs) also served as protective factors in helping sustain abstinence and decreasing the risks associated with substance use relapse in adolescents. Adolescents who attended a 12-step program were 158% more likely to be abstinent three years after treatment (Chi et al., 2009). Attendance of 12-step programs by
adolescents strengthens the gains made from outpatient treatment programs (Kelly, Dow, Yeterian, & Kahler, 2010). Motivation was found to be the mediating factor to the successes of relapse prevention in 12-step programs (Kelly, Myers, & Brown, 2000).

The length of treatment has been cited as an effective protective factor against relapse. Adolescents, who had longer treatment periods of three months or more, were 52% less likely to engage in either drug or alcohol use when compared to adolescents with shorter treatment periods (Hser et al., 2001). In a review study, adolescents who had undergone longer treatments for heroin abuse were less likely to undergo relapse (Hopfer, Khuri, Crowley, & Hooks, 2002). Those adolescents who completed their substance abuse treatment program were almost eight times more likely to report abstinence, after one year of treatment completion, than adolescents who did not complete the program or did not participate in treatment (Winters et al, 2000).

Social relationships have the potential to reduce the risks of drug relapse in adolescents. Adolescents, who completed treatment, were 54% less likely to relapse back into pre-treatment substance use patterns if they made friendships or acquaintances with non-substance using peers (Ciesla, 2010). Recovering adolescents who identified support from social networks that they perceived were similar to themselves (i.e. did not use substances), were less likely to relapse than those recovering adolescents who perceived that their social networks were substance users and were similar to themselves (Vik, Grizzle, & Brown, 1992).

Relapse prevention consists of a strategic use of activities (e.g., psychoeducation, identifying warning signs/risks to relapse, coping skills, and increasing self-efficacy).
designed to assist newly treated individuals in mitigating the threats associated with substance abuse relapse (Rawson, Obert, McCann, & Marinelli-Casey, 1993). Participants in a 12-step program were more likely to relapse into alcoholic consumption than adolescents being treated through a prevention relapse program (Wells, Peterson, Gainey, Hawkins, & Catalano, 1994). The results from a meta-analytic review on relapse prevention programs found that the analysis supported the overall efficacy of relapse prevention in reducing substance use (Irvin, Bowers, Dunn, & Wang, 1999).

2.8. Prevalence and Trends of Juvenile Arrests in the United States

According to the national statistics taken from the Federal Bureau of Investigation (2010), in 2009 there were 1,161,830 juvenile arrests in the United States. Out of these arrests, 807,818 were males and 354,012 females (i.e., 30% of total juvenile arrests). In 2009, the three most prevalent crimes committed by female juveniles were property crimes (27.7%), larceny-theft (25.4%) and “all other offenses” (except traffic) (14.3%). In contrast, the three most prevalent crimes committed by male juveniles in 2009 were property crimes (19.8%), “all other offenses” (except traffic) (18.0%), and “Other Assaults” (11.0%). The biggest increases in arrests for female juveniles over the 10-year period of 2000-2009 were for prostitution/commercialized vice (+57.2%), robbery (+30.2%) and forcible rapes (+27.3%). In contrast, the biggest decreases in arrests for female juveniles over the 10-year period of 2000-2009 were suspicion (-81.0%), gambling (-70.4%), and motor vehicle theft (-59.6%). The biggest increases in arrests for
male juveniles over the 10 year period of 2000-2009 were for robbery (+16.7) and murder and non-negligent manslaughter (+4.0%). The biggest decreases in arrests for male juveniles over the 10 year period of 2000-2009 were for forgery and counterfeiting (-67.6), embezzlement (-67.3), and motor vehicle theft (-59.6).

According to the Federal Bureau of Investigation (2010b), the three states with the highest numbers of juveniles arrested were California (203,345), Texas (170,190) and Florida (105,805). The states reporting the lowest numbers of juveniles arrested were: District of Columbia (D.C.) (768), Vermont (1,531) and West Virginia (2,244). When averaged by the total number of states reporting juvenile arrests, the western region (e.g., California, Washington, Nevada) of the United States had the highest average juveniles arrested with 45,258 arrested per western state. This finding may be derived from important factors such as the states’ adolescent population, metropolitan cities, liberal views on crime and drugs, and other factors.

2.8.1 Demographics of Incarcerated Juvenile Offenders

Sickmund et al. (2008) reported that, in 2006, there were 92,854 juveniles held in correctional/residential treatment facilities in the United States. The authors provided the following statistics indicating the racial/ethnic makeup of incarcerated juveniles: Black (40%), White (35%), Hispanic (20%), American Indian (2%), Asian (1%) and “other races/ethnicities” (1%). During that same year, 13,943 female juveniles were placed into correctional/residential treatment facilities. The racial composition of incarcerated female
juveniles was: White (43%), Black (34%), Hispanic (16%), American Indian (.03%), Asian (.009%), and “other races and ethnicities” (.02%).

According to Sickmund et al. (2008), in 2006, 69% of juvenile offenders were placed into public correctional/residential treatment facilities and 31% were placed into private facilities. The three states with the most juveniles incarcerated in their facilities were California (15,240), Texas (8,247), and Florida (7,302). In contrast, the three states with the least number of juveniles incarcerated in their facilities were Vermont (54), Hawaii (123), and New Hampshire (189). The significant differences are likely due to population size factors and differences in urban/city.

2.8.2 Rates of Incarceration among Female Juvenile Offenders by Regions

Sickmund et al. (2008) reported that in 2006, 13,943 females were placed into correctional/residential treatment facilities in the United States. The three states with the most female juvenile offenders in correctional/residential treatment facilities were California (1,854), Texas (1,101), and Florida (1,014). It appears states with the larger populations of adolescents and/or those with more metropolitan areas had the greatest numbers of incarcerated female juveniles. Those states with smaller populations of adolescents and/or fewer metropolitan areas had the fewest incarcerated female juvenile offenders were Vermont (3), Maine (24), and Delaware (27).
2.8.3 Trends in Juvenile Delinquency and Incarceration

According to the Federal Bureau of Investigation (2009), the United States witnessed a steady ten-year decline (1999-2008) in juveniles being arrested for criminal offenses. In 1999, 1,007,838 males were arrested in contrast to 819,807 arrested in 2008, an 18.7% decline. There has also been a 7.8% decline over the last 10 years in females being arrested. However, when examining a 20-year trend in juvenile justice cases (1987-2007) there has been a 27% increase in cases handled by juvenile courts (Puzzanchera & Kang, 2010). The cases handled by juvenile courts peaked in 1997, but has been on a steady decline. There has been an overall 21% increase in cases being handled for male juvenile offenders over a 20 year period, 1997-2007. The cases handled for males also peaked in 1997, but has been on a gradual decline. During a 20 year period (i.e., 1987-2007), there has been a 47% increase in female delinquency cases handled by juvenile courts (Puzzanchera & Kang, 2010).

According to the statistics collected by Sickmund et al. (2008), there were 92,854 juveniles placed in correctional/residential treatment facilities in the United States; a decrease of 12% from 105,055 in 1997. In 2007, 78,911 male juveniles were placed in correctional/residential treatment facilities; a decrease of 14% from 90,771 in 1997. In 1997, the three leading criminal offenses which led to male juveniles being placed into correctional/residential treatment facilities were: burglary (11.7%), aggravated assault (9.0%) and robbery (8.9%). In 2006, the three leading criminal offenses which lead to males placed into correctional/residential treatment facilities were: burglary (10.7%), sexual assault (8.5%) and robbery (8.0%)
Sickmund et al. (2008) reported that in 2006, 13,943 female juveniles were placed into correctional/residential treatment facilities, a 3% decrease from 14,284 in 1997. In 1997, the three leading criminal offenses which lead to female juveniles being placed into correctional/residential treatment facilities were: simple assault (10.0%), theft (7.9%), and aggravated assault (7.7%). In 2006, the three leading criminal offenses for female juveniles being placed into correctional/residential treatment facilities were: simple assault (13.4%), aggravated assault (8.1%), and theft (7.9%). In both years of 1997 and 2006, the biggest single age group of female juveniles being placed into correctional/residential treatment facilities was 16-year olds.

2.8.4 Criminal Recidivism among Juvenile Offenders

According to Synder & Sickmund (2006), there is no existing national recidivism rate due to the fact that juvenile justice systems vary from state to state. However, the authors cited results from a Virginia Department of Juvenile Justice study which attempted to assess the recidivism rates of the various states. The study was able to obtain statistics that displayed the recidivism rate for juveniles from a few of the responding states. The Virginia Department of Juvenile Justice study asked states to provide statistics showing the prevalence of juvenile offenders being re-arrested and whether they were referred to either the adult or juvenile court systems. The study also gathered data about juvenile offenders’ reconviction/readjustment and re-incarceration/re-confinement rates. Out of all of the responding states, Virginia, Florida, and Maryland were the only states that were measured in more than one category.
2.8.5 Contributory Factors to Delinquency among Adolescents

Psychiatric/mental illnesses or disorders are factors that contribute to juvenile delinquency. Anti-social personalities and other personality disorders were found to be antecedents to juvenile delinquency (Dembo, LaVoie & Schmeidler, 1987). A study by Kataoka, Zima, Dupre, Moreno, Yang, & McCracken (2001) found a high rate of criminal recidivism among female juveniles who were diagnosed with mental disorders. Detained youths had almost three times the rate of mood and substance abuse disorders as non-offending youths (Grisso, 2005). Female juvenile detainees displayed significantly greater psychiatric problems and childhood maltreatment than did males (Abrantes, Hoffman, & Anton, 2005). Findings from a study by Taylor, Kemper-Skubic, Looney, & Kistner (2009) demonstrated that male offenders in the psychopathy group (e.g. highest measures on substance use, juvenile disposition, and unruliness) had the highest rate of criminal recidivism at 50% when compared to other groups of male offenders. Conduct behavior disorders were diagnosed in almost one half (46%) of incarcerated adolescents (Robertson et al., 2004).

Depression may be a contributory factor to both males and females committing delinquent activities (Timmons-Mitchell, Brown, Schulz, Webster, Underwood, & Semple, 1997; Kerig, Ward, Vanderzee, & Armzen-Moeddel, 2009; Manasse & Ganem, 2009). Depression may lead to many female juveniles using illicit substances and to “acting out” behaviors which leads to arrests (Odgers, Moretti, Burnette, Chauhan, Waite, & Reppucci, 2007). In males, depression may be a link between rejection by peers and criminality (Vaske & Gehring, 2010). Female juvenile offenders were 85% more likely to
be diagnosed with major depression than female juvenile non offenders (Teplin, Abram, McClelland, Dulcan, & Mericle 2002). In a study looking into diagnosable mental/psychiatric disorders in juvenile offenders, 55% of female offenders met the criteria for two or more mental/psychiatric disorders (including depression). A little less than half (45%) of male juvenile offenders met the criteria for two or more mental psychiatric disorders (Abram, Teplin, McClelland, & Dulcan, 2003).

Smith, Leve, & Chamberlain (2006) reported that 93% of female juvenile offenders claimed that they were either physically or sexually abused at some point during their childhoods. Approximately 76% of the female juvenile offenders claimed that they were sexually abused before the age of 16. Gaarder & Belknap (2002) found through qualitative interviews with female juvenile offenders that many of them reported having been sexually and physically abused by their parents.

2.8.6 Protective Factors against Delinquency among Adolescents

There are protective factors that deter adolescents from committing criminal activities. Two of those factors are religion and family activities. Steinman (2005) found that adolescents who were involved in family activities (e.g., games, picnics, sporting events) were 19% less likely to sell illicit substances than adolescents not engaged in family activities. Steinman showed that adolescents involved in religious activities (e.g., church services, Sunday school, group prayer) were 6% less likely to sell drugs than adolescents not involved in religious activities. Adolescents raised by single parents, who participated in religious activities, were 20% less likely to engage in the trajectories that
are associated with delinquency (Petts, 2009). A study by Sinha et al. (2007) established that religiosity increased adolescents’ self-esteem which in turn reduced the school truancy rates among adolescents. The investigators also found that healthy levels of self-esteem can serve as buffers against the trajectories that lead to juvenile delinquency.

How a family organizes their household activities can also have an influence on juvenile delinquency. Children from households organized by specific dictums (e.g. exact times when family members are expected home) are less likely to be involved in juvenile delinquency (Crosnoe, Glasgow-Erickson & Dornbusch, 2002).

The relationship between parents and their children has a major influence on juvenile delinquency. Adolescents that reported having shared activities with their parents had decreased odds of exhibiting violent behaviors (Resnick, Ireland, Borowsky, 2004). Parental expectations may also have protective benefits in reducing substance use in adolescents. Adolescent females were 31% less likely to commit violent offenses if they perceived that their parents had high academic expectations for them (Blum, Ireland, & Blum, 2003). Parental monitoring may be a contributing factor to adolescents’ aggressive behaviors. Adolescents who reported receiving low parental monitoring were 59% more likely to carry weapons in both school and community settings (Orpinas, Murray, & Kelder (1999).

Family intervention treatment (i.e., programs designed to reduce family conflicts by including family members in the therapeutic process) can play an important factor in the reduction of criminal activity by teenagers. Latimer’s (2001) meta-analysis examined studies that looked at the impact of family intervention treatment on juvenile recidivism
rates. The investigator found that family intervention treatment when compared to non-family interventions significantly decreased criminal recidivism rates among juvenile offenders. The results from this meta-analysis also indicated that 76% of the studies showed that family intervention treatment, in which participation was voluntary, were significantly more likely than mandatory-court family interventions to reduce criminal recidivism in juveniles.

Academic interventions (i.e., programs designed to improve students’ academics) that are complemented with other important services have been used to reduce criminal recidivism among juvenile offenders. Norbin, Rasmussen, & Von-Frank, (2004) reported the success of such a program, “Team Child,” which improved juvenile offenders’ access to educational services, mental/psychiatric services and family services. The program was successful in decreasing the arrest rate by 22% for repeat juvenile offenders. Archwamety & Katsiyannis (2000) showed that academic interventions reduced the recidivism rate by twofold among incarcerated juvenile offenders.

Factors associated with the school setting or environment may also have an impact on juvenile delinquency. Students, who attended high schools with lower dropout and lower suspension rates, were two times less likely to commit law violations compared to students who attended schools with higher dropout and suspension rates (Christle, Jolivette, & Nelson, 2005). A longitudinal study conducted by Daigle, Beaver & Turner (2010), identified specific protective factors that could assist in fostering resiliency in adolescents against committing crimes. The study’s results indicated that commitment to school/academics can serve a protective role in preventing juvenile
delinquency. The researchers were also able to show that school pride creates a feeling of belonging and identity in many adolescents.

Juvenile delinquency prevention programs that are comprehensive in nature may also assist in reducing the juvenile crime rate. Pullmann, Kerbs, Koroloff, Veach-White, Gaylor, & Sieler (2006) assessed the effectiveness of the “Connections” program in reducing recidivism among juvenile offenders. “Connections” helped coordinate and organize delivery of services to children and parents from multiple providers. This program employed a mental health professional, a family assistance coordinator, a probation counselor and a juvenile services professional. These professionals worked together to treat juvenile offenders with diagnosable behavioral disorders. Pullmann et al. (2006) were able to show that juvenile offenders treated by Connections were three times less likely to commit a felony offense than juvenile offenders treated by the traditional behavioral and mental health programs offered through the juvenile justice system. This finding illuminates the importance of tailored behavioral and mental interventions targeted to reduce criminality in juvenile offenders.

Programs that are designed to foster pro-social behaviors (i.e., personal and interpersonal skills) among adolescents may serve as protective factors against juvenile delinquency. Anderson-Butcher & Cash (2010) presented findings that adolescent participation in social organizations (e.g. Boy and Girls Clubs) served as a protective factor by reducing adolescents’ poor self-concepts which in turn leads them to not engage in problem behaviors (e.g., gang involvement, alcohol use, academic failure). Involvement in pro-social activities has also been correlated with lower rates of conduct
behavior problems and juvenile delinquency (Kaufmann, Wyman, Forbes-Jones & Barry, 2007).

Peer influence is integral to the behaviors of many adolescents. Just as peer influence can serve as a contributing factor to adolescent delinquency, it may also have a positive impact on adolescent behavior. Hoge, Andrews, & Leschied (1996) showed that increased interactions with non-delinquent positive peers led to decreased rates of juveniles reoffending. They were also able to postulate from their findings that increased interactions with non-delinquent positive peers led to an increase in juvenile offenders’ compliance with the terms of their aftercare release.

2.9. The Juvenile Justice Court System

Juveniles, who are arrested for committing crimes, are referred to the juvenile justice system. According to the Office of Juvenile Justice and Delinquency Prevention (2008 A), the age in which an offender is considered a juvenile varies from state to state. In most states, juvenile offenders are classified as individuals who committed criminal offenses before turning eighteen years of age. Three states, Connecticut, New Mexico and North Carolina, categorize offenders as juveniles when they are 15 years old or younger when committing a crime. The Office of Juvenile Justice and Delinquency Prevention (2008 A) explains that a state can extend their legal jurisdiction over a juvenile offender beyond the age of 17, depending on the crime(s) and the offender’s criminal record. The states vary on the ages, from 18 to 24, in which they can keep extended jurisdictions over their juvenile offenders. The juvenile justice systems of three
states, Colorado, Hawaii and New Jersey, have jurisdiction over an offender continues
until the completion of the full term of the disposition order for the criminal offense(s).

The legal process which an accused juvenile must go through is almost as
extensive as that of an adult. The legal process for a juvenile offender varies from state to
state. According to the Office of Juvenile Justice and Delinquency Prevention’s website
(2008 B), the first step entails a juvenile being arrested by law enforcement for engaging
in a criminal activity. Upon the juvenile’s arrest, law enforcement can either release the
juvenile to their parents without any charges or may recommend that the juvenile’s case
be tried in a juvenile court. This decision is usually taken after considering the severity of
the juvenile’s crime, the juvenile’s past criminal record and interviews with the juvenile,
the juvenile’s parents, and the crime victims. Before a decision is made to refer the
juvenile’s case to a juvenile court, the juvenile probation department or the prosecutor’s
office must determine if enough evidence warrants that the case be brought before a
juvenile court. If evidence is sufficient, then it will be decided if the case will have a
formal or informal intervention. Most informal interventions are eventually dismissed
outright. Other informal interventions usually require that the juvenile voluntarily comply
with specific written conditions over a specific duration of time. These conditions can be
comprised of mandatory school attendance, substance abuse counseling and restitution to
the crime victim(s). In most cases, if the offender successfully complies with the
conditions, his/her case is dropped. If the juvenile offender does not successfully
complete the conditions, his/her case may be referred formally to a juvenile court. If the
case is to be formally prosecuted, juveniles may be housed in detention centers until their court date.

The Office of Juvenile Justice and Delinquency Prevention (2008 B) states that a detention hearing must be held within a specific time period to allow the judge, after reviewing the case, to decide to either keep the juvenile in detention or to release him to the custody of his guardians until the date of their court appearance. Next, a prosecutor can decide if the case will be either tried at either a juvenile or at an adult court. If the case is to be tried before a juvenile court, then waiver or delinquency petitions may be filed. A delinquency petition requests that the juvenile be adjudicated (i.e. become a legal ward of the court). The Office of Juvenile Justice and Delinquency Prevention (2008 B) cites that in 2005, juveniles were given adjudicated status in 66% of the cases that were petitioned to juvenile court for criminal offenses. The prosecutor files a waiver petition if he/she feels that the case should be conducted in an adult criminal court. This decision usually involves an evaluation of the severity of the offense(s), the juvenile’s criminal record, and whether it is believed that the juvenile can be rehabilitated. If the court believes that the case should be transferred to a criminal court, then the jurisdiction of the juvenile system will be waived.

According to the Office of Juvenile Justice and Delinquency Prevention (2008 B), once the juvenile is adjudicated, a disposition plan is created. A disposition plan is created to assess the services that would be most successful in rehabilitating the juvenile offender. These services typically consist of either placement into a correctional/residential facility or probation contingent on completion of specific
conditions (e.g. substance abuse counseling, curfew). The juvenile is then given a disposition hearing, in which dispositional recommendations are considered by the judge. Next, the judge may decide to give probation to the juvenile or may have the juvenile committed into a correctional/residential facility. The type of facility and duration of the sentence is contingent on the crime, the juvenile’s criminal record and his/her specific needs. Usually by this stage of the legal process, the juvenile is either placed in a correctional/residential facility or given probation. If the juvenile is placed in a correctional/residential facility, he or she will need to successfully complete the conditions set for their placement. After a juvenile is released from his/her placement, he/she will be given aftercare services, equivalent to adult parole. The juvenile continues to be the legal ward of the juvenile court until successful completion of aftercare.

2.10 Juvenile Justice Facilities

2.10.1 The Characteristics of Juvenile Justice Facilities

According to a 2004 juvenile residential facility census conducted by Livesy, Sickmund & Sladky, (2009), there were approximately 2,809 facilities which serve juvenile offenders in the United States. Approximately 42% of juvenile facilities were publicly funded and they held approximately 69% of juvenile offenders. The larger facilities, those with 50 or more juveniles, were more likely to be publicly funded. The census identified the different types of juvenile facilities: detention centers, shelters, boot camps, reception/diagnostic centers, group homes/halfway houses, training school/long-term secure facility, ranch/forestry/wilderness camp/marine program and residential
treatment centers. Residential treatment facilities and group homes were the most frequently identified facility types from the census. The census also found that even though most juvenile facilities were small (50 juveniles or less) and private, most juvenile offenders were being placed in larger facilities. Group homes, those with 20 or less residents, were the most prevalent type of facilities.

Livesy et al. (2009) report that 67% of public facilities locked juvenile offenders in their rooms while they slept compared to only 7% of private facilities. They found that 83% of the largest facilities, those with 200 or more juveniles, locked the juveniles in their rooms while they slept. Also, 80% of public facilities reported having one or more confinement features (other than locking sleeping rooms) in contrast to only 25% of private facilities. The authors stated that detention centers had the highest rate (92%) of having one or more confinement features. Group homes (15%) reported having the lowest rate of having one or more confinement features.

Livesy et al. (2009) also documented the capacity in holding juvenile offenders in residential facilities. They found that as the size of a facility increased, so did the likelihood of it being overcrowded. Livesy et al. (2009) reported that 28% of the largest facilities, those with at least 200 juveniles, were over 100% capacity. In contrast, none of the smallest facilities reported being over 100% capacity. Among facilities’ operations, 11% of publicly funded facilities were over 100% capacity.

The duration of stay for juveniles at residential facilities is dependent upon the ruling of the juvenile court judge. The judge considers the crime, the offender’s family background, and interviews with social workers, teachers and other important persons in
the offender’s life before issuing a ruling (Gaines and Miller, 2008). According to Synder & Sickmund (2006), 80% of juveniles had been in a facility for at least 30 days, 68% for at least 60 days, and approximately 57% were still held after 90 days. After 180 days of placement, 35% of juvenile males and 29% of juvenile females remained in custody. After 180 days of placement, 35% of white juveniles and 33% of non-white juveniles remained in custody. Homicides (Mdn=345 days) and sexual assaults (Mdn= 271) were the two crimes in which juvenile offenders spend the most days in placement. Adolescents who committed person-person crimes spent the most days in placement regardless if it were private or public facilities.

2.10.2 Geographical Locations of Juvenile Justice Facilities

According to Livsey et al. (2004) the three states that had the most publicly funded juvenile justice facilities were: California 121, Texas 86, and Ohio 65. The three states with the most privately funded juvenile justice facilities were: New York 159, California 154, and Pennsylvania 127.

2.10.3 Programs Offered by Juvenile Justice Facilities

The programs/services offered to juvenile offenders differ by types of juvenile justice affiliated facilities (i.e., residential facilities, jails, and community corrections). Young et al. (2007) recorded the prevalence of programs and services offered to juvenile offenders by types of juvenile justice affiliated facilities. The three most common services/programs offered to juvenile offenders by all three facility types were:
education/GED programs (73.8%), assessment for mental health disorders (62.3%), and physical health services (58.6%). The three least common services/programs offered to juvenile offenders by all facility types were: hepatitis C screening (24.3%), domestic violence intervention (21.3%), and transitional housing (15.3%).

Young et al. (2007) also gathered statistics regarding the prevalence of substance abuse services offered to juvenile offenders by the three types of juvenile justice affiliated facilities. In all three types of juvenile justice affiliated facilities, the most prevalent substance services offered were: drug/alcohol education (75.2%), substance abuse group counseling (i.e., 1-4 hours/week), and relapse prevention (32.1%). The least offered substance abuse services found in all three types of juvenile justice affiliated facilities were: therapeutic community (i.e., long term residential care)- non-segregated 6%, therapeutic community-segregated (18%), and case management (21.2%).

2.11 Health Behavior Models

The Precaution Adoption Process Model, developed by Neil Weinstein (1988), is used to explain how individuals come to decisions to take action and how they translate that decision into action. An individual usually goes through a process of acknowledging and understanding before they can take action on making a behavior change. If an individual decides to make a behavior change, they usually progress through specific stages until they successfully make the behavior change. These stages are defined in the Precaution Adoption Model as: 1) Unaware of issue, 2) Unengaged by issue, 3) Deciding about acting, 4) Decided to take or not take action, 5) Acting, and 6) Maintenance
Interventions designed to facilitate behavior change should be matched to the individual’s stage/readiness to change (Weinstein, Lyon, Sandman, & Cuite, 1998). While this model is usually applied to individuals’ volitional control over behavior, in this study it will be applied to assess the current state of implementation of substance use services in juvenile justice affiliated facilities.

The Health Belief Model was established by Godfrey Hochbaum, in 1958, to explain the low participation rates in screening programs to detect diseases. The model is widely used to explain why people engage or do not engage in particular behaviors, especially health related behaviors. The model also predicts compliance to healthy or preventive behaviors (Rosenstock, 1974). The model has been successfully applied to diverse practices from explaining the factors associated with individuals using health services (Rosenstock, 1966) to examining individuals’ perceived vulnerability to risky HIV behaviors (Gerrard, Gibbons, & Bushman, 1996). The Health Belief Model is composed of six major constructs: 1) perceived susceptibility, 2) perceived severity, 3) perceived benefits, 4) perceived barriers, 5) cues to action, and 6) self-efficacy (Glanz et al., 2008). The model will be adapted for this study to assess respondents’ perceptions of barriers and benefits to providing substance use services to incarcerated juveniles.

### 2.12 Summary

Juvenile delinquency is a major problem in the U.S. It has significant economic and social consequences for society. Juvenile delinquency costs tax payers billions in damages, incarceration, and treatment per year. Juvenile offenders commit a significant
portion of the overall crimes committed in this country. Most importantly, many juvenile offenders become career criminals when they reach adulthood.

Youth need to be treated for their substance use problems so they can lead productive and healthy lives. Drug and alcohol use are intertwined with delinquency. Juveniles who use illicit substances are more prone to committing crimes or becoming victims of crimes. Many adult criminals used illicit substance as juveniles. Since illicit substance use is a major contributor of criminal activity, treating substance use in juvenile delinquents may have a significant impact on reducing crime.

The best practices in substance use programs for juvenile offenders include theory based effective interventions, individual/group counseling, family therapy, case management services, and anger management. These practices have been recommended as effective in treating illicit substance use in adolescents. The practices are also recommended in helping retain juveniles in treatment and prevent substance use relapse. However, we do not currently know if these practices are provided to female juvenile offenders.
Chapter 3

Methods

This chapter discusses the design, development, and implementation of the survey to assess respondents’ views and opinions on the availability, usage, and evaluation of substance use services provided to juvenile offenders by juvenile justice facilities. The sections included in this chapter are as follows: 1) Selection of Participants, 2) Instrument Development, 3) Instrument Testing, 4) Procedures, and 5) Data Analysis.

3.1 Selection of Participants

The study population was taken from juvenile justice facilities in the United States that were registered with the American Corrections Association’s (ACA) 2010 Directory of Adult and Juvenile Correctional Departments, Institutions, Agencies, Probation and Parole Authorities. Founded in 1870 as the National Prison Association, ACA is the oldest association developed specifically for practitioners in the correctional profession. The ACA provides a professional organization for all individuals and groups, both public and private that share a common goal of improving the justice system. Juvenile justice facilities incur no costs to be listed in this national directory.
Correctional Association, 2010). This directory provides information related to the types of facilities, the sizes and locations of the facilities, services offered by the facilities, the gender of clients served by each facility, and important administrative contact information. Those facilities that serve female juvenile offenders, male juveniles, and both sexes were included in the sample for the current study.

After the use of exclusionary criteria (i.e. juvenile jurisdiction, program purpose), the study population comprised of 913 facilities. The study population broke into three gender groups: 105 female-only facilities, 374 coed facilities; and 434 facilities that served males only (total=913). The study population initially included all prospective facilities from all 50 states. After taking into account the refusal of one state (n=2) and the 14 facilities no longer in operation, the population study decreased to 897 facilities. A sample size analysis was conducted for a population of 897 with 95% confidence interval, a 50/50 split and a 5% margin of error. The results of the sample size analysis indicated that a sample size of 270 respondents (i.e. completed surveys) was needed for external validity.

Previous similar research conducted using the ACA national directory resulted in a 60% return rate (Young et al., 2007). The current investigator projected a more conservative return rate of 50%. Therefore, a total of 540 potential respondents were randomly selected from the ACA directory. Since the investigator was most interested in female adolescents’ substance use services, he selected all prospective facilities that serve females only. Thus, the final sample consisted of the following: 105 female only facilities; 218 male only facilities randomly selected from a total of 434 male only
facilities (50%); and 219 coed facilities randomly selected from 374 total coed facilities (58.5%).

### 3.2 Instrument Development

A 31-item, four-page survey with close-ended questions with unordered choices was designed to examine respondents’ views and opinions on the availability, usage, and evaluation of substance use services provided to juvenile offenders being served by juvenile justice facilities. The survey was formulated using the Precaution Adoption Process Model (Weinstein & Sandman, 1992) and the Health Belief Model (Rosenstock, Strecher, & Becker, 1988). The survey included questions concerning the respondents’ backgrounds and demographic characteristics including gender, age, race/ethnicity, years of experience as facility director, and educational background. The survey also included questions concerning the characteristics of the facility including the number of juveniles served, number of staff employed, accreditation of facility, and geographical locations of the facilities. The items on the survey also covered respondents’ opinions on the availability, usage, and evaluation of substance use services for juvenile offenders, assessment screening procedures, diagnosis of mental and substance disorders, treatment approaches, and program components for substance use services. There were also questions which examined the perceived benefits and barriers to implementing substance use services.

The survey was printed in booklet format. The booklets were printed using three different colors (i.e., pink, blue, yellow) coded to match the type of the facility. The
survey was formulated into three versions, which only differed by pronouns (e.g., “he”-male-only, “she”-female-only). Each of the colored booklets contained verbiage reflective of the gender of the facility’s clients the survey (e.g., pink=female-only, blue= male-only, yellow= coed facilities).

3.3 Instrument Testing

A review of the current literature was conducted to establish the face validity of survey. Surveys items were also constructed with input from several experts. The experts were selected due to their prior work in the field of substance use and juvenile delinquency. These experts ranged from university researchers to employees at government agencies (e.g., SAMHSA). Content validity was established by having the items on the survey evaluated by another panel of experts. This panel of experts included researchers with expertise in survey research methods, IRB chairpersons of state juvenile justice systems, and directors of juvenile justice facilities. These experts were given a draft version of the survey instrument. Suggested revisions from the expert panel were incorporated into the final version of the survey.

The researcher assessed the survey instrument for stability reliability. To assess stability reliability, the survey was sent to a sample of respondents (n=25) who completed the first wave of the survey mailing. Approximately one month after completing the initial survey, these respondents were phoned and asked if they would be willing to complete a second survey. The researcher was able to secure the approval of 23 out of the 25 prospective respondents. The researcher received 21 completed surveys of the 23
surveys mailed out (91% return rate). The first and second responses to the survey were compared by using percentage agreement of responses to survey items, Spearman Rank, and Pearson correlation coefficients. Stability reliability between time one and time two ranged from .59 to 1.0, depending on the item. The mean reliability for all items for test-retest stability was .843.

Table 3.1: The stability reliability scores for the items on the survey. The following stability reliability scores are derived from important items found on the survey.

<table>
<thead>
<tr>
<th>Stability Reliability Scores on Selected Items</th>
<th>Items (N)</th>
<th>Stability Reliability Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current state of implementation of substance use services</td>
<td>1</td>
<td>.901</td>
</tr>
<tr>
<td>Perceived barriers to providing substance use services</td>
<td>1</td>
<td>.868</td>
</tr>
<tr>
<td>Perceived benefits to providing substance use services</td>
<td>1</td>
<td>.845</td>
</tr>
<tr>
<td>“Other” choice responses on items</td>
<td>13</td>
<td>.794</td>
</tr>
</tbody>
</table>

3.4 Procedures

Several techniques were employed in order to maximize the response rate. The techniques included offering small monetary incentives (Church, 1993; King, Pealer, & Bernard, 2001); the use of unique stamps, especially large commemorative stamps, (Choi, Pak, & Purdham, 1990), surveys shorter in length (Kalantar & Talley, 1999), surveys originating from universities (Edwards et al., 2002), surveys on colored paper (Fox, Crask, Kim, 1988), and follow up mailings (Yammarino, Skinner, & Childers, 1991).

Since many of the potential respondents were employees of their respective
states’ governments, the investigator needed to secure approval to send out surveys to the Directors at the facility level. The investigator telephoned each state’s juvenile justice administrative office to gain permission to disseminate the survey. States had various procedures that had to be followed. The procedures varied from instant approval to formal reviews by state Institutional Review Boards/Human Subjects Committees. The investigator was able to secure approval from 50/51 of state/territories. Due to some states’ restrictions on mail surveys being completed by their employees, some of the surveys were completed and returned via email through a liaison. This liaison, was typically appointed by states’ administrative offices, dispensed the surveys to the facilities and collected the completed surveys for the investigator.

A three wave mailing technique was used to ensure the maximum response rate. A cover letter, introducing the purpose of the study and detailing the confidentiality of responses, was included in the initial wave of the mailings. A cover letter reminding respondents to complete the survey and another survey were included in the second and third waves of the mailings. A $1 bill was enclosed as an incentive in the first wave mailing for those facilities which allowed employees to receive a gratuity. No monetary incentives were added to the two subsequent mailings. All three postal mailings were spaced two weeks apart. Due to the regulations, protocol, and preferences of some states’ juvenile justice systems, some of the surveys were administered via email to an individual the states selected to act as the liaison between the investigator and the respondents at the facilities within the state. The respondents’ returned surveys were identified by code numbers which ensured the confidentiality of the respondents. The
study design and protocol was approved by the University of Toledo Human Subjects Research Review Committee.

3.5 Data Analysis

The data was computed and analyzed with the Statistical Package for Social Sciences (SPSS) (15.0) software. Several methods were utilized to determine if the data met the assumptions for parametric statistical testing. The data was plotted on a graph using SPSS to visually examine the dispersion of the responses. The assumptions for parametric testing were further tested by examining the skewness of the responses using SPSS. If the skewness statistic fell between the skewness deviation and the skewness deviation two-squared then the data met the assumptions for parametric testing. The data in this study did not meet these two conditions for using parametric statistics. Therefore, Whitney-Mann U tests, Kruskal-Wallis, and chi square tests were performed to detect any statistically significant differences in the data. The Spearman Rho was also utilized to detect any statistically significant associations (Table 3.2).
Table 3.2: The statistical tests and the hypotheses used in this study. Listed below are the statistical tests used for each specific hypothesis.

The Statistical Tests and Hypotheses

<table>
<thead>
<tr>
<th>Statistical Tests</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi square</td>
<td>1.3, 1.4, 1.5, 1.7, 1.9, 1.12, 2.2, 2.3, 2.4, 3.2a, 3.2b, 3.2c, 3.2d, 3.2e, 3.2f, 3.2g, 3.2h, 3.2i, 3.2j, 3.3a, 3.3b, 3.3c, 3.3d, 3.3e, 3.3f, 3.3g, 3.3h, 3.3i, 3.3j, 3.4a, 3.4b, 3.4c, 3.4d, 3.4e, 3.4f, 3.4g, 3.4h, 3.4i, 3.4j, 3.5a, 3.5b, 3.5c, 3.5d, 3.5e, 3.5f, 3.5g, 3.5h, 3.5i, 3.5j, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 7.3, 7.4, 7.6, 7.7</td>
</tr>
<tr>
<td>Whitney-Mann U</td>
<td>1.2, 1.6, 1.8, 1.10, 1.11, 2.1, 3.1a, 3.1b, 3.1c, 3.1d, 3.1e, 3.1f, 3.1g, 3.1h, 3.1i, 3.1j, 3.4a, 3.4b, 3.4c, 3.4d, 3.4e, 3.4f, 3.4g, 3.4h, 3.4i, 3.4j, 3.5a, 3.5b, 3.5c, 3.5d, 3.5e, 3.5f, 3.5g, 3.5h, 3.5i, 3.5j, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 6.6, 6.7, 6.8, 7.3, 7.4, 7.6, 7.7</td>
</tr>
<tr>
<td>Kruskal-Wallis</td>
<td>4.7, 6.8, 7.8</td>
</tr>
<tr>
<td>Spearman Rho correlation coefficient</td>
<td>4.1, 4.5, 5.1, 6.1, 6.4, 6.5, 7.1, 7.2, 7.5</td>
</tr>
</tbody>
</table>
Chapter 4

Results

This chapter presents the results that were derived from the statistical analyses of the research data. The sections in this chapter include: 1) Response Rate; 2) Demographic Information of Respondents; 3) Characteristics of Juvenile Justice Affiliated Services; 4) Non-Substance Use Services Provided; 5) Substance Use Services Provided; 6) Perceived Benefits and Barriers to Substance Use Services; 7) Time Devoted to Topics Covered in Substance Use Services; 8) Testing of Hypotheses; and 9) Summary.

4.1 Response Rate

A total of 540 facilities was randomly selected from the American Correctional Association database of the juvenile justice affiliated facilities (n=913) in the United States. A total of 14 surveys were returned to the investigator due to the facilities being closed. Also, one’s state’s Department of Juvenile Justice (n=2) refused to participate in the study. The study participants returned 287 completed surveys for a response rate of
53.1% (287/540). The surveys were returned to the investigator by two delivery methods: postal mail (65.5%) and computer email (34.5%). Respondents from male-only facilities comprised the largest proportion of responses from gender-specific facilities with (47.0%), followed by coed (32.4%) and female-only facilities (20.6%) The following were the response rates by gender-specific facilities: male-only 62.2% (135/217), coed 42.7% (93/218), and female-only 56.2% (59/105).

### 4.2 Demographic Information of Respondents

Respondents can be described as white (72.7%), female (53%), and with a master’s degree (52.6%). Almost one-third of the respondents were in their forties (32.1%). The average time in charge of substance use services was 8.8 years and the average time at current position was 7.3 years. The most commonly self-identified job title given by the respondents was “Director” (15.1%). The remaining demographic characteristics of the respondents are shown in Table 4.1.
Table 4.1: The Demographics of the study’s respondents. Below is the pertinent information pertaining to the demographic makeup of the respondents from the study.

Demographic Characteristics of Respondents

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>152</td>
<td>53.0</td>
</tr>
<tr>
<td>Male</td>
<td>135</td>
<td>47.0</td>
</tr>
<tr>
<td>Age (in years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>28</td>
<td>9.8</td>
</tr>
<tr>
<td>30-39</td>
<td>65</td>
<td>22.6</td>
</tr>
<tr>
<td>40-49</td>
<td>92</td>
<td>32.1</td>
</tr>
<tr>
<td>50-59</td>
<td>76</td>
<td>26.5</td>
</tr>
<tr>
<td>60+</td>
<td>26</td>
<td>9.1</td>
</tr>
<tr>
<td>Highest Degree Completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School/GED</td>
<td>9</td>
<td>3.1</td>
</tr>
<tr>
<td>Associates</td>
<td>11</td>
<td>3.8</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>95</td>
<td>34.5</td>
</tr>
<tr>
<td>Master’s</td>
<td>149</td>
<td>52.6</td>
</tr>
<tr>
<td>Doctorate</td>
<td>17</td>
<td>5.9</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>208</td>
<td>72.7</td>
</tr>
<tr>
<td>African-American</td>
<td>63</td>
<td>22.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10</td>
<td>3.5</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Other (Native American, Chicano, etc.)</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>The Top Five Position/Job Title of Respondents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director</td>
<td>43</td>
<td>15.1</td>
</tr>
<tr>
<td>Superintendent</td>
<td>41</td>
<td>14.4</td>
</tr>
<tr>
<td>Clinical Director</td>
<td>38</td>
<td>13.3</td>
</tr>
<tr>
<td>Clinician (including other responses with the word clinician)</td>
<td>18</td>
<td>6.3</td>
</tr>
<tr>
<td>Assistant Superintendent</td>
<td>11</td>
<td>3.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years worked as Manager/Director/Supervisor of substance use services</td>
<td>8.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Years at Current Position</td>
<td>7.3</td>
<td>7.2</td>
</tr>
</tbody>
</table>

N ranges from 275 to 287 (Respondents) depending on item
Percentages may not equal 100% due to rounding and/or non-response
4.3 Characteristics of Juvenile Justice Affiliated Services

The vast majority of respondents indicated that their facilities have been offering substance use services for more than one year (78.7%). Approximately 42% of the facilities were located in rural settings. Residential (incarceration-juvenile justice) was the most frequently reported facility type by respondents (71.4%). Respondents reported serving an average of 61 adolescents and monitoring an average staff size of 66 full time employees. The majority of facilities (52.3%) held no current accreditation status. For those respondents who reported having “other accreditation” sources, the American Correctional Association was the most reported accreditation source (18.5%). Respondents reported that they receive 94.1% of their funding through public sources and the remaining 5.5% through private sources (table 4.2).
Table 4.2: The demographics of juvenile justice affiliated facilities. Below are the characteristics of juvenile justice affiliated facilities that participated in the study.

<table>
<thead>
<tr>
<th>Characteristics of Juvenile Justice Affiliated Facilities</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geographical Location of Facilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>119</td>
<td>41.6</td>
</tr>
<tr>
<td>Urban</td>
<td>92</td>
<td>32.2</td>
</tr>
<tr>
<td>Suburban</td>
<td>75</td>
<td>26.2</td>
</tr>
<tr>
<td><strong>Facility Types</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential (incarceration-juvenile justice)</td>
<td>205</td>
<td>71.4</td>
</tr>
<tr>
<td>Residential (non-incarceration)</td>
<td>32</td>
<td>11.1</td>
</tr>
<tr>
<td>Group Home</td>
<td>21</td>
<td>7.3</td>
</tr>
<tr>
<td>Outpatient Services</td>
<td>13</td>
<td>4.5</td>
</tr>
<tr>
<td>Halfway House</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Other (Day Treatment, Detention Centers, Non-Secure, etc.)</td>
<td>49</td>
<td>17.1</td>
</tr>
<tr>
<td><strong>Accreditation Status &amp; Sources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Accreditation</td>
<td>150</td>
<td>52.3</td>
</tr>
<tr>
<td>Commission on the Accreditation of Rehabilitation Facilities</td>
<td>14</td>
<td>4.9</td>
</tr>
<tr>
<td>Council by Council on Accreditation</td>
<td>12</td>
<td>4.2</td>
</tr>
<tr>
<td>Joint Commission on the Accreditation of Healthcare Organizations</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Other (American Correctional Association, performance based standards, state accreditation)</td>
<td>102</td>
<td>36.2</td>
</tr>
<tr>
<td><strong>Funding Sources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>94.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Private</td>
<td>5.5</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Capacity to Serve Youth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>61.2</td>
<td>7.6</td>
</tr>
</tbody>
</table>

N ranges from 217 to 287 (Respondents) depending on item. Percentages may not equal 100% due to rounding and/or non-responses.

4.4 Non-Substance Use Services Provided

According to the respondents, the three most prevalent non-substance use services provided in all facilities were educational services/GED program (90.6%), mental health services (89.8%), and anger management services (89.5%), physical recreation/wellness
(84.0%), and case management services (80.1%). Coed facilities were the least likely to offer mental health services (78.5%), anger management (79.6%), and life management/job training (60.2%) when compared to male-only facilities (94.8%, 94.8%, 85.9%) and female-only facilities (96.6%, 93.2%, 74.6%). A minority of facilities provided smoking cessation services (12.9%) (Table 4.3).

Table 4.3: The non-substance use services provided to juvenile offenders in juvenile affiliated facilities. The following information details the types of services offered to juvenile offenders by the gender served in the facilities.

<table>
<thead>
<tr>
<th>Item</th>
<th>M %</th>
<th>F %</th>
<th>C %</th>
<th>O %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational services/GED program</td>
<td>94.8</td>
<td>94.8</td>
<td>82.8</td>
<td>90.6</td>
</tr>
<tr>
<td>Mental health services</td>
<td>94.8</td>
<td>96.6</td>
<td>78.5</td>
<td>89.8</td>
</tr>
<tr>
<td>Anger management services</td>
<td>94.8</td>
<td>93.2</td>
<td>79.6</td>
<td>89.5</td>
</tr>
<tr>
<td>Physical recreation/wellness</td>
<td>90.4</td>
<td>84.7</td>
<td>74.2</td>
<td>84.0</td>
</tr>
<tr>
<td>Case management services</td>
<td>89.6</td>
<td>86.4</td>
<td>62.4</td>
<td>80.1</td>
</tr>
<tr>
<td>Sexual &amp; STDs educational services</td>
<td>85.9</td>
<td>84.7</td>
<td>63.4</td>
<td>78.4</td>
</tr>
<tr>
<td>Life management/job training</td>
<td>85.9</td>
<td>74.6</td>
<td>60.2</td>
<td>75.3</td>
</tr>
<tr>
<td>Family therapy</td>
<td>78.5</td>
<td>62.7</td>
<td>51.6</td>
<td>66.6</td>
</tr>
<tr>
<td>Smoking cessation services</td>
<td>8.1</td>
<td>20.3</td>
<td>5.1</td>
<td>12.9</td>
</tr>
<tr>
<td>Other (sex offender therapy, dialectical behavior therapy)</td>
<td>43.7</td>
<td>35.6</td>
<td>28.0</td>
<td>37.5</td>
</tr>
</tbody>
</table>

M=Male-only, F=Female-only, C=Coed, O=Overall N= 287 Respondents
4.5 Substance Use Services Provided

Nearly 8 of 10 (79.4%) respondents reported that their facilities had been providing substance use services. Male-only facilities (88.8%) were more likely to provide substance use services than female-only (79.7%) or coed (66.7%) facilities. The majority of respondents (70.9%) indicated that their facilities spent 0-10% of their budget on substance use services. The facilities served an average of 31 youths with the typical substance use session/meeting lasting 60 minutes. The most common frequency of services was twice a week (37.7%). Almost one-half (49.6%) of male-only facilities reported providing substance use services twice a week.

Group substance use counseling was the most prevalent type of substance use service (92.1%). Group substance use counseling was provided in 94.1% of male-only facilities, 93.6% of female-only facilities, and 88.5% of coed facilities. Family counseling was utilized in 37.7% of all facilities. Female-only facilities (55.3%) were more likely to provide family counseling than coed (37.7%) or male-only (31.1%) facilities. Cognitive behavioral therapy was the most commonly utilized treatment approach by all types of facilities (86.4%) (Table H.1).

The assessment/screening method that was most frequently cited was the Substance Abuse Subtle Screening Inventory (in various versions) (35.1%). A sizable number of respondents (36.6%) indicated that they used an assessment/screening method that was not presented as a choice on the survey, (e.g., Global Appraiser of Individual Needs-Short Screener (28.6%). Nearly all (96.5%) of the respondents stated their facilities did not offer pharmacological services to youth. Slightly more than half of
(50.4%) of respondents stated that their facilities used other criteria to evaluate their services (Table 4.4).

Table 4.4: The methods used by juvenile justice affiliated facilities to assess and evaluate their substance use services. The following data is divided by the gender served in the facilities

Assessment/Screening Methods and Evaluative Processes

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>F</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methods of Assessment/Screening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance Abuse Subtle Screening Inventory (various versions)</td>
<td>24.4</td>
<td>51.1</td>
<td>45.2</td>
<td>35.1</td>
</tr>
<tr>
<td>Use of own screening/assessment methods</td>
<td>16.0</td>
<td>36.2</td>
<td>35.5</td>
<td>25.6</td>
</tr>
<tr>
<td>CRAFT</td>
<td>5.0</td>
<td>2.1</td>
<td>14.5</td>
<td>7.0</td>
</tr>
<tr>
<td>No use of screening/assessment methods</td>
<td>3.4</td>
<td>0</td>
<td>6.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Problem Orientated Screening Instrument for Teenagers</td>
<td>3.4</td>
<td>4.3</td>
<td>3.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Other (Global Appraisal of Individual Needs, MAYSI-II)</td>
<td>21.5</td>
<td>53.1</td>
<td>42.4</td>
<td>36.6</td>
</tr>
<tr>
<td><strong>Pharmacological Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not offer pharmacological services</td>
<td>95.7</td>
<td>93.6</td>
<td>100.0</td>
<td>96.5</td>
</tr>
<tr>
<td>Offer pharmacological services (Methadone, Naxoprine, Naltrexone)</td>
<td>4.2</td>
<td>6.5</td>
<td>0</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>Criteria Used to Evaluate Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not use following criteria to evaluate</td>
<td>63.9</td>
<td>36.2</td>
<td>35.5</td>
<td>50.4</td>
</tr>
<tr>
<td>Successful completion of certain goals</td>
<td>31.9</td>
<td>44.7</td>
<td>45.2</td>
<td>38.1</td>
</tr>
<tr>
<td>Successful completion of certain % of youth</td>
<td>10.9</td>
<td>29.8</td>
<td>35.5</td>
<td>22.8</td>
</tr>
<tr>
<td>Reduced substance use reported by youth</td>
<td>10.9</td>
<td>21.3</td>
<td>24.2</td>
<td>16.7</td>
</tr>
<tr>
<td>Retention of youth in services</td>
<td>7.6</td>
<td>10.6</td>
<td>4.8</td>
<td>7.5</td>
</tr>
<tr>
<td>Other (reduced crime, tests)</td>
<td>7.6</td>
<td>21.7</td>
<td>12.9</td>
<td>12.3</td>
</tr>
</tbody>
</table>

M=Male-only, F=Female-only, C=Coed, O=Overall
N= ranges from 225 to 228 (Respondents) depending on the item
Percentages may not equal 100% due to rounding and/or non-response
In terms of who was responsible for providing services, nearly 6 in 10 respondents (59.9%) stated that certified substance abuse counselors/therapists were responsible for providing substance use services at their facilities. The most frequently reported educational degree required for an employee to administer substance use services to juvenile offenders was a bachelor’s degree (42.3%). The vast majority of facilities (75.4%) did not require any previous work experience for those who provide substance use services (Table 4.5).

Table 4.5: The characteristics of employees who conduct substance use services for juvenile offenders. Below are the characteristics of those who are responsible for providing substance use services for juvenile offenders in reporting juvenile affiliated facilities.

<table>
<thead>
<tr>
<th>Characteristics of Employees Who Provide Substance Use Services</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employees Responsible for Administering Substance Use Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified substance counselors/therapists</td>
<td>136</td>
<td>59.9</td>
</tr>
<tr>
<td>Non-certified counselors/therapists</td>
<td>60</td>
<td>26.4</td>
</tr>
<tr>
<td>Staff workers (non-counselors/therapists)</td>
<td>52</td>
<td>22.9</td>
</tr>
<tr>
<td>Other employees (licensed social workers, licensed mental health therapists, case managers, etc.)</td>
<td>76</td>
<td>33.5</td>
</tr>
<tr>
<td><strong>Prior Work Experience Needed to Provide Substance Use Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>169</td>
<td>75.4</td>
</tr>
<tr>
<td>Years of those who responded that prior work experience was needed</td>
<td>(\bar{M} = .5)</td>
<td>(SD = 1.2)</td>
</tr>
</tbody>
</table>

N ranges from 224 to 227 (Respondents) depending on item. Percentages may not equal 100% due to rounding and/or non-response.

### 4.6 Perceived Benefits and Barriers to Substance Use Services

The three most frequently identified benefits to providing substance use services to juvenile offenders were improved school performance (85.4%), improved family
relationships (83.3%), and decreased criminal recidivism (82.6%). The three most frequently identified barriers to providing substance use services were lack of qualified staff to conduct substance use services (42.9%), lack of funding for substance services (39.4%), and insufficient time to conduct substance use services (29.3%) (Table 4.6).

Table 4.6: The perceived benefits and barriers to offering substance use services to juvenile offenders in juvenile justice affiliated facilities. Below are respondents’ perceived benefits and barriers to offering substance use services to juvenile offenders.

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>F</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Benefits to Offering Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved school performances</td>
<td>86.7</td>
<td>86.4</td>
<td>82.8</td>
<td>85.4</td>
</tr>
<tr>
<td>Improved family relationships</td>
<td>83.0</td>
<td>83.1</td>
<td>83.9</td>
<td>83.3</td>
</tr>
<tr>
<td>Decreased criminal recidivism</td>
<td>86.7</td>
<td>79.7</td>
<td>78.5</td>
<td>82.6</td>
</tr>
<tr>
<td>Increased health benefits</td>
<td>81.5</td>
<td>79.7</td>
<td>74.1</td>
<td>78.7</td>
</tr>
<tr>
<td>Reduced high school dropouts</td>
<td>71.8</td>
<td>81.4</td>
<td>77.4</td>
<td>77.0</td>
</tr>
<tr>
<td>Less sexually transmitted diseases</td>
<td>65.2</td>
<td>66.1</td>
<td>54.8</td>
<td>62.0</td>
</tr>
<tr>
<td>Cost savings due to reduced crimes</td>
<td>43.0</td>
<td>52.5</td>
<td>62.4</td>
<td>51.2</td>
</tr>
<tr>
<td>There are no benefits</td>
<td>0</td>
<td>0</td>
<td>1.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Other (increased self-esteem, reduced mortality, harm reduction etc.)</td>
<td>0.5</td>
<td>0.8</td>
<td>15.1</td>
<td>9.1</td>
</tr>
<tr>
<td><strong>Perceived Barriers to Offering Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of qualified staff</td>
<td>53.3</td>
<td>37.3</td>
<td>31.2</td>
<td>42.9</td>
</tr>
<tr>
<td>Lack of funding</td>
<td>28.9</td>
<td>42.4</td>
<td>52.7</td>
<td>39.4</td>
</tr>
<tr>
<td>Insufficient time</td>
<td>45.2</td>
<td>23.7</td>
<td>9.7</td>
<td>29.3</td>
</tr>
<tr>
<td>There are no barriers</td>
<td>16.3</td>
<td>33.9</td>
<td>32.9</td>
<td>25.1</td>
</tr>
<tr>
<td>Lack of appropriate program materials</td>
<td>11.9</td>
<td>15.3</td>
<td>18.3</td>
<td>14.6</td>
</tr>
<tr>
<td>Not enough youth to warrant substance use services</td>
<td>2.2</td>
<td>3.4</td>
<td>1.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Substance use services are not effective</td>
<td>2.2</td>
<td>0</td>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>Other (short length of stay, uncooperative families, youth not interested in treatment, etc.)</td>
<td>5.2</td>
<td>0.8</td>
<td>16.1</td>
<td>9.4</td>
</tr>
</tbody>
</table>

N=255-257 respondents.
M=Male-only, F=Female-only, C=Coed, O=Overall
Percentages may not equal 100% due to rounding and/or non-response.
4.7 Time Devoted to Topics Covered in Substance Use Services

The respondents were asked to report the number of hours devoted to covering specific topics commonly found in adolescent substance use services. The behavioral and emotional triggers to substance use was the most covered topic with 70% of all facilities devoting five or more hours to the topic. Violence prevention and impact of recovery from violence and trauma were only covered for three or more hours in 46.2% and 46.7% of all facilities. A significant portion of male-only facilities reported not devoting any time to violence prevention (42.4%) and impact of recovery from violence and trauma (41.5%). More female-only facilities (45.7%) devoted 5 or more hours to personal health than the other facilities. Female-only facilities were more likely to devote 5 or more hours to stress management (39.1%) and anger management (47.8) than the other two types of facilities (Table H.2).

4.8 Testing of Hypotheses

This section presents the statistical results for the hypotheses that were tested. The hypotheses were written in the null format. The statistical test used and the results are discussed following each hypothesis.

**Research Question 1:**

*In what stages of implementation of the Precaution Adoption Process Model do program directors, of juvenile justice affiliated facilities, place their substance use services?*
Hypothesis 1.1: The majority of program directors will place their substance use services in the “maintenance” stage.

The majority of program directors (79.4%) placed their programs in the maintenance stage. Thus, the null hypothesis was accepted.

Hypothesis 1.2: There is no statistically significant difference in number of juvenile offenders in current treatment for substance by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A Mann-Whitney U test found that there was no statistically significant difference in the number of juvenile offenders in current treatment for substance use by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities \((Z = -1.080, \ p = .28)\). Therefore, the null hypothesis was accepted.

Hypothesis 1.3: There is no statistically significant difference in the geographical settings of facilities (rural, suburban, urban) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A chi square test found no statistically significant difference in geographical settings of facilities (rural, suburban, urban) \((\chi^2 = 2.11, \ df = 1, \ p = .35)\) by the presence of substance use services (maintenance stage) in juvenile justice
affiliated facilities. Therefore, the null hypothesis was accepted.

Hypothesis 1.4: There is no statistically significant difference in the education levels of respondents (graduate vs. non-graduate degrees) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A chi square test found a statistically significant difference in education levels (graduate vs. non-graduate degrees) of the respondents by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities ($\chi^2=7.42$, df=1, $p \leq 0.05$). Those respondents with graduate degrees were more likely (86.7%) to report offering substance use services than respondents who have less than graduate degrees (73.9%). Therefore, the null hypothesis was rejected.

Hypothesis 1.5: There is no statistically significant difference in facility types (incarceration facilities vs. non-incarceration facilities) by the presence of substance use services (maintenance stage) in juvenile justice affiliated services.

A chi square found there was a statistically significant difference in the facility types (incarceration facilities vs. non-incarceration facilities) by juvenile justice affiliated facilities offering substance use services (maintenance stage) by ($\chi^2=26.76$, df=1, $p \leq 0.01$). Respondents from incarceration facilities were more likely
to report having substance use services (89.1%) than respondents from non-incarceration facilities (62.5%). Therefore, the null hypothesis was rejected.

**Hypothesis 1.6: There is no statistically significant difference in the years that respondents have worked at current position by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.**

A Mann-Whitney U test found that there was a statistically significant difference in the number of years that respondents have worked at their current position by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities by \( Z = -2.70, p < .05 \). Those respondents who reported not having substance use programs were more likely to have had more years at (Mdn=7.5 years) current position than respondents who reported having substance use services (Mdn=4 years). Therefore, the null hypothesis was rejected.

**Hypothesis 1.7: There is no statistically significant difference in the gender of respondents by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.**

A chi square test found no statistically significant difference in the gender of respondents by the presence of substance use services in juvenile justice facilities offering \( \chi^2 = 0.54, \text{df}=1, p=.82 \). Therefore, the null hypothesis was accepted.
Hypothesis 1.8: There is no statistically significant difference in the number of full-time employees in juvenile justice facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A Mann-Whitney U test was calculated and found that there was a statistically significant difference in the number of full-time employees by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities ($Z=-2.0 \ p<.05$). Those respondents who reported having substance use services were more likely to have more full time staff (Mdn= 30) than those facilities that have substance use services (Mdn=25.5). Therefore, the null hypothesis was rejected.

Hypothesis 1.9: There is no statistically significant difference in accreditation status (accredited vs. non-accredited) of facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A chi square test found that there was no statistically significant difference in accreditation status (accredited vs. non-accredited) of facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities. ($\chi^2 = .04, \ df=1, \ p=.85$). Therefore, the null hypothesis was accepted.

Hypothesis 1.10: There is no statistically significant difference in the number
of perceived benefits to offering substance use services by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A Mann-Whitney U test found that there was a statistically significant difference in the number of perceived benefits to offering substance use services by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities ($Z = -4.19, p \leq .001$). Those respondents from facilities which offered substance use services were more likely to report a greater number of perceived benefits (Mdn=6) to offering substance use services than those respondents (Mdn=4) from facilities which did not offer substance use services. Therefore, the null hypothesis was rejected.

**Hypothesis 1.11: There is no statistically significant difference in the number of perceived barriers to offering substance use services by presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.**

A Mann-Whitney U test was calculated and found that there is no statistically significant difference in the number of perceived barriers to offering substance use services by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities ($Z = -1.9, p = .85$). Therefore, the null hypothesis was accepted.
Hypothesis 1.1: There is no statistically significant difference in the gender of clients being served (i.e. female-only vs. coed vs. male-only) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

A chi square test (3x2) detected a statistically significant difference in the gender of clients served by facility (female-only vs. coed vs. male-only) by the presence of substance use services (maintenance stage) in juvenile justice affiliated services ($\chi^2=10.912$, df=2, p $\leq$ 0.05). Respondents from male-only facilities and female-only facilities were more likely to report having substance use services (88.8% and 79.7%), respectively than respondents from coed facilities (66.7%). Therefore, the null hypothesis was rejected.

Research Question 2

What methods of assessment/screening are used to diagnose substance use/abuse/dependence by juvenile justice affiliated facilities that offer substance use services to juvenile offenders?

Hypothesis 2.1: There is no statistically significant difference in the number of full-time employees by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

A Mann-Whitney U test found that there is a statistically significant difference in
number of full-time employees by the methods of assessment/screening (own
methods/no methods vs. other methods) to diagnose substance
use/abuse/dependence ($Z = 2.79, p \leq .01$). Those respondents who reported using
their own or having no methods of assessment screening were more likely to have
more full-time employees ($Mdn = 50$) that those reporting using other methods of
assessment/screening ($Mdn = 29$). Therefore, the null hypothesis was rejected.

**Hypothesis 2.2: There will be no statistically significant difference in the
accreditation status (accreditation vs. non accreditation) of facilities by the
methods of assessment/screening (own methods/no methods vs. other
methods) to diagnose substance use/abuse/dependence.**

A chi square test found there was no statistically significant difference in
accreditation status (accreditation vs. non-accreditation) by the methods of
assessment/screening (own methods/no methods vs. other methods) to diagnose
substance use/abuse/dependence by ($\chi^2 = .993, df = 1, p = .32$). Therefore, the null
hypothesis was accepted.

**Hypothesis 2.3: There be no statistically significant difference in the
proportion of facilities’ budgets will (0-10% vs. 11-100%) spent on substance
use services by the methods of assessment/screening (own methods/no
methods vs. other methods) to diagnose substance use/abuse/dependence.**

A chi square test was calculated and found a statistically significant difference in
the proportion of facilities budgets (0-10% vs. 11-100%) spent on substance use services in juvenile justice affiliated facilities by the methods of assessment/screening (own methods/no methods vs. other methods) ($\chi^2=5.01, \text{df}=1, p \leq .05$). Those respondents who reported that their facilities spent 0-10% of their budgets on substance use services were more likely to report using other methods of substance use assessment/screening processes (75.5%) compared to respondents who reported that their facilities spent 11-100% of their budgets on substance use services (60.3%). Therefore, the null hypothesis was rejected.

**Hypothesis 2.4:** There is no statistically significant difference in the gender of clients served by the facility (female-only vs. coed vs. male-only) by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

A chi square test (3 x 2) found that there was a statistically significant difference in the gender of clients served by the facility (female-only vs. coed vs. male-only) by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence. ($\chi^2=11.674, \text{df}=2, p \leq .05$). Those respondents from female-only facilities were more likely to report using other methods of evaluation assessment/screenings (53.1%), compared to respondents from coed and male-only facilities (42.4%, 21.5%), respectively. Therefore, the null hypothesis was rejected.
**Research Question 3**

How much time (hours) do juvenile justice affiliated facilities invest in common topics found in substance use services curricula for juvenile offenders?

**Hypothesis 3.1:** There is no statistically significant difference in the number of full time employees by amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics.

A Mann-Whitney U test was calculated to assess any significant differences in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics.

**a) Relapse prevention of substance use**- There was no statistically significant difference in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in relapse prevention of substance use by \((Z=-1.03, p=.30)\). Therefore the null hypothesis was accepted.

**b) The impact of recovery from violence and trauma**- There was a statistically significant difference in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery from violence and trauma by \((Z = -3.20, p \leq .01)\). Those facilities that moderately
covered (3 or more hours) impact of recovery from violence and trauma were more likely to have more full-time employees (Mdn=54) compared to (Mdn=26) facilities that minimally covered (0-2 hours) impact of recovery from violence and trauma. Therefore, the null hypothesis was rejected.

c) **Violence prevention**- There was a statistically significant difference in the number of full-time staff by the amount of time (minimally covered vs. moderately covered) invested in the violence prevention (Z=-2.80, p≤.01). Those facilities that moderately covered (3 or more hours) violence prevention were more likely to have more full-time employees (Mdn=52) compared to (Mdn=26) facilities that minimally covered (0-2 hours) violence prevention. Therefore, the null hypothesis was rejected.

d) **Signs and symptoms of substance use disorders**- There was a statistically difference in the number of full-time staff employees by the amount of time (minimally covered vs. moderately covered) invested in the signs and symptoms of substance use disorders (Z=-4.14, p≤.01). Those facilities that moderately covered (3 or more hours) signs and symptoms of substance use disorders were more likely to have more full-time employees (Mdn=52) compared to (Mdn=26) facilities that minimally covered (0-2 hours) signs and symptoms of substance use disorders. Therefore, the null hypothesis was rejected.
e) Anger management- There was a statistically significant difference in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in anger management ($Z = -3.75$, $p \leq .001$). Those facilities that moderately covered anger management (3 or more hours) were more likely to have more full-time employees ($\text{Mdn}=50$) compared to ($\text{Mdn}=25$) facilities that minimally covered (3 or more hours) anger management. Therefore, the null hypothesis was rejected.

f) Stress management- There was a statistically significant difference in the number of full-time employees by the amount of time invested (minimally covered vs. moderately covered) in stress management by ($Z = -3.88$, $p \leq .001$). Those facilities that moderately covered (3 or more hours) stress management were more likely to have more full-time employees ($\text{Mdn}= 55$) compared to ($\text{Mdn}= 25$) facilities that minimally covered (0-2 hours) stress management. Therefore, the null hypothesis was rejected.

g) Personal health- There was a statistically significant difference in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in personal health by ($Z=1.74$, $p \leq .05$). Those facilities that minimally covered personal health (0-2 hours) were more likely to have more full-time employees ($\text{mdn}= 41.0$) compared to ($\text{mdn}= 30.0$) facilities that moderately covered (0-2 hours) personal health. Therefore, the null hypothesis
was rejected.

h) Behavioral and emotional triggers leading to substance use relapse- There was no statistically significant difference in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse ($Z=-0.76$, $p=.939$). Therefore, the null hypothesis was accepted for this topic.

i) Physiological or psychological effects of drugs- There was no statistically significant difference in the number of full-time employees by the amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs ($Z=-1.04$, $p=.299$). Therefore, the null hypothesis was accepted for this topic.

j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by the number of full-time employees ($U= 3.91$, $p < .01$). Those facilities that minimally covered (0-2 hours) promoting recreational, social, and cultural activities as alternatives were more likely to have more full-time employees (Mdn= 54) compared to (Mdn=25) facilities that moderately covered (3 or more
hours) promoting recreational, social, and cultural activities as alternatives to alcohol/drug use. Therefore, the null hypothesis topic was rejected.

**Hypothesis 3.2:** There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics (on each topic) by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

A chi square (2x2) was used to detect any statistically significant differences in the amount of time (minimally covered vs. moderately covered) invested in curricula, for each topic, by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

**a) Relapse prevention of substance use**- There was no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in relapse prevention by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on relapse prevention ($\chi^2 = 3.40$, df=1, p=.07). Therefore, the null hypothesis was accepted.

**b) The impact of recovery from violence and trauma**- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in relapse prevention by the proportion of facilities’ budgets
Those facilities which spent 11-100% of their budgets on substance use services were more likely to moderately cover (3 or more hours) (64.7%) the impact of recovery from violence and trauma compared to facilities (34.4%) that spent 0-10% of their budgets on substance use services. Therefore, the null hypothesis for this topic was rejected.

c) **Violence prevention**- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in violence prevention by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services ($\chi^2= 23.62$, df=1, p< .001). Those facilities which spent 11-100% of their budgets on substance use services were more likely (69.4%) to moderately cover (3 or more hours) the impact of recovery from violence and trauma compared to facilities (33.1%) that spent 0-10% of their budgets on substance use services. Therefore, the null hypothesis for this topic was rejected.

d) **Signs and symptoms of substance use disorders**- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in signs and symptoms of substance use disorders by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services ($\chi^2= 33.85$, df=1, p< .001). Those facilities which spent 11-100% of their budgets on substance use services were more likely (90.3%) to moderately cover
(3 or more hours) signs and symptoms of substance use disorders compared to facilities (47.4%) that spent 0-10% of their budgets on substance use services. Therefore, the null hypothesis was rejected.

e) Anger management- There was a statistically significant difference in the amount of time invested (minimally covered vs. moderately covered) in anger management by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services ($\chi^2= 28.69$, df=1, $p < .001$). Those facilities which spent 11-100% of their budgets on substance use services were more likely (88.7%) to moderately cover (3 or more hours) anger management compared to facilities (49.4%) that spent 0-10% of their budgets on substance use services. Therefore, the null hypothesis was rejected.

f) Stress management- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in stress management by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services ($\chi^2= 18.84$, df=1, $p < .001$). Those facilities which spent 11-100% of their budgets on substance use services were more likely (74.2%) to moderately cover (3 or more hours) stress management compared to facilities (41.6%) that spent 0-10% of their budgets on substance use services. Therefore, the null hypothesis was rejected.
g) Personal health- There was no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in personal health by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services \((\chi^2=1.01, \text{df}=1, p=.75)\). Therefore, the null hypothesis was accepted.

h) Behavioral and emotional triggers leading to substance use relapse- There was a statistically significant difference in the amount of time invested in behavioral and emotional triggers leading to substance use relapse by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services \((\chi^2=5.99, \text{df}=1, p<.05)\). Those facilities which spent 11-100% of their budgets on substance use services were more likely (96.8%) to moderately cover (3 or more hours) the impact of recovery from violence and trauma compared to facilities (85.1%) that spent 0-10% of their budgets on the impact of recovery from violence and trauma. Therefore, the null hypothesis was rejected.

i) Physiological or psychological effects of drugs- There was no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in physiological or psychological effects of drugs by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services \((\chi^2=.568, \text{df}=1, p=.45)\). Therefore, the null hypothesis was accepted.
j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use - There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services ($\chi^2 = 26.28$, df=1, $p < .001$). Those facilities which spent 11-100% of their budgets on substance use services were more likely (87.1%) to moderately cover (3 or more hours) the impact of recovery from violence and trauma compared to facilities (49.4%) that spent 0-10% of their budgets on substance use services. Therefore, the null hypothesis was rejected.

Hypothesis 3.3: There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics by accreditation status.

A chi square test was used to detect any statistically significant differences in the amount of time (minimally covered vs. moderately covered) invested in each topic of the curricula by accreditation status (accredited vs. non-accredited).

a) Relapse prevention of substance use - There was no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in relapse prevention of substance use by accreditation status (accredited
vs. non accredited) ($\chi^2 = 1.74$, df=1, p=.19). Therefore, the null hypothesis for was accepted.

**b) The impact of recovery from violence and trauma** - There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery from violence and trauma by accreditation status (accredited vs. non accredited) ($\chi^2 = 17.83$, df=1, p<.01). Non accredited facilities were more likely (61.0%) to moderately cover (3 or more hours) the impact of recovery from violence and trauma compared to (32.8%) accredited facilities. Therefore, the null hypothesis was rejected.

**c) Violence prevention** - There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in violence prevention by accreditation status (accredited vs. non-accredited) ($\chi^2 = 13.50$, df=1, p< .01). Non accredited facilities were more likely (58.1%) to moderately cover (3 or more hours) violence prevention compared to (33.6%) accredited facilities. Therefore, the null hypothesis was rejected.

**d) Signs and symptoms of substance use disorders** - There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in signs and symptoms of substance use disorders of substance use by accreditation status ($\chi^2 = 19.85$, df=1, p<.01). Non-accredited facilities
were more likely (76.2%) to moderately cover (3 or more hours) the signs and symptoms of substance use disorders compared to (47.1%) of accredited facilities. Therefore, the null hypothesis was rejected.

e) Anger management- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in anger management by accreditation status (accredited vs. non-accredited) ($\chi^2 = 27.03$, df=1, $p < .01$). Non-accredited facilities were more likely (80.0%) to moderately cover (3 or more hours) anger management compared to (46.2%) accredited facilities. Therefore, the null hypothesis was rejected.

f) Stress management- There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in stress management by accreditation status (accredited vs. non-accredited) ($\chi^2 = 13.473$, df=1, $p < .01$). Non-accredited facilities were more likely (65.7%) to moderately cover (3 or more hours) stress management compared to (41.3%) accredited facilities. Therefore, the null hypothesis was rejected.

g) Personal health- There was no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in personal health by accreditation status (accredited vs. non-accredited) ($\chi^2 = 2.64$, df=1, $p = .10$). Therefore, the null hypothesis was accepted.
h) Behavioral and emotional triggers leading to substance use relapse - There was no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse by accreditation status (accredited vs. non-accredited) ($\chi^2 = .297$, df=1, $p= .59$). Therefore, the null hypothesis was accepted.

i) Physiological or psychological effects of drugs - There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs by accreditation status (accredited vs. non-accredited) ($\chi^2 = 6.42$, df=1, $p < .05$). Accredited facilities were more likely (88.2%) to moderately cover (3 or more hours) the physiological or psychological effects of drugs compared to (75.2%) non accredited facilities. Therefore, the null hypothesis for this topic was rejected.

j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use - There was a statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use ($\chi^2 = 28.27$, df=1, $p \leq .01$). Non accredited facilities were more likely (80.0%) to moderately cover (3 or more hours) promoting recreational, social, and cultural activities as alternatives to alcohol/drug use compared to (45.4%) accredited facilities. Therefore, the null hypothesis for this topic was rejected.
Hypothesis 3.4: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in selected curricular substance use topics.

Mann-Whitney U tests were calculated to detect any statistically significant differences in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) they invested in selected topic.

a) Relapse prevention of substance use- There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in relapse prevention of substance use (Z=-.356, p=.72). Therefore, the null hypothesis was accepted.

b) The impact of recovery from violence and trauma- There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery from violence and trauma (Z=-1.01, p=.311). Therefore, the null hypothesis was accepted.
c) **Violence prevention** - There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in violence prevention (Z = -1.30, p = .19). Therefore, the null hypothesis for this topic was accepted.

d) **Signs and symptoms of substance use disorders** - There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in signs and symptoms of substance use disorders (Z = -1.33, p = .18). Therefore, the null hypothesis was accepted.

e) **Anger management** - There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in anger management (Z = -.012, p = .99). Therefore, the null hypothesis was accepted.

f) **Stress management** - There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in stress management by (Z = -1.40, p = .16). Therefore, the null hypothesis was accepted.

g) **Personal health** - There was no statistically significant difference in the
number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in personal health ($Z=-1.20, p=.23$). Therefore, the null hypothesis was accepted.

**h) Behavioral and emotional triggers leading to substance use relapse**- There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse ($Z=.262, p=.79$). Therefore, the null hypothesis was accepted.

**i) Physiological or psychological effects of drugs**- There was no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs ($Z=.214, p=.83$). Therefore, the null hypothesis was accepted.

**j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use**- There was a statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use ($Z=-2.07, p<.05$).
Respondents from facilities that moderately covered (3 or more hours) promoting, recreational, social, and cultural activities were more likely to perceive benefits (Mdn=7) to substance use services compared to respondents (Mdn=6) from facilities that minimally covered (3 or more hours) promoting, recreational, social, and cultural activities. Therefore, the null hypothesis for this topic was rejected.

**Hypothesis 3.5:** There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in selected curricular substance use topics.

Mann-Whitney U tests were used to detect any statistically significant differences in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in selected curricular substance use topic.

*a) Relapse prevention-* There was no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in relapse prevention (Z= -1.03.50, p=.30). Therefore, the null hypothesis was accepted.

*b) The impact of recovery from violence and trauma-* There was a statistically
significant difference in the number of perceived barriers to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery ($Z = -4.01, p \leq .001$). Those respondents from facilities that minimally covered (0-2 hours) the impact of recovery from violence and trauma were likely to perceive more barriers ($Mdn=2$) to offering substance services compared to respondents ($Mdn=1$) from facilities that moderately covered (3 or more hours) the impact of recovery from violence and trauma. Therefore, the null hypothesis for this topic was rejected.

c) Violence prevention- There was a statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in violence prevention ($Z = -3.55, p \leq .001$). Those respondents from programs which minimally covered (0-2 hours) violence prevention were likely to report more barriers to offering substance use services ($Mdn=2$) compared to ($Mdn=1$) respondents from programs that moderately covered (three or more hours) violence prevention. Therefore, the null hypothesis was rejected.

d) Signs and symptoms of substance use disorders- There was a statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in signs and symptoms of substance use disorders ($Z = -4.20, p \leq .001$).
Those respondents from programs which minimally covered (0-2 hours) violence prevention were likely to report more barriers to offering substance use services (Mdn=2) compared to (Mdn=1) respondents from programs that moderately covered (3 or more hours) signs and symptoms of substance use disorders. Therefore, the null hypothesis was rejected.

e) Anger management- There was a statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time invested (minimally covered vs. moderately covered) in anger management ($Z= -3.53, p \leq .001$). Those respondents from programs which minimally covered (0-2 hours) violence prevention were likely to report more barriers to offering substance use services (Mdn=2) compared to (Mdn=1) respondents from programs that moderately covered (3 or more hours) anger management. Therefore, the hypothesis was rejected.

f) Stress management- There was a statistically significant difference in the number of perceived barriers to offering substance use services the amount of time (moderately covered vs. minimally covered) invested in stress management ($Z= -3.66, p \leq .001$). Those respondents from programs which minimally covered (0-2 hours) stress management were likely to report more barriers to offering substance use services (Mdn= 2) compared to (Mdn=1) respondents from programs that moderately covered (3 or more hours) stress management.
Therefore, the null hypothesis was rejected.

g) **Personal health** - There was no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in personal health ($Z = -1.93$, $p = .054$). Therefore, the null hypothesis for this topic was accepted.

h) **Behavioral and emotional triggers leading to substance use relapse** - There was no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in behavioral and emotional triggers leading to substance use relapse ($Z = -1.91$, $p = .057$). Therefore, the null hypothesis was accepted.

i) **Physiological or psychological effects of drugs** - There was no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally invested) invested in physiological or psychological effects of drugs ($Z = -1.49$, $p = .14$). Therefore, the null hypothesis was accepted.

j) **Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use** - There was a statistically significant difference in the amount of
time (moderately covered vs. minimally covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by the number of perceived barriers to offering substance use services ($Z = -3.30$, $p = .001$). Those respondents from programs which minimally covered (0-2 hours) promoting recreational, social, and cultural activities as alternatives to alcohol/drug use were likely to report more barriers to offering substance use services (Mdn=2) compared to (Mdn=1) respondents from programs that moderately covered (3 or more hours) promoting recreational, social, and cultural activities as alternatives to alcohol/drug use. Therefore, the null hypothesis was rejected.

**Hypothesis 3.6: There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in selected curricular substance use topics by education levels (graduate degrees vs. non-graduate degrees) of respondents.**

Chi square tests were used to detect any statistically significant differences in education levels (graduate degrees vs. non-graduate degrees) of respondents by the amount of time (moderately covered vs. minimally covered) invested in selected curricular substance use topics.

**a) Relapse prevention of substance use**- There was no statistically significant
difference in the relapse prevention of substance use by education levels (graduate degrees vs. non graduate degrees) respondents ($\chi^2=.441, df=1, \ p=.51$). Therefore, the null hypothesis was accepted.

b) The impact of recovery from violence and trauma - There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the impact of recovery from violence and trauma by education levels (graduate degrees vs. non-graduate degrees) of respondents ($\chi^2=9.97, df=1, \ p<.01$). Respondents with bachelor’s degrees or lower were more likely to report (59.3%) moderately covering (3 or more hours) the impact of recovery from violence and trauma compared to (37.7%) respondents with graduate degrees. Therefore, the null hypothesis was rejected.

c) Violence prevention - There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in violence prevention by education levels (graduate degrees vs. non graduate degrees) of respondents ($\chi^2=9.602, df=1, \ p<.01$). Respondents with bachelor’s degrees or lower educational degrees were more likely to report (58.1%) moderately covering (3 or more hours) violence prevention compared to (37.0%) respondents with graduate degrees. Therefore, the null hypothesis was rejected.

d) Signs and symptoms of substance use disorders - There was a statistically
significant difference in the amount of time invested (moderately covered vs. minimally covered) in relapse prevention by education levels (graduate degrees vs. non graduate degrees) of respondents ($\chi^2=17.23$, df=1, $p \leq .001$). Respondents with bachelor’s degrees or lower educational degrees were more likely to report (77.9%) moderately covering (3 or more hours) the signs and symptoms substance use disorders compared to (50.0%) respondents with graduate degrees. Therefore, the null hypothesis was rejected.

e) Anger management- There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in anger management by education levels (graduate degrees vs. non graduate degrees) of respondents ($\chi^2=24.93$, df=1, $p \leq .001$). Respondents with bachelor’s degrees or lower were more likely to report (82.6%) moderately covering (3 or more hours) anger management compared to (49.3%) respondents with graduate degrees. Therefore, the null hypothesis was rejected.

f) Stress management- There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in anger management by education levels (graduate degrees vs. non graduate degrees) of respondents ($\chi^2=14.20$, df=1, $p \leq .001$). Respondents with bachelor’s degrees or lower were more likely to report (68.6%) moderately covering (3 or more hours) stress management compared to (42.8%) respondents with graduate degrees.
Therefore, the null hypothesis was rejected.

**g) Personal health**- There was a statistically significant difference in the amount of time invested (moderately covered vs. minimally covered) in personal health by education levels (graduate degrees vs. non graduate degrees) of respondents ($\chi^2=5.04, \text{df}=1, p<.05$). Respondents with graduate degrees were more likely to report (79.7%) moderately covering (3 or more hours) the impact of personal health compared to (66.3%) respondents with bachelor’s degrees or lower degrees. Therefore, the null hypothesis was rejected.

**h) Behavioral and emotional triggers leading to substance use relapse**- There was no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in behavioral and emotional triggers leading to substance use relapse by education levels (graduate degrees vs. non graduate degrees) respondents ($\chi^2=2.20, \text{df}=1, p=.14$). Therefore, the null hypothesis was accepted.

**i) Physiological or psychological effects of drugs**- There was no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in physiological or psychological effects of drugs by education levels (graduate degrees vs. non graduate degrees) respondents ($\chi^2=1.70, \text{df}=1, p=.19$). Therefore, the null hypothesis was accepted.
j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use- There was no statistically significant difference in the amount of time invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by education levels of respondents (graduate degrees vs. non graduate degrees) ($\chi^2=23.11, df=1, p<.001$). Respondents with bachelor’s degrees or lower were more likely to report (81.4%) moderately covering the impact of recovery from violence and trauma compared to (49.3%) respondents with graduate degrees. Therefore, the null hypothesis was rejected.

Hypothesis 3.7: There is no statistically significant difference in the amount of time invested (minimally covered vs. moderately covered) in selected curricular substance use topics by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

Chi square test (2x3) were used to detect any statistically significant differences in the time invested (moderately covered vs. minimally covered) in selected curricular substance use topics by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

a) Relapse prevention of substance use- There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in relapse prevention of substance use by the gender served by the
facility (female-only vs. coed vs. male-only) ($\chi^2=12.41$, df=2, $p \leq .01$). Female-only (89.1%) and male-only facilities (89%) were more likely to moderately cover (3 or more hours) relapse prevention of substance use than coed facilities (69.4%). Therefore, the null hypothesis was rejected.

b) The impact of recovery from violence and trauma- There was a statistically significant difference in the amount of time (moderately vs. minimally covered) invested in the impact of recovery from violence and trauma by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=11.67$, df=2, $p \leq .01$). Female-only facilities (67.4%) were more likely moderately cover (3 or more hours) the impact of recovery from violence and trauma than both male-only (38.2%) and coed (45.1%) facilities. Therefore, the null hypothesis was rejected.

c) Violence prevention- There was a statistically significant difference in the amount of time invested in violence prevention of substance use by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=7.08$, df=2, $p \leq .05$). Female-only facilities (63.1%) were more likely to moderately cover (3 or more hours) violence prevention than both male-only (38.1%) and coed (46.8%) facilities. Therefore, the null hypothesis for this topic was rejected.

d) Signs and symptoms of substance use disorders- There was a statistically significant difference in the amount of time (moderately covered vs. minimally
covered) invested in relapse prevention of substance use by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=9.07$, df=2, $p \leq .05$). Female-only (89.1%) and male-only (89%) facilities were more likely to moderately cover (3 or more hours) signs and symptoms of substance use disorders than coed (69.4%) facilities. Therefore, the null hypothesis was rejected.

e) Anger management- There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in anger management by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=11.39$, df=2, $p \leq .01$). Coed (74.2%) and female-only (73.9%) facilities were more likely to moderately cover (3 or more hours) anger management than male-only (51.7%) facilities. Therefore, the null hypothesis was rejected.

f) Stress management- There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in stress management by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=10.72$, df=2, $p \leq .01$). Female-only (65.2%) and coed (62.9%) facilities were more likely to moderately cover (3 or more hours) stress management than male-only (42.4%) facilities. Therefore, the null hypothesis was rejected.

g) Personal health- There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in personal health
by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=6.38$, df=2, $p \leq .05$). Female-only (82.7%) and male-only facilities (79.7%) were more likely to moderately cover (3 or more hours) personal health than coed (62.9%) facilities. Therefore, the null hypothesis was rejected.

**h) Behavioral and emotional triggers leading to substance use relapse-** A chi square could not be calculated due to data constraints.

**i) Physiological or psychological effects of drugs-** There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in physiological or psychological effects of drugs by the gender served by the facility (females only vs. coed vs. males only) ($\chi^2=15.27$, df=2, $p \leq .001$). Female (89.1%) and male-only facilities (85.6%) were more likely to moderately cover (3 or more hours) physiological or psychological effects of drugs than coed (66.9%) facilities. Therefore, the null hypothesis was rejected.

**j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use-** There was a statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol and drug use by the gender served by the facility (female-only vs. coed vs. male-only) ($\chi^2=27.21$, df=2, $p \leq .001$). Female-only (84.7%) and coed (77.4%) facilities were
more likely to moderately cover promoting recreational, social, and cultural activities as alternatives to alcohol/drug use than male-only (46.6%) facilities. Therefore, the null hypothesis for this topic was rejected.

**Research Question 4**

What treatment approaches are used by juvenile justice affiliated facilities as they deliver substance use services to juvenile offenders?

**Hypothesis 4.1:** There is no statistically significant association between the number of treatment approaches used and number of full-time employees. A Spearman rho found that there was no statistically significant association between the number of treatment approaches used and number of full-time employees ($r = -.086$, $p = .20$). Therefore, the null hypothesis was accepted.

**Hypothesis 4.2:** There is no statistically significant difference in the number of treatment approaches by the proportion of facilities’ budget expenditures (0-10% vs. 11-100%) for substance use services. A Mann-Whitney U test found that there was no statistically significant difference in the number of treatment approaches by the proportion of facilities’ budget expenditures (0-10% vs. 11-100%) for substance use services ($Z = -1.44$, $p = .15$). Therefore, the null hypothesis was accepted.
Hypothesis 4.3: There is no statistically significant difference in the number of treatment approaches used by accreditation status of facility (accredited vs. non-accredited).

A Mann Whitney U test found that there was a statistically significant difference in the number of treatment approaches used by accreditation status (accredited vs. non-accredited) \((Z=-2.09, p<.05)\). Those facilities that were accredited were more likely to have more treatment approaches \((Mdn=3)\) than those facilities not accredited \((Mdn=2)\). Therefore, the null hypothesis was rejected.

Hypothesis 4.4: There is no statistically significant difference in the number of treatment approaches used by education levels (graduate degrees vs. non-graduate degrees) of respondents.

A Mann-Whitney U test found that there was no statistically significant difference in the number of treatment approaches used by education levels (graduate degrees vs. non-graduate degrees) of the respondents \((Z=-.953, p=.34)\). Therefore, the null hypothesis was accepted.

Hypothesis 4.5: There is no statistically significant association between the number of treatment approaches used and the years in being at current positions of respondents.

A Spearman rho coefficient correlation found that there was a statistically significant association between the number of treatment approaches used and the
years in being current at current position of respondents ($r$ = .181, $p$ < .05). Those individuals that had more years at current positions were less likely to report treatment approaches used in substance use services than respondents with lesser years at current positions. Therefore, the null hypothesis was rejected.

**Hypothesis 4.6: There is no statistically significant difference in the number of treatment approaches used by methods assessment/screening (own/no methods vs. other methods) to diagnose substance use.**

A Mann-Whitney U test found that there was no statistically significant difference in the number of treatment approaches by methods of assessment/screening (own/no methods vs. other methods) of diagnosing substance use ($Z$ = -1.26, $p$ = .21). Therefore, the null hypothesis was accepted.

**Hypothesis 4.7: There is no statistically significant difference in the number of treatment approaches by the gender of the clients served by the facility (female-only vs. coed vs. male-only).**

A Kruskal-Wallis test found that there was a statistically significant difference in the number of treatment approaches by the gender of clients served by facility (female-only vs. coed vs. male-only) ($\chi^2$ = 8.30, df=2, $p$ < .05). Female-only facilities were more likely to have more treatment approaches (Mdn=3) than both coed (Mdn=2) and male-only facilities (Mdn=2). Therefore, the null hypothesis was rejected.
Research Question 5

What types of substance use services are used by juvenile justice affiliated facilities when delivering substance use services to juvenile offenders?

Hypothesis 5.1: There is no statistically significant association between the number of substance use services used and the number of full-time employees.

A Spearman rho test found no statistically significant association between the number of substance use services and the number of full-time staff employed ($r=0.082$, $p=0.23$). Therefore, the null hypothesis was accepted.

Hypothesis 5.2: There is no statistically significant difference in the provision (offered or not offered) of family counseling by gender of the clients served in the facility (female-only vs. coed vs. male-only).

A chi square test found a statistically significant difference in the provision of family counseling by gender of the clients served in the facility (female-only vs. coed vs. male-only) ($\chi^2=6.20$, df=2, $p<.05$). Respondents in female-only facilities were more likely to report that they provide family counseling (55.3%) compared to respondents from coed facilities (37.7%) and male-only (31.1%). Therefore, the null hypothesis was rejected.

Hypothesis 5.3: There is no statistically significant difference in the provision...
(offered or not offered) of group substance counseling by gender of the clients served in the facility (females only vs. coed vs. males only).

A chi square test could not be calculated due to data constraints. The majority of respondents (female-only 93.6%, male-only 94.1%, and coed 88.5%) reported that their facilities offered group substance use counseling.

Hypothesis 5.4: There is no statistically significant difference in the provision (offered or not offered) of individual substance use counseling by gender of the clients served in the facility (females only vs. coed vs. males only).

A chi square test could not be calculated due to data constraints. The majority of respondents (male-only 94.1%, female-only 89.4%, and coed 85.2%) reported that their facilities offered individual substance use counseling.

Hypothesis 5.5: There is no statistically significant difference in the provision (offered or not offered) of educational/informational sessions/classes by gender of the clients served in the facility (female-only vs. coed vs. male-only).

A chi square test found no statistically significant difference in the provision of educational/informational sessions/classes by gender of the clients served in the facility (female-only vs. coed vs. male-only) ($\chi^2 = .478$, df=2, p=.79). Therefore, the null hypothesis was accepted.
Research Question 6:
What are the barriers that juvenile justice affiliated facilities see to providing substance use services to juvenile offenders?

Hypothesis 6.1: There is no statistically significant association between the number of perceived barriers to offering substance use services by respondents and the number of full-time employees.

A Spearman rho test found that there was a statistically significant association between the number of identified barriers to offering substance use services and the number of full time staff employed \((r = .206, p < .01)\). Therefore, the null hypothesis was rejected. Those respondents who identified less number of perceived barriers were likely to report having more full time employees. Therefore, the null hypothesis was rejected.

Hypothesis 6.2: There is no statistically significant difference in the number of perceived barriers to offering substance use services by the proportion of facilities’ budgets spent on substance use services (0-10% vs. 11-100%).

A Mann-Whitney U test found a statistically significant difference in the number of perceived barriers to offering substance use services by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services \((Z = -3.48, p < .001)\). Respondents from facilities which spent 0-10% of their budgets on substance use services were statistically significantly more likely to perceive
more barriers (Mdn=2) than respondents from facilities which spent 11-100% on substance use services (Mdn=1). Therefore, the null hypothesis was rejected.

**Hypothesis 6.3:** There is no statistically significant difference in the number of perceived barriers to offering substance use services by respondents by education levels of respondents (graduate degrees vs. non graduate degrees).

A Mann-Whitney U test found that a statistically significant difference in the number of perceived barriers by education levels (graduate degrees vs. non graduate degrees) of respondents (Z= -3.10, p≤ .01). Those respondents who held graduate degrees reported more barriers (Mdn=2.0) than those who did not have graduate degrees (Mdn=1.0). Therefore, the null hypothesis was rejected.

**Hypothesis 6.4:** There is no statistically significant association between the number of perceived barriers to offering substance use services by respondents and years at being in current positions of respondents.

A Spearman rho test found a statistically significant association between the number of perceived barriers to offering substance use services by respondents and the number of years at current positions (r= -.169, p≤ .01). Those respondents with more years in their current position were more likely to report fewer barriers to offering substance use services than respondents with fewer years of being in their current positions. Therefore, the null hypothesis was rejected.
Hypothesis 6.5: There is no statistically significant association between the number of perceived barriers to offering substance use services and the number of juvenile offenders in treatment.

A Spearman rho test found that there was no statistically significant association between the number of perceived barriers to offering substance use services and the number of juvenile offenders in substance use services ($r = -.125, p=.06$). Therefore, the null hypothesis was accepted.

Hypothesis 6.6: There is no statistically significant difference in the number of perceived barriers to offering substance use services by methods of assessment/screening (own/no methods vs. other assessment/screening methods) for diagnosing substance use.

A Whitney Mann U found no statistically significant difference in the number of perceived barriers to offering substance use services by respondents to offering substance use services by methods of assessment/screening (own/no methods vs. other assessment/screening methods) for diagnosing substance use ($Z=- 1.22, p=.22$). Therefore, the null hypothesis was accepted.

Hypothesis 6.7: There is no statistically significant difference in the number of perceived barriers to offering substance use services by the gender of respondents.

A Whitney-Mann U test found that there is no statistically significant difference
in the number of perceived barriers to offering substance use services by the gender of the respondents (Z= -1.076, p=.28). Therefore, the null hypothesis was accepted.

**Hypothesis 6.8:** There is no statistically significant difference in the number of perceived barriers to offering substance use services by the gender of the clients served by the facility (i.e., females only vs. coed vs. males only.)

A Kruskal-Wallis test found no statistically significant difference in the number of perceived barriers by the gender of the clients served in the facility (female-only vs. coed vs. male-only) ($\chi^2= .952$, df= 2, p= .62). Therefore, the null hypothesis was accepted.

**Research Question 7:**

What benefits do program directors of juvenile justice affiliated facilities see to offering substance use services to juvenile offenders?

**Hypothesis 7.1:** There is no statistically significant association between the number of perceived benefits to offering substance use services and the number of juvenile offenders in treatment.

A Spearman’s rho test found that there was no statistically significant association between the number of perceived benefits to offering substance use services and the number of juvenile offenders in treatment ($r=.095$, p=.16). Therefore, the null
Hypothesis 7.2: There is no statistically significant association between the number of perceived benefits to offering substance use services and the number of full time employees.

A Spearman’s rho test found that there was no statistically significant association between the number of perceived benefits to offering substance use services and the number of full time staff employed ($r = .044, p = .47$). Therefore, the null hypothesis was accepted.

Hypothesis 7.3: There is no statistically significant difference in the number of identified benefits to offering substance use services by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

A Whitney-Mann U test found no statistically significant difference in the number of perceived benefits to offering substance use services by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services ($Z = -1.31, p = .90$). Therefore, the null hypothesis was accepted.

Hypothesis 7.4: There is no statistically significant difference in the number of perceived benefits to offering substance use services by education levels of respondents (graduate degrees vs. non graduate degrees).

A Whitney-Mann U test found there was a statistically significant difference in
the number of perceived benefits to offering substance use services by education levels (graduate degrees vs. non-graduate degrees) of respondents (Z = -2.793, p ≤ .01). Respondents who reported having graduate degrees were more likely to perceive more benefits to offering substance use services (Mdn = 5) than those respondents with non-graduate degrees (Mdn = 4). Therefore, the hypothesis was rejected.

**Hypothesis 7.5: There is no statistically significant association between the number of perceived benefits to offering substance use services and years at current position for respondents.**

A Spearman’s rho test found no statistically significant association between the number of perceived barriers to offering substance use services and years at current position for respondents (r = -.024, p = .69). Therefore, the null hypothesis was accepted.

**Hypothesis 7.6: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the methods of assessment/screening (own/no methods vs. other assessment/screening methods) to diagnose substance use.**

A Whitney-Mann U test found no statistically significant difference in the number of perceived benefits to offering substance use services by the methods of assessment/screening process to diagnose substance use (Z = -.605, p = .55).
Therefore, the null hypothesis was accepted.

**Hypothesis 7.7: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the gender of respondents.**

A Whitney-Mann U test was performed and found that there is no statistically significant difference in the number of perceived benefits to offering substance use services by the gender of respondents (U = -1.238, p = .216). Therefore, the null hypothesis was accepted.

**Hypothesis 7.8: There is no statistically significant difference in the number of perceived benefits to offering substance use services by the gender of the clients served by the facility (females only vs. coed vs. males only.)**

A Kruskal-Wallis test found no statistically significant difference in the number of perceived benefits offering substance use services by the gender of the clients served by the facility (female-only vs. coed vs. male-only) ($\chi^2 = 1.71$, df = 2, p = .43). Therefore, the null hypothesis was accepted.

**Research Question 8:**

Which criteria do respondents use to evaluate the effectiveness of their substance use services for juvenile offenders?
Hypothesis 8.1: The majority of respondents will determine the effectiveness of substance use services by certain percentages of offenders completing the substance use services.

The majority of respondents did not evaluate the effectiveness of their substance use services by percentages of juvenile offenders completing the program (22.8%). Therefore, the null hypothesis was rejected.

Hypothesis 8.2: Facilities that offer formal evaluation of the effectiveness of substance use services will not be statistically significantly different in accreditation status compared to facilities that do not offer formal evaluation.

A chi square test found no statistically significant difference in facilities that offer formal evaluation of the effectiveness of substance use services on accreditation status compared to programs that did not offer formal evaluation ($\chi^2=.18.19$, df=1, $p\leq .001$). Those facilities that were not accredited were less likely (48.6%) to offer formal evaluations on the effectiveness of their substance use services compared to facilities that were accredited (21.7%). Therefore, the hypothesis was rejected.

Hypothesis 8.3: Respondents who reported their facilities use formal evaluations for the effectiveness of substance use services will not be statistically significantly different in the proportion of facilities’ budgets (0-
10% vs. 11-100%) spent on substance use services compared to respondents who report they do not use formal evaluations for the effectiveness of their substance use services.

A chi square test found that respondents who reported they used formal evaluations for the effectiveness of substance use services have statistically significantly different proportions of facilities’ budgets spent on substance use services compared to respondents who state they do not use formal evaluations for the effectiveness of their substance use services ($\chi^2 = 9.83$, df=1, $p < .01$). Those respondents from facilities, which spent 0-10% of their budget on substance use services, were more likely to report having a formal evaluation process (57.5%) than respondents from facilities who spent 11-100% of their budget on substance use services (42.5%). Therefore, the null hypothesis was rejected.

**Hypothesis 8.4:** There is no statistically significant difference in the existence of formal evaluation of the effectiveness of substance use services assessment by the gender of the clients served by the facility (female-only vs. coed vs. male-only)

A chi square test found that there was no statistically significant difference in programs that have a formal evaluation process by the gender of clients served by the facility (female-only vs. coed vs. male-only) when compared to those programs that do not have formal evaluations of substance use services ($\chi^2 = 4.35$, df=2, $p = .11$). Therefore, the null hypothesis was accepted.
4.9 Summary

The vast majority of respondents reported that their facilities offered substance use services to juvenile offenders. Almost all respondents reported that they offered educational services/GED program, mental health services, and anger management services. The least offered service was smoking cessation. Approximately one-half of respondents answered that they were not accredited. The most commonly reported time frequency in offering substance use services was twice a week with 60 minutes being the average duration of a typical substance use session/meeting. A vast majority of respondents answered they offered group substance use counseling and individual substance use counseling with a minority affirming that they provide family counseling tied to substance use. Surprisingly, less than 4% of respondents reported that their facilities offered pharmacological services to substance dependent adolescents.

The three most frequently reported perceived benefits to offering substance use services were improved school performance, improved family relationships, and decreased criminal recidivism. The three barriers that were most reported were lack of qualified staff, lack of funding for substance use services, and insufficient time to conduct substance use services.

The majority of respondents stated their facilities covered in detail (5 or more hours), the behavioral and emotional triggers leading to substance use relapse and prevention of relapse. The three topics that received less amount of time (0 hours) were: the impact of recovery from violence prevention, impact of recovery from violence and trauma, and stress management.
Chapter 5

Conclusions

This chapter includes the following sections relative to the findings of this study:

1) Summary; 2) Rejected Hypotheses; 3) Accepted Hypotheses; 4) Discussion; 5) Implications; and 6) Recommendations for Future Research.

5.1 Summary

This study was conducted to answer the following questions:

1. In what stages of implementation of the Precaution Adoption Process Model do respondents, from juvenile justice affiliated facilities, place their substance use services?

2. What methods of assessment/screening are used to diagnose substance use/abuse/dependence by juvenile justice affiliated facilities that offer substance use treatment to juvenile offenders?

3. How much time (hours) do juvenile justice facilities invest in common topics found in substance use treatment curricula for juvenile offenders?
4. What treatment approaches are used by juvenile justice facilities as they deliver substance use treatment to juvenile offenders?

5. What types of substance use treatment services are used by juvenile justice facilities when delivering substance use treatment to juvenile offenders?

6. What perceived barriers do directors of juvenile justice facilities face when trying to expand and/or improve their substance use services to juvenile offenders?

7. What benefits do directors of juvenile justice facilities perceive to offering substance use services to juvenile offenders?

8. Which criteria do directors use to evaluate the effectiveness of their substance use services provided to juvenile offenders?

The prospective participants (n=897) for this study were identified in the 2010 American Corrections Association’s *Directory of Adult and Juvenile Correctional Departments, Institutions, Agencies, Probation and Parole Authorities*. A three wave mailing process was used for those respondents who were allowed, by their states’ administrative offices, to respond to the survey. Some respondents from states that did not allow the investigator to send surveys via postal mail completed the surveys via email. In such cases, the survey was disseminated to facilities by a contact person from the states’ central office.

Surveys were sent to a total of 540 randomly selected respondents. A total of 287 respondents completed and returned surveys (53.1% response rate). The majority of the respondents were white (72.7%) and female (53.0%). A plurality (32.1%) was between the ages of 40 to 49. The majority (93.1%) of respondents possessed a college degree and
had been employed at their current position for an average of 7 years.

The most commonly reported juvenile justice facility type was “residential” (i.e., juveniles are incarcerated on site) (71.4%). A plurality (41.6%) of facilities was located in rural areas. The majority (52.3%) held no accreditation status.

The majority (79.4%) of juvenile justice facilities reported being in the maintenance stage of the Precaution Adaption Process Model in terms of offering substance use services to adolescents (i.e., once substance use services had been established). More male-only facilities (88.8%) reported providing substance use services than female-only facilities (79.7%) and coed facilities (66.7%). Group substance use counseling (92.1%) and individual substance use counseling (90.4%) were the most frequently cited substance use services. Male-only facilities reported higher frequencies (94.1%) in providing group substance use counseling and individual substance use counseling than both female-only facilities (93.6%, 89.4%) and coed facilities (88.5%, 85.2%).

The three most frequent treatment approaches used in substance use services for were cognitive behavioral therapy (86.4%; male-only 93.3%, female-only 87.2%, coed 72.6%), motivational enhancement (54.8%; male-only 62.2%, female-only 59.6%, coed 37.1%), and 12 Step programming (48.7%; male-only 56.3%, female-only 44.7%, coed 37.1%). The Substance Abuse Subtle Screening Inventory (35.1%) was the widely used method to screen or assess for substance use/abuse/dependence. The vast majority (70.9%) of juvenile justice affiliated facilities spent 0-10% of their facilities’ budget expenditures on substance use services.
In terms of the amount of time invested in specific substance use topics, the three topics that were covered in the most depth (5 or more hours) were: a) behavioral and emotional triggers leading to substance use relapse (70.0%; female-only 78.3%, male-only 75.4%, coed 51.6%), b) relapse prevention (67.3%; male-only 75.4%, female-only 71.7%, coed 46.8%) and, c) promoting recreational, social, and cultural activities as alternatives to alcohol/drug use and (40.4%; female-only 63.0%, coed 43.5%, male-only 29.7%). The three topics that were commonly reported as being not covered were: a) violence prevention (29.6%; male-only 42.4%, coed 16.1%, female-only 15.2%), b) the impact of recovery from violence and trauma (29.1%; male-only 41.5%, coed 21.0%, female-only 10.9%) and, c) stress management (25.6%; male-only 39.8%, female-only 10.9%, coed 8.1%).

In terms of non-substance use services offered, the three most frequently offered services were mental health services (89.8%; male-only 94.8%, female-only 96.6%, coed 78.5%), anger management services (89.5%; male-only 94.8%, female-only 93.2%, coed 79.6%), and physical recreation/wellness (84.0%; male-only 90.4%, female-only 84.7%, coed 74.2%). Male-only facilities were also more likely report providing family therapy (non-substance use) (78.5%) than both female-only facilities (62.7%) and coed facilities (51.6%).

5.2 Rejected Hypotheses

The following hypotheses were rejected:

There is no statistically significant difference in the education levels of
respondents (graduate vs. non-graduate degrees) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.5 There is no statistically significant difference in facility types (incarceration facilities vs. non-incarceration facilities) by the presence of substance use services (maintenance stage) by the presence of substance use services in juvenile justice affiliated facilities.

1.6 There is no statistically significant difference in the years that respondents have worked at current position by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.8 There is no statistically significant difference in the number of full-time employees in juvenile justice facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.10 There is no statistically significant difference in the number of perceived benefits to offering substance use services by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.12 There is no statistically significant difference in the gender of clients being served (i.e. female-only vs. coed vs. male-only) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

2.1 There is no statistically significant difference in the number of full-time employees by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

2.3 There is no statistically significant difference in the proportion of facilities’
budgets (0-10% vs. 11-100%) spent on substance use services by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

2.4 There is no statistically significant difference in the gender of clients served by the facility (female-only vs. coed vs. male-only) by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

3.1b There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in impact of recovery from violence and trauma.

3.1c There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in violence prevention.

3.1d There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in the signs and symptoms of substance use disorders.

3.1e There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in anger management.

3.1f There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in stress management.
3.1g There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in personal health.

3.1j There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use.

3.2b There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery from violence and trauma by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

3.2c There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in violence prevention by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

3.2d There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in the signs and symptoms of substance use disorders by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

3.2e There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in anger management by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.
3.2f There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in stress management by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

3.2h There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

3.2j There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

3.3b There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery from violence and trauma by accreditation status (accredited vs. non accredited).

3.3c There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in violence prevention by accreditation status (accredited vs. non accredited).

3.3d There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in the signs and symptoms of substance use disorders by accreditation status (accredited vs. non accredited).

3.3e There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in anger management by accreditation
status (accredited vs. non accredited).

3.3f There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in stress management by accreditation status (accredited vs. non accredited).

3.3i There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs by accreditation status (accredited vs. non accredited).

3.3j There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by accreditation status (accredited vs. non accredited).

3.4j There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in promoting, recreational, social, and cultural activities.

3.5b There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in the impact of recovery from violence and trauma.

3.5c There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in violence prevention.

3.5d There is no statistically significant difference in the number of perceived barriers
to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in signs and symptoms of substance use disorders.

3.5e There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in anger management.

3.5f There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in stress management.

3.5j There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in stress management.

3.6b There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the impact of recovery from violence and trauma by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6c There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in violence prevention by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6d There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the signs and symptoms of substance use disorders by education levels (graduate degrees vs. non-graduate degrees) of respondents.
3.6e There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in anger management by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6f There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in stress management by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6g There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in personal health by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6j There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.7a There is no statistically significant difference in the amount of time invested (minimally covered vs. moderately covered) in relapse prevention of substance use by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

3.7b There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested the impact of recovery from violence and trauma by the gender served by the facility (female-only vs. coed vs. male-only).

3.7c There is no statistically significant difference in the amount of time (moderately
covered vs. minimally covered) invested in violence prevention by the gender served by the facility (female-only vs. coed vs. male-only).

3.7d There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the signs and symptoms of substance use disorders by the gender served by the facility (female-only vs. coed vs. male-only).

3.7e There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in anger management by the gender served by the facility (female-only vs. coed vs. male-only).

3.7f There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in stress management by the gender served by the facility (female-only vs. coed vs. male-only).

3.7g There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in personal health by the gender served by the facility (female-only vs. coed vs. male-only).

3.7i There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the behavioral and emotional triggers leading to substance use by the gender served by the facility (female-only vs. coed vs. male-only).

3.7j There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in promoting recreational, social, and cultural activities as alternatives to alcohol/drug use by the gender served by the facility (female-only vs. coed vs. male-only).
facility (female-only vs. coed vs. male-only).

4.3 There is no statistically significant difference in the number of treatment approaches used by accreditation status of facility (accredited vs. non-accredited).

4.5 There is no statistically significant association between the number of treatment approaches used and the years in being at current positions of respondents.

4.7 There is no statistically significant difference in the number of treatment approaches by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

5.2 There is no statistically significant difference in the provision (offered or not offered) of family counseling by gender of the clients served in the facility (female-only vs. coed vs. male-only).

6.1 There is no statistically significant association between the number of perceived barriers to offering substance use services and the number of full-time employees.

6.2 There is no statistically significant difference in the number of identified barriers to offering substance use services by the proportion of facilities’ budgets spent on substance use treatment (0-10% vs. 11-100%).

6.3 There is no statistically significant difference in the number of identified barriers to offering substance use services by education levels of respondents (graduate degrees vs. non graduate degrees).

6.4 There is no statistically significant association between the number of identified barriers to offering substance use services by respondents and the number of years at being in current positions of respondents.
7.4 There is no statistically significant difference in the number of perceived benefits to offering substance use services by education levels of respondents (graduate degrees vs. non-graduate degrees).

8.1 The majority of respondents will determine the effectiveness of substance use treatment program by the certain percentages of offenders completing the program.

8.2 Programs that offer formal evaluation of the effectiveness of substance use services will not be statistically significantly different in accreditation status compared to programs that do not offer formal evaluation.

8.3 Respondents who reported their facilities use formal evaluations for the effectiveness of substance use services will not be statistically significantly different in the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use treatment compared to respondents who state they do not use formal evaluations for the effectiveness of their substance use services.

5.3 Accepted Hypotheses

The following are the hypotheses that were accepted:

1.1 The majority of program directors will place their substance use treatment program in the “maintenance” stage.

1.2 There is no statistically significant difference in number of juvenile offenders in current treatment for substance by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.
1.3 There is no statistically significant difference in the geographical settings of facilities (rural, suburban, urban) by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.7 There is no statistically significant difference in the gender of respondents by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.9 There is no statistically significant difference in accreditation status (accredited vs. non-accredited) of facilities by the presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

1.11 There is no statistically significant difference in the number of perceived barriers to offering substance use services by presence of substance use services (maintenance stage) in juvenile justice affiliated facilities.

2.2 There will be no statistically significant difference in the accreditation status (accreditation vs. non-accreditation) of facilities by the methods of assessment/screening (own methods/no methods vs. other methods) to diagnose substance use/abuse/dependence.

3.1a There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in relapse prevention of substance use.

3.1h There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse.
3.1i There is no statistically significant difference in the number of full-time employees by amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs.

3.2a There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in relapse prevention by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use treatment.

3.2g There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in personal health by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use treatment.

3.2i There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use treatment.

3.3a There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in relapse prevention of substance use by accreditation status (accredited vs. non-accredited).

3.3g There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in personal health by accreditation status (accredited vs. non-accredited).

3.3h There is no statistically significant difference in the amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse by accreditation status (accredited vs. non-
3.4a There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in relapse prevention of substance use.

3.4b There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in the impact of recovery from violence and trauma.

3.4c There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in violence prevention.

3.4d There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in signs and symptoms of substance use disorders.

3.4e There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in anger management.

3.4f There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in stress management.

3.4g There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in personal health.
3.4h There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in behavioral and emotional triggers leading to substance use relapse.

3.4i There is no statistically significant difference in the number of perceived benefits to offering substance use services by the amount of time (minimally covered vs. moderately covered) invested in physiological or psychological effects of drugs.

3.5a There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in relapse prevention of substance use.

3.5g There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in behavioral and emotional triggers leading to substance use relapse.

3.5h There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in physiological or psychological effects of drugs.

3.5i There is no statistically significant difference in the number of perceived barriers to offering substance use services by the amount of time (moderately covered vs. minimally covered) invested in physiological or psychological effects of drugs.

3.6a There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the relapse prevention of substance
use by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6h There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in the behavioral and emotional triggers leading to substance use relapse by education levels (graduate degrees vs. non-graduate degrees) of respondents.

3.6i There is no statistically significant difference in the amount of time (moderately covered vs. minimally covered) invested in physiological and psychological effects of drugs by educational levels (graduate degrees vs. non-graduate degrees) of respondents.

4.1 There is no statistically significant association between the number of treatment approaches used and number of full-time employees.

4.2 There is no statistically significant difference in the number of treatment approaches by the proportion of facilities’ budget expenditures (0-10% vs. 11-100%) for substance use treatment.

4.4 There is no statistically significant difference in the number of treatment approaches used by education levels (graduate degrees vs. non-graduate degrees) of respondents.

4.6 There is no statistically significant difference in the number of treatment approaches used by methods assessment/screening (own/no methods vs. other methods) to diagnose substance use.

5.1 There is no statistically significant association between the number of substance
use treatment services used and the number of full-time employees.

5.5 There is no statistically significant difference in the provision (offered or not offered) of educational/informational sessions/classes by gender of the clients served in the facility (female-only vs. coed vs. male-only).

6.5 There is no statistically significant association between the number of identified barriers to offering substance use services and the number of juvenile offenders in treatment.

6.6 There is no statistically significant difference in the number of identified barriers by methods of assessment/screening (own/no methods vs. other assessment/screening methods) for diagnosing substance use.

6.7 There is no statistically significant difference in the number of identified barriers to offering substance use services by the gender of the clients served by the facility (i.e., female-only vs. coed vs. male-only).

7.1 There is no statistically significant association between the number of perceived benefits to offering substance use services and the number of juvenile offenders in treatment.

7.2 There is no statistically significant association between the number of perceived benefits to offering substance use services and the number of full time employees.

7.3 There is no statistically significant difference in the number of identified benefits to offering substance use services by the proportion of facilities’ budgets (0-10% vs. 11-100%) spent on substance use services.

7.5 There is no statistically significant association between the number of identified
barriers and years at current positions for respondents.

7.6 There is no statistically significant difference in the number of identified benefits to offering substance use services by the methods of assessment/screening (own/no methods vs. other assessment/screening methods) to diagnose substance use.

7.7 There is no statistically significant difference in the number of perceived benefits to offering substance use services by the gender of respondents.

7.8 There is no statistically significant difference in the number of identified benefits to offering substance use services by the gender of the clients served by the facility (females only vs. coed vs. males only).

8.4 There is no statistically significant difference in the existence of formal evaluation of the effectiveness of substance use services assessment by the gender of the clients served by the facility (female-only vs. coed vs. male-only).

5.4 Discussion

5.4.1 Characteristics of Substance Use Services

More than 3 out of 4 juvenile justice affiliated facilities (79.4%) provided substance use services to their clients. These results are similar to those reported by Young, et al. (2007) who found that 75% of facilities provided substance use services. In the current study, more male-only facilities provided substance use services than did female-only facilities and coed facilities. One reason for these differences in services by gender of the client may be the difficulty in conducting substance use services,
specifically group sessions, simultaneously with both gender groups in the coed facilities.

Drug Strategies (2003) recommends as a best practice that juvenile justice facilities specifically tailor their services and curriculum to the gender of the clients that they serve. About 6 in 10 facilities in the current study offered services that were tailored specifically to the gender that they served. Several findings in the current study point to the existence of potential disparities by the gender of clients served. Coed facilities were less apt to use formal methods of screening and assessment (i.e., their own methods/or no methods) compared to male-only and female-only facilities. The coed facilities also reported using fewer treatment approaches than male-only and female-only facilities. The differences may be associated with the challenges of a coed environment. Coed facilities may have chosen to present only gender neutral curricula and services which contain fewer options. Some substance use services may simply not be appropriate when treating both males and females living in the same residential environment. Future studies need to examine how coed facilities deal with gender specificity in curricula used for substance use services. Additional research needs to be conducted to further delineate and explain the differences in services by the gender of the clients served.

It was interesting, although not surprising that over half (52.3%) of juvenile justice affiliated facilities were not accredited. Accreditation among juvenile justice facilities is voluntary unless specific states require their facilities to be accredited. Several studies have examined the impact of accreditation status on adherence to recommended services or improved treatment outcomes for juvenile offenders. Brannigan et al. (2004), found mixed results regarding the impact of accreditation on how well facilities followed
the recommended substance use treatment guidelines established by Drug Strategies
(2003). Brannigan et al. (2004) reported that accredited facilities were more likely to
follow some guidelines compared to un-accredited facilities, while the opposite was true
for other guidelines. Since, there has been no push for mandatory accreditation for
juvenile justice affiliated facilities; it is likely that the majority of facilities will remain
unaccredited in the near future. Future research in this area should continue to elucidate
the relationship between accreditation status and treatment outcomes.

One surprising result from the current study was the low level of pharmacological
services offered to incarcerated youth. A very small proportion of facilities provided
such services for their juvenile offenders, many of whom likely have serious substance
use issues. Pharmacological treatment, with adequate compliance to the treatment
regimen, has been found to decrease illicit substance use (Myrick & Anton, 1998;
Williams, 2005; Anton, et al., 2008). One reason for the lack of pharmacological services
may be increased costs. Another possible reason for not offering pharmacological
treatment is the fear of misuse of the medication by juvenile offenders and the associated
legal risks involved. The possibility of legal action (e.g., lawsuits) pertaining to the
misuse or adverse reactions to the medications may also be deterrents to providing such
services. Lack of pharmacological treatment may also be linked to the lack of medical
services and medical personnel in the facilities. Young, et al., (2007), found that only
59% of juvenile affiliated facilities provided medical services. Therefore, approximately
40% of juvenile justice facilities may not be equipped to administer pharmacological
treatment and/or treat potential side effects of such treatment. Future research should
attempt to identify the reasons why pharmacological services are not being provided to juvenile offenders, especially those with serious dependency issues.

Family counseling and services are recommended components for effective substance use treatment for adolescents, specifically juvenile offenders (Drug Strategies, 2003; Molidor et al., 2002). Since family counseling is a recommended component of adolescent substance use services, its absence in the services of many facilities was noteworthy. A small number (37.7%) of facilities reported offering family counseling as part of their substance use services. This finding is corroborated by Young et al., (2007) who reported that approximately 40% of juvenile justice facilities provided family counseling. In the present study, family counseling was most utilized in female-only facilities (55.3%). One plausible explanation for this discrepancy by gender of clients served may be due to the notion that many problems that female teens faced are possibly derived from the family. One reason for the overall lack of family counseling services may be the perception among facility staff members that family members have contributed to the adolescent’s use of illicit substances. Since many adolescents adopt many of their behaviors from family members (Challier, Chau, Predine, Choquet, & Legras, 2000), family counseling with family members who use illicit substances may actually reinforce adolescents’ substance use. It is also possible that family members of incarcerated adolescents do not want to participate in family counseling. Whatever the reasons, it is important that family members become aware that their involvement in substance use counseling can help to decrease substance use in their adolescents (Liddle, 2004).
The treatment services approach reportedly most utilized in the facilities was cognitive behavior therapy (86.4%). Cognitive behavioral therapy was the most widely reported utilized treatment approach regardless the gender of clients served. Drug Strategies (2003) found in their national assessment of juvenile justice affiliated facilities, that 58% of the facilities used this approach in their substance use services. The third most reported used approach in this study was 12-step programming, (48.7%). According to the assessment by Drug Strategies (2003), 66% of facilities used 12-step programming in their substance use services. One plausible explanation for this difference in the trend of treatment approaches may be due to the emerging popularity of cognitive behavioral therapy used for clients of all ages. Cognitive behavioral therapy offers several positive features: it helps increase feelings of personal autonomy in clients (Dobson & Khatri, 2000) and it presents clear treatment guidelines for therapists (Gaudiano, 2008). Further research need to be conducted to establish the trends of use of both treatment approaches in substance use treatment.

It was disappointing to note that nearly 30% of juvenile justice facilities did not devote any time in the substance use curricula to discussing/teaching the impact of recovery from violence and trauma nor violence prevention. Considering the association between violence, crime, and substance use (Biederman et al., 2006), one would intuitively believe that the majority of facilities would integrate education about violence and violence prevention into their curricula. A noteworthy result from the current study shows that 42.4% of male-only facilities devoted no time to covering violence prevention in their curricula. This is of some concern due to disproportionate number of adolescent
males committing violent crimes (e.g., murder, assault, battery) (Federal Bureau of Investigation, 2010). One solution to this dilemma is having violence prevention services provided to juvenile offenders, especially males. Juvenile justice facilities help to prevent and decrease future juvenile crime by designing and implementing services that effectively deal with both violence and substance use (Vermeiren, Schwab-Stone, Deboutte, Leckman, & Ruchkin, 2003).

Considering the association between anger, substance abuse, and crime, it was noteworthy that 1 in 4 facilities (25.1%) invested no time in the topic of anger management in their substance use curricula. Anger is a contributory factor to substance use in juvenile offenders (Eftekhari, Turner, & Larimer, 2004). The findings from the current study indicate that budget allocation may play a role in the amount of time invested in certain curricular topics. Those facilities that spent more of their budget on substance use services were more likely to invest 3 or more hours on anger management than facilities that spent less of their budget on substance use services.

A similar finding was noted for the topic of stress management. Stress management was minimally covered by approximately half of the facilities. As much as 58% of male-only facilities reported only investing 2 or fewer hours on covering this topic. This finding is of interest due to stress being frequently cited as a contributory factor to substance use in adolescents, especially for males (Piko, 2001; Skitch & Abela, 2008; Hyman & Sinha, 2009). There may be several plausible explanations for the limited presence of stress management in the substance use curricula of many facilities. One explanation may be associated with budget allocation for substance use services. The
current study found that facilities that invested more of their budget on substance use services were more likely to invest 3 or more hours on the topic of stress management compared to facilities that spent less of their budget on substance use services. Perhaps the topic of stress management is not viewed as a core topic in the substance use curriculum and may only be covered by those facilities with more staff members who can devote time to extra sessions.

The number of full time staff employed in juvenile justice affiliated facilities did have an impact on coverage of curricular topics in substance use services. Facilities that reported having more full time employees were more likely to invest three or more hours on the following topics than facilities that invested two or less hours: relapse prevention of substance use, the impact of recovery from violence and trauma, violence prevention, signs and symptoms of substance use disorders, anger management. Facilities that invested two or less hours on personal health and promoting recreational, social, and cultural activities as alternatives to alcohol/drug use were more likely to have more employees than facilities that invested three or more hours on the same topics. A possible explanation for these differences may be that facilities with more employees, typically larger facilities, may believe that certain topics are more important to invest more time than other topics.

One service that was not a primary focus of the study, but is worthy of discussion is smoking cessation services. Surprisingly, a very small number of facilities (12.9%) reported that they offered smoking cessation services to their adolescent clients, regardless if the facility provided substance use services. Smoking cessation services
were most prevalent in female-only facilities. In contrast, there are significantly more non-juvenile justice affiliated outpatient programs (41.0%) which offer smoking cessation services concurrently with substance use services (Friedmann, Jian, & Richter, 2008). There is an established relationship between cigarette smoking and illicit substance use among adolescents (Gonzalez-Castro, Stein, & Bentler, 2009; Bombard, Pederson, Nelson, & Malarcher, 2007; Merline. Jager, & Schulenberg, 2008).

Adolescents who smoked one pack of cigarettes a day were 10-30 times more likely to use illicit substances and 3 times more likely to drink alcohol than non-smoking adolescents (Torabi, Bailey, & Majd-Jabar, 1993). It would stand to reason that more juvenile justice affiliated facilities should offer smoking cessation services. These services may assist youths with both their tobacco and illicit substance use addictions. One previous study established an association between adolescents’ decreased smoking patterns after completion of substance use treatment (with smoking cessation services) and reductions in the consumption of alcoholic drinks (Myers, Doran, & Brown, 2007). A similar relationship is found between smoking cessation and marijuana use. Adolescents who quit smoking cigarettes were 71% less likely to relapse back into using marijuana compared to adolescents who continued to smoke cigarettes (de Rios, Vaughan, Stanton, & Niaura, 2009).

Assessment and screening for juvenile offenders is a recommended best practice by Drug Strategies (2003). It was encouraging to note that almost all facilities (96.5%) in the current study utilized this recommended component. The current study found that the Substance Abuse Subtle Screening Inventory was the most utilized method for
assessment/screening method to diagnose substance use in juvenile offenders – used by 35% of all facilities.

Formal evaluations or treatment outcomes are important components for effective substance use services for juvenile offenders. Evaluations allow treatment programs to assess the effectiveness of their services and allow for needed improvements for identified deficiencies in services (Drug Strategies, 2003). More than one-half of the facilities did not use any criteria to evaluate the effectiveness of their substance use services. The absence of formal evaluations in many of the facilities may be due to the costs associated with conducting evaluations. Another reason may be due to the specialized training needed to conduct successful evaluations (Drug Strategies, 2003). The lack of a formal evaluation process certainly impedes facilities’ ability to improve their substance use services and outcomes. Future research is needed to examine the reasons for the absence of formal evaluations in many of the facilities and the potential ramifications associated with facilities not conducting evaluations on their substance use services.

5.4.2 Characteristics of the Respondents

The characteristics (e.g., beliefs, socio-demographics) of respondents may also have an impact on substance use services provided to juvenile offenders. The findings indicated an interesting association between the respondents’ educational credentials and the amount of time their facilities invested on topics covered in their substance use curricula. Respondents with less than a graduate degree were more likely to report that
their facilities invested more time (3 or more hours) in more curricula topics than respondents with graduate degrees. Although this finding is counterintuitive, it is likely that the educational qualifications of respondents have little to do with the content of the substance use curricula and the amount of time invested in certain topics. Numerous respondents communicated via telephone and email that their substance use curriculum and services were established at the state administrative level and that facilities had little control over these items at the local level.

The hypothesis that the number of perceived barriers to providing substance use services would impact the substance use services being provided to juvenile offenders was rejected in this study. The study found that respondents from facilities that did not offer substance use services did not perceive more barriers than respondents from facilities that offered substance use services. It is possible that respondents, regardless of the status of substance use services in their facilities, may share the same number of commonly perceived barriers. Again, state level factors may have affected these perceptions.

The most commonly cited perceived barrier was the lack of qualified staff to conduct substance use services. The minimum educational requirement was a four year degree or higher to provide substance use services to juvenile offenders. A sizable number (21.7%) of facilities required that their employees have a two-year degree or less. The educational requirements to become a counselor (certified or non-certified) vary from state to state - from an associate’s degree to master degree, depending on the nature of the qualifications (United States Department of Health and Human Services 2005).
Some facilities reported that their non-professional staff members (non-counselors/therapists) provided substance use services. According to Drug Strategies (2003) employees who provide substance use services, should ideally be trained as counselors or therapists in substance use treatment and also be able to recognize the problems associated with usage among adolescents. Since there are no mandatory educational or certification/licensure requirements, it is difficult to establish the minimum qualifications needed to be an appropriate provider for substance use services. It would seem logical that the field of juvenile justice would move toward the creation of standardized minimal requirements (education, licensure) to ensure that those providing substance use counseling to incarcerated youth have adequate competency to provide such services.

The second most common perceived barrier to providing substance use services was lack of funding. This barrier is becoming more of an issue for the juvenile justice system. The recent economic woes that are plaguing many state governments are leading to reduced services (substance or non-substance related) and closure of facilities (Rowe, 2011). This perceived barrier coincides with the previous perceived barrier. Since many facilities are feeling the financial strain, they may be hiring less qualified (and less expensive) personnel to administer services. Some facilities may not have the funding to hire certified or licensed counselors/therapists for substance use services. They may also not have adequate funding to hire experienced professionals with a successful track record. Due to the relationship between substance use and delinquency, diminished substance use services or less qualified personnel providing the services may lead to
future negative ramifications (e.g., higher rates of recidivism).

In contrast to perceived barriers, the results indicated an association between perceived benefits and whether facilities offer substances use services. The respondents from facilities that offered substance use services were more likely to identify more perceived benefits to providing substance use services compared to respondents from facilities that did not provide such services. Respondents from facilities that do offer services may be more cognizant of the benefits associated with substance use services because they see such services in action on a daily basis. They may also be able to see the immediate impact that those services have on future substance use. Another possible explanation for this difference, is that respondents, especially those who are directly responsible for implementation of services, may believe that these services are of great importance and therefore are more likely to see that these services are put in place.

The most commonly reported perceived benefit to offering substance use services was improved school performance. This perceived benefit is supported by previous research (Brown, Myers, Mott, Vik, 1994; Engberg et al., 2006; Voight, 2006).

5.5 Implications

The disparities in services by gender of the client served are of particular concern. In order to provide adequate services to all adolescents, it is important that facilities follow best practice recommendations. An improved level of standardization across all facilities may help in raising the level of consistency among facilities. Improving the level of standardization and consistency based on best practice
recommendations is important since juvenile offenders are often treated in several
different facilities during their time in the juvenile justice system. Improved
standardization across states and facilities may be difficult to establish due to the
differences in laws, policies, and budget allocation across the states.

An emerging issue and one that is likely to persist for quite some time is the lack
of financial resources needed to ensure that qualified professionals are providing beset
practice services to juvenile offenders. The current economic conditions point to the
strong possibility that there may also be further reductions in services and that more
facilities will be closed. This will likely lead to detrimental consequences for the
incarcerated juveniles and to society (e.g., higher rates of recidivism, higher crimes rates,
criminal costs to society).

Currently, best practice recommendations are lacking for the specific topics and
services that should be included in the ideal substance use serve program for incarcerated
adolescents. What are the components of the ideal program? The lack of universally
accepted guidelines for substance use services may be a legitimate reason for the current
state of variability that is exhibited across states and across facilities. Many facilities
report that they do not have a formal evaluation process to determine the outcomes or
success of their substance use services. The lack of uniformity in services and the
absence of evaluation processes is likely contributing to substandard services for juvenile
offenders.

Since there are no mandatory requirements for work experience or education for
those providing substance use services to incarcerated adolescents, there exists no
effective guidelines to determine the necessary qualifications for these service providers. Therefore, it is difficult to assess if juvenile offenders, especially those diagnosed with substance use, are receiving appropriate care and treatment.

5.6 **Recommendations for Future Research**

1. Investigate possible explanations for the differences in substance use services offered to juvenile offenders by the gender of incarcerated youths.
2. Investigate the feasibility of establishing uniform guidelines for substance use services for juvenile offenders.
3. Investigate the feasibility and usefulness of mandatory accreditation for juvenile justice affiliated facilities.
4. Investigate the impact that lack of funding and qualified staff have on future substance use services provided in juvenile justice affiliated services.
5. Investigate why certain topics of curricula are covered more than others. Determine which topics should be covered more than others in order to benefit juvenile offenders.
6. Investigate the barriers and/or reasons for juvenile justice affiliated facilities not providing pharmacology services to their juvenile offenders. Also, whether such services improve outcomes.
7. Investigate the origins for some of the leading perceived barriers and how they may continue to impact the implementation and delivery of substance use services.
8. Propose the content of a substance use curriculum which has been proven to be effective, for juvenile offenders.
References


Bender, B.G. (2007). Depression symptoms and substance abuse in adolescents with asthma. *Annals of Allergy, Asthma & Immunology, 99*, 319-324.


225


226


232


Santisteban, D.A., Coatsworth, J.D., Perez-Vidal, A., Kurtines, W.M., Schwartz, S.J. 
Hispanic adolescent behavior problems and substance use. *Journal of Family 
Psychology, 17*(1), 121-133.

childhood risk factors in initiation of alcohol use and progression to alcohol 

Schaeffer, C.M., & Borduin, C.M. (2005). Long-term follow-up to a randomized clinical 
trial of multisystemic therapy with serious and violent juvenile offenders. *Journal 


(2008). Relative risks of adolescent and young adult alcohol use: The role of 

Sealock, M. D., Gottfredson, D.C., & Gallagher, C. A. (1997). Treatment for juvenile 
offenders: Some good and bad news. *Journal of Research in Crime and 
Delinquency, 34*(2), 210-236.

adolescents with substance abuse problems: the relationship between 
comorbidities and post-treatment substance involvement. *Evaluation and 
Program Planning, 26*, 393-


Substance Abuse and Mental Health Services Administration. Illicit drug use in past month among persons aged 12 or older, by state: Percentages, annual averages based on 2007 and 2008 NSDUHs. Retrieved on August 28, 2010 from http://www.drugabusestatistics.samhsa.gov/2k8state/Ch2.htm#Fig2-1

Substance Abuse and Mental Health Services Administration (2009). *2008 National...*


Teles, J.K., & Feinn, R., Vabderploeg, J.L., Chinman, M.J., Shepard, J., Brabham, T.,
et al., (2007). Impact of a positive youth development program in urban after-
school settings on the prevention of adolescent substance use. *Journal of

Psychiatric disorders in youth in juvenile detention. *Archives of General
Psychiatry, 59*, 1133-1143.

Tetzlaff, B.T., Kahn, J.H., Godley, S.H., Godley, M.D., Diamond, G.S., & Funk, R.R.
(2005). Working Alliance, Treatment Satisfaction, and Patterns of Post treatment
use among adolescent substance users. *Psychology of Addictive Behaviors, 19*(2),
199-207.

Tevyaw, T.O., & Monti PM. (2004). Motivational enhancement and other brief
interventions for adolescent substance abuse: foundations, applications and

services for youth in the juvenile justice system. *Journal of the American


256


Appendix A:

Human Subjects Approval Letter
To: Timothy R. Jordan, Ph.D. and Michael Wiblishauser  
Department of Health and Recreation Professions

From: Mary Ellen Edwards, Ph.D., Chair  
Kamala London, Ph.D., Vice Chair  
Walter Edinger, Ph.D., Chair Designee

Signed: [Signature]  
Date: 02/16/11

Subject: IRB #107275  
Title: An Assessment of Substance use Treatment Programs for Female Juvenile Offenders

On 02/16/11, the above research was reviewed and approved as Exempt (category 2b) by the Vice Chair and Chair Designee of the University of Toledo (UT) Social Behavioral & Educational Institutional Review Board (IRB). The requirement to obtain a signed consent/authorization for use and disclosure of protected health information form has been waived as this research is determined to be minimal risk and a signed consent/authorization document would be the only record linking the subject to the data. It was determined that this waiver for signed consent/authorization will not adversely affect the rights and welfare of the participants. This action will be reported to the committee at its next scheduled meeting.

Please Note: A consent form is not required for this study. However an Information Sheet regarding the study should be distributed to potential participants. This Information Sheet should include the name and telephone number of a contact person in case the subjects need additional information. It is also strongly encouraged that the study be explained verbally to potential subjects.

Items Reviewed:  
- IRB Application Requesting Exempt Review  
- Survey

Designated as EXEMPT RESEARCH on: 02/16/2011

Please read the following attachment detailing Principal Investigator responsibilities.
Appendix B:

Survey Instrument
Survey for Directors of Juvenile Service Facilities

Directions: Please mark the answers that best describe your facility and the services that your facility provides to youth. Your responses will be kept confidential. Thank you for your time and professional courtesy.

Part A: Information about Services Provided by Your Facility

1) Which statement best describes the current state of the substance use services offered by your facility? (Please check only one).
   a) ___ We are unaware that there is a need for substance use services for our youth.
   b) ___ We are aware that there is a need for substance use services for our youth but we have not yet decided to implement such services.
   c) ___ We are currently deciding if we need to implement substance use services for our youth.
   d) ___ We have decided to implement substance use services for our youth, but have not yet completed implementation.
   e) ___ We have decided not to implement substance use services for our youth.
   f) ___ We are currently in the process of implementing substance use services for our youth.
   g) ___ We have offered substance use services for our youth for less than 1 year.
   h) ___ We have offered substance use services for our youth for more than 1 year.

2) Which of the services listed below does your facility offer to youth? (Please check all that apply)
   - Mental health services
   - Anger management services
   - Family therapy
   - Sexual & STD’s educational services
   - Physical recreation/wellness
   - Educational services/GED program
   - Life management/Job training
   - Case management services
   - Smoking cessation services
   - Other: 

3) Which statement below best describes your facility’s current accreditation status? (Please check all that apply)
   - Accredited by Commission on the Accreditation of Rehabilitation Facilities (CARF)
   - Accredited by Council on Accreditation (COA)
   - Accredited by Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)
   - We are not accredited
   - Other Accreditation (Please specify)

4) In your opinion, which of the following statements best describes the benefits to offering substance use services to youth? (Please check all that apply)
   - Decreased criminal recidivism
   - Less sexually transmitted diseases
   - Cost savings due to reduced crimes
   - Improved family relationships
   - Reduced high school dropout rates
   - Improved school performance
   - Increased health benefits
   - Other (Please Specify)
5). In your opinion, which of the following are barriers to implementing substance use services for youth? (Please check all apply)
   - [ ] There are no barriers to implementing substance services for youth.
   - [ ] Lack of qualified staff to conduct substance use services
   - [ ] Lack of funding for substance use services
   - [ ] Lack of appropriate program materials to conduct substance use services
   - [ ] Insufficient time to conduct substance use services
   - [ ] We do not have enough youth to merit offering substance use services.
   - [ ] Substance use services for youth are not effective
   - [ ] Other Barriers (Please specify)

PART B: Demographic Information

1) What is your gender: [ ] Male [ ] Female

2) What is your race/ethnicity? [ ] White [ ] African American [ ] Hispanic
   [ ] Asian/Pacific Islander [ ] Other (please identify)

3) Your age: [ ] 20-29 years [ ] 30-39 years [ ] 40-49 years [ ] 50-59 years [ ] 60+ years

4) What is your position/job title?

5) How many years have you worked as a manager/director/Supervisor of substance use services? ________ yrs.

6) How many years have you worked at your current position? ________ yrs.

7) What is the highest educational degree you have achieved? (Please check only one)
   [ ] High School/GED [ ] Associates [ ] Bachelors [ ] Masters [ ] Doctorate

8) What is the geographical setting of your facility? (Please check one) [ ] Urban [ ] Rural [ ] Suburban

9) What is the total number (capacity) of youths that your facility can serve? ________

10) Which of the following statements best describes your facility? (Please check all that apply)
    [ ] Residential (incarceration-Juvenile Justice) [ ] Residential (non-incarceration)
    [ ] Halfway house [ ] Group home
    [ ] Outpatient [ ] Other (Please specify)

11) What is the approximate number of full time staff employed by your facility? ________

Attention!

Please stop here if your facility does NOT offer substance use services to your juvenile clients.

If your facility DOES offer substance use services to juveniles, please continue and complete the survey. Thank you!
Part C: Questions for Facilities that Do Provide Substance Use Services to Juvenile Clients

1. How frequently does your facility offer substance use services sessions/meetings for youth during a typical week? (Please check only one answer)
   - Every day (7 days/week)
   - Most days per week (5-6 days)
   - Several days per week (3-4 days)
   - Twice a week
   - Once a week
   - Couple of times per month
   - Other (Please specify)

2. How long are the typical sessions/meetings? ______ minutes each.

3. Approximately, how many youths in your facility are currently receiving substance use services? ______

4. Approximately, what percentage of your facility’s budget is spent on substance use services for youth? (Please check only one).
   - 0-10%
   - 11-20%
   - 21-30%
   - 31-40%
   - 41-50%
   - 51-60%
   - 61-70%
   - 71-80%
   - 81-90%
   - 91-100%

5. How much of your budget is derived from the following sources below?
   a) Private (If Yes, % from this source=____ %) + b) Public (If Yes, % from this source=____ %) = 100%

6. Which of the following types of substance use services does your facility offer to youth clients? (Please check all that apply)
   - Group substance use counseling
   - Individual substance use counseling
   - Educational or informational sessions/classes dealing with substance use
   - Family counseling
   - Other program components (Please specify)

7. Please check the box which corresponds to the services provided by your facility.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td></td>
</tr>
</tbody>
</table>

8. Which of the following criteria do you use to evaluate the effectiveness of your substance use services? (Please check all that apply)
   - We do not formally evaluate the effectiveness of our substance use services
   - Successful completion of the services by a certain percentage of youth
   - Reduced substance use reported by youth on follow up reports
   - Retention of males in services
   - Successful completion of certain goals of services (i.e., meeting key indicators of becoming drug-free).
   - Other criteria used for evaluation of effectiveness (Please specify)

9. Which of the following pharmacological services for substance use are used by your facility? (Please check all that applies)
   - Methadone
   - Acamprosate
   - Naxoprine
   - Naltrexone
   - We do not use any pharmacological services
   - Other (Please specify)
10. Which of the following methods of assessment/screening are used to diagnose substance use/abuse/dependence in youth? (Please check all that apply)
   - We do not assess/screen male youth for substance use/abuse/dependence.
   - We use our own substance use screening/assessment tool.
   - Substance Abuse Subtle Screening Inventory (SASSI)
   - Problem Orientated Screening Instrument for Teenagers (POSIT)
   - CRAFFT tool.
   - Other substance use screening/assessment (Please specify)

11. What type of services approach(s) does your facility utilize when providing substance use services? (Please check all that apply)
   - 12 Step
   - Cognitive behavioral therapy
   - Motivational enhancement
   - Multi-systemic therapy
   - Multidimensional family therapy
   - Therapeutic community
   - Reality Therapy
   - Brief Therapy
   - Self-Empowerment training
   - Other (Please specify)

12. Which employees are responsible for providing the substance use services to your youth? (Please check all that apply)
   - Certified Substance Counselors/Therapists
   - Non-Certified Counselors/Therapists
   - Staff workers (non-Counselors/Therapists)
   - Other (Please specify)

13. What is the minimal education required for an employee in your facility to provide substance use services to your youth? (Please check only one answer)
   - High School Diploma/GED
   - Associates
   - Bachelors
   - Masters
   - Doctoral

14. How many years of prior work experience in providing substance use services are required for an employee in your organization/facility to provide substance use services to your youth? ______ yrs. None

15. Please approximate the number of hours that each topic is covered in the substance use services provided to youth.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Not Covered (0 Hours)</th>
<th>Slightly Covered (1-2 hours)</th>
<th>Moderately Covered (3-4 hours)</th>
<th>Covered in Detail (5+ hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Relapse prevention of substance use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) The impact of recovery from violence and trauma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Violence prevention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Signs and symptoms of substance use disorders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Anger management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Stress management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Personal health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Behavioral and emotional triggers leading to substance use relapse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Physiological or psychological effects of drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) Promoting recreational, social, and cultural activities as alternatives to alcohol/drug use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you for your time and professional courtesy!
Please return this confidential survey in the postage-paid envelope.
Cover Letter/Email to Content Experts

Date

Dear ____________,

My name is Michael Wiblishauser (from the University of Toledo) and currently I am writing my doctoral dissertation on substance use services provided to juvenile offenders in juvenile justice involved facilities. It’s a national study comparing the types of substance use services provided in male-only, female-only, and coed facilities.

You have been selected as an expert in the field of juvenile delinquency. In order to establish content validity for my study’s instrument (survey), it is recommended that content experts assess the instrument and make suggestions. This should take no more than 10-15 minutes. Your input would be greatly appreciated. If you do decide to assist me, please let me know if you prefer the survey sent to you electronically or via postal mail with an enclosed return envelope/stamp.

Thank you for your time,

Michael Wiblishauser

704-616-6065/michael.wiblishauser@rockets.utoledo.edu
Appendix D:

Cover Letter for 1st Wave of Postal Mailings

Date

Dear__________________

I am part of a research team from the University of Toledo, in Toledo Ohio. We are conducting a national study on substance use services provided to juvenile offenders in juvenile justice affiliated facilities in the United States. This study was approved by your state’s central juvenile justice office.

A sample of 550 facility/program directors from all across the United States was randomly selected to participate in this study. Participation in the study involves completing a confidential, paper/pencil questionnaire. Completing the questionnaire takes approximately 9 minutes. Even if you do not offer substance use services, we would be appreciative if you could fill out the first two pages of the survey. If you are not the person who is most knowledgeable about the services provided in your facility, please
route the survey to the appropriate person.

For your convenience, I have enclosed the survey and a pre-addressed, stamped envelope. I’ve also enclosed a $1 bill as a token of appreciation. If your state or facility does not allow you to take this token of appreciation, please return it with the enclosed envelope. Please do not put your name or any identifying marks on the questionnaire. Your answers on the questionnaire will be strictly confidential. Neither your name, nor your facility’s name, nor the state in which your facility resides will be identified.

Please complete the enclosed questionnaire within the **next 10 days**. If you have any questions or concerns, please feel free to contact me at (704) 616-6065. You may also contact my supervisor, Dr. Timothy R. Jordan, Director of Public Health at (419) 530-4725.

Your responses are very important to this national study! Thank you for your time and professional courtesy in assisting us.

Michael Wiblishauser, M.S., CHES
Doctoral Student
Dept. of Health & Recreation Professions
University of Toledo

Morris Jenkins, JD, Ph.D.
Chairman, Criminal Justice & Social Work
Associate Professor of Criminal Justice
University of Toledo

271
Appendix E:

Cover Letter for 2nd Wave Mailings

Date

Dear__________

Regarding 2nd Request for Survey for Assessment of Juvenile Justice Services

We need your help! Approximately two weeks ago we mailed to you a letter and a survey. If you recall, your facility was one of 550 juvenile justice affiliated facilities that was selected to participate in a national study of juvenile justice facilities.

We have yet to receive your completed survey. Perhaps you never received our first mailing. Perhaps you misplaced the original survey of thought it was too late to send back your completed survey. It is not too late to complete the survey and return it to us!

Just in case you misplaced the original survey, we have enclosed another copy for your
convenience. We have also enclosed a second postage paid envelope.

Please route this survey to the person who is most knowledgeable about the services provided in your facility, particularly substance use services. Even if your facility does not provide substance use services, we would be appreciative if you could complete the first two pages of the survey. A response within the next 10 days is greatly appreciated!

Your survey responses are totally confidential. Please do not write your name or any other personal identifying information on the survey. We do not want to know your identity or your facility’s name. Only aggregate data from the entire sample of facilities will be analyzed and reported. Your facility name and your survey responses will not be connected.

Should you have any question regarding this study or if you would like to request a copy of the final report, please contact Timothy Jordan, by e-mail at timothy.jordan2@utoledo.edu or by phone (419) 530-4725.

Thank you for your professional courtesy.

Michael Wiblishauser, M.S., CHES
Doctoral Student
Dept. of Health and Professions
University of Toledo

Morris Jenkins, J.D., Ph.D.
Chairman, Criminal Justice & Social Work
Associate Professor of Criminal Justice
University of Toledo
Appendix F:

Cover Letter for 3rd Wave Mailings

Date

Regarding 3rd and FINAL Request for Survey for Assessment of Juvenile Justice Services

Dear ________

We need your help! Approximately two weeks ago we mailed to you a reminder letter and a survey. If you recall, your facility was one of 550 juvenile justice affiliated facilities that was selected to participate in a national study of juvenile justice facilities.

We have yet to receive your completed survey. We are 10 surveys short of reaching our target goal of a 50% response rate

Just in case you misplaced the previous two surveys, we have enclosed another copy for your convenience. We have also enclosed a third postage paid envelope.
Please route this survey to the person who is most knowledgeable about the services provided in your facility, particularly substance use services. Even if your facility does not provide substance use services, we would be very appreciative if you could complete the first two pages of the survey. A response within the next 10 days is greatly appreciated!

Your survey responses are totally confidential. Please do not write your name or any other personal identifying information on the survey. We do not want to know your identity or your facility’s name. None of this data will be individually reported nor will your facility be identified.

Should you have any question regarding this study or if you would like to request a copy of the final report, please contact Timothy Jordan, by e-mail at timothy.jordan2@utoledo.edu or by phone (419) 530-4725.

Thank you for your professional courtesy,

Michael Wiblishauser, M.S., CHES Morris Jenkins, J.D., Ph.D.
Doctoral Student Chairman, Criminal Justice & Social Work
Dept. of Health and Professions Associate Professor of Criminal Justice
University of Toledo University of Toledo
Appendix G:

Cover Letter for Stability Reliability

Date
Dear_____________

First off, we would like to thank you for completing the previous survey we mailed you. The reason for this request is to assess the reliability of our survey instrument via stability-reliability (aka test-retest). Stability reliability measures the stability of responses to a survey completed by the same respondent at two different points in time. If the survey is reliable, then the responses to the same items at the different points in time should be highly correlated. A reliable survey is crucial for the success of any research study. Therefore; your assistance is paramount to the success of this study.

For your convenience, I have enclosed the survey and a pre-addressed, stamped envelope.

Please complete the enclosed questionnaire within the **next 10 days**. If you have any questions or concerns, please feel free to contact me at (704) 616-6065. You may also
contact my supervisor, Dr. Timothy R. Jordan, Director of Public Health at (419) 530-4725.

Your responses are very important to this national study! Thank you for your time and professional courtesy in assisting us.

Michael Wiblishauser, M.S., CHES
Doctoral Student
Dept. of Health and Professions
University of Toledo

Morris Jenkins, J.D., Ph.D.
Chairman, Criminal Justice & Social Work
Associate Professor of Criminal Justice
University of Toledo
Appendix H:

Tables

Table H.1: Substance use services that are provided to juvenile offenders in juvenile affiliated facilities. These are the substance use services reportedly used in the facilities. The following information also covers the frequency, duration, and current state of substance use services.

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>F</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(%)</td>
<td>(%)</td>
<td>(%)</td>
<td>(%)</td>
</tr>
<tr>
<td><strong>Current State of Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unaware for a need for substance use services</td>
<td>0</td>
<td>1.7</td>
<td>0</td>
<td>0.3</td>
</tr>
<tr>
<td>Aware of need for substance use services not yet decided to implement them</td>
<td>0.7</td>
<td>8.5</td>
<td>12.9</td>
<td>6.3</td>
</tr>
<tr>
<td>Currently deciding about implementing substance use services</td>
<td>0.7</td>
<td>1.7</td>
<td>5.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Decided to implement substance use services</td>
<td>3.7</td>
<td>1.7</td>
<td>2.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Decided not to implement substance use services</td>
<td>4.4</td>
<td>5.1</td>
<td>7.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Currently in the process of implementing substance use services</td>
<td>1.5</td>
<td>1.7</td>
<td>5.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Have offered substance use services for less than 1 year</td>
<td>0.7</td>
<td>1.7</td>
<td>0</td>
<td>0.7</td>
</tr>
<tr>
<td>Have offered substance use services for more than 1 year</td>
<td>88.1</td>
<td>78.0</td>
<td>66.7</td>
<td>78.7</td>
</tr>
</tbody>
</table>
Table H.1 (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>M (%)</th>
<th>F (%)</th>
<th>C (%)</th>
<th>O (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency of Sessions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every day (7 days/week)</td>
<td>6.7</td>
<td>6.4</td>
<td>6.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Most days per week</td>
<td>10.9</td>
<td>25.5</td>
<td>14.5</td>
<td>14.9</td>
</tr>
<tr>
<td>Several days a week</td>
<td>13.4</td>
<td>19.1</td>
<td>25.8</td>
<td>18.0</td>
</tr>
<tr>
<td>Twice a week</td>
<td>49.6</td>
<td>29.8</td>
<td>21.0</td>
<td>37.7</td>
</tr>
<tr>
<td>Once a week</td>
<td>16.0</td>
<td>14.9</td>
<td>27.4</td>
<td>18.9</td>
</tr>
<tr>
<td>Couple of times a week</td>
<td>1.7</td>
<td>4.3</td>
<td>2.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>1.7</td>
<td>0</td>
<td>3.0</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Types of Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group substance use counseling</td>
<td>94.1</td>
<td>93.6</td>
<td>88.5</td>
<td>92.1</td>
</tr>
<tr>
<td>Individual substance use counseling</td>
<td>94.1</td>
<td>89.4</td>
<td>85.2</td>
<td>90.4</td>
</tr>
<tr>
<td>Educational or information sessions</td>
<td>84.9</td>
<td>89.4</td>
<td>83.6</td>
<td>85.1</td>
</tr>
<tr>
<td>Family counseling</td>
<td>31.1</td>
<td>55.3</td>
<td>37.7</td>
<td>37.7</td>
</tr>
<tr>
<td>Other (guest speakers, videos)</td>
<td>11.8</td>
<td>8.5</td>
<td>14.5</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Treatment Approaches (Top 3)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive behavioral therapy</td>
<td>93.3</td>
<td>87.2</td>
<td>72.6</td>
<td>86.4</td>
</tr>
<tr>
<td>Motivational enhancement</td>
<td>62.2</td>
<td>59.6</td>
<td>37.1</td>
<td>54.8</td>
</tr>
<tr>
<td>12 Step</td>
<td>56.3</td>
<td>44.7</td>
<td>37.1</td>
<td>48.7</td>
</tr>
<tr>
<td><strong>Tailored Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>43.7</td>
<td>66.0</td>
<td>90.3</td>
<td>61.0</td>
</tr>
<tr>
<td>No</td>
<td>56.3</td>
<td>34.0</td>
<td>9.7</td>
<td>39.0</td>
</tr>
<tr>
<td><strong>Facility Budget Expenditures on Substance Use Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-10%</td>
<td>77.8</td>
<td>62.8</td>
<td>63.3</td>
<td>70.9</td>
</tr>
<tr>
<td>11-100%</td>
<td>22.6</td>
<td>37.2</td>
<td>37.7</td>
<td>29.1</td>
</tr>
<tr>
<td><strong>Number of Youth Treated for Substance Use Services</strong></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>29.3</td>
<td>36.3</td>
<td>26.2</td>
<td>1.99</td>
</tr>
<tr>
<td><strong>Average Length of Sessions</strong></td>
<td>59.0</td>
<td>16.0</td>
<td>63.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

M= Male-only, F=Female-only, C= Coed, O=Overall
N= ranges from 218 to 287 (Respondents) depending on item.
Percentages may not equal 100% due to rounding and/or non-response

279
Table H2: The time invested in each specific substance use curricular topics. Below are the reported hours that juvenile justice affiliated facilities invested in each substance curricular topic. Also included are the hours invested in each curricular topic by gender served in facilities.

<table>
<thead>
<tr>
<th>Substance Use Curricular Topics</th>
<th>Not Covered (0 hours)</th>
<th>Slightly Covered (1-2 hours)</th>
<th>Moderately Detailed (3-4 hours)</th>
<th>Covered in Detail (5+ hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The impact of recovery from violence and trauma</td>
<td>29.1% (M=41.5, C=21.0, F=10.9)</td>
<td>24.2% (C=33.9, M=20.3, F=21.7)</td>
<td>23.8% (C=27.4, M=22.9, F=19.6)</td>
<td>22.9% (F=47.8, C=17.7, M=15.3)</td>
</tr>
<tr>
<td>Violence prevention</td>
<td>29.6% (M=42.4, C=16.1, F=15.2)</td>
<td>24.2% (C=37.1 F=21.7, M=19.5)</td>
<td>25.6% (C=32.3, F=28.3, M=20.3)</td>
<td>20.6% (F=34.8, M=17.8, C=14.5)</td>
</tr>
<tr>
<td>Stress management</td>
<td>25.6% (M=39.8, F=10.9, C=8.1)</td>
<td>22.0% (C=29.0, F=23.9, M=17.8)</td>
<td>25.6% (C=32.3, F=26.1, M=22.9)</td>
<td>26.9% (F=39.1, C=30.6, M=19.5)</td>
</tr>
<tr>
<td>Anger management</td>
<td>25.1% (M=39.0, F=10.2, C=6.5)</td>
<td>12.6% (C=19.4, F=10.2, M=9.3)</td>
<td>24.7% (C=35.5, F=26.1, M=18.6)</td>
<td>37.7% (F=47.8, C=38.7, M=33.1)</td>
</tr>
<tr>
<td>Personal health</td>
<td>4.0% (C=8.1, F=2.2)</td>
<td>20.2% (C=29.0, F=17.8, M=15.2)</td>
<td>50.2% (C=61.9, F=37.0, M=18.6)</td>
<td>25.6% (F=45.7, C=24.2, M=17.8)</td>
</tr>
<tr>
<td>Behavioral and emotional triggers to substance use relapse</td>
<td>3.1% (C=8.1, M=1.7, F=0)</td>
<td>7.6% (C=12.9, F=6.8, M=4.3)</td>
<td>19.3% (C=27.4, F=17.4, M=16.1)</td>
<td>70.0% (F=78.3, M=75.4, C=51.6)</td>
</tr>
<tr>
<td>Relapse prevention of substance use</td>
<td>3.1% (C= 6.5, F=2.2, M=1.7)</td>
<td>12.6% (C=24.2, M=9.3, F=8.7)</td>
<td>17.0% (C=22.6, F=17.4, M=13.6)</td>
<td>67.3% (M=75.4, F=71.7, C=46.8)</td>
</tr>
<tr>
<td>Signs and symptoms of substance use disorders</td>
<td>2.2% (C=8.0, M=1.7, F=0)</td>
<td>36.8% (M=46.6, F=26.1, C=24.2)</td>
<td>23.8% (C=37.1, M=19.5, F=7.4)</td>
<td>37.2% (F=56.5, M=32.2, C=30.6)</td>
</tr>
<tr>
<td>Physiological or psychological effects of drugs</td>
<td>2.7% (C=8.1, M=0.8, F=0)</td>
<td>14.8% (C=25.8, M=11.9, F=10.9)</td>
<td>47.5% (M=55.9, F=41.3, C=35.5)</td>
<td>35.0% (F=47.8, C=31.4, M=29.7)</td>
</tr>
</tbody>
</table>
### Table H.2 (Continued)

<table>
<thead>
<tr>
<th>Substance Use Curricular Topics</th>
<th>Not Covered (0 hours)</th>
<th>Slightly Covered (1-2) hours</th>
<th>Moderately Detailed (3-4) hours</th>
<th>Covered in Detail (5+ hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting recreational, social, and cultural activities to alcohol/drug use</td>
<td>2.2% (C= 6.5, M=0.7, F=0)</td>
<td>35.0% (M=52.5, C=16.1, F= 15.2)</td>
<td>22.4% (C=33.9, F=21.7, M=16.9)</td>
<td>40.4% (F=63.0, C=43.5, M=29.7)</td>
</tr>
</tbody>
</table>

M=Male-only, F=Female only, C=Coed
N=223 to 227 respondents
Percentages may not equal 100% due to rounding and/or non-responses