PREDICTING WHO WILL ELOPE

FROM A RESIDENTIAL TREATMENT PROGRAM

FOR CHEMICALLY DEPENDENT AND DELINQUENT ADOLESCENTS

by

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A THESIS

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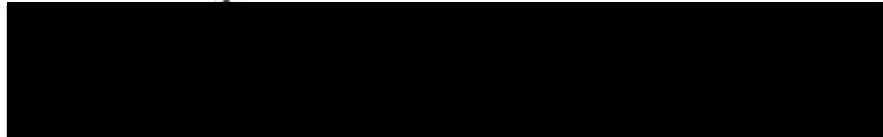in partial fulfillment of

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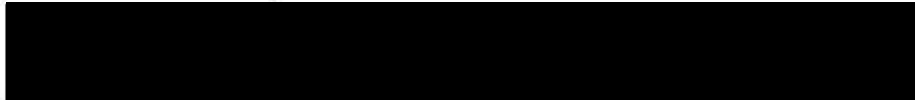

CERTIFICATE OF APPROVAL

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TABLE OF CONTENTS

RESULTS

ii

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ABSTRACT

Although treatment abandonment by running away is high at programs for chemically dependent adolescents, especially among delinquents, little is known about risk factors for this undesirable outcome. This is in spite of the well-documented risks of life on the street and the public health cost that these risks entail. Homeless youth are at especially high risk for sexually transmitted diseases including HIV, substance abuse, suicide, and general health problems. In addition, the survival strategies of the majority of street youth involve illegal activities including prostitution.

This is a prospective cohort study that predicts abandonment of treatment from pre-treatment variables. Subjects are 445 consecutive clients between the ages of 15 and 18 years, who received treatment at a residential program for chemically dependent and delinquent youth between 1987 and 2000 and who either graduated from or abandoned treatment. About one third of clients eloped from treatment and joined the homeless adolescent population.

Predictor variables in this study have been shown by prior research to be associated with higher levels of delinquency, substance abuse and running away from home. Variables include historic information about delinquency, substance abuse, abuse and neglect, mental health problems, and school failures as well as demographic information. Program clinical staff obtained this data through a process of interviewing and assessing clients when they entered treatment.

Using logistic regression analysis, eleven variables were identified as independent predictors of running away from treatment. They include: gender,

referral county, interaction of gender and referral county, three or more years behind in school, number of status offenses[1], previous placement at state training school, daily use of opiates, daily use of inhalants, daily use of hallucinogens, psychiatric hospitalization and poverty.

The study produced and tested a prediction model based on these risk factors for identifying clients who are most likely to abandon treatment. This model gives important information to treatment providers about how to prevent this unwanted treatment and public health outcome.

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[1] Status offenses are acts that are law violations only for individuals of juvenile status (e.g., curfew violations, running away, in possession of alcohol, etc.)

INTRODUCTION

Epidemiology of Substance Abuse among Adolescents and Delinquents

Drug and alcohol use among the nation's youth is a serious issue and illicit drug use is on the rise. According to the annual Monitoring the Future study, a national survey that samples high school and middle school students, self-reported use of drugs peaked in 1981 when 65% of seniors reported use of an illicit drug. This figure gradually and steadily declined to 41% in 1992. In 1993, however, the downward trend reversed and by 1997 the figure had risen to 54% where it has remained through 2000 (Institute for Social Research, 1997). Alcohol use has remained steady at about 80% since 1993 when the questionnaire was changed, so comparison to prior years is not possible.

Drug use among delinquent youth is also rising. Since 1990 the Drug Use Forecasting program has measured substance abuse among juveniles who have been arrested or detained at 12 sites across the country. Between 1991 and 1996, large increases occurred in marijuana, hallucinogens and amphetamines use (National Institute of Justice, 1996).

Costs Associated with Untreated Substance Abuse

Increasing the effectiveness of treatment would offer considerable savings to society both in short and long term financial costs and public safety. A study estimating the costs of alcohol and drug abuse (National Institute on Drug Abuse, 1995) estimated that in 1992, $28.7 billion was spent on health care services for alcohol and drug problems. Premature death and impaired productivity linked to alcohol and drug abuse were estimated to cost $46 and $82 billion respectively.

1

Motor vehicle crashes associated with substance abuse amounted to an additional $24.7 billion. Crime associated with illicit drug and alcohol abuse added $78.9 billion. Updated estimates for 1995 projected a $276 billion total cost. Costs have increased dramatically since 1972, in large part due to increased costs associated with a tripling of incarcerations for drug and alcohol related crimes and with medical care linked to the HIV epidemic. Although these studies refer specifically to the adult population, clearly there are similar costs for substance abusing and delinquent adolescents.

Poor Treatment Completion Rates

While several treatment methodologies have been shown to be effective at reducing recidivism among chemically dependent delinquents (cognitive behavioral, ecological, and family interventions) (Catalano, et al, 1991; Heneggeler, 1993), treatment programs are often plagued by a high failure rate in large part due to youth running away from treatment. In large studies of drug treatment effectiveness among adolescents (Sells and Simpson, 1975; Rush, 1979; and Hubbard, et al, 1985), 25% of the clients in all three studies left within the first 30 days of treatment. In another study, 50% of clients in a residential treatment program left in the first month of treatment (Blood, 1994). In another study examining clients who run from residential treatment, the number of elopers exceeded the number of non-elopers although the exact percents were not reported (Kashubeck, 1994). This abbreviation of treatment is particularly troubling, in light of the fact that research indicates that length in treatment is associated with more positive behavioral outcomes (Catalano, et al., 1991). This

2

is also true for programs focused on treating juvenile delinquency where which high attrition is associated with smaller treatment outcome effect sizes (Lipsey, 1992).

Risk Associated with Runway and Homeless Adolescents

Clients who abandon residential treatment join the estimated 1.5 –2.0 million homeless and runaway youth that live on the streets in the United States (U.S. Department of Health and Human Services, 1993; Kral, 1997). These youth are at high risk for public health problems, most notably, substance abuse disorders and sexually transmitted diseases (STDs) including HIV/AIDS. In a recent study of 775 runaway and homeless youth conducted in three U.S. cities (Kral, 1997), homeless youth were shown to have high rates of risky behaviors. Almost all of the youth (98%) reported having sexual intercourse but fewer than half reported consistent condom use. Almost one quarter of the boys and 15% of the girls had exchanged sex for money. Most reported alcohol and drug use (98%) including intravenous drug use (21%).

Homeless and runaway youth have high rates of STDs and chemical dependency as well as other health problems. Almost half (40-50%) of runaway and homeless youth report having had a sexually transmitted disease (Sherman, 1992). Reports of HIV infection rates among homeless youth tested in New York and San Francisco were at 5% and 8% respectively (Stricof, 1991). In San Francisco, 7.5% of homeless youth had positive hepatitis B markers (Sherman, 1992). Chemical dependence disorders are also estimated to be very prevalent. In a study of 432 homeless youth in Los Angeles, almost three-quarters (71%)

3

had an alcohol or drug use disorder (Kipke, M.D., 1997). These researchers also found that the longer adolescents stay on the streets, the more likely they were to have a substance abuse disorder. Street youth are also at risk for other health problems because of inadequate food and shelter and underutilized access to health care (Robertson, 1990; Sherman, 1992). Unfortunately, problems may not stop for these youth when they reach adulthood; a history of running away from home in adolescence has been associated with adult homelessness in a sample of psychiatric patients (Susser, 1991).

Link between Substance Abuse and Delinquency

There is a strong link between the extent of delinquency and the extent of substance abuse. Initial findings from a longitudinal study of 4,000 delinquents that is being conducted in Denver, Pittsburgh and Rochester, indicate that youth more seriously involved in drugs are more likely to be delinquent and vice versa (Huizinga, 1993). Authors from another study of youth being held in juvenile detention, found that 39% of sampled delinquents reported being under the influence of drugs during their offense and 57% reported having used a drug within the last month (Beck, 1988). Youth incarcerated at a state training facility have even higher reported use with 82% reporting *daily* use (DeFrancesco, 1996). In a large national study, (Hubbard, 1985) researchers found that 70% of the males and 60% of the females in drug treatment had committed predatory illegal activities in the year prior to treatment.

A small percent of delinquent youth are responsible for most of teenager-perpetrated crime and most of these highly criminal youth are also seriously

4

chemically dependent. Chronic offenders account for more than half of all serious crimes committed by juveniles (Loeber, 1998). In a recent reanalysis of the National Youth Survey, Johnson and colleagues found that youth who reported two or more index crimes[2] and who reported cocaine/heroin use comprised 2% of the population, yet committed 40-60% of the felony crimes and accounted for most of the drugs used (Johnson, 1991).

Delinquents and substance abusers also share common risk factors including school and family problems, anti-social peer groups, child abuse and neglect, and community standards that are positive toward drug use and crime (1997 Report to Congress: Title V Incentive Grants for Local Delinquency Prevention; Hawkins,1987; Wilson, 1993; Widom, 1996). Importantly, the number of risk factors is correlated with the seriousness of delinquency and substance abuse (Farrington, 1995).

Characteristics of Runaway and Homeless Youth

Although no longitudinal studies have established risk factors for running away from home, several studies have found factors associated with running away and homelessness in youth including: [3]

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[2] Index crimes refer to relatively serious and pervasive crimes including murder, non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson.

[3] Early research on runaways conceptualized youth as either running from or running to and studied the differences between these two groups. Current studies have focused on studying the differences between runaway youth that stay in shelters and homeless youth that live on the streets. Not surprisingly, street youth appear to have more severe problems than either shelter youth or runaway youth living at home. In a recent national study of homeless and runaway youth, street youth were found to use substances more than shelter youth who used more than non-runaway youth (alcohol 78%, 53% 57%; marijuana 78%, 37%, 23%; crack cocaine 18%, 2%, 1%; other drugs 43%, 20%, 16%; IV drugs 12%, 8%, 1%). In addition, 71% of the street youth, 46% of the shelter youth, and 25% of the non-runaway youth had used three or more substances (Greene, 1997). Although the other predictor variables have not been studied directly, this phenomenon is likely to be true for them as well and so wherever possible, I have attempted to differentiate between street and shelter youth.

- **Substance Abuse Problems**: Substance abuse among homeless and runaways youth is a common finding among studies. In one large national study of youth recruited from both shelters and street outreach, reported substance abuse was 97%, but intravenous (IV) drug use varied across the three cities, ranging from 1% in New York, 12% in Denver and 43% in San Francisco (Kral, 1997). In another national study that surveyed street and shelter youth, 87% of the street youth and 73% of the shelter youth reported substance use (Greene, 1997). In a recent survey of youth on the streets of Los Angeles, 71% youth were diagnosed with a substance abuse disorder (Kipke, 1997). Some researchers, however, speculate that substance abuse is higher in West Coast cities (Martinez, 1998).

- **Sexual and Physical Abuse** [4]: Sexual abuse is common among runaways with girls reporting higher rates than boys. In a national study of street and shelter youth, 70% of the females and 24% of the males reported sexual abuse (Molnar, 1998). In smaller local samples results ranged from 21% to 38% for boys and 43% to 52% for girls (Rotheram-Borus, 1992; Feitel, 1992; Janus, 1987). Physical abuse is also common. In a national study 35% of both males and females reported physical abuse (Molnar, 1998). In smaller local samples percentages were usually not differentiated by gender and ranged from 23% to 86% (Kurtz, 1991; Kennedy, 1991; National Network of Runaway Youth, 1993; Sherman; 1992, Janus, 1987; Janus, 1995).

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[4] It is not always clear from the articles if some of the abuse occurred while the youth was living on the streets.

6

- **Delinquency:** Delinquency is associated with homeless and runaway youth but the prevalence is not clear. One study on the West Coast found that 11% of street youth reported legal problems and 89% reported engaging in illegal activities (Martinez, 1998). In another study at a New York shelter 14% of the youth reported having been arrested (Rotheram-Borus, 1993). In a national study 41% of street youth and 15% of shelter youth reported having spent time in jail. Two studies focussed on conduct disorder and found that 55-60% of homeless youth met the criteria for conduct disorder (Feitel, 1992; Booth, 1996)[5].

- **Family Functioning and Attachment:** There is as strong association between family dysfunction and conflict and running away from home. Englander compared runaways to a matched control group and found less parental acceptance and less parental supervision in the families of runaways (Englander, 1984). In a similar study, runaways reported less parental warmth and monitoring and more parental rejection than controls (Whitbeck, 1997). In a large study of runaway youth receiving services in eight Southeastern states, 22% reported familial domestic violence, 19% reported parental chemical dependency; and 63% reported poor communication in the family (Kurtz, 1991). In another large national study, 59% of street and shelter youth reported that they left home because of family conflict (Kral, 1997).

- **Suicide Attempts and Psychiatric Hospitalizations:** Suicide attempts, and to a lessor degree psychiatric hospitalizations, are associated with

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[5] The prevalence studies cited above do not share a common metric in their definitions of delinquency which ranged from

homelessness and running away in adolescence. In a national study of youth recruited from shelters and the street, 48% of the females and 27% of the males had attempted suicide. The mean number of attempts was 6.2 for females and 5.1 for males (Molnar, 1998). In a study of Toronto shelter and street youth, 42% had attempted suicide (Smart, 1993). In two studies of youth staying in New York City shelters, 37% and 27% reported suicide attempts (Rotheram-Borus, 1993, Feitel, 1992). Two studies reported psychiatric hospitalization at 17% of youth served at a health clinic in San Francisco and 20% of youth staying at a New York City shelter. (Sherman, 1992; Feitel, 1992).

Treatment Outcome in Adolescent Residential Treatment

There are only a few published studies comparing youth who abandon psychiatric hospitalization, day treatment, or residential treatment with those who do not. Eloping from psychiatric hospitals is positively associated with previous elopement behavior, adoptive status, and not being diagnosed with a psychotic disorder (Berman, 1990). In a study at another psychiatric hospital, elopers were more likely than non-elopers to have been adopted (Fullerton, 1986). A third study at a residential treatment program found that clients who eloped were more likely to have a history of elopement, a suspected history of sexual abuse, an affective disorder diagnosis, and parents whose rights have been terminated (Kashubeck, 1994).

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self-reported arrests, illegal activities, time in jail, and legal problems to diagnosis of conduct disorder

There are three recent studies examining which adolescents do not complete treatment at residential treatment, psychiatric hospitals, or day treatment programs. In one study of a residential treatment population, separate prediction equations were developed for males and females. Males who failed treatment had lower alcohol and drug use, fewer internalizing problems, and higher scores on a combined scale of cannabis, alcohol and marijuana. Females who failed treatment had higher use of other drugs, fewer internalizing problems, and lower self esteem (Blood, 1994). In a day treatment population, factors negatively associated with early treatment withdrawal were age and being Jewish. Factors positively associated with early withdrawal were prior criminality, depression, and lack of parental involvement (Feigelman, 1987). In a hospital-based in-patient program, unfavorable treatment outcome was positively associated with male gender, delinquency, and having law-abiding parents (Knapp, 1991).

In their review of the outcome literature from drug and alcohol treatment programs (Catalano, et al, 1991), researchers found that younger age of alcohol and drug use onset, more serious primary drug, abuse of multiple drugs, number of arrests, and school dropout or poor school performance were related to unsuccessful treatment completion.

Specific Goals of the Study

The overall goal of the project is to determine if risk associated with delinquency, substance abuse, and running away from home can be used to build a useful prediction model for determining which delinquent clients in

9

residential substance abuse treatment will abandon treatment. Do higher levels of delinquency, substance abuse, and running away from home and risk factors associated with these constructs adequately predict treatment abandonment?

Specific risk factors include variables describing delinquency, substance abuse, running away, school performance, mental health problems, family issues, and abuse and neglect history. The study develops and tests a prediction model based on these risk factors.

Theoretical Model

Based on the literature review, the following model has been conceptualized to help illustrate the logic behind the choice of variables in the proposed study. The solid lines in Figure 1 represent associations demonstrated in previous research. The dotted lines are speculated associations that are tested in this project. Some of the risk factors are predictive of substance abuse and delinquency, some to running away, and some to both.

Figure 1: Theoretical Model Predicting Treatment Abandonment
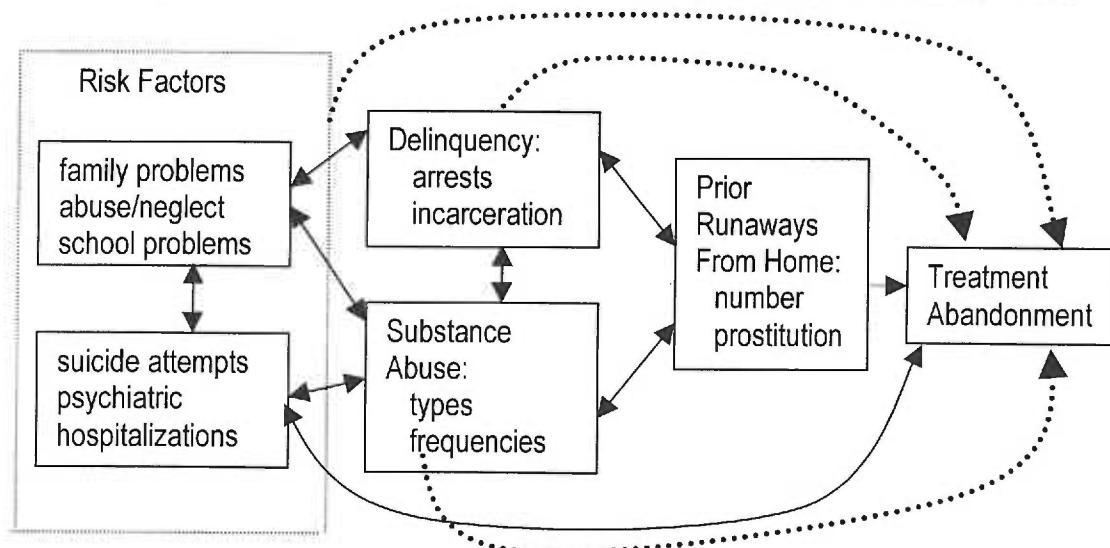
Although gender is expected to be an important contributor to the model, it is not included in the diagram, as it is not yet known how to include it. For example, in previous studies, reported prostitution and sexual abuse is much higher for homeless and runaway girls and may contribute more to the equation for girls. One goal of this project is to discover how gender interacts with the other risk factors.

METHODS

Overview of the design

This is a prospective cohort study in which clients who abandoned treatment are compared with those who graduated using a series of pre-treatment risk factors linked to delinquency, substance abuse, and running away behaviors. Gender is evaluated because it is known from program evaluation studies of the program that girls are more likely to elope than boys. A logistic regression model based on the theoretical model is used to produce the results.

Study Subjects

Subjects are 445 consecutive clients treated by the Morrison Center Breakthrough day treatment and proctor care program for chemically dependent and delinquent adolescents who either finished (n=274) or eloped (n=171) from services between August 1987 and September 2000.

During this time period, a total of 593 clients were served by the program[6]. Originally, all clients were to be included in the study with the

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[6] Twenty-three subjects were treated more than once; only their first treatment episode was used in this study.

11

exception of twelve subjects who left treatment for unexpected reasons such as illness, probation expiration, or outstanding warrants. However, examination of subject characteristics revealed differences between two subgroups that would have made their inclusion problematic.

The first excluded subgroup were 86 youth who left treatment early at the program's request for failing to comply with program expectations. Ejected clients differed from graduates in general by being more delinquent, more likely to be male, and by the year they were in the program. The second excluded subgroup were 59 clients who were younger than the majority of clients (< 15 years old). The group of younger clients had less severe delinquency and substance abuse histories than their older counterparts. In all, 148 clients in one or both of these subgroups were eliminated, leaving the sample of 445 subjects.

Table 1: Clients Excluded from Further Analysis Because of Age, Ejection from the Program, or Unexpected Termination

	Excluded and <15 years old	Excluded and >15 years old	Total Exclusions
Graduated	28	0	28
Eloped	22	0	22
Ejected	8	78	86
Other	1	11	12
Total	59	89	148

Adequate precautions were taken to insure the safety, privacy, and confidentiality of the clients included in this study. Both the youth and his/her legal guardian signed an informed consent and a release of information to obtain

arrest information from each county in Oregon in which they reported being arrested. Copies of these forms are in the appendices.

Program Description

The Breakthrough program, located in Portland, Oregon, is a combination of day treatment and proctor care designed to reduce both delinquent and substance abusing behaviors among adolescents aged 14 to 18 years. The program serves youth with serious problems with both delinquent behaviors and chemically dependency. Referrals to the program are made through the Oregon Youth Authority and referred clients have either been committed or are on suspended commitment to the state training school.

For the first three months of treatment the youth attend day treatment and an in-house school for eight hours per day. Day treatment groups focus on alcohol and drug issues, grief and loss, and cognitive behavioral skills. Treatment is intended to reduce both delinquency and chemical abuse. After three months, clients continue with day treatment groups but transition to a community school or a high school equivalency test (GED) preparation program.

Each client lives in the home of his or her proctor parent(s). Proctor parents are specially trained and supported foster parents who are employed by Breakthrough. The community settings of the proctor homes provide the youth with a more normalized placement than traditional residential treatment. The proctor families house no more than three youth, either boys only or girls only. Most of the proctor parents are recovering substance abusers and actively participate in 12-step programs and encourage similar participation by the youth

13

living in their home. The total length of time to successfully complete the day treatment and proctor care portion of the program is six months.

Measurement Tools

Most of the risk factor data were collected during private interviews with the youth within four weeks of treatment onset as part of an assessment completed by the client's primary therapist. Therapists received one hour of training on how to complete the program evaluation instrument and program evaluation staff answered questions as they occurred. Definitions for variables were included on the form (see Appendix A). Arrest information was collected directly from each county in which the youth reported being arrested. In all, thirty-six potential predictor variables, associated with either delinquency, chemical dependency or runaway behaviors were used in the analysis (Table 2).

Prior to analysis, categorical variables that were coded with multiple responses were reduced to binary level to insure adequate cell size. For example, previous runaways was collected as *Number of Previous Runaways*: (0, 1, 2, 3, 4, 5 or more) and reduced to *Five or More Previous Runs* (0=no, 1=yes).

Two composite variables were also created. *Hard drug use* differentiates youth who only used marijuana, hallucinogens and/or alcohol from youth who used "harder drugs"[7]. *Any form of abuse* measures whether any abuse (physical abuse, sexual abuse or neglect) occurred.

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[7] Harder drugs include opiates, cocaine, other stimulants, and inhalants.

Table 2: Potential Predictors of Treatment Abandonment Collected within Four Weeks of Treatment Onset at Breakthrough[8]

Domain	Variables
Demographics	1. Gender 2. Race 3. Age 4. Referral county 5. Previous living placement
School Problems	6. Last completed grade 7. Last school placement 8. Received special education services
Delinquency	9. Placement at state training school 10. Previous runaways 11. History of prostitution 12. Number of felony arrests 13. Number of misdemeanor arrests 14. Number of status offense arrests
Substance Abuse	Frequency of use of 15. alcohol 16. marijuana 17. cocaine 18. other stimulants 19. opiates 20. hallucinogens 21. inhalants 22. IV drugs 23. Stage of chemical dependence 24. Previous alcohol and drug treatment 25. Hard drug use
Mental Health	26. Suicide attempts 27. Psychiatric hospitalization 28. Attention Deficit Hyperactivity Disorder (ADHD) diagnosis
Family History	29. Chemically dependent parent(s) 30. Criminally involved parent(s) 31. Severe marital discord 32. Poverty level income 33. Number of foster placements 34. Number of residential treatment placements 35. Physical abuse 36. Sexual abuse 37. Neglect 38. Any form of abuse or neglect

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[8] Youth were also given the Jesness Inventory at the start of treatment. This instrument (Jesness, 1996, Kunce, 1983; Martin, 1981) is a self-rated standardized measure of personality that focuses on the evaluation of delinquent attitudes and behaviors associated with recidivism. Unfortunately a disproportionate number of the runaway population (37%) left treatment prior to completing the Jesness and it could not be used in the analysis.

The year of discharge from the program was also included among the independent variables to adjust for possible variations over the long data collection period.

The dependent or outcome variable was type of termination from day treatment: 1) youth who successfully completed the six month long day treatment and proctor care portion of the program or 2) youth who ran away and who were officially terminated from treatment when they did not return within two working ays from the time that they left the program.

Data Management

In my role as Director of Program Evaluation at Morrison Center, I have overseen this project over the entire 13-year data collection period. I was responsible for design of the study, choice of data collection variables, and for supervision of evaluators who checked the completeness and accuracy of data and entered it into a Microsoft Access database application on a weekly basis. The department maintains strict confidentiality and security of the data including network password protection, keeping hard copies of the data in locked file cabinets and backing up the databases nightly. Relevant variables for this study were imported directly from the Access database using ODBP technology and SPSS 9.0 was used to recode variables and complete the data analysis.

Data Analysis Methods

Preliminary analysis focused on a univariate comparison of graduates and elopers on the independent variables. Chi-square tests of homogeneity were

16

used on categorical data and t-tests were used on continuous variables to examine differences between the two groups. Predictor variables with a p value less than .25 were retained for the logistic regression analysis in order to include variables which by themselves may have a weak association with the outcome but become predictive as part of a collection of variables (Hosmer, 1989).

Because a portion of the variables were missing for some of the clients, especially the elopers, missing data was imputed using imputation software Norm for Windows 2.02 (Schafer, 1997). As recommended by the author, three imputations were generated to help insure the integrity of the final model. Using this strategy, and running the regression analysis on each data set, the final model would contain risk factors consistently chosen regardless of imputed values.

A multiple logistic regression was used on each of the three imputed data sets to build a prediction model. Since many of the variables were expected to be highly correlated within the runaway, delinquent/substance abuse constructs, preliminary analysis using stepwise logistic regression (backward elimination) was used to select the most robust predictors. Next interaction effects of the selected predictors with gender were examined. After the selected predictors were entered directly into the model, stepwise methodology (backward elimination) was used to identify significant interactions. Relative risk, as estimated by the odds ratio, was the measure of association used to evaluate the effects of the predictors and included 95% confidence limits. Hosmer-Lemershow was used to assess the model's adequacy of fit. A classification table was used

17

to examine how accurately the model predicted elopers and graduates, using a cutoff of .38 which mirrored the actual elopement percentage in the population.

Missing Data

A substantial amount of data was missing in this data set and an imputation method was used to estimate missing value parameters. First, however, the pattern of the missing data among the data types and between graduates and elopers was examined to determine if imputations were appropriate for all of the variables with missing data. Table 3 shows the percentages of missing data for graduates, elopers and the combined population.

In general, there was more missing data among the elopers than among the graduates, especially for historical variables. A probable explanation for this pattern is that data collected by interview was missing for clients who abandoned treatment prior to being interviewed.

There was a dilemma on how to approach this missing data. If all clients with missing data were eliminated, a disproportionate number of the elopers, especially those who left early, would be eliminated from the sample. On the other hand, if missing data were imputed, the information guiding the imputations would come disproportionately from the graduates and might skew the results for elopers. That is, the imputed data for the elopers may resemble graduates more than other elopers.

The strategy used to exclude items from the imputation was twofold: 1) if two variables measured approximately the same construct, the one with more missing data was eliminated, 2) variables with missing data higher than 25%

18

Table 3: Missing Data Pattern in Graduates (N=274) and Elopers (N=171) Showing Less Missing Data Among Graduates than Elopers

	Graduates		Elopers		Total	
Demographic[9]						
Last Living with Birth Family	214	22%	133	22%	347	22%
School						
>= 3 Years Behind	271	1%	152	11%	423	5%
Ever Dropped Out	231	18%	124	17%	355	20%
Delinquency						
State Training School	271	1%	158	8%	429	4%
Prostitution	273	0%	157	8%	430	3%
Misdemeanors	263	4%	159	7%	422	5%
Status Offenses	263	4%	159	7%	422	5%
Five or More Runaways	262	4%	136	20%	398	11%
Family History						
Criminal Parents	227	17%	105	37%	332	25%
Substance Abusing Parents	255	7%	136	18%	391	12%
Poverty Income	265	3%	136	18%	401	10%
Foster Homes	252	8%	129	22%	381	14%
Residential Treatment	264	4%	140	16%	404	9%
Mental Health						
Psychiatric Hospitalization	271	1%	144	13%	415	7%
Alcohol And Drug						
Late Stage Addiction	265	3%	150	12%	415	7%
Opiates	271	1%	152	11%	423	5%
Stimulants	271	1%	153	11%	424	5%
Inhalants	272	1%	150	12%	422	5%
Hallucinogens	271	1%	153	11%	424	5%
IV Drugs	270	1%	151	12%	421	5%
Hard Drugs[8]	268	2%	140	18%	408	8%

among the elopers were eliminated. Using this strategy, *ever dropped out of school* which measured approximately the same construct as *behind in school three or more years* was dropped. In addition, *parental criminality* was removed from the pool of potential predictors because it was missing for 37% of the elopers.

19

Power Analysis

A power analysis indicated that there was sufficient power to complete the proposed analyses. The UCLA Power Calculator (UCLA, 2001) was used to estimate power to detect true differences for risk factors from each of the constructs. Preliminary analysis of the data established effect size and level of significance was set at .05. Table 4 shows the results of the power analysis.

Table 4: Power Analysis Summary Showing Estimated Effect Size for 171 Elopers and 274 Graduates at a Level of Significance of .05

Variable	Graduates	Elopers	Power
Female	30%	45%	.94
Behind in school 3 or more years	14%	22%	.69
Previous status arrests	3.7 (3.4)	6.1 (4.5)	1.00
Five or more prior runaways	40%	60%	.99
Daily opiate use	4%	10%	.80
Psychiatric hospitalization	18%	24%	.45
Three or more foster placements	16%	25%	.74

Ideally the power should be above .80 and this is true for the demographic, delinquent, and substance abuse constructs. However for the school (.69) and family history (.74), the power is only moderate and for the mental health (.45), it is quite low. These low numbers may mean that the differences between graduates and elopers in these constructs are not large enough to be sufficiently detected by this analysis. However, the sample size and power are adequate for the expressed purpose of this study is which is to identify predictor variables and not to establish estimates of small effect sizes.

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[9] Gender and referral county were not included in this table because they had no missing data.

RESULTS

Description of Subjects

The 445 clients in the study were discharged from a program of day treatment and proctor care for youth with delinquency and substance abuse problems between 1987 and 2000 (see Table 5). Approximately equal numbers of clients were discharged from the day treatment component of the program in each year of the study. A little over one third of the clients (38%, n=171) abandoned treatment prior to graduation from day treatment and a little less than two thirds graduated (62%, n=274).

In general, the subjects consisted of troubled youth between the ages of 15 and 18 with multiple arrests, multiple previous runs, problems in school, a distressed family history, a history of abuse and neglect, and serious chemical dependency issues.

About two thirds of the clients were males (64%) and one third were females (36%). Their mean age was 16.1 years. Over two thirds were non-Hispanic Caucasians (71%). The remaining clients were Hispanic (9%), African-American (5%), Native American (5%), Asian American (1%), or multi-ethnic (10%). Most of the clients were from either rural (37%) or semi-rural (38%) counties while one fourth were from urban (24%) counties.[10] One half of the clients came directly from locked juvenile justice facilities (38%), residential

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[10] Multnomah County was coded as urban, Clackamas, Washington and Marion Counties were coded as semi-urban, and all other counties were coded as rural.

Table 5: Description of 445 Clients in Breakthrough Study

Demographics

Age at Intake
Mean	16.09
SD	0.82
15	28%
16	37%
17	34%
18	2%

Gender
Female	36%

Race/Ethnicity
Minority (African, Asian, Native, Hispanic, Multi)	29%

Referral County
Urban (Multnomah)	24%

Last with Birth Family
Yes	32%

School

Behind in School
3 or more years	17%

Prior Status
Dropped out/expelled	42%

Special Education Problems
Yes	16%

Ever Dropped Out
Yes	79%

Delinquency

Felonies
Mean	2.98
SD	3.40

Misdemeanors
Mean	5.26
SD	4.94

Status Offenses
Mean	4.60
SD	4.04

At State Training School
Yes	32%

History of Prostitution
Yes or Suspected	19%

Number of Runaways
Five or More	47%

Alcohol/Drug Use

Stage of Addiction
Late	20%

Previous A&D Treatment
Residential treatment(s)	56%

Ever Used Daily
Opiates	6%
Alcohol	33%
Cocaine	17%
Stimulants	34%
Marijuana	66%
Hallucinogens	8%
Inhalants	6%

Ever Used At Least Weekly[11]
IV Drugs	35%
Harder Drugs	46%

Mental Health Issues

Suicide Gestures/Attempts
Yes	35%

Psychiatric Hospitalization
Yes	20%

Attention Deficit Hyperactivity Disorder
Yes	19%

Family History

Parental Criminality
Yes	63%

Parental Substance Abuse
Yes	74%

Foster Placements
Three or More	19%

Residential Treatments
Two or More	43%

Poverty Income
Yes	52%

Domestic Violence
Yes	49%

History of Abuse
Physical	39%
Sexual	32%
Neglect	18%
Any Abuse	51%

[11] Other than marijuana, alcohol or hallucinogens

treatment (10%) or the streets (1%), while the other half lived with birth or adoptive families (32%), foster families (13%) or other community placements (7%).

The clients had troubled school histories. Many were currently dropped out of school (79%), were at least 3 years behind their expected grade level (17%), and/or had been classified as having special education needs (17%). Immediately prior to coming to Breakthrough most of the clients were in alternative school settings (33%) or dropped out or expelled (42%); only a minority were in regular school settings (16%) or had completed their GED (5%).

The population of youth were highly delinquent with multiple prior arrests; on average, 3.0 (3.4) felonies, 5.3 (4.9) misdemeanors, and 4.6 (4.0) status offenses. Almost one third had been placed at the state training school (32%). At least half of the youth had indicators of prior experience with street life, having run away from home five or more times (47%) and/or having a history or suspected history of prostitution (19%).

The clients also had serious chemical dependency issues. Almost two thirds were classified by their therapist as being middle (51%) or late (20%) stage chemically dependent[12]. Most of the youth had received prior alcohol and drug treatment (74%) and over half had had one (31%) or more (25%) residential treatment placements. In terms of daily use, the most frequent drugs of choice were marijuana (66%), stimulants other than cocaine (34%) and alcohol (33%). Between 6% and 17% used cocaine (17%), hallucinogens (8%), opiates (6%), or

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[12] See Appendix A for definitions.

23

inhalants (6%) on a daily basis. Over one third (35%) used IV drugs at least
weekly. About one half had used harder drugs; 46% had used substances other
than marijuana, alcohol or hallucinogens.

In addition, a significant portion of the clients had serious mental health
issues including suicidal gestures (16%) or serious attempts (19%), psychiatric
hospitalization (20%) and/or had been diagnosed as Attention Deficit
Hyperactivity Disorder (ADHD) (19%).

The clients' families also had notable problem areas. Most of the youth
had at least one parent with serious substance abuse issues (74%) and/or a
criminal history (63%). Poverty[13] was common (51%) among the families. Many
of the clients had been victimized by physical abuse (39%), sexual abuse (32%),
neglect (18%), and/or exposure to domestic violence (49%).

Comparison of Graduates and Elopers - Univariate Analysis

Graduates and elopers were compared on the re-coded predictor
variables. In all, 15 of the 39 variables in the univariate analysis discriminated
between the two groups of clients at the 05 level of significance. An additional 8
variables had p values between .05 and .25 which made them eligible to be
included in the logistic. Results of these analyses are shown in Tables 6.

Of the demographic variables *gender, referral county, and last living with
birth or adoptive family* were significant at the.05 level and *race* and *age* were not
significant.

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[13] Poverty was defined as "families who have been on welfare or obviously at poverty level in terms of shelter, clothing, food, etc."

Table 6: Risk Factor Comparison of Graduates (N=274) and Elopers (N=171)

Demographics	Grads	Runs
Age at Intake (p<.837)		
Mean	16.09	16.08
SD	0.81	0.84
15	27%	30%
16	39%	33%
17	33%	36%
18	2%	1%
Gender* (p<.001)		
Female	30%	45%
Race/Ethnicity (p<.564)		
Minority	30%	27%
Referral County* (p<.002)		
Urban (Multnomah)	19%	32%
Last with Birth Family* (p<.001)		
Yes	39%	21%

School	Grads	Runs
Behind in School* (p<.021)		
3 or more years	14%	22%
Prior Status (p<.681)		
Dropped out/expelled	43%	41%
Special Education Problems (p<.715)		
Yes	16%	15%
Ever Dropped Out* (p<.020)		
Yes	75%	86%

Delinquency	Grads	Runs
Felonies (p<.547)		
Mean	2.90	3.11
SD	3.63	3.24
Misdemeanors** (p<.112)		
Mean	4.95	5.77
SD	4.62	5.41
Status Offenses* (p<.001)		
Mean	3.70	6.11
SD	3.41	4.52
At State Training School* (p<.001)		
Yes	27%	38%
History of Prostitution* (p<.001)		
Yes or Suspected	14%	27%
Number of Runaways* (p<.001)		
Five or More	40%	60%

Alcohol/Drug Use	Grads	Runs
Stage of Addiction* (p<.028)		
Late	17%	26%
Previous A&D Treatment (p<.432)		
Residential treatment(s)	53%	60%
Ever Used Daily		
Opiates* (p<.010)	4%	10%
Alcohol (p<.907)	34%	33%
Cocaine (p<.331)	15%	19%
Stimulants** (p<.197)	32%	38%
Marijuana (p<.843)	67%	66%
Hallucinogens* (p<.050)	10%	5%
Inhalants* (p<.031)	4%	9%
Ever Used At Least Weekly[14]		
IV Drugs* (p<.023)	31%	42%
Harder Drugs* (p<.028)	42%	54%

Mental Health Issues	Grads	Runs
Suicide Gestures/Attempts (p<.621)		
Yes	34%	37%
Psychiatric Hospitalization** (p<.180)		
Yes	18%	24%
Attention Deficit Hyperactivity Disorder (p<.736)		
Yes	19%	18%

Family History	Grads	Runs
Parental Criminality** (p<.058)		
Yes	66%	55%
Parental Substance Abuse** (p<.160)		
Yes	72%	78%
Foster Placements** (p<.058)		
Three or More	16%	25%
Residential Treatments** (p<.101)		
Two or More	39%	48%
Poverty Income** (p<.222)		
Yes	50%	57%
Domestic Violence (p<.707)		
Yes	48%	51%

History of Abuse	Grads	Runs
Physical (p<.941)	39%	39%
Sexual (p<.880)	32%	31%
Neglect (p<.286)	16%	20%
Any Abuse (p<.451)	51%	46%

* p <.05; **p<.25

[14] Other than marijuana, alcohol or hallucinogens

25

School-related variables that were significant at the .05 level included being *behind in school by more than three years* and *ever having dropped out of school*. Non-significant variables *included dropped out or expelled immediately prior to entering treatment* and a *history of being in special education classes*.

Four of the six delinquency measures were statistically significant at the .05 level. These included number of *status offense arrests, youth involvement or suspected involvement in prostitution, placement at the state training school*, and *five or more previous runaways*. Number of *misdemeanor arrests* was eligible for entry into the multiple logistic regression model at the .10 level and *felony arrests* was not significant.

Several of the chemical dependency variables were statistically significant. For the most part higher use was associated with eloping from treatment. *Stage of addiction, daily use of opiates, daily use of inhalants, weekly IV drug use* and *hard drug use* were statistically significant at the .05 level. More frequent *daily use of hallucinogens* was associated with graduating from treatment at the .05 level. Higher use of stimulants was not significant but was eligible to be included in the model building process (p<.20).

None of the mental health variables reached a level of univariate statistical significance and only one, *psychiatric hospitalization,* had a p value low enough to be retained for the regression (p<.20). *Suicide behaviors* and *ADHD diagnosis* did not discriminate between abandoning treatment and graduating.

As a group, family history factors only weakly discriminated between graduates and elopers. Only one variable (*three or more foster placements*) was

26

significant at the .05 level. However, several variables had low enough p-values (<.25) to be eligible for inclusion in the logistic regression model. These include *parental criminality, parental chemical dependency, two or more residential treatment placements*, and *poverty. Domestic violence* was the only variable dropped from further analysis.

None of the abuse and neglect variables by themselves discriminated between the graduates and elopers. A composite abuse variable that included multiple forms of abuse was also tested but it too, was not significant.

Imputation Results

As recommended by the developer of the imputation software (Schafer, 1997), three imputations were performed on the remaining 21 variables. Table 7 shows the original sample and the three imputations. The imputed samples were similar in both estimated percentages and means and in their significance as discriminators between the dependent variables.

Logistic Regression Results

Three logistic regression models were run using the backward stepwise conditional method using p>.25 as criteria for removal (Hosmer, 1989). Results of the three analyses are displayed in Table 8. In all three data sets, seven risk factors and one protective factor were selected by the backward stepwise regression from the original pool of 21. Risk factors selected in all three regression models include two demographic items (*gender, referral county)*, two delinquency items *(number of status offense*

27

Table 7: Comparison of Original Data with Imputations 1 through 3

	Original	Impute 1	Impute 2	Impute 3
Demographics[15]				
Last Living with Birth Family	32%	33%	32%	32%
School Information				
>=3 years Behind	17%	18%	17%	17%
Delinquency				
Misdemeanors	5.3	5.2	5.3	5.2
Status Offenses	4.6	4.7	4.7	4.6
Ever in State Training School	27%	27%	28%	29%
History or Prostitution	19%	20%	20%	19%
Five or More Runaways	47%	48%	46%	46%
Alcohol/Drug Use History				
Late Stage Addiction	20%	20%	21%	20%
Daily Opiate Use	6%	6%	6%	6%
Daily Stimulant (not Cocaine) Use	34%	34%	34%	34%
Daily Hallucinogen Use	8%	8%	8%	8%
Daily Inhalant Use	6%	6%	5%	5%
Weekly or More IV Drug Use	35%	37%	35%	36%
Hard Drug Use	46%	46%	46%	47%
Mental Health				
Psychiatric Hospitalization	20%	21%	21%	21%
Family History				
Chemically Dependent Parent(s)	74%	74%	74%	72%
Three or More Foster Homes	19%	21%	19%	20%
Two or More Residential Treatments	43%	43%	43%	42%
Poverty	52%	52%	54%	52%

arrests, ever placed at state training school), two chemical dependency items (daily use of opiates, daily use of inhalants), and one mental health item (psychiatric hospitalization). The lone protective factor selected by all three regressions was daily use of hallucinogens.

Three other variables were selected on at least one but not all three data sets. These include three or more grades behind in school, five or more

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[15] Gender and Multnomah County residence were not included in this table because they had no missing data.

Table 8: Variables Selected by Backward Stepwise Logistic Regression Using Three Different Imputed Data Sets Adjusted by Year of Discharge

	Impute 1			Impute 2			Impute 3		
	OR	95% CI		OR	95% CI		OR	95% CI	
Demographics									
Female Gender	1.47	0.94	2.32	1.61	1.02	2.53	1.59	1.02	2.50
Multnomah County Referral	2.26	1.34	3.79	2.40	1.43	4.02	2.30	1.37	3.84
School									
Behind in School 3 Years +	1.58	0.90	2.77	1.50	0.85	2.63	*	*	*
Delinquency									
N of Status Arrests	1.14	1.08	1.21	1.13	1.07	1.20	1.12	1.05	1.18
Ever in State Training School	1.67	1.04	2.70	1.82	1.13	2.92	1.93	1.21	3.08
Five or More Runaways	1.60	1.01	2.54	*	*	*	*	*	*
Risk Factors									
Poverty Level Income	*	*	*	*	*	*	1.37	0.89	2.10
Mental Health									
Psychiatric Hospitalization	1.51	0.89	2.56	1.86	1.10	3.16	1.70	1.01	2.87
Alcohol and Drug									
Opiates Daily Use	1.87	0.74	4.72	2.28	0.87	5.98	2.05	0.80	5.30
Hallucinogens Daily Use	0.43	0.17	1.09	0.33	0.12	0.91	0.39	0.15	0.97
Inhalants Daily Use	1.95	0.70	5.38	2.26	0.80	6.39	2.25	0.83	6.12

runaways and family ever at poverty level income. Each of the three regressions were run again forcing entry of the agreed upon nine variables listed above and each of the three disputed variables. Results for the three variables are shown in Table 9. Based on an examination of the table, the variable *five or more runaways* was eliminated since impute 1 had very different results from imputes 2 and 3. However, variables *behind in school* and *poverty level income* were retained because two regressions selected them or because at least one of the regressions had similar results to a regression that selected the variable.

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* Not selected by the backward stepwise regression analysis.

Table 9: Comparison of Forced Entry Odds Ratios for Variables Selected by at Least One but Not All Three Backward Stepwise Regressions [16]

	Impute 1			Impute 2			Impute 3		
	OR	95% CI		OR	95% CI		OR	95% CI	
Behind in School 3+ Years	1.58	0.90	2.77	1.50	0.85	2.63	1.27	0.72	2.26
Five or More Runaways	1.60	1.01	2.54	1.21	0.76	1.92	1.29	0.82	2.05
Poverty Level Income	1.10	0.72	1.68	1.37	0.89	2.10	1.37	0.89	2.10

In all, ten variables were selected and eleven variables were eliminated from further analysis. Variables that did not make it into the next phase of model building include: 1)*last lived with birth family, 2)number of misdemeanor arrests, 3)involvement or suspected involvement in prostitution, 4)five or more runaways, 5)parent chemical dependency, 6)three or more foster placements, 7)multiple residential placements, 8)late stage addiction, 9)daily use of stimulants, 10)at least weekly IV drug use, and 11)use of harder drugs.*

For the final step of the model building process, an examination of interactions of the ten remaining predictor variables with gender was conducted. For this process, imputation data set 2 was used. Using backward stepwise methodology, gender by referral county was selected for inclusion. Table 10 shows the final model adjusted by year of discharge (OR:1.09 (1.03 to 1.16)).

Demographically, the results indicate that eloping youth were more likely to be female and urban. On the remaining variables with one exception, youth that abandoned treatment were more dysfunctional than graduates in school,

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[16] Shaded boxes represent variables forced into the regression equation, unshaded boxes were selected by the original backward stepwise regression.

Table 10: Final Model (Adjusted by Year of Discharge)

Demographics	OR	95% CI		Significance
Gender (female)	2.06	1.24	3.43	p< .0055
Referral County (urban)	3.26	1.73	6.16	p< .0003
Gender by Referral County[17]	0.43	0.16	1.19	p< .1052
School				
Behind in School 3 years +	1.51	0.86	2.66	p< .1549
Delinquency				
Number of Status Arrests	1.14	1.08	1.21	p< .0001
Ever in State Training School	1.82	1.13	2.93	p< .0136
Alcohol and Drug				
Opiates Daily Use	2.45	0.94	6.41	p< .0682
Hallucinogens Daily Use	0.37	0.13	0.99	p< .0484
Inhalants Daily Use	2.31	0.82	6.53	p< .1142
Mental Health				
Psychiatric Hospitalization	1.89	1.11	3.19	p< .0181
Family History				
Poverty	1.38	0.89	2.12	p< .1489

juvenile justice system involvement, substance abuse, mental health and family history. The exception was that elopers are less likely to have used hallucinogens on a daily basis.

The final model has an R-Square of .249, which means that though 25% of the "variance" is explained by the variables in the model, 75% of the difference between graduates and runaways needs to be accounted for by other variables.

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[17] Note that the estimate for the gender by referral county interaction is not an OR, but a shift in the gender and referral county OR due to being female and from an urban county.

The Hosmer-Lemeshow Goodness of Fit is 8.67 (p<.37) with eight degrees of freedom, indicating that the model fits adequately.

To further understand the effects of the interaction between referral county and gender, odds ratios and confidence intervals were computed showing the difference between 1) females and males stratified by referral county and 2) non-urban and urban youth stratified by gender. This data is shown in Table 11. Among non-urban youth, females are twice as likely as males to elope from treatment while there is no difference in elopement rate between urban females and males. Among males, urban youth are three times as likely as non-urban youth to abandon treatment, while there is no difference in the rate between urban and non-urban females.

Table 11: Referral County Stratified by Gender and Vice Versa

		OR	95% CI	
Non-urban	Females	2.06	1.24	3.43
	Males	1.00		
Urban	Females	0.88	0.37	2.15
	Males	1.00		
Males	Urban	3.26	1.73	6.16
	Non-urban	1.00		
Females	Urban	1.41	0.62	3.21
	Non-Urban	1.00		

Table 12 is the classification table showing how well the model predicted eloping and graduating youth. The model accurately predicted 71.9% of the elopers, 71.2% of the graduates, and 71% of the total population of youth.

Table 12: Classification Table Showing Predicted and Actual Classification

Actual → ↓Predicted	Elopers	Graduates
Runaways	123	79
Graduates	48	195

DISCUSSION

Although the analyses from this study were performed on clients from a specific program, information may influence other providers on ways to think about how to prevent treatment abandonment among high risk adolescents. The discussion of the results will include a review of the results, their link to previous research and some speculations on what the results might mean. In addition, a risk model scale with possible application to other programs will be discussed.

A goal of this study was to determine which variables from a subset of variables shown in the literature to be related to substance abuse, delinquency and running away, independently contribute to the prediction of running away from residential treatment. Results indicate that a combination of demographic variables plus variables measuring problems in school, delinquency, substance abuse, mental health, and family history can be used to successfully predict runaways from substance abuse treatment. Specifically, variables related to running away from treatment include being 1) female, 2) from Multnomah County, 3) female and not from Multnomah County (their interaction term), 4) three or more years behind in school, 5) a higher number of prior status offense arrests, 6) placement at the state training school, 7) psychiatric hospitalization, 8)

33

daily use of opiates, 9) daily use of inhalants, 10) no history of daily use of

hallucinogens, and 11) poverty. Table 13 shows a summary of all the variables

included in each stage of analysis.

Table 13: Variables Excluded from and Retained in the Final Model

	No Difference	Univariate Only (p<.25)	Both Univariate (p<.25) and in the Final Model
Demographics	• Age • Race	• Birth Family Placement	• Sex • Referral County
School	• Dropped out or Expelled • Special Education Status		• Behind 3+ Years
Delinquency	• Felonies	• Misdemeanors • Prostitution • Five or More Runs	• Status Offenses • State Training School
Substance Abuse	• Marijuana • Alcohol • Cocaine • Stimulants (not Cocaine) • Previous Treatment	• Stage of Addiction • IV Drug Use • Harder Drug Use	• Opiates • Inhalants • Hallucinogens
Mental Health	• Suicidal Behavior • ADHD		• Psychiatric Hospitalization
Family History	• Parental Substance Abuse • 2+ Res. Treatment Placements • 3+ Foster Placements • Domestic Violence • Sexual Abuse • Physical Abuse • Neglect		• Poverty

34

Among the eleven variables in the final model, four were significant at.05 indicating a more solid association. These variables and their odds ratios include number of status offense arrests (1.14), placement at the state training school (1.82), psychiatric hospitalization (1.89) and daily use of hallucinogens (.37).

Gender and referral county were also robust predictors but there was an interaction effect between them. Among non-urban county referrals, girls were twice as likely as boys to elope while among urban youth there was no difference in elopement rate by gender. Among boys, urbanites were three times more likely to elope than non-urbanites while among girls there was no difference in elopement rate between urbanites and non-urbanites. Stated another way, the program was much more effective with non-urban boys than with both girls and urbanites in general and non-urban girls in particular. Although it is not possible to determine from this data exactly why these results occurred, it is possible to speculate. Girls may have abandoned treatment more often than boys due to differences in coping styles or because they represented a smaller proportion of clients at Breakthrough. Urban youth may be running more frequently because Breakthrough is located in Multnomah County near both friends and the largest population of street youth in the state.

Problems in school and with the law were related to treatment abandonment. Youth who are three or more years behind in school were 1.5 times more likely to elope. Clients with five or more status offense arrests were 2.5 time more likely to elope. Clients previously placed at the state training school were 1.8 times more likely to elope. These findings both replicate and

35

add to previous research (Catalano, et al, 1991) by extending school failure and delinquency as predictors of the specific treatment failure of abandonment and isolating status offenses from felony or misdemeanor arrests as being the important predictor of this phenomenon.

Among chemical dependency variables, only opiate and inhalant use were risk factors and only hallucinogen use was a resiliency factor. Daily use of opiates and inhalants may be more indicative of hard core chemical abuse than the stage of dependency and IV drug use variables. Daily use of hallucinogens may be an indicator of a more recreational type of user. These findings extend the results of previous research showing a connection between more serious primary drug use and treatment failure (Catalano, et al, 1991) to treatment elopers. However, use of multiple drugs which has also been shown to be a predictor of treatment failure (Catalano, et al, 1991) was a not significant predictor of elopement in this study.

In terms of mental health, those clients with a history of psychiatric hospitalization were almost twice as likely to abandon treatment. Psychiatric hospitalization was not significant as a univariate predictor but only reached significance in the multiple logistic regression model (OR=1.89 (1.11, 3.19)). The inclusion of this variable in the multivariate model shows how important the combined effect of multiple variables are to understanding risk and the danger of only selecting variables from a univariate analysis. In terms of why it is a predictor in this study, it may be related to using substances to mask other symptoms.

36

Poverty was the only family history variable that was retained in the model. Neither sexual nor physical abuse nor any of the family variables were able to discriminate elopers from graduates in spite of previous research which has shown an association between these variables and runaway and homeless youth (Molnar, 1998, Rotheram-Borus, 1992, Reitel, 1992, Janus, 1995). In the study, the prevalence of sexual abuse (20% for males, 54% for females), physical abuse (33% for males, 51% for females) and parental chemical dependency (72%) was high among both runaways and graduates. These family history variables had more missing data replaced by imputations than the other variables, however, which may have reduced their power to discriminate (see discussion under limitations of the study).

Applying the Model

A risk model scale was developed that could be applied by treatment providers to identify youth most likely to run away (Table 14). The scale has not been tested on an independent sample and should not be used to screen out potential clients. However, an intervention designed to reduce treatment abandonment could be applied early in treatment to clients who scored high on the scale. Using the results from the classification model as an estimate, 71% of the clients who ran away would have received the intervention and 29% of the clients who would have graduated anyway would have received it unnecessarily. It is unlikely that such an intervention would cause harm to clients; more likely increasing the possibility of their completing treatment. The risk would be to the

37

program's resources and that might be money well spent if the elopement rate could be reduced.

In order to simplify application of the formula to real data, beta regression coefficients have been multiplied by 10 and rounded off. Scores of 15.5 or above identify clients at risk to run away from treatment. Table 13 shows the application formula.

Table 13: Formula for Estimating Which Clients are at Risk Eloping from Residential Treatment

Predictor Variables	Beta Coefficients	Adjusted Coefficient	Client 1	Client 2
a. Female	.7228	7	7	0
b. From by Urban County	1.1826	12	0	0
c. From Urban County and Female	-.8400	-8	0	0
d. Behind in School 3+years	.4104	4	0	4
e. Number of Status Arrests	.1326	N * 1.3	3.9	1.3
f. Placement at State Training School	.6000	6	0	6
g. Poverty	.3185	3	3	0
h. Psychiatric Hospitalization	.6348	6	0	0
i. Daily Use Opiates	.8952	9	9	0
j. Daily Use Inhalants	.8371	8	0	0
k. Daily Use Hallucinogens	-1.0060	-10	0	0
	Total of adjusted weights from items a through k		22.9	13.3
			22.9 > 15.5	13.3 < 15.5
			At Risk	Not at Risk

To show how the formula is applied, the example score column in Table 13 shows scores for two clients:

- Client 1: a female from a rural county, who is at appropriate grade level, has 3 status arrests, has never been placed at the state training school, has a history of poverty, has never been hospitalized, and has used opiates but not inhalants or hallucinogens on a daily basis. Her total score is 22.9 indicating that she is predicted to be at risk to elope.

- Client 2: a male from a suburban county, who is behind in school 4 years, who has 1 status arrest, has been placed at the state training school, has not lived in poverty, has never been hospitalized, has not used opiates, inhalants or hallucinogens on a daily basis. His score is 13.3, indicating that he is not predicted to be at risk to abandon treatment.

Descriptive information derived from this study can be used to help design a preventive intervention to be used on identified high risk clients. What do delinquency, chemical dependence, school failure, psychiatric problems, gender, referral county, the combination of non-urban and female, and poverty tell us about the clients who run and prevention strategies?

It may be the choice of opiates and inhalants in combination with psychiatric hospitalization indicates using drugs to alleviate psychic pain rather than the more recreational hallucinogenic use. Mental health assessment, treatment planning, and start of therapy prior to treatment onset could make a difference in outcome.

39

It could be that if referrers have a choice, they may want to refer to a treatment center that is geographically outside a set mileage radius of the youth's home especially if the home county is urban and contains a large population of homeless youth. Or it could be that the program needs to factor in the proximity to other street youth in determining prevention strategies. Perhaps former street youth who have successfully transitioned to a more safe and healthy lifestyle could tell their story about some of the grimmer aspects of life on the street.

For girls who are a high risk to run, gender-specific programming might make a difference.

To apply any intervention effectively, it is important to understand when clients run away from treatment. As can be seen in Figure 2, half of the clients in

Figure 2: Weeks in Treatment Prior to Running Away
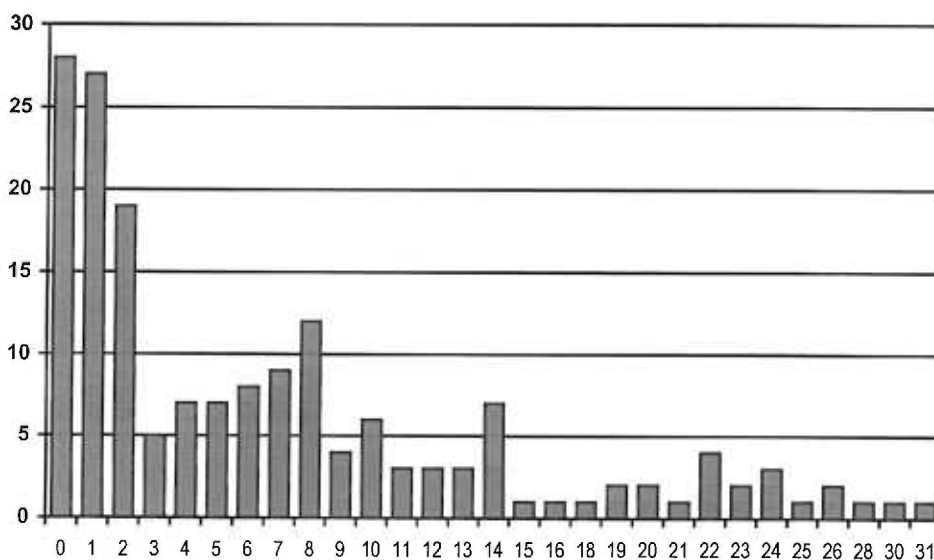
this program, ran away in the first month of treatment. The median length in treatment for runners was 34 days. A third of the clients who ran away do so

within the first two weeks of treatment. Clearly, in order to be effective with this population, an intervention needs to be implemented at the start or even prior to the start of regular treatment.

Limitations

The classification table results are likely to be an over estimate of the accuracy of the prediction model. This is because the model was tested on the sample that it was derived from. In addition clients who were eliminated from the prediction sample in this study (those ejected for failure to comply with program expectations or left program for some other reason) represent about 15% of the population. Since the prediction occurs at intake and these subgroups cannot be identified, the formula must be applied to all clients. It is not clear how well, if at all, the model would work on this inclusive group of clients. Thus the ability of the model to predict runaways is likely to be lower than the results in the classification table. Future research should focus on validating these findings and applying them to an independent sample.

The subjects are a convenience sample located in a specific treatment setting in the Pacific Northwest. It is not known if findings from this study will apply as well to subjects in other programs and other locations. Future research could expand the study to other areas of the country.

Therapists, who collected most of the information from their initial assessment of the youth, received only one hour of training. It is possible that there is some bias in each individual rater's interpretation of the questions and

41

interview of the subjects and that more rigorous data collection methodology would have produced different results.

Some variables that may be predictive of either running away or treatment failure were not collected. For example, age at first arrest, youth's relationship to his/her family, length of time spent of the street, were not included. In addition, frequency of use of alcohol and drugs was asked as most highest use ever. Recent use was not tracked. Since this model only accounted for 24% of the "variability", these other variables might help account for more.

Missing data was a problem especially among the runaways. Since the missing data was more prevalent among the runaways, the imputations which used information from non-missing cases to make their imputations, were more heavily influenced by the graduates' data. This quite likely had the effect of minimizing differences between the two groups and making the predictive value of the variables less potent. And in fact, in the regression equation, only one of the variables with a large amount of imputed data was selected in the final model. It is quite possible that if the family history variables had been more stronger complete for the runaways, these predictors would have added powere to the final model. For future research, since many of the clients run away during the first few days in treatment, collecting data prior to treatment onset would help minimize missing data.

SUMMARY AND CONCLUSIONS

Variables shown by previous research to be associated running away, delinquency and chemical dependence are useful as predictors of which clients will run from a residential treatment program in Portland, Oregon. Using logistic regression analysis, eleven variables were identified as independent predictors (holding everything else constant) of running away from treatment. They include: gender, referral county, Interaction of gender and referral county, number of status offenses, previous placement at state training school, daily use of opiates, daily use of inhalants, daily use of hallucinogens, psychiatric hospitalization and poverty. Using a scoring algorithm based on the results of this analysis, residential treatment programs can both predict who will elope from treatment and design interventions for preventing this phenomenon. More research, however, is necessary to replicate and validate the prediction equation.

43

Bibliography

1. Beck, A.J., Kline, S.A., and Greenfeld, L.A. 1988. Survey of Youth in Custody, 1987. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

2. Berman, L. Goodrich, W. (1990) Running Away from treatment: Observations and admission predictors for hospitalized patients, *Adolescent Psychiatry*, 17, 279-304.

3. Blood, L., and Cornwall, A. (1994). Pretreatment variables that predict completion of an adolescent substance abuse treatment program. *The Journal of Nervous and Mental Disease*, Vol. 182, No. 1, 14-19.

4. Booth, R., Zhang, Y. (1997). Conduct disorder and HIV risk behaviors among runaway and homeless adolescents. *Drug and Alcohol Dependence*, 48, 69-76.

5. Catalano, R., Hawkins, J. Wells E., Miller, J. and Brewer D. (1991). Evaluation of the effectiveness of adolescent drug abuse treatment, assessment of risks for relapse, and promising approaches for relapse prevention. *International Journal of the Addictions*, 25, 1085-1140.

6. Defrancesco, J. (1996). Delinquency and substance abuse: A brief analysis. *Journal for Juvenile Justice and Detention Services*, Vol. 11, No. 2, 77-78.

7. Englander, S. (1984). Some self-reported correlates of runaway behavior in adolescent females. *Journal of Consulting and Clinical Psychology*, Vol. 52, No. 3, 484-485.

8. Farrington, D. (1995). The development of offending and antisocial behaviour from childhood: Key finding from the Cambridge study in delinquent development, *Journal of Child Psychology*, Vol. 36, No. 6, 929-964.

9. Feigelman, w. 1987, Day-care treatment for multiple abusing adolescents: Social factors linked with completing treatment. *Journal of Psychoactive Drugs*, Vol. 19(4): 335-344.

10. Feitel, B, Margetson, N., Chamas, J., Lipman, C. (1992). Psychosocial background and behavioral and emotional disorders of homeless and runaway youth. *Hospital and Community Psychiatry*, Vol. 43, No. 2, 155-159.

11. Fullerton, C., Goodrich, W., Berman, L. (1986) Adoption predicts psychiatric treatment resistances in hospitalized adolescents, *Journal of the American Academy of Child Psychiatry*, Vol. 25, No. 4, 542-551.

12. Greene, J., Ennet, S., Ringwalt, C. (1997). Substance use among runaway and homeless youth in three national samples. *American Journal of Public Health*, Vol. 87, No. 2, 229-235.

13. Greene, J., Ringwalt, C. (1996). Youth and familial substance use's association with suicide attempts among runway and homeless youth. *Substance Use and Misuse*, Vol. 31, No. 8, 1041-1058.

14. Hawkins, J.D., Lishner, D., Jenson, J, Catalano, R. (1987). Delinquents and drugs: What the evidence suggests about prevention and treatment programming, in B.S. Brown and A.R. Mills (eds.), *Youth at High Risk for Substance Abuse*. National Institute on Drug Abuse, Washington, D.C.: U.S. Government Printing Office (ADM87-1537).

15. Henggeler, S., Bourdoun, C., Mann, B. (1993). Advances in family therapy empirical foundations in *Advances in Clinical Child Psychology, Volume 13*, edited by Thomas Ollendick and Ronald Prinz. Plenum Press, New York.

16. Hosmer, David W. and Lemeshow, Stanley (1989), *Applied Logistic Regression*, John Wiley & Sons, Inc., New York.

17. Hubbard, R., Cavanaugh, E., Craddock, S., Rachal, J. (1985). Characteristics, behaviors and outcomes for youth in TOPS in A.S. Friedman and G.M. Bescher (eds.) *Treatment Services for Adolescent Substance Abusers*. NIDA Treatment Monograph Series, DHHS Rob. No. 85-1342, 32-65.

18. Huinzinga D., Loeber, R., Thornberry, T. (1994). Urban delinquency and substance abuse, initial findings, research summary, U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

19. Institute for Social Research, University of Michigan, for the National Institute on Drug Abuse, *Monitoring the Future Study* (1997).

20. Janus, M., Brown, A. and Brown, S., (1995). Physical abuse in Canadian runaway adolescents. *Child Abuse and Neglect*, Vol. 19, No.4, 433-437.

21. Janus, M., Burgess, A., McCormick, A. (1987). Histories of sexual abuse in adolescent male runaways, *Adolescence*, Vol. 22, No. 86

22. Jesness, C., (1996). *Jesness Inventory Manual*, Multi-Health Systems, North Tonawanda, NY.

23. Johnson, B., Wish, E., Schmeidler, J., Huizinga, D. (1991). Concentration of delinquent offending: Serious drug involvement and high delinquency rates. *The Journal of Drug Issues,* Vol. 21, No., 2, 205-229.

24. Kashubeck, S., Pottebaum, S., Read, N. (1994). Predicting elopement from residential treatment centers, American *Journal of Orthopsychiatry*, Vol. 64, No. 1, 126-135.

25. Kelly, B., Thornberry, T, Smith, C. (1997). In the wake of childhood maltreatment, *Juvenile Justice Bulletin:* U.S. Department of Justice.

26. Kennedy, M. (1991). Homeless and runaway youth mental health issues: No access to the system. *Journal of Adolescent Health*, Vol. 12, 576-579.

27. Kipke, M., Montgomery, S., Simon, T., Iverson, E. (1997). Substance abuse disorders among runaway and homeless youth. *Substance Use and Misuse*, Vol. 32, No. 7 & 8, 969-986.

28. Koopman, C., Rosario, M., Rotheram-Borus, M., (1994) Alcohol and drug use and sexual behaviors placing runaways at risk for hiv infection, *Addictive Behaviors*, Vol. 19, No. 1, 95-103.

29. Knapp, J, Templer, D., Cannon, W., Dobson, S. (1991) Variables associated with success in an adolescent drug treatment program, *Adolescence*, 26, 102, 305-317.

30. Kral, A., Molnar, B., Booth, R., Watters, J. (1997). Prevalence of sexual risk behavior and substance use among runaway and homeless adolescents in San Francisco, Denver and New York City. *International Journal of STD and AIDS*, 8, 109-117.

31. Kunce, J. and Hemphill, H. (1983). Delinquency and Jesness Inventory Scores, *Journal of Personality Assessment*, 47, 6, 632 – 634.

32. Kurtz, P., Kurtz, G., Jarvis, S. (1991). Problems of maltreated runaway youth, *Adolescence*, Vol. 26, No. 103, 543-554.

33. Lipsey, M. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability -of effects in T. Cook, H. Cooper, D. Cordray, H. Harman, L. Hedges, R. Light, T., Louis & F. Moskeller (eds.) in *Meta-Analysis for Explanation: A Casebook,* New York, Russell Sage Foundation.

34. Loeber, R., Farrington, D. (1998). Serious and violent juvenile offenders. *Juvenile Justice Bulletin*, U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

35. Martin, R. (1981). Cross-validation of the Jesness Inventory with delinquents and non-delinquents, *Journal of Consulting and Clinical Psychology*, 49, 1, 10-14.

36. Martinez, T., Gleghorn, A., Marx, R., Clements, K., Boman, M, Katz, M. (1998). Psychosocial histories, social environment, and HIV risk behaviors of injection and noninjection drug using homeless youths. *Journal of Psychoactive Drugs*, Vol. 30, No.1, 1-10.

37. Molnar, B., Shad, S, Kral, A., Booth, R., Watters, J. (1998). Suicidal behavior and sexual/physical abuse among street youth. *Child Abuse and Neglect*, Vol. 22, No. 3, 213-222.

38. National Institute on Drug Abuse and National Institute on Alcohol Abuse and Alcoholism, (1995). The economic costs of alcohol and drug abuse in the United States – 1992.

39. National Institute of Justice (1996). Drug use forecasting, 1996, annual report on adult and juvenile arrestees.

40. National Network of Runaway and Youth Services, Inc. (1991). To whom do they belong? Washington DC: Author.

41. Rohr, M. (1996). Identifying adolescent runaways: The predictive utility of the personality inventory for children. *Adolescence*, Vol. 31, No. 123, 605-623.

42. Rotheram-Borus, M. (1993). Suicidal behavior and risk factors among runaway youth. *American Journal of Psychiatry*, Vol. 150, 1, 103-106.

43. Rotheram-Borus, M., Mahler, K, Koopman, C, Langabeer, K. (1996), Sexual abuse history and associated multiple risk behavior in adolescent runaways, *American Journal of Orthopsychiatry*, Vol. 66, No. 3, 390-400.

44. Shafer, Joseph L. (1997), *Analysis of Incomplete Multivariate Data*, London: Chapman and Hill.

45. Sherman, Deborah (1992), The neglected health care needs of street youth, *Public Health Reports,* Vol. 107, No. 4, 433-440.

46. Smart, R., Walsh, G. (1993). Predictors of depression in street youth, *Adolescence*, Vol. 28, No. 109, 41-52.

47. Stricof, R., Kennedy, J., Nattell, T, Weisfuse, I., Novick, L, (1991). HIV seroprevalence in a facility for runaway and homeless adolescents. *American Journal of Public Health*, Vol. 81, (suppl.), 50-53.

48. Susser, E., Lin, S., Conover, S., Struening, E., (1991). Childhood antecedents of homelessness in psychiatric patients. *American Journal of Psychiatry*, Vol., 148, No., 8, 1026-1030.

49. UCLA Power Calculator. 2001,
    http://ebook.stat.ucla.edu/calculators/powercalc/.

50. Whitbeck, L., Hoyt, D., and Ackley, K. (1997). Families of homeless and
    runaway adolescents: A comparison of parent/caretaker and adolescent
    perspectives on parenting, family violence, and adolescent conduct. *Child
    Abuse and Neglect*, Vol. 21, No. 6, 517-528.

51. Widom, C. (1996). The cycle of violence revisited. *Research Preview*.
    Washington, D.C.: National Institute of Justice.

52. Wilson, J. and Howell, J. (1993), Comprehensive strategy for serious, violent,
    and chronic offenders. Program Summary. Washington D.C.: U.S.
    Department of Justice, Juvenile Justice and Delinquency Prevention.

53. Yates, G., MacKenzie, R., Pennbridge, J., Cohen, E. (1988), A risk profile
    comparison of runaway and non-runaway youth. *American Journal of Public
    Health*, Vol. 78, No. 37, 820-821.

Appendix A

Data Collection Forms, Informed Consent and Release of Information

Morrison Center Breakthrough

ASSESSMENT RECORD

Name of Youth _____   Readmit (0=no, 1=yes) _____

Eval # _____   Referral County _____

1st Treatment Date _____   Primary Counselor _____   Date Form Completed _____

Code each item as indicated. If unknown, use "?"

A. YOUTH DEMOGRAPHIC INFORMATION

1. **Birthdate**	
2. **Sex** 1=male, 2=female	
3. **Ethnicity** (Please ask youth to self identify ethnicity) 1=Asian-Amer, 2=African-Amer,3=Hispanic, 4=Native Amer, 5=white, 6=mixed (parents of different ethnicity),7=other:	
4. **Placement Immediately Prior to Program Intake** 1=birth/step/adoptive parents, 2=foster/group home, 3=residential treatment, 4=close custody, 5=streets, 6=other:_____	

B. SCHOOL INFORMATION

1. **Last Grade Completed By Youth** (GED=99) 2.	
3. **Placement Prior to Entry Into Program** 0=none, 1=regular school, 2=special ed, 3=vocational prog, 4=altern school , 5=GED prog, 6=state training sch/res treatment, , 8=oth _____	
4. **Status Prior to Placement in Program** 1=fulltime, 2=parttime, 3=dropped-out, 4=expelled, 5=graduated, 6=GED completed	
5. **Special Education Status** 0=none, 1=LD, 2=SED, 3=MRDD, 4=LD & SED, 5=MRDD & SED	
6. **Academic History** 1=poor (D,F), 2=average (C), 3=good (A,B)	
7. **Behavior Problem History** 0=minor, 1=suspension, 2=expulsion, 3=multiple suspensions/ expulsions	
8. **Grade that youth repeated** 0=never, 88=kidergarten, 99=multiple repeats, otherwise enter grade	
9. **Age when youth first dropped out of school** 0=never	

C. DELINQUENCY INFORMATION

Please list each county in which the youth has been arrested prior to entering the program.

_____

Please check file to see that youth and guardian have signed releases for each county listed above.

1. **Ever Been in State Training School** 0=no, 1=yes	
2. **Youth Has History of Prostitution** 0=no, 1=yes, 2=suspected	
3. **Number of Runaways** (Youth being away from home without permission for at least 24 hours or as an unauthorized absence from residential treatment)	

D. HISTORY OF YOUTH'S DRUG/ALCOHOL USE

Drug/Alcohol Use History		
Choose the youth's highest consumption rate for each substance: 0=never 1=suspected but unverified 2=less than weekly 3=more than weekly/less than daily 4=daily	1. **Opiates**	
	2. **Narcotics other than Heroin** (codeine, demerol, percodan, etc.)	
	3. **Alcohol**	
	4. **Sedative/Hypnotics or Depressants**(barbiturates, quaaludes, valium, etc.)	
	5. **Stimulants** (amphetamines including metha-drine, benzedrine, dexedrine, ritalin)	
	6. **Cocaine** (including crack)	
	7. **Marijuana**	
	8. **Hallucinogens**	
	9. **Inhalants** (paint, glue, gasoline, etc.)	
10. **Most Severe IV Drug Use** (Use scale 0-4 above)		
11. **Stage of Chemical Dependence**[*] 0=no use, 1=experimental use, 2=social use/abuse, 3=early stage dependence, 4=middle stage dependence, 5=last stage dependence		

[*]**Stages of Chemical Dependence:**

Experimental Use: This stage includes a youth's first experiences with mood-altering substances, where the excitement of sampling "forbidden fruit" may create more mood-alteration than the chemical itself. The adolescent has not yet learned how to *use* chemicals to produce a reliable and predictable mood swing. Use at this stage may be moral, legal or family problem, but it is not a genuine "substance abuse" problem.

Social Use and Abuse: At this stage the youth has begun a *pattern* of chemical use in social situations outside of parental supervision or approval. The youth now knows how to "get high", but the chemical use has not yet taken precedence over the social situation or their life in general. Many parents "look the other way" at this point, and there is not yet any major life consequences from the use. It is called misuse when the youth experiences isolated incidents of impaired function (i.e., heavy intoxication) or transitory negative consequences (hangover, embarrassing behavior, in trouble for missing curfew).

Early-Stage Dependence (Harmful Involvement): At this point, the youth is deliberately seeking the mood alteration, and a subtle change occurs whereby "getting high" is the reason for using rather than the social context. This level of involvement is difficult to identify, because the youth guards his/her chemical use and tends to lead a double life of appearing "straight" to family and significant adults, but nonetheless using increasingly heavy and harmful amounts. There are only a few signs of dependent behavior towards the chemical, and it is therefore a beginning or early-stage of true dependence. Almost all evaluators would consider this level of use to be a problem worthy of intervention, with some believing that family therapy or outpatient CD treatment to be adequate and others believing inpatient treatment to be warranted.

Middle-Stage Dependence: At this point, the youth has become preoccupied with the chemically-caused "high", and numerous major life consequences are usually apparent. Many youths have given up on their dual-life at this point, and openly identify themselves as users or "druggies". Many parents only begin to suspect chemical use once a youth has reached this stage. Due to the severity of life consequences here and the low percentage of youth who achieve abstinence in outpatient treatment, almost all evaluators feel inpatient treatment is now warranted.

Late-Stage Dependence: In this stage the youth no longer "gets high" on a reliable basis when they use, and their desire to experience the euphoria of earlier chemical use drives them to patterns of use that lay persons associate with "addict": needle use, compulsive use of "harder drugs", and socially-alienated anti-social existences. Youths who reach this point may make multiple attempts at inpatient treatment if they are still connected enough with their family and if their criminal behavior hasn't caused them to be incarcerated. Late stage youths typically appear to be characterologically anti-social, yet often end their antisocial behavior once chemical involvement ends.

E. FAMILY HISTORY AND RISK FACTORS

		Moth	Fath
1.	**Arrest History of Birth/Step/Adoptive Parents with Whom Youth Has Lived** 0=no arrests, 1=misdemeanor(s), 2=single felony, 3=multiple felonies, 4=n/a		
2.	**Chemical Use*** **by Birth/Step/Adoptive Parents with Whom Youth Has Lived** 0=none, 1=some use, 2=occasional abuse, 3=chronic abuse		

*Chemical Use

Some Use: A&D use with no known or apparent negative life consequences involving occupation, family/peer relationships, health or legal system involvement.

Occasional Abuse: A&D use that has resulted in a single incident or periodic incidents of negative life consequences involving occupation, family/peer relationships, health or legal system involvement.

Chronic Abuse: Chronic A&D use that has resulted in multiple negative life consequences involving occupation, family/peer relationships, health, or legal system involvement.

		Fost	Res
1.	**Number of Out-of-Home Placements In Foster/Group Homes and Residential Treatment Facilities** 0=0, 1=1,..., 8=8, 9=9 or more placements		
2.	**Youth Ever Lived In Family Characterized By Severe Marital Discord** 0=no, 1=chronic/intense discord but no physical violence, 2=physical violence		
3.	**Youth Ever Lived In Family Whose Income Was Below Poverty Level** 0=no, 1=yes (families who have been on welfare or obviously at poverty level in terms of shelter, clothing, food, etc.)		
4.	**Youth Has Attention Deficit Disorder/Hyperactivity Diagnosed By MD/School** 0=no, 1=yes		
5.	**Youth Ever Suicidal** 0=no, 1=expressed ideation (having thoughts about killing oneself), 2=gesture(s) (an act that is symbolic of suicide, but which constitutes no serious threat to life or serious intent to die), 3=attempt(s) (a serious life-threatening suicidal act intended to cause death)		
6.	**Youth Ever Admitted To Psychiatric Hospital** 0=no, 1=yes		
7.	**Youth Victim of Reportable* Sex Abuse** 0=no, 1=yes, 2=suspected		
8.	**Youth Victim of Reportable* Physical Abuse** 0=no, 1=yes, 2=suspected		
9.	**Youth Victim of Reportable* Neglect** 0=no, 1=yes, 2=suspected		

*   **Reportable Abuse or Neglect;** is reportable/reported abuse that in *your best clinical judgment actually occurred.* Information received from the client family, CSD, police records, etc., should be the basis of your judgment. It is not necessary that the abuse have been actually reported (when it is not your legal responsibility to report, e.g., the offender is dead); nor is it necessary that the abuser have been found guilty in a court of law (e.g., when the family decides it is not in the best interest of the child to testify). If there is not enough evidence to make you sure reportable abuse occurred but you suspect it occurred, report it as suspected abuse. It is, however, necessary that you believe abuse to have occurred. Therefore, if abuse was reported but in your best judgment did not actually occur, it should be coded as 0 for no abuse.

Morrison Center

3355 SE Powell Blvd.
Portland, OR 97202

PROGRAM EVALUATION AT MORRISON CENTER

Prior to beginning treatment at Morrison Center, we want to describe Program Evaluation services and how these services are used in the treatment program you are entering.

Morrison Center is committed to using a carefully designed system of program evaluation to learn about the treatment effectiveness of its programs. In order to accomplish this task, extensive information about clients is collected both before and after treatment and compared to determine if clients have benefited from treatment. Treatment outcome results are reported to program staff and, at times, changes in the treatment program are made.

All clients who receive treatment at Morrison Center are included in program evaluation. The identities of clients, however, are carefully protected. No names are used in published program evaluation reports and all information is destroyed when program evaluation has been completed.

Written reports describing the effectiveness of Morrison Center programs are published and made available to the general public and to other treatment providers and treatment funders. Morrison Center staff and board of directors believe that it is the agency's responsibility as a treatment provider to share these evaluation reports with the community. Copies of program evaluation reports are available upon request.

If you have questions or concerns about Morrison Center Program Evaluation, please discuss these with a staff member.

I acknowledge by my signature that I have read and understand the above information.

_____   _____
Signature of Legal Guardian of Youth   Date

_____   _____
Signature of Youth   Date

**Morrison Center
3355 SE Powell Blvd.
Portland, OR 97202**

I authorize _____ County Juvenile Department to disclose arrest history information to Morrison Center for Child and Family Service about _____ whose date-of-birth is _____. I understand that this information is being used for the sole purpose of evaluating the treatment effectiveness of the Morrison Center program in which the above mentioned youth is being served. I understand that the identity of the above mentioned youth will be carefully protected and that no names are used in published program evaluation reports. I also understand that all information is destroyed after a post-treatment follow-up has been completed.

This consent is subject to revocation at any time specified in advance. If not explicitly revoked, this consent will expire after a 12 month post-treatment follow-up evaluation has been completed.

I acknowledge that I understand the above information is protected by law, and by my signature on this form, I authorize the above protected information to be released, in accordance with the above specifications, and I hereby waive the right of confidentiality regarding this specified information only to the extent delineated above.

_____
Signature of Legal Guardian of Youth

_____
Date

_____
Legal Guardian's Relationship to Youth

_____
Signature of Youth

_____
Date

_____
Signature of Witness

_____
Date