The Rehabilitation Professional, 22(4), pp. 247–258

Factors Related to Successful Completion in a Long-Term Community-Based Residential Treatment Facility for Chemical Dependency

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Abstract. This study scrutinized specified demographics and features relating to successful completion for clients that pursued treatment and management for chemical dependency at a long-term residential treatment center in Southwest Louisiana. Research protocol was accomplished via an *ex post facto* chart review of 100 client files, randomly selected from all cases between the years of 1998 and 2008. Univariate analyses were then finished to identify factors interrelated to successful accomplishment of the program, as well as the relationships between factors. Analyses revealed a significant statistical relationship between presence of sexual abuse in childhood across both state of completion (e.g. completion, transfer, leaving against staff advice, and discharge) and outcome (e.g. significant, marginal, insignificant, or no improvement). Consistent with earlier research, analysis validated no significant relationship between legal involvement and treatment completion. Suggestions for treatment placement in the scope of rehabilitation planning, life care planning, and family education are discussed in the context of results from the present study.

Alcohol and drug dependency remains an intricate and vivacious issue in American society, equating for mislaid productivity, forfeiture of life and familial strife. Moreover, while alcoholism or drug abuse cannot be cured, treatment has been shown to mend individual productivity, escalation of quality of life, and also progress family relations. In 2007, an estimated 22.3 million persons in the U.S. aged 12 or older were classified with substance dependence or abuse (Substance Abuse and Mental Health Services Administration [SAMHSA], 2008). Among these, approximately 2.4 million entered into some type of specialty substance use treatment (SAMHSA, 2008). Individuals entering treatment have many different treatment types or modality options; however, most treatments fall under one of the subsequent general categories, including outpatient, short-term residential, long-term residential, and detoxification (National Institute of Drug Abuse [NIDA], 1999). Independent of specified modality, a paucity of research exists that examines specific features that facilitate or prompt effective accomplishment of these and similar treatment programs. As such, this article seeks to isolate both contributing and non-contributing factors that facilitate and impede successful completion within a specific facility in Southwest Louisiana. Furthermore, considerations in rehabilitation planning, life care planning, and parental education are discussed, particularly in the context of the various roles of Rehabilitation Counselor, Nurse, Forensic Economist, Life Care Planner, and other rehabilitation professionals.

Multiple features are utilized to define and specify treatment facilities for chemical dependency, meriting an analysis of these features. Long-term residential treatment is usually defined as more than 30 days of non-acute care in a setting with treatment services for substance abuse and dependency (SAMHSA, 2008). Long-term residential treatment can be further sub-divided into hospital (medical care included) or non-hospital (medical care not directly provided) treatment (SAMHSA, 2008). Both provide care 24 hours a day with planned lengths of stay between 6 and 12 months (NIDA, 1999). The most widely known model of residential treatment is the commu-

nity-based model, which focuses on the socialization and readjustment of individuals and uses the program's entire community as active components of treatment (NIDA, 1999). Services in these facilities typically include support groups, behavioral or cognitive therapy provided through individual and/or group sessions, life skills training, case management and referral to other support services (NIDA, 1999). It is also common to plan treatment based on individual needs (NIDA, 1999).

Despite these measures and interventions, national discharge averages for long-term residential treatment in the past have approximated 39% for completion, 13% for transfer, 31% for dropping out of treatment, 9% for termination by the facility, and 9% for other reasons (SAMHSA, 2008b). These unusually high dropout rates and the high degree of variability in completion rates between programs have been commonly observed in the literature (i.e., Hser et al., 1998; NIDA, 2002). Since research has shown that chemical dependency is influenced by various environmental factors, evaluating these factors and their effects on success in chemical dependency treatment could lead to better treatment planning and increased retention rates (Kendler, 2003).

Limited research has been able to productively identify factors that communicate to successful completion of residential treatment. Noted research has beforehand suggested that being male, older, under legal supervision, having lower levels of drug use, and having higher education are significantly associated with completion of residential programs (Collins, 1983; Hser et al., 1998; SAMHSA, 2008b; Stack et al., 2000). However, research remains inconclusive relating to the effects of psychiatric comorbidity on successful completion of residential treatment (Stack et al., 2000). Moreover, based upon a review of the literature, past research has not examined the relationships among childhood sexual abuse, family history of chemical dependency, and successful completion of residential treatment (Stack et al., 2000). Studies have examined the relationship between childhood sexual abuse and completion of residential treatment for female populations, but the effects of sexual abuse on male populations or those in a mixed gender treatment setting have not been evaluated (Boots, 2004; Stack et al., 2000).

The overall purpose of this study is to provide an analysis of demographics and additional factors relating to long-term residential treatment completion and success in order to gain a better focus on key issues. It is proposed that such analyses will facilitate similar programs to evaluate and make changes to their existing treatment protocols, further improving client participation, interaction, and recovery. Likewise, factors that are detrimental to recovery can be assessed, allowing similar programs to direct and modify treatment for at-risk clients. The results of these analyses can also be used to formulate additional testable hypotheses, which can be explored in later research, particularly relevant for rehabilitation planning. Moreover, these factors may assist with rehabilitation planning that may have alcoholism or drug abuse as a primary or secondary disability in relationship to another disability type, such as head injury or orthopedic-type of disability.

Method

Participants

Participants were clients at a community-based alcohol and drug abuse treatment facility, located in Lafayette, Louisiana. The City of Lafayette is located in Lafayette Parish in Southwest Louisiana, with a population of 115,860 (U.S. Census Bureau, 2006). Inclusion parameters for admission to the noted community-based alcohol and drug abuse treatment facility included the following: 1) the client must be at least 18 years of age; 2) the client must have successful completed a 28-day program at a primary residential treatment center; 3) the client must be ambulatory and able to care for self; 4) the client must have a primary DSM diagnosis of chemical dependency from a qualified health professional; 5) the client must be drug-free and alcohol-free for 30 days; 6) the client must be capable of obtaining employment or capable of volunteer work at a non-profit agency; and 7) the client must pass screening for appropriate fit in the program, which excludes severe forms of psychopathology.

The treatment program at the noted community-based alcohol and drug abuse treatment facility uses a mixed model of addiction treatment (for review, see NIDA, 1999). The facility accepts both drug and alcohol-dependent clients, and payment is based on a sliding scale. The program provides therapeutic, financial, employment counseling, in addition to vocational services, case management, and assistance locating applicable housing after treatment. The average time required to complete the program ranges between 6 and 9 months. The program houses 15 clients, consisting of 5 females and 10 males, with separate dormitories, but the clients are not segregated from one another. Treatment staff includes two licensed addictions counselors and up to four residential managers. Treatment traditionally consists of individual sessions offered once a week, group sessions offered three times a week, and five mandatory Alcoholics Anonymous (AA), or Narcotics Anonymous (NA) meetings per week. Approaches utilized by staff included cognitive behavioral training, interpersonal process groups, and client-centered insight-oriented approaches. One hundred participants were randomly selected from all cases between the years of 1998 and

Table 1
Questions Used in Study and Answer Type

Question	Answer Type	Question	Answer Type
Age?	#, separated into 20s (also includes 18 and 19 year olds), 30s, 40s, 50s, and 60s categories	Any other addictive disorders?	Yes or No
Sex?	Male or Female	Were parents ever married?	Yes or No
Race?	Caucasian, African American, or Other	Are they now divorced?	Yes or No
What is your sexual orientation?	Heterosexual or Homosexual	Is either parent deceased?	Yes or No
What was the last grade you completed?	#	Family order?	# listed
Did you receive a GED?	Yes or No	Any chemical dependency in your family?	Total #
Any Vocational Training?	Yes or No	What is your relationship with your mother?	Read by researchers and separated into Good, Neutral, Poor and None
What is your reading ability?	Excellent, Good, Fair, or Poor	What is your relationship with your father?	Read by researchers and separated into Good, Neutral, Poor and None
What is your employment experience over the last 3 years?	# of jobs	Did you experience any type of physical abuse?	Yes or No
When have you been arrested?	Total # of Arrests	Mental abuse?	Yes or No
Any DWIs?	Total # of DWIs	Sexual abuse / molestation?	Yes or No
Have you been to jail?	Yes or No	What is the current status of your marriage?	Married, Remarried, Separated, or Divorced
Are you on probation	Yes or No (at time of admit)	Have you ever lived with someone in a marriage type situation while not married?	Yes or No
Have you had any mental health treatments?	Yes or No	Any abuse in your relationships?	Yes or No
What is your Health Condition?	Good, Fair, or Poor	Gambling History	Reported by counselor, None, Minimal, Moderate, or Severe
Have you had prior substance abuse treatment?	Total # of Treatments, ratio of completions and treatments category	Received Employment	Yes or No
How many successful completions?	Total # of Completions, ratio of completions and treatments category	Discharge Status	Completed, Transfer, Dropped out, or Terminated
Which drugs have you used?	Total # listed	Improvement During Treatment	Reported by counselor, Significant, Marginal, Insignificant, or No Improvement
What is your drug of choice?	Name of Drug	Weeks in Treatment	Total # of weeks the client spent in treatment at A community-based alcohol and drug abuse treatment facility
Any IV drug use?	Yes or No		

Table 2
Characteristics of Clients

Characteristic	N	%
Sex	100	
Male		66
Female		34
Race	100	
Caucasian		65
African American		33
Other		2
Sexual Orientation	100	
Heterosexual		93
Homosexual		17
Received GED	100	
Yes		17
No		83
Had Vocational Training	100	
Yes		30
No		70
Reading Ability	100	
Excellent		9
Good		70
Fair		16
Poor		5
Been To Jail	100	
Yes		55
No		45
Currently on Probation	100	
Yes		43
No		57
Health Condition	100	
Good		89
Fair		3
Poor		8
Currently Pregnant	100	
Yes		3
No		97
HIV	100	
Yes		5
No		95
Mental Health Tx	100	
Yes		42
No		58
Drug of Choice	100	
Alcohol		28
Amphetamine		2
Cocaine		11
Crack		30
Heroin		1
Marijuana		18
Methadone		2
Opiates		8
IV Drug Use	100	
Yes		34
No		66
Gambling History	100	
Severe		3
Moderate		7
Minimal		43
None		47
Addictive Disorders	100	
Yes		9
No		91
Were Parents Married	100	
Yes		88
No		12
Did Parents Divorce	100	
Yes		43
No		57
Is Either Parent Deceased	100	
Yes		41
No		59
Relationship with Mother	100	
Good		70
Neutral		7
Poor		6
None		17
Relationship with Father	100	
Good		47
Neutral		9
Poor		29
None		15
Childhood Physical Abuse	100	
Yes		29
No		71
Childhood Mental Abuse	100	
Yes		41
No		59
Childhood Sexual Abuse	100	
Yes		27
No		73
Current Status of Marriage	100	
Married		17
Remarried		7
Separated		7
Divorced		69
Cohabitation at Some Time	100	
Yes		74
No		26
Abuse in Intimate Relationship	100	
Yes		29
No		71
Program Phase at Discharge*	100	
3rd		13
2nd		32
1st		55
Received Employment*	100	
Yes		49
No		51
Discharge Status*	100	
Completed		15
Transferred		6
Dropped Out		30
Terminated		49
Improvement During Treatment	100	
Significant		17
Marginal		18
Insignificant		24
None		41

Table 2 (continued)

Characteristic	N	M	SD
Age	100	33.8	9.6
Last Grade Completed	100	11.5	2.5
Employment Experience	100	3.2	1.9
# of Prior Treatments	100	3.0	1.7
# of Prior Completions	100	2.2	1.4
# of Drugs Used in Lifetime	100	5.7	4.0
Family Order	100	3.5	1.9
# of Chem. Dep. in Family	100	2.2	2.3
# of Weeks in Treatment*	100	10.4	10.4

Note. The above references means in standard deviations across many pertinent descriptive variables.

2008. The sample is estimated to represent 16% of the total population for these years.

Materials

The data included in this study came from client's admission forms, psychosocial histories, treatment notes, progress notes, and discharge summaries. All items used in the study are listed in Table 1. Items that were vague or inconsistent which could not be clarified in other sections of the intake form were excluded from the study (i.e., private insurance was not consistently reported, format of question concerning age at parents death was unclear and therefore documented in an inconsistent manner). If, during the course of treatment, clients admitted to items that were left out of the initial assessment, such as physical or sexual abuse in childhood, then those changes were documented in the treatment notes. For comparable items, the report from the treatment notes was collected for analysis instead of the initial response. The information in the admission forms and psychosocial histories was taken from the clients' self-reporting at time of intake. The items *gambling history* and *treatment outcome* are based on the counselor's professional opinion. All other items are descriptive. The item *employment history* requires clients to list the number of jobs they have had in the past three years. The item *probation* addresses individual's probation status at the time of intake. All other items from the admission forms and psychosocial history are comprehensive.

Procedure

Admission forms and psychosocial histories were completed with clients upon admission to the program. A licensed addictions counselor was required to review the information given to each client. As part of the admission process, counselors were required to explain all questions, and probe further for additional information necessary to process a client file. The treatment notes, progress notes, and discharge paperwork were documented by the client's counselor over the course of their treatment.

An application was submitted and approved by the IRB at the University of Louisiana at Lafayette prior to the beginning of the study. All subjects used in the study received and signed an agreement form for HIPPA/Privacy Practices as a condition of their treatment. It is stated in the notice that the facility may use and disclose information about clients without their authorization for research purposes. Necessary releases were signed by an authorized representative of the facility being used, and precautions were taken to protect the data and maintain confidentiality during the course of the study. The data used in the study was previously collected, so there was no contact between the researchers and the subjects at any point. Continuous variables such as age, weeks in treatment, and number of chemically dependent family members were analyzed using pairwise correlations. Nominal variables such as sex, race, and drug of choice were analyzed by contingency table analysis (chi square). Tests examining both nominal and categorical data were analyzed using analysis of variance (ANOVA).

Results

Demographics

The results of the population distributions for each item type are given in Table 2. The male-to-female ratio is not a true representation of the population since the facility has an unequal number of openings available to men and women. The mean and standard deviation is given for continuous categories, and percentages are given for nominal categories.

General

The average age of clients was 33.8 years (SD = 9.6). Caucasians represented the largest majority of clients at 65%, followed by African Americans at 33%, and other races at 2%. Patterns of use are shown to be different among races. A one-way ANOVA showed that Caucasians report an average of 6.9 drugs used in their lifetime (SD = .4), and other races report an average of 8.5 drugs (SD = 2.5), which was significantly different, $F(3, 96) = 13.04, p < .0001$, and also significantly difference than African Americans who report an average of 3.1 drugs (SD = .6), using post-hoc analyses.

Employment and Education

The average grade completion for clients is 11.5 grades levels (SD = 2.5), with 17% receiving a GED, and 30% some form of vocational training. Nine percent of clients self-reported excellent reading ability, 70% good reading ability, 16% fair reading ability, and 5% poor reading ability. Chi-square tests show that reading ability was significantly related to both obtaining employment and phase in treatment at discharge, $\chi^2(3, N = 100) = 8.72, p \leq .0332; \chi^2(6, N = 100) = 14.40, p \leq .0255$. Reading ability was also found to be related to number of drugs used in lifetime. A one-way ANOVA showed that good readers reported an average of 6.3 drugs used in lifetime (SD = .5), which was significantly higher, $F(3, 96) = 2.77, p < .046$, than fair readers with an average of 4.0 drugs used (SD = .1), and poor readers with an average of 2.4 (SD = 1.7). Those with poor reading ability were more likely to receive employment before leaving treatment, are more likely to make it to the third phase of treatment, and reported less drug used in their lifetime. Three-way ANOVAs with combinations of race, sex, age, and reading ability as between subject factors and the last phase in treatment as the dependent variable were used to rule out the possibility of these effects being related to other factors. These analyses yielded no significant interactions.

Legal

Most notable is the proportion of clients with time in jail (55%) and on probation (43%). Three-way ANOVAs yield no significant main effects or interactions using combinations of sex, race, probation, and jail sentence as between subject factors and weeks in treatment as the dependent variable. Chi-square test also showed no significant relationships between improvement during treatment, discharge status, step in AA at discharge, last phase in treatment, and litigation status. Consistent with past research, the results of this study suggests clients with legal histories or probation do no better or worse in treatment than clients without legal histories or probation.

Physical

Five percent of the sample population reported that they were HIV positive. Eighty-nine percent of clients reported good health statuses at the time of admittance, 3% fair health, and 8% poor health. A one-way ANOVA also reveals those who report fair health have an average of 5.3 prior treatments (SD = .1,) which is significantly higher, $F(2, 97) = 5.57, p < .005$, than those who report good or poor health; and those that report good health have an average of 3 prior treatments (SD = .2), which is significantly higher than those who reported poor health with 1.6 prior treatments (SD = .6). Those with poor health show less total treatments and more weeks spent in treatment than those in good health.

Mental

Forty two percent of clients report receiving mental health treatment in their lifetime. A one-way ANOVA reveals those with mental health treatments reported an average of 7.0 drugs used in lifetime (SD = .6), which was significantly higher, $F(1, 98) = 8.83, p < .0037$, than those without mental health treatments who reported an average of 4.7 drugs (SD = .5).

Treatment History

Clients demonstrated to have an average of 3.0 prior treatments (SD = 1.7), with 2.2 successful completions (SD = 1.4). The completion/treatment ratio was significantly correlated with age (r = .30, p = .0026), and number of drugs used in lifetime (r = -.21, p = .0341). A one-way ANOVA revealed those that had prior mental health treatment had an average ratio of .73 (SD = .04), which is significantly lower, $F(1, 98) = 8.70, p < .004$, than those without mental health treatments who have an average ratio of .87 (SD = .03). These findings suggested that older individuals, individuals that abuse fewer drugs, and individuals without mental problems have more success in treatment, demonstrated by program completion.

Drug History

The top three drugs of choice that clients report were crack cocaine (30%), alcohol (28%), and marijuana (18%). Thirty three percent of the population reported previous intravenous drug use. Nine-percent reported other addictive disorders besides drug addiction, with 10% reporting severe or moderate gambling histories.

Family History

Clients report an average number of 2.2 chemically-dependent family members (SD = 2.3). A one way ANOVA shows that males report an average of 1.7 chemically-dependent family members (SD = .3),

which was significantly less $F(1, 98) = 10.73, p < .0015$, than females who reported an average of 3.2 ($SD = .4$). Clients reporting abuse in intimate relationships reported an average of 3.1 chemically-dependent family members ($SD = .4$), which was significantly higher $F(1, 98) = 6.68, p < .0112$, than those that did not report abuse, with an average of 1.9 ($SD = .3$). Chemical dependency in family was also significantly correlated with prior treatments ($r = .33, p = .0007$). Those who were physically abused reported 3.4 chemically-dependent family members ($SD = .4$), mentally abused reported 3.4 ($SD = .3$), and sexually abused reported 3.6 (SD = .4), all of which were significantly higher, $F(1, 98) = 15.6 - 21.1, p < .0006$, than those who reported no such abuse, $M = 1.4$ ($SD = .3$) for mental, $M = 1.7$ ($SD = .3$) for physical and sexual.

Twelve percent of clients reported that their parents were never married. Out of the 88% that reported their parents were married at some time, 43% reported that their parents had since divorced. A one-way ANOVA shows that clients whose parents' divorce reported an average of 6.9 drugs used ($SD = .6$), which was significantly higher, $F(1, 88) = 5.69, p < .0192$, than those with parents that did not divorce, who reported an average of 5.0 drugs ($SD = .5$). Seventy- percent of clients report having a good relationship with their mother, while only 47% reported having a good relationship with their father.

Twenty-nine percent of clients report physical abuse, 40% report mental abuse, and 27% report sexual abuse. Results indicated significant differences in reporting abuse between the sexes. Reports of childhood physical abuse, childhood mental abuse, and childhood sexual abuse are significantly different for each gender. Women were more likely than men to report physical abuse, $\chi^2(1, N = 100) = 8.16, p \leq .004$, mental abuse, $\chi^2(1, N = 100) = 11.97, p \leq .004$, and sexual abuse, $\chi^2(1, N = 100) = 13.83, p \leq .004$.

Immediate Family

Only 17% of clients that reported having been married were still married at intake. Eighty-three percent are divorced, separated, or remarried. Chi-square tests show that sex, $(3, N = 51) = 11.89, p = .0078$, and sexual abuse, $(3, N = 51) = 7.92, p = .0478$, relate to current status of marriage. Males are more likely to be married than females, and females are more likely to be separated. Those who were sexually abused in childhood were more likely to be separated, and very unlikely to be married (none were married). Twenty nine percent of clients report abuse in their intimate relationships. Women were more likely than men to report abuse in intimate relationships, $\chi^2(1, N = 100) = 26.86, p \leq .004$.

Treatment Outcomes

There was also a significant relationship between sexual abuse in childhood and both discharge status and improvement during treatment, $\chi^2(3, N = 100) = 9.90, p < .0195.; \chi^2(3, N = 100) = 7.90, p < .0481$. Those who were sexually abused were much more likely to be transferred or drop out of the program, and also much more likely to have no or insignificant improvement while in the program.

A significant relationship was also found between gambling history and discharge status, $\chi^2(9, N = 100) = 17.76, p < .038$. Those individuals with more severe gambling or moderate gambling problems were more likely to be transferred and those with minimal histories appear less likely to complete than those with no history.

The average length of time clients stayed in treatment was 10.4 weeks ($SD = 10.4$), and weeks in treatment is significantly correlated with age ($r = .23, p = .0075$). Older individuals stayed in treatment longer than younger individuals. There is also a highly significant relationship between age group and discharge status, $\chi^2(12, N = 100) = 23.4, p \leq .0244$. Younger individuals had less favorable outcomes than older individuals.

Chi-square tests show that sexual orientation is significantly related to treatment outcome, $\chi^2(3, N = 100) = 9.07, p = .0284$. The results show that individuals with homosexual orientation do better in residential treatment than ndividuals with heterosexual orientation, but due to the relatively small sample size for homosexuals, further research is necessary.

Forty nine percent of the clients receive employment. A one-way ANOVA reveals that clients who received employment reported an average of 3.4 prior treatments ($SD = .2$), which is significantly higher, $F(1, 98) = 6.65, p < .0114$, than those that did not receive employment, who reported an average of 2.5 prior treatments ($SD = .2$).

Thirteen percent of clients made it to the 3rd phase of treatment, 32% made it to the 2nd phase of treatment, and 55% never made it past the 1st phase. Clients who left in the 3rd phase of treatment reported an average of 1.1 addicted family members ($SD = .6$), which is significantly lower, $F(2, 97) = 3.16, p < .0466$, than clients leaving in the 1st phase of treatment, who reported an average of 2.7 addicted family members ($SD = .3$).

Fifteen percent of clients completed the program, 6% were transferred, and the remaining 79% dropped out of the program or were terminated. One-way ANOVAs with weeks in treatment as the dependent variable yield no significant interactions using combinations of age, race, and sex as between subject factors. Chi-square tests between last phase in treatment and current step in AA also yield no significant differences. Neither race nor sex had any significant

effect on measures of success in treatment in this study, even when accounting for a possible age effect.

Discussion

These results indicate that factors contributing to success in community-based residential treatment for chemical dependency include age, treatment history, gambling history, family history of chemical dependency and past sexual abuse. This study showed that those who were sexually abused were less likely to complete treatment, made less improvement during treatment, and often dropped out of the program as opposed to being terminated. Reports of each type of abuse were significantly related to each other, yet it was only the reports of sexual abuse which were significantly related to treatment completion or improvement during treatment. Clients who reported a higher number of chemically dependent family members left treatment in earlier phases than those with fewer chemically dependent family members. Clients with a higher number of previous chemical dependency treatments were more likely to obtain employment. Older clients stayed in treatment longer and had more favorable treatment outcomes than younger clients. This is consistent with research by Hser et al. (1998) and Collins (1983). Finally, clients with severe gambling histories were more likely to be transferred and less likely to complete treatment.

Success in treatment was not significantly related to sex, race, sexual orientation, education, legal history, drug of choice, previous mental health treatments, number of previous chemical dependency treatments, physical abuse, and/or emotional abuse. It is important to point out that probationers had outcomes that were no different than those of clients who were not on parole.

Related to the environmental influences of chemical dependency, research has shown a comorbid relationship between childhood sexual abuse and addictive behaviors in women can influence success in treatment (Jarvis, Copeland & Walton, 1998). Boots (2004, p. 241) suggests that "sexually abused clients would be apt to feel nervous and insecure when being treated in group settings, since the number of interpersonal relationships would be much higher than in a therapist–client-only relationship". Boots (2004, p. 243) also suggests "that abused women, particularly sexually abused women, might even benefit from a one-to-one counseling setting, especially in the beginning stages of treatment". This study reemphasizes the need for sexually abused clients to get help on these issues, either from their counselors or by referral if necessary.

Patterns of reporting abuse and chemical dependency in the family were different between men and women. Toray (1991) suggests that previous research does not explain why females report family histories of substance abuse more than male substance abusers. She presents several possibilities, including a gender-bias for intergenerational transmission of substance abuse, greater female than male emotional involvement with the family of origin, or a divergence between females and male awareness of behavior in the family.

Related to reported abuse, many researches have reported that female substance abusers show a much higher incidence of physical and/or sexual abuse than compared to males (e.g., Torey, 1991; Fiorentine et al., 1999; Glover et al., 1996). Torey (1991) further suggests that sexual abuse and incest are underreported by both males and females. This highlights the fact that the findings concerning sexual abuse in this study could even be underreported.

Results suggest that chemical dependency in the family plays a big role in shaping addictive behaviors. Also, the finding that clients who had received mental health services in the past had more extensive drug use histories could be explained by the self-medication model of addiction, which claims that drug dependent individuals are predisposed to addiction because they suffer from painful affective states and psychiatric disorders related to them (Chiauzzi, 1991).

This study differed from past studies. Specifically, it examined a treatment population that was relatively representative of a standard population of clients entering residential treatment. The population sampled from included both males and females which were not a sub-population of any type (i.e. veterans, abuse victims, prison inmates). The criteria for entrance and the method of referral into the program allowed for a more diverse population than has been observed in other studies. Weaknesses of this study include the possibility that an undiscovered bias at admission may have affected the results. Also, no information could be acquired about outcome after completion.

Implications for Rehabilitation Planning

Co-Mobidity

Adjustment to a disability is difficult, both psychologically and physically. Social and community resources often change, alongside financial resources. In response clients that have incurred an impairment or disability may differentially adjust, depending upon family members, religion, or, perhaps, drugs and alcohol to cope or adjust to the disability. It must be recognized that not only drug dependency, but also precipitating factors leading to drug dependency, may have been in place prior to a reported accident, or incident. Moreover, rehabilitation success may be comorbidly

Table 3
Pairwise Correlations Between Factors Relating To Substance Abuse Treatment

Subscale	1	2	3	4	5	6	7	8	9	10
1. Age	-	.20*	.04	.02	.18	.30*	-.19	.19	-.05	.22*
2. Last Grade Completed		-	.18	.10	.09	.04	.01	.08	.10	-.10
3. Employment Experience			-	.21*	.20*	.00	.32*	-.05	.19	.06
4. # of Prior Treatment				-	.81	-.37*	.15	-.02	.33*	.15
5. # of Successful Completions					-	.19	.04	.01	.15	.09
6. Completion/Treatment Ratio						-	-.21*	.04	-.25*	-.10
7. # of Drugs Used in Lifetime							-	-.08	.17	.15
8. Family Order								-	.00	.02
9. # of Addicts in Family									-	-.18
10. # of Weeks in Treatment										-

Note. * p<.05; N=100

related. As an example, completion of occupational or physical therapy protocols may be dependent on successful transportation and adherence to physical wellness—two factors difficult to be met with comorbid presence. Ignoring the presence of alcohol or drug dependency that is concurrently happening with other rehabilitation processes in comparable to ignoring the elephant in the room—dominating and must be addressed to avoid both harm and destruction.

Accept that Success not Pre-Eminent

Admittedly, success in the context of rehabilitation is often a very nebulous or difficult construct to define. Orthopedic surgery may reduce pain and increase functionality, but most probably will not result in complete recovery without pain or perfect functionality. Psychological therapy may assist with a decrease in depression or increase in hardiness, but most likely will not result in a person void of all psychological strife. Similarly, alcohol and drug addiction therapy most probably will not result in a person's complete removal or temptation, yearning, and longing for these chemical substances. Rather, simply, sobriety will be measured as a function of days, as opposed to permanence. As a rehabilitation planner one must similarly accept or account for the likelihood that one intervention will not enact a "cure." Automatic determination that one, two, or three treatments will be sufficient, most likely will not represent an adequate or sufficient rehabilitation plan. Rather, most probably, the rehabilitation professional must account for the need for multiple interventions, with a specific number of interventions difficult to delineate or specify without reference or consult with the literature, other treatment providers, or both soundings.

Plan for Multiple Treatment Interventions

As it has been noted that success is not pre-eminent, the rehabilitation professional must potentially plan for multiple treatment interventions. While the present study documented previous treatments or interventions completed by clients, the reader must be aware and advised that the present intervention present in the current study may not have been the last intervention for the client in the present study. Indeed, it is projected that while some client may be successfully rehabilitated, others will not be rehabilitated, and will need additional interventions. Considering that the client and physician and others will review a prospective Life Care Plan, the rehabilitation planner is placed in a quandary—need to financially account for multiple treatments, while concurrently recommending and documenting a treatment that has a great likelihood of failure. Moreover, exclusion of an alcohol and treatment protocol, when particularly needed for a specific client, would not be advisable, as a specific Life Care Plan would be undervalued and an intervention would be needlessly excluded. It would be recommended that the rehabilitation plan use a combination of client history, previous literature, and feedback from treatment team members to evaluate singular or successful treatment interventions.

Difficult to Relate Causation, Particularly Considering Variety of Identified Variables

Particularly related to Life Care Planning, there may be a request to link specific line items to an accident event, date, or experience. Perhaps, given that a person had no negative, psychological overlay prior to an accident, and alcohol or drug dependence and exposure did not occur prior to an accident, alcohol or drug

dependence may be linked or causation established to a particular event. However, most probably, this will not occur. Rather, admittedly, individuals will have a family and sociosocial history, which predates a specific accident, limiting the ability to rapidly establish causation of substance abuse to a particular accident. The rehabilitation professional would be advised to consult with a counselor or psychologist that is concurrently working on a case to address the addition of causation, particularly if drug abuse treatment is considered a component of a Life Care Plan or comparable treatment plan.

Family Intervention Necessary

It is a standard dictate in rehabilitation planning that family involvement assists, or even directs rehabilitation planning. In fact, family participation is most often standard during development of treatment plans, or implementation of an Individualized Written Rehabilitation Plan. Familial intervention is important not only for familial education, but also considering the value of family support and care and concern during the rehabilitation process. This research dictates that familial involvement represents a valuable commodity during rehabilitation planning. Family members may not only assist with completion of daily tasks, but also offer the needed social and emotional support to facilitate rehabilitation and recovery. Moreover, as noted in the present study, it is important to note that family ties may have been harmed or even severed prior to a particularly injury or accident date, perhaps, resulting in non-availability of family members to assist with the rehabilitation process. In this circumstance, the rehabilitation professional may consider the relative value or contribution of non-family support systems, such as group therapy, AA, NA or other support systems to facilitate the rehabilitation process.

Conclusion

Research is currently lacking in the area of chemical dependency treatment concerning factors relating to success for residential treatment. This study highlights multiple components that effect success in long term residential treatment. As mentioned, a weakness of this study was the inability to determine success after treatment. Future studies should attempt to gain information about long term success including abstinence, frequency and patterns of drug use, and strength of recovery principles outside of treatment.

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