The effects of completing substance abuse treatment on rates of employment, criminal activity, and abstinence: A literature review

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Abstract
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THE EFFECTS OF COMPLETING SUBSTANCE ABUSE TREATMENT
ON RATES OF
EMPLOYMENT, CRIMINAL ACTIVITY, AND ABSTINENCE:
A LITERATURE REVIEW

A THESIS
SUBMITTED TO THE FACULTY
OF THE
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Abstract

A plethora of researchers have analyzed the effects of treatment length on various outcome measures for patients in substance abuse treatment. Results indicate treatment length positively impacts patients’ post-treatment functioning. However, due to the financial constraints of patients and pressure from insurance companies for abbreviated treatment, patients may not always be able to afford extended time in treatment. Determining the effect treatment completion has on patients’ post-treatment functioning will help inform patients as well as health care professionals. Research was compiled that focused on the effect treatment completion has on patients’ post-treatment functioning with respect to drug use, employment, and criminal activity. Results indicate patients who completed treatment, regardless of treatment modality, were significantly more likely to have improved functioning post-treatment compared to individuals who did not complete treatment. Research suggests there are various characteristics (e.g., race, employment status, gender) that mediate a patient’s likelihood of successfully completing treatment. Although there were limitations with respect to the selected studies, patients who were offered more culturally responsive and comprehensive services (e.g., legal, vocational, aftercare) had more positive post-treatment outcomes compared to patients who did not receive equitable services.

Keywords: treatment completion, substance abuse treatment, treatment length, treatment effectiveness
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Introduction

Drug abuse is a growing epidemic around the world, and the majority of people struggling with this issue are not getting proper treatment. For example, the Substance Abuse and Mental Health Services Administration’s National Survey on Drug Use and Health Survey indicated that, in 2009, 23.5 million people needed substance abuse treatment in the United States, but only 11.2% actually received treatment (National Institute of Drug Abuse, 2011). Respondents cited various reasons (e.g., financial limitations) for not receiving substance abuse treatment. Because many people seeking substance abuse treatment have financial and addiction difficulties, researchers need to determine if substance abuse treatment programs’ lengths are properly set in order to increase the rates of patients completing treatment.

Researchers have found that patients spend an average of $82 per week for outpatient treatment and $1,138 per week for residential treatment (Roebuck, French, & McLellan, 2003). The money is often well spent as evidenced by the positive effects of completing outpatient treatment on patients’ rates of employment and abstinence, but patients must be in treatment for a substantial portion of the treatment program in order to see any sustained benefit (Harrison & Asche, 2001; Stark, 1992; Wallace & Weeks, 2004; Zarkin, Dunlap, Bray, & Wechsberg, 2002). In fact, Stark (1992) determined that patients who drop out of substance abuse treatment early had outcomes that were similar to those who did not receive treatment at all.

The majority of researchers have looked at the effect of treatment length rather than the effect of treatment completion on outcomes. It is essential to analyze the effects of treatment completion because of the multiple barriers (e.g., financial, geographical) patients experience when looking for extended treatment, which has shown to be beneficial (Hubbard, Craddock, Flynn, & Anderson, 1997; Zarkin et al., 2002). Due to the pressure from insurance companies to
reduce the length of treatment, mental health professionals need to more accurately determine the
effect treatment completion has on patients’ outcome variables, so patients will receive adequate
care and not have to experience an even greater financial hit for extended treatment (Shwartz,
Mulvey, Woods, Brannigan, & Plough, 1997). The purpose of this paper is to look at how
completion of substance abuse treatment affects various patient outcome factors such as rates of
employment, criminal activity, and abstinence, in addition to providing suggestions as to how
treatment may be modified or enhanced in the future in order to more effectively treat an ever-
increasing, constantly diversifying group of substance abusers.

Literature Review

Drug and Alcohol Use

Looking throughout the substance abuse treatment completion literature, rate of use is
one of the most commonly utilized outcome measures to determine treatment effectiveness.
Wallace and Weeks (2004) conducted a study to test the effect of program graduation from a
substance abuse intensive outpatient program (SAIOP) on outcomes such as rates of substance
use, criminal activity, and the number of psychiatric inpatient bed days of care post-treatment. A
total of 133 male and female veterans with a mean age of 47 years participated in a SAIOP that
consisted of 20 sessions of treatment involving 12-step, family, and group therapies.
Demographic data were collected, and the Addiction Severity Index (McLellan et al., 1992) was
administered to all participants at the beginning of treatment. A participant was labeled a
graduate from SAIOP only if he or she completed all 20 sessions (Wallace & Weeks, 2004).
After completing the program, the graduates reported significantly fewer psychiatric inpatient
bed days the following year, higher rates of abstinence at 6 months, and lower rates of
incarceration and relapse at 6 months than did participants who dropped out of the program.
Researchers concluded that more emphasis should be placed on increasing program completion rates in order for patients to see benefits in all areas post-treatment (i.e., use, criminal activity, and number of psychiatric inpatient bed days of care).

Conducting a similar study with both inpatient and outpatient populations, Harrison and Asche (2001) tested the effect of outpatient and inpatient treatment completion on patients’ rates of abstinence post-treatment. A total of 4,953 male and female adult patients participated, comprised of 3,670 outpatients and 1,283 inpatients with an average age of 34 years. Researchers analyzed data from the Treatment Episode Data Set for the years 1993 to 1999, which includes data sent in from all facilities that received any federal or state funding in Minnesota. Patients received treatment that consisted of individual and group counseling, psychoeducation, and family programs. Based on a 6-month post-treatment follow-up interview, results indicate that patients who completed outpatient treatment were twice as likely to be abstinent as were patients who did not complete outpatient treatment. Results suggest individuals who enrolled in inpatient treatment were significantly more likely to complete treatment compared to those who enrolled in outpatient treatment. Results indicate patients who reported greater alcohol problem severity, drug problem severity, social isolation, unemployment, or psychological distress were more likely to complete inpatient treatment compared to outpatient treatment. A total of 60% of patients who received inpatient treatment remained abstinent at the 6-month follow-up, whereas 64% of patients who received outpatient treatment were abstinent at the follow-up. Harrison and Asche concluded that policy makers and planners should consider the effects of completing outpatient treatment when thinking of ways to improve a treatment system’s effectiveness and cost efficiency. While drug and alcohol
treatment administrators and policy makers are trying to improve their programs, they are working within a system that is demanding more cost effective treatment.

As health care professionals are pressured from insurance companies to reduce the length of treatment, mental health professionals need to more accurately determine the effect that length of treatment has on patients’ outcome variables in order for patients to receive adequate care and not have to experience an even greater financial hit for extended treatment. McCusker et al. (1995) were interested in analyzing whether length of time in treatment affected patients’ rates of treatment completion. Researchers looked at patients’ outcomes from two residential drug-free treatment facilities in New England where “short” (i.e., 3- and 6-month) and “long” (i.e., 6- and 12-month) treatment programs were developed to determine the effect of length of treatment on various outcome measures post-treatment. Researchers analyzed data from 628 patients who were randomly assigned to one of the four treatment groups. Results suggest there was a negative relationship between length of treatment and likelihood of treatment completion. Results indicate treatment length did not have an effect on patients’ rate of use six months post-treatment. Researchers suggest more studies be conducted that involve a larger number of treatment facilities and more follow-up appointments (i.e., 1- and 3-year follow-up appointments).

Gossop, Marsden, Stewart, and Treacy (2002) conducted a study that involved assessing individuals from 54 different residential and community-based drug treatment programs with extended follow-up periods. Researchers used a longitudinal, multisite, prospective cohort study design to evaluate individuals’ rates of substance use and psychological and physical well-being post-treatment. Researchers evaluated data from 549 patients who participated in substance abuse treatment in one of four treatment modalities: inpatient drug dependence units, methadone
reduction programs, methadone maintenance, or residential/rehabilitation programs. Researchers were able to collect data at the initial intake, 1- and 2-year follow-up interviews on patients who were being treated for heroin, non-prescribed methadone, non-prescribed benzodiazepines, crack cocaine, powder cocaine, alcohol, and/or amphetamines. Results from the 2-year follow-up indicate patients were significantly less likely to use illicit drugs at the same rate prior to intake or use at all at the time of the follow-up appointment. Results suggest patients reported significantly less anxiety, depression, suicidal ideation, and physical ailments at the 2-year follow-up as well. However, researchers were concerned by the substantial increase in patients’ levels of alcohol use at the 2-year follow-up. Researchers suggest that a stronger emphasis should be placed on the prevalence of cross-addictions and psychoeducation regarding the long-term effects of alcohol misuse. Because patients had differing rates of alcohol and illicit drug use post-treatment, researchers were prompted to look at alcohol and illicit drugs separately.

Trent (1998) conducted an experiment solely focusing on the treatment of individuals with alcohol difficulties. Trent compared the effectiveness of a 4- and 6-week alcohol treatment program in the U.S. Navy on patients’ subsequent alcohol use, retention on active duty, reason for discharge, number of negative incidents, job performance rating, recommendation for reenlistment or advancement, and quality of life. Trent used data on 1,380 participants in the 6-week program and 1,443 individuals in the 4-week program. Results from a 1-year follow-up interview suggest that treatment completion was more strongly associated with positive post-treatment outcomes than the correlation between positive treatment outcomes and treatment length. Trent found that a patient’s rate of aftercare attendance was the most significant indicator of a positive treatment outcome. Trent recommended that an abbreviated inpatient stay coupled with extensive aftercare treatment will result in the most positive treatment prognosis for this
specific population and lifestyle. Trent reported the limitations of the study that include the specificity of the population and treatment settings used.

Generally, treatment programs are working with individuals who are there for the first time, as well as others who have been in treatment before, sometimes multiple times. Hser, Joshi, Anglin, and Fletcher (1999) conducted a study to determine how patients’ different treatment histories would affect patients’ rates of post-treatment drug use. A total of 507 patients with cocaine difficulties from 18 residential programs participated in the study and were interviewed at an intake and at a 1-year follow-up interview. Results indicate patients with no prior treatment and who stayed in treatment for longer periods of time (i.e., 5 months or longer) were more likely to remain abstinent at the 1-year follow-up compared to patients with extensive treatment history and shorter stays in treatment. Researchers found that patients’ rates of abstinence significantly increased when programs offered legal services and recovering staff. If the treatment repeaters stayed in treatment for long enough (i.e., 5 months or longer), they were as likely to remain abstinent at the 1-year follow-up, as were patients with no treatment history who were in treatment for the same period of time.

However, will the association between treatment completion and subsequent drug use for patients hold for longer periods of time (e.g., 5 years post-treatment) and when looking at patients who come into treatment with more complex clinical presentations? Because patients are coming into treatment with different backgrounds and the possibility of preexisting comorbid disorders, it is important to understand the impact of culture and psychopathology on patients’ experiences in and results from substance abuse treatment. Ravndal and Vaglum (1998) conducted a study to determine the relationship between patients’ clinical presentations and the effect of completing substance abuse treatment on various outcome measures. Treatment
Effects of Completing Substance Abuse Treatment

Consisted of one year of inpatient treatment followed by six months of outpatient treatment in Norway. Researchers used the Millon Clinical Multiaxial Inventory and Symptom Checklist-90 to measure each of the 139 patients’ psychopathology and likelihood of an existing personality disorder. Researchers also conducted a structured interview that covered patients’ rates of use, social functioning, and criminal activity. Results indicate treatment completion did not have an effect on patients’ rates of use at the 5-year follow-up appointment but was positively correlated with the patients’ social functioning post-treatment. Results suggest that patients with personality disorders had the same rates of substance use and social functioning at the 5-year follow-up compared to patients’ without personality disorders. Researchers found a positive correlation between patients with personality disorders and the risk of death following discharge from treatment. Researchers promote and suggest a more longstanding outpatient program that continues to focus on relapse prevention and social skills training. Limitations of the study include the use of a small sample size and some methodological flaws.

Employment

Because programs typically focus on enhancing patients’ social skills and likelihood of employment, looking at patterns of patients’ rates of employment post-treatment will offer greater incentive at individual and systemic levels. Zarkin, Dunlap, Bray, and Wechsberg (2002) conducted a study to test the hypothesis that completion of outpatient drug-free treatment has an effect on patients’ post-treatment employment and criminal activity. Researchers used data from 986 patients in the National Treatment Improvement Evaluation Study, including only participants who completed the intake, discharge, and 1-year follow-up interviews; participants were comprised of males and females with an average age of 34 years. Patients received treatment in one of the 28 outpatient treatment programs that ranged from two to six months in
duration. Results indicate that patients who completed treatment were twice as likely to be employed at the 1-year follow-up than were patients who dropped out of treatment. Results suggest that there was a positive association between treatment length and employment as well. However, researchers did not find a statistically significant difference in rates of crime between individuals who did and individuals who did not complete treatment. From a financial standpoint, the results are encouraging at an individual and societal level, but how much will their employment status offer patients monetarily and as a protective factor?

Because individuals coming out of treatment have likely accrued debt due to their substance use and the cost of treatment, patients will not only be concerned about the consistency of employment, but the potential to earn more in their professions as well. Arria (2003) analyzed the effect of substance abuse treatment completion on patients’ subsequent wages and employment throughout the year following treatment. Arria collected data from 20,495 drug treatment patients who received one of multiple treatment modalities including inpatient, outpatient, halfway, and residential treatments across three states (i.e., Maryland, Oklahoma, and Baltimore). Arria ran statistical analyses to ensure there were no group differences regarding employment history. Results indicate that when other variables were held constant across treatment modalities, patients who completed treatment were 22% to 49% more likely to gain employment and earn more money in the year following treatment than were patients who did not complete treatment. For example, patients who completed treatment in Oklahoma and Baltimore City grossed $1,300 dollars more throughout the year post-treatment in comparison to patients in those cities who did not complete treatment. Results suggest that patients who stayed in treatment for more than 90 days were 22% to 43% more likely to gain employment by the 1-year follow-up compared to patients who were in treatment for 90 days or less. Arria found the
results compelling because of the positive and consistent outcomes of patients across all three states with different labor markets and patient populations. Although results were encouraging, Arria failed to give specific information about the patients’ addiction severity or the nature of each individual’s treatment.

Hubbard, Craddock, and Anderson (2003) conducted an experiment to determine the relationship between treatment duration and post-treatment outcomes using four different treatment modalities: short-term inpatient, outpatient methadone, outpatient drug free, and long-term residential. Researchers were interested in how various treatments affected patients’ rates of substance use, employment status, and criminal activity at 1- and 5-year follow-up interviews. Results from the sample of 1,393 individuals indicate patients who engaged in substance abuse treatment for at least three months had lower rates of substance use at the 1- and 5-year follow-up interviews. Results suggest that longer stays in treatment (i.e., longer than six months) were associated with higher rates of employment, reduction in cocaine use, and infrequency of criminal activity in the year following discharge from treatment. At the 5-year follow-up, results indicate patients who completed long-term inpatient, outpatient methadone, and outpatient drug free treatments committed 50% fewer crimes and were 10% more likely to obtain employment compared to patients who did not complete treatment. Results indicate patients who completed long-term residential treatment had the most positive outcomes compared to those who completed other forms of treatment. Researchers attributed the positive impact long-term residential treatment had on patients who completed the program to the intensive and comprehensive services that are offered in such facilities. Researchers expressed that the findings were relatively stable for the sample when analyzing the 1 and 5-year follow-up data.
Research has also shed light on the different rates of substance abuse treatment completion for patients who are employed and for patients who are unemployed entering treatment. Melvin, Davis, and Koch (2012) conducted a study to look at how a patient’s employment status may affect one’s treatment outcomes and probability of completing treatment. Researchers indicate that gaining a more comprehensive understanding of the predictors of substance abuse treatment completion will aid professionals in conceptualizing patients’ current issues and treatment planning. Researchers recognized that although research has shown that there is a correlation between employment and treatment completion, treatment centers do not place enough emphasis on patients’ vocational needs. A total of 232 individuals who were referred through the Department of Children and Family Services, the criminal justice system, or self-referrals participated in the study. Results suggest there is a positive association between participants’ employment status and successful treatment completion. Researchers found that patients who were employed entering treatment were 2.63 times more likely to successfully complete substance abuse treatment than were patients who were unemployed. Although this association has continued to be supported by patient outcomes in a variety of treatment settings, researchers have found that only 34.5% of substance abuse agencies across the United States offered employment services to patients (West, 2008). Researchers promote the further incorporation of vocational training into substance abuse treatment programs that would focus on teaching patients about various avenues to obtain employment or how to maintain and move forward within their professions (Melvin, Davis, & Koch, 2012).

Individuals come into treatment with different presentations and addiction histories, and each patient has particular needs that must be addressed to ensure long-term sobriety. When imagining the success rates or struggles of people going through substance abuse treatment,
rarely do people think about the effects of treatment on pregnant and parenting women going through the process. Conners, Grant, Crone, and Whiteside-Mansell (2006) conducted a study to determine how length of treatment affects patients’ rates of employment, substance use, legal involvement, parenting attitudes, risky behaviors, and mental health post-treatment. Researchers analyzed 219 patients’ data based on the Addiction Severity Index-Expanded, Self-Administered version, Beck Depression Inventory II, PTSD Checklist-Civilian Version, The Adult-Adolescent Parenting Inventory-2, and questionnaires regarding risky behaviors and smoking beliefs and behaviors. The average participant had two children, and a quarter of the participants were pregnant during treatment. Results from the 9-month follow-up interviews suggest patients were significantly more likely to be employed and live independently post-treatment. Results indicate that patients’ subsequent rates of substance and cigarette use were significantly lower compared to when they entered treatment. Researchers also found a strong relationship between treatment length and higher employment rates and income, as well as a reduced likelihood of being arrested, more positive parenting attitudes, and a reduction in symptoms of depression. Although the patients who completed treatment were more likely to gain employment and have higher rates of income post-treatment, the majority of individuals still reported having incomes that were below the poverty line. Limitations to the study include the inability to randomly assign patients to various treatment modalities and comparison groups.

Research must also take into account the cultural and diversity aspects of each individual in treatment and recognize the disparate vocational opportunities for individuals. Sterling, Gottheil, Glassman, Weinstein, Serota, and Lundy (2001) conducted a study to determine whether certain demographic or personality factors affect patients’ likelihood of gaining employment once discharged from treatment. Researchers utilized a cohort design involving 120
participants with cocaine addictions who were being treated in an outpatient facility located in a low SES urban area in the Northeast United States. Results indicate patients who were employed at the 9-month follow-up reported fewer days of cocaine use in the month prior to the follow-up appointment and were less likely to have been incarcerated in the time between discharge from treatment and the 9-month follow-up appointment. Results supported previous findings that African-American patients were twice as likely to remain unemployed at the follow-up interview when compared to patients of other races. Researchers were taken aback when they found that any history of misdemeanor arrests in the 24 months prior to admission was a predictor of follow-up employment. Because individuals who receive substance abuse treatment have a multitude of strengths and characteristics that should lead to higher-rates of employment, there is a push for more success in this particular area.

As researchers have found disparities when looking at the outcome data for patients completing substance abuse treatment, more investigation may shed light on previous research, as well as, support more effective programs in the future. Krupski, Campbell, Joesch, Lucenko, and Roy-Byrne (2009) conducted a study to determine how providing recovery support services (e.g., case management, housing, medical, and transportation) to patients in substance abuse treatment affects patients’ post-treatment functioning. Researchers evaluated how engaging in substance abuse treatment and utilizing the Access to Recovery (ATR) Program in Washington State affects patients’ outcomes post-treatment compared to patients who only received substance abuse treatment. Researchers were interested in analyzing patients’ rates of employment, arrest, and treatment retention and completion. Results indicate patients who received ATR services were more likely to complete treatment, stay in treatment for longer periods of time, and find employment compared to patients who only received substance abuse
treatment. Researchers did not find a significant association between patients receiving ATR services and changes in arrest rates at the time of the 6-month follow-up appointment. Limitations to the study include the analysis of treatments in only one geographic area and the researchers’ reliance on observational data.

**Criminal Activity**

Various studies have supported the association between completing substance abuse treatment and patients’ increased employment and reduced drug use post-treatment (Wallace & Weeks, 2004; Gossop, Marsden, Stewart, & Treacy, 2002; Arria, 2003; Trent, 2002; Ravndal & Vaglum, 1998). Before looking at the literature to determine the association between completing treatment and rates of recidivism, analyzing the factors that mediate the patients’ outcomes is essential to understanding the research on the effectiveness of treatment. There is a gap in the literature, as very few studies have looked at what elements of the therapeutic process most impact the patients’ rates of recidivism. Broome, Knight, Hiller, and Simpson (1996) conducted a study using data from 279 probationers who completed a 4-month residential substance abuse treatment program in Texas to evaluate the treatment process and how it impacted patients’ rates of recidivism. Researchers conducted a structured intake and administered the Client Evaluation of Self and Treatment questionnaire, which focuses on patients’ perceptions of counselor competence, peer support from other patients, and self-esteem. Follow-up appointments ranged from 16 to 28 months post-treatment. Results indicate that 36% of patients who completed treatment were arrested before their follow-up appointment. Results suggest patients with high self-esteem and patients who perceived their counselors to be competent were significantly less likely to be arrested prior to their follow-up appointment compared to patients with lower self-esteem and those who questioned their counselors’ competency. Although the study was limited
Because drug use is a growing epidemic worldwide and the majority of individuals do not have access to treatment programs that specialize in treating addictions, it is imperative to look at treatment programs in other countries outside the United States as well. Cohen, Schamroth, Nazareth, Johnson, Graham, and Thomson (1992) conducted a study to assess individuals using opiates who are seeking treatment and to determine the effectiveness of substance abuse treatment in a general practice in London, England. Using a harm reduction approach, the patients participated in a methadone reduction program. Researchers assessed patients’ rates of criminal activity, employment, and drug use to determine the effectiveness of treatment. Results from the 3-month follow-up indicate 20 of the 106 patients who completed treatment and were unemployed at the beginning of treatment had found work, 30 of the 150 patients reported not using any drugs, and 20 of the 48 patients with a history of drug related offenses had no charges between discharge and the three-month follow-up. Researchers concluded that it is possible and effective to treat individuals taking opiates as evidenced by the positive impact treatment had on a substantial percentage of individuals who completed treatment. Although results are encouraging with regard to the patients’ reduction in criminal activity and use and increased likelihood of employment at the 3 month follow-up, there may not have been enough time in between the end of treatment and the follow-up appointment to accurately determine the patients’ stage and level of stability in their recovery process.

Another shortcoming in the literature involves the study of how effective substance abuse treatment is for females who already have children or who are currently pregnant. There are a significant number of females who enter inpatient treatment pregnant or who already have
children. Because of the effect treatment can have on the family as a whole, it is imperative that treatment adherence be encouraged and evaluated throughout the treatment process. Knight, Logan, and Simpson (2001) conducted a study to determine the predictors of substance abuse treatment completion for females who were pregnant or already had children entering residential substance abuse treatment. Results suggest recent arrests, low education level, and peer deviance were all significant predictors of substance abuse treatment completion. Female patients were more likely to have completed substance abuse treatment if they did not have any recent arrests, completed high school, and did not surround themselves with close peers engaging in deviant acts. Researchers discussed the need for more effective substance abuse treatment because these individuals’ needs are not currently being met by the system in place.

Females are another underrepresented population in the substance abuse treatment literature, as gender is a commonly overlooked diversity element that should be analyzed in more studies to inform how treatment is affecting women and men differently. Messina, Wish, and Nemes (2000) conducted an experiment to look at the effects of substance abuse treatment on men compared to women. Because a substantial portion of research on substance abuse that looked at gender differences had a variety of substantial limitations, such as not controlling for preexisting differences or the lack of follow-up data (Rosenthal et al., 1976), Messina, Wish, and Nemes (2000) recognized a more comprehensive study was necessary to help bridge this gap in the literature. Researchers suggest that males and females have different patient needs while in treatment, and the needs of female patients are not being met, as evidenced by an early study on treatment retention that found female patients’ treatment drop out rates were 10-15% higher than male patients’ (Levy & Doyle, 1974; Huselid, Self, & Guiterres, 1991; DeLeon, 1974). Previous research indicates that females may be less likely to complete treatment due to a higher
percentage of women who suffer from comorbid depression and have a history of physical and/or sexual abuse (Stevens & Glider, 1994; Levy & Doyle, 1974; Coletti et al., 1995; DeLeon, 1974; Williams & Roberts, 1991). In the current study, Messina, Wish, and Nemes (2000) were interested in how certain factors would affect treatment outcomes (i.e., criminal activity, employment, and drug use) differently for men and women. Participants in the study were recruited by the Central Intake Division run by the D.C. Alcohol and Drug Abuse Services Administration or were mandated for treatment by the court. Researchers randomly assigned 296 men and 116 women to one of two 12-month treatment programs with differing lengths of outpatient and inpatient treatment.

One of the treatment options included 10 months of inpatient treatment in addition to 2 months of outpatient treatment—a treatment sequence researchers describe as “standard” (Messina, Wish, & Nemes, 2000). The other half of participants were enrolled in six months of inpatient treatment, six months of outpatient treatment, and received extra services; researchers labeled this compilation of treatment as “abbreviated”. Researchers administered the Individual Assessment Profile, the Structured Clinical Interview for DSM-III-R Disorders, as well as a variety of other measures to patients at the beginning of treatment. Patients were administered the Individual Assessment Profile Post-Discharge Follow-up Questionnaire and urine tests, and criminal records were checked at the post-treatment follow-up. Female patients in the standard treatment (i.e., 10 months of inpatient and 2 months of outpatient) were less likely to have criminal arrests and more likely to be employed compared to the female patients in the abbreviated treatment. A limitation to the study involves the systematic differences that were found between men and women in the study that should be controlled for in future drug treatment studies. Researchers concluded based off of their findings that female patients will
obtain more positive outcomes if they undergo 10- to 12-months of inpatient treatment followed by outpatient treatment before returning to their pretreatment environment.

Nemes, Wish, and Messina (1999) additionally found significant results for the entire sample who completed treatment with regard to a variety of outcome measures. Results indicate patients who completed the 12-month program, regardless of duration in inpatient treatment, were significantly less likely to have been arrested again or return to previous rates of substance use compared to patients who did not complete treatment. The urinalyses and arrest records obtained by the researchers supported this information. Researchers found that patients in the Standard Inpatient Program were more likely to be employed at the follow up in comparison to patients in the Abbreviated Inpatient Program. Results suggest younger males who had more extensive backgrounds of criminal activity and received less education were more likely to drop out of treatment. Researchers did not find any differences between those who completed abbreviated compared to those who completed the standard program when looking at patients’ criminal activity and drug use post-treatment. Results indicate completion of either treatment program was more strongly associated with positive outcomes than the impact duration in inpatient treatment had on patients’ post-treatment functioning. Researchers in this study believe that a greater emphasis should be placed on keeping patients in treatment for a recommended 12 months of treatment that involves 6 months at a residential facility and 6 months of outpatient treatment to achieve optimal success with respect to criminal activity and drug abuse outcomes.

Although traditional experiments allow for a greater degree of control and ability to infer causality like in the previous study (Nemes, Wish, & Messina, 1999), it is important to additionally look at patterns that may arise when analyzing meta-analyses that focus on patients’ length of time spent in substance abuse treatment. French, Zarkin, Hubbard, and Rachal (1993)
used data from the Treatment Outcome Prospective Study to look at the effects of time spent in treatment and employment status on patients’ post-treatment criminal activity and drug use. Researchers utilized data from 2,420 patients who were assessed at an intake and at a 12 month follow-up interview. Researchers used an Index of Predatory Illegal Acts and a Criminal Behavior Index as the two measured variables in the study. Results indicate that a strong negative relationship exists, regardless of employment status, between time spent in treatment and subsequent criminal activity and drug use in the year following discharge from treatment. Researchers reported that time spent in residential programs had the strongest effect on the measured outcome variables.

Although inpatient and outpatient substance abuse treatment programs are the ‘norm’ for individuals seeking treatment, it is essential to analyze the effectiveness and impact of other forms of treatment when determining where an individual should be placed to achieve the optimal outcome. Therapeutic communities serve as an alternative form of treatment that people may find effective for treating their substance abuse or dependence. “The emphasis in therapeutic communities is on treating drug abuse as a disorder of the whole person, by altering negative ways of thinking, feeling and acting” (Harrison, Butzin, Inciardi, & Martin, 2001, p. 349-350). Harrison, Butzin, Inciardi, and Martin (2001) conducted a study to determine the effectiveness of the CREST program compared to treatment as usual on patients’ rates of relapse and recidivism. The CREST program offers individuals a 6-month program that combines the therapeutic community with work release modalities for individuals who have drug-related charges. All participants in the study had a history of drug use and were eligible to be released. Data collected at 6- and 18-month follow-ups indicate patients in the CREST program had lower rates of recidivism and drug use compared to individuals undergoing treatment as usual. Results
suggest 15% of patients in the CREST program had been arrested compared to 35% in the treatment as usual group at the 6-month follow-up. Results indicate 16% of patients in the CREST program had relapsed compared to 62% in the treatment as usual group at the 6-month follow-up. Additionally, findings suggest patients who completed the CREST program were significantly less likely to relapse and recidivate compared to patients who did not graduate. Researchers concluded the CREST program is effective in helping individuals with drug-related charges stay sober and out of jail.

**Discussion**

When determining the efficacy of treatment, researchers are typically drawn to outcome variables related to patients’ rates of subsequent drug use or the impact their use has on other factors (e.g., criminal activity, employment). Although these outcome variables do signify a degree of treatment effectiveness, researchers need to consider more variables to determine the overall effectiveness of substance abuse treatment completion. Thylstrup (2011) conducted a study to determine how patients’ levels of satisfaction with treatment are associated with abstinence from drugs and treatment retention. Researchers collected data from 186 patients from eight different Danish outpatient substance abuse treatment centers. Patients were administered the Client Satisfaction Questionnaire-8 (CSQ-8) at the beginning of treatment and at a 6-month follow-up interview to determine each individual’s level of treatment satisfaction. Results indicate that patients who were more satisfied with treatment, as evidenced by their scores on the CSQ-8, were more likely to remain abstinent and had higher retention rates. Researchers concluded that more substance abuse treatment centers should take patients’ perspectives into account when designing future treatment programs.
A glaring issue with substance abuse treatment programs is taking into account the cultural backgrounds of patients and how that will affect their success in treatment. There is a lack of culturally responsive treatment programs, even though individuals from a variety of cultures are continuing to seek treatment. The lack of culturally responsive treatment programs may be contributing to minorities not graduating from substance abuse treatment programs at the same rate as Whites. Guerrero, Campos, Urada, and Yang (2012) conducted a study to determine if Latino patients who attended treatment centers that employed experts in the field of care for Latinos and provided Spanish-language proficiency and knowledge of cultural nuances associated with service provision would result in higher rates of treatment completion for Latinos compared to the completion rates of Latinos in less culturally responsive treatment programs. Researchers hypothesized that patients who are offered a culturally and linguistically responsive practice will be more likely to develop stronger therapeutic relationships and ultimately be more likely to complete treatment. A sample of 5,150 Latino patients from 48 different treatment programs was selected to participate in the study. Results indicate patients who were offered Spanish-language translation were less likely to drop out of treatment compared to participants who were not. Researchers concluded that more treatment centers should offer culturally and linguistically supportive efforts in order to improve treatment adherence for Latino patients.

As shown in the previous study (Guerrero, Campos, Urada, & Yang, 2012), patients who solely spoke Spanish were shown to be less likely to complete treatment if they are not in a culturally and linguistically adapted program, but are these treatment outcome disparities as evident when comparing other minorities to White individuals seeking treatment? There are stable and standing racial disparities between Hispanic, African American, and White patients when it comes to substance abuse treatment completion and the ratio of outpatient to residential
treatment. Bluthenthal, Jacobson, and Robinson (2007) analyzed 10,591 records of patients who attended publicly funded treatment facilities in Los Angeles County from 1998 to 2000. Results indicate Hispanic and African American patients were less likely to complete substance abuse treatment and were less likely to receive residential treatment compared to White patients. Researchers suggest that if residential treatment were more easily accessible to African American and Hispanic patients, the racial disparities in treatment modality and treatment completion would decrease. Researchers concluded that more research must be conducted to determine why minorities are less likely to receive residential treatment compared to Whites, and why African Americans receiving substance abuse treatment had lower completion rates across all treatment modalities compared to White patients’ completion rates.

As evident from previous research (Bluthenthal, Jacobson, and Robinson, 2007; Guerrero, Campos, Urada, and Yang, 2012; Wickizer et al., 1994), there are multiple factors that contribute to one’s likelihood of completing treatment. The drug the patient is typically using with the greatest severity and intensity may also prove to be an additional risk factor. Rowan-Szal, Joe, and Simpson (2000) conducted a study to see if different types of cocaine used (crack and non-crack) were associated with varying rates of treatment retention. Researchers collected data on 900 patients from 13 long-term residential programs. Results indicate patients who used crack cocaine had lower treatment retention rates compared to patients who used non-crack cocaine. Patients who were high school graduates, alcohol dependent, have fewer arrests, older, unmarried, and more motivated for treatment were found to have higher retention rates compared to patients who were not. Researchers concluded that including more contingency management, relapse prevention strategies, neurobehavioral techniques, and incentive programs in treatment will likely increase patients’ chances of completing treatment. Researchers noted it is important
for treatment centers to recognize the disparities in the effectiveness of treatment for certain individuals and to improve upon the strategies already in place.

Wickizer et al. (1994) were interested in determining how effective substance abuse treatment programs were in Washington for individuals with different ethnic backgrounds, as well as looking at whether patients are more likely to complete inpatient or outpatient treatment. Wickizer et al. conducted a study to look at the completion rates and associated factors of patients in alcohol and drug abuse treatment programs in Washington State. Researchers analyzed data of 5,827 patients in the Washington State Substance Abuse Monitoring System, which was made up of all state-funded drug and alcohol treatment programs in four different treatment modalities (i.e., inpatient alcohol treatment, inpatient drug treatment, outpatient alcohol treatment, and outpatient drug treatment). Results indicate patients who received inpatient alcohol treatment were most likely to complete treatment (75%), whereas patients who received outpatient drug treatment were least likely to complete treatment (18%). Researchers suggest that the treatment program setting likely affected the rates of treatment completion. Researchers highlighted the difference in actions it would take to leave an outpatient drug treatment program (i.e., not showing up to your next appointment) compared to leaving an inpatient setting (i.e., physically removing oneself and belongings). Researchers also discussed how peer expectations and clinical norms in inpatient settings likely contribute to higher completion rates in inpatient substance abuse programs. Results suggest patients’ age, education, ethnicity, and existence of a secondary drug problem were associated with treatment completion. Ethnicities varied when looking at completion rates among the four treatment modalities, suggesting that cultural fit needs to be taken more into account when assigning patients to treatment programs.
As it is essential to look at the characteristics of the individuals obtaining treatment, it is equally important to look at the characteristics of the treatment programs and how they are associated with varying treatment outcomes. Anglin, Hser, Grella et al. (2001) suggest that the goals of substance abuse treatment are to help patients improve their physical and mental health, function better socially, and reduce their drug use. Walker (2009) hypothesized that these treatment goals are more likely to be obtained if programs offered a wider range of services, which would keep patients in treatment longer and increase their chances of completing treatment. Walker analyzed data from 2,419 drug treatment programs that were evaluated using the drug abuse treatment system survey (DATSS). Results indicate that patients who were offered a range of services regarding medical and mental health assistance were more likely to stay in treatment than were patients in programs with fewer services. Results suggest this information helps account for the high completion rates of patients in hospital-based programs. Limitations to the study include the researchers’ reliance on self-report measures and the inability to infer causality due to the nature of a cross-sectional study design.

As shown in previous studies (Krupski, Cambell, Joesch, Lucenko, and Roy-Byrne, 2009; Trent, 1998), it is essential for individuals to seek follow-up care after finishing substance abuse treatment. Patients who are in or finishing treatment are encouraged to find support networks that supplement their sobriety, which may include sponsors, support meetings, or aftercare treatment. Patients who create and utilize their support systems are more likely to maintain their sobriety. McKay, McLellan, Alterman, Cacciola, Rutherford, and O’Brien (1998) conducted a study to determine what patient characteristics predicted for greater participation in self-help groups and aftercare treatment sessions during the first three months following completion of a 4-week intensive outpatient program. Researchers analyzed data on participants who met the
criteria for cocaine and/or alcohol dependence. Results indicate patients who had used cocaine for a smaller amount of time, had fewer current legal problems, and had no current alcohol dependence were more likely to participate in the self-help groups and aftercare treatment sessions as compared to patients who used cocaine for a longer period of time, had greater current legal problems, and had current alcohol dependence. Researchers concluded that if programs ensure patients do not meet the criteria for substance dependence before leaving intensive outpatient treatment then individuals will be more likely to utilize their resources and increase their chances of staying sober.

Researchers found that treatment length was associated with positive outcomes post-treatment in the majority of studies in the literature review (McCusker et al., 1995; Hser, Joshi, Anglin, & Fletcher, 1999; Zarkin, Dunlap, Bray, & Wechsberg, 2002; Hubbard, Craddock, & Anderson, 2003; French, Zarkin, Hubbard, & Rachal, 1993). However, the length of treatment that was found to be effective for individuals ranged from 4 weeks to 12 months in duration.

The majority of results suggest that patients who completed any form of evidence based substance abuse treatment had significantly more positive post-treatment outcomes with regard to use, employment, and criminal activity compared to individuals who did not complete treatment (Wallace & Weeks, 2004; Gossop, Marsden, Stewart, & Treacy, 2002; Trent, 1998; Ravndal & Vaglum; 1998; Zarkin, Dunlap, Bray, & Wechsberg, 2002; Arria, 2003; Conners, Grant, Crone, & Whiteside-Mansell, 2006; Cohen, Schamroth, Nazareth, Johnson, Graham, & Thomson, 1992). In multiple studies, outpatient treatment was shown to be as effective as inpatient treatment in reducing rates of use and criminal activity and increasing rates of employment (Wallace & Weeks, 2004; Harrison & Asche, 2001; Zarkin, Dunlap, Bray, & Wechsberg, 2002).
However, other studies showed that completing inpatient treatment resulted in more positive post-treatment outcomes than outpatient treatment did due to the comprehensive services available in inpatient facilities (Hubbard, Craddock, & Anderson, 2003; Nemes, Wish, & Messina, 1999). Results indicate that individuals are more likely to complete inpatient treatment compared to outpatient treatment (Harrison & Asche, 2001; Wickizer et al., 1994). Additionally, researchers found that certain factors (e.g., treatment history, gender, race and employment status) predicted one’s likelihood of positive post-treatment outcomes, particularly if the individual is placed in a less culturally responsive program (Melvin, Davis, & Koch, 2012; Sterling, Gottheil, Glassman, Weinstein, Serota, & Lundy, 2001; Broome, Knight, Hiller, & Simpson, 1996; Knight, Logan, & Simpson, 2001; Messina, Wish, & Nemes, 2000). Researchers found that patients who attended and engaged in aftercare, as well as vocational training and legal services, had significantly more favorable outcomes than patients who did not receive these additional services (Trent, 1998; Hser, Joshi, Anglin, & Fletcher, 1999; Krupski, Campbell, Joesch, Lucenko, & Roy-Byrne, 2009; Harrison, Butzin, Inciardi, & Martin, 2001). Clearly, determining the effect that completion of various forms of substance abuse treatment has on outcomes may inform health administration policies regarding the optimal length of treatment programs and the need for program completion.

Limitations

Even though research supports the positive effect treatment completion has on multiple post-treatment outcomes (Wallace & Weeks, 2004; Gossop, Marsden, Stewart, & Treacy, 2002; Trent, 1998; Ravndal & Vaglum; 1998; Zarkin, Dunlap, Bray, & Wechsberg, 2002; Arria, 2003; Conners, Grant, Crone, & Whiteside-Mansell, 2006; Cohen, Schamroth, Nazareth, Johnson, Graham, & Thomson, 1992), future researchers need to consider more variables to determine the
overall effectiveness of substance abuse treatment completion. As shown in a previous study (Conners, Grant, Crone, and Whiteside-Mansell, 2006), even though employment rates were higher post-treatment, the majority of participants in the study still reported incomes below the poverty line. Additionally, the research needs to be evaluated in light of the systematic exclusion and disproportionate demographics across drug and alcohol research as a whole.

Because researchers implement exclusion criteria in their study designs, it is important to determine how the researchers’ findings generalize to the public. Humphreys and Weisner (2000) conducted a study to determine how exclusion criteria affected the generalizability of research for patients receiving alcohol treatment. Researchers collected data from 593 individuals who obtained alcohol treatment from one of eight treatment programs. The eight most common exclusion criteria found in the alcohol treatment literature were applied to determine how the results compared to findings from the previous literature. Results indicate African Americans with low-incomes and who had severe alcohol, drug, and psychiatric problems were likely to be excluded under the most commonly utilized criteria. Researchers concluded that these results have significant clinical, ethical, and scientific consequences that readers must take into account when looking at the effectiveness of programs. This is something to strongly consider when attempting to bridge the gap between the literature and practice, and how to accurately determine the effectiveness of treatment programs.

Ellingstad, Sobell, Sobell, and Planthara (2002) conducted a study to review the methodology of drug treatment outcome studies. Researchers were interested in whether studies included drug use, outcome and follow-up information, study characteristics, and demographics of participants. Researchers looked at 117 studies involving drug treatment and found that only 28 had follow-up data on participants at least six months after treatment. Results indicate
researchers rarely reported patients' demographics, which makes it difficult to generalize across studies. Additionally, the literature showed that researchers tended to rely almost exclusively on self-report measures to determine the programs’ effectiveness. Ellingstad, Sobell, Sobell, and Planthara suggest that researchers focus on creating a set of standard outcome measures that will enhance the comparability and methodology of substance abuse treatment outcome studies in the future.

Walton, Ramanathan, and Reischl (1998) conducted a study to determine how difficulty with follow-up contact may affect the validity of a study. Researchers collected data on 96 individuals who completed substance abuse treatment at 3-month and 6-month follow-up interviews. Ninety-three percent of patients were interviewed at the 3-month follow-up and 97% were interviewed at the 6 month follow-up. Results suggest participants who did not remain abstinent needed greater contact efforts as compared to the efforts needed to contact individuals who had abstained. Researchers concluded that utilizing a variety of appropriate tracking measures (e.g., sending letters, phone calls) will help ensure that the majority of individuals may be contacted and willing to participate in follow-up interviews.

Swearingen, Moyer, and Finney (2003) conducted a study to analyze patterns in alcohol treatment outcome studies to determine how the literature matches up with the current population obtaining treatment for their alcoholism. Researchers looked at 297 single-group studies and 404 multiple-group studies from 1970 to 1998, and found that only 14.6% of participants in the alcohol research were female compared to roughly 31% who sought alcohol treatment in 1998. As a result, this will affect the generalizability of results to females receiving alcohol treatment. It is ethically imperative that the literature begins to reflect the population who are affected by the disease given the publicly funded nature of the research. That being said, results indicate
success in treatment has become more diverse in terms of how the field looks at treatment
effectiveness (e.g., quantity of alcohol consumed, proportion abstinent), which is evidence
psychology as a field is gaining a better understanding of substance abuse treatment as a whole.
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