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Racial Disparities in Substance Abuse Treatment and the Ecological Fallacy

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Abstract

This study examined engagement in treatment in substance abuse treatment programs that treated primarily either African American or White clients. Findings showed higher levels of engagement in White programs; however, engagement of African Americans in White programs was similar to that of Whites and was greater than Whites in African American programs. No significant differences emerged when a mixed model analysis considered additional variables of staff consensus (regarding treatment elements), treatment climate, acceptance of Medicaid clients, the proportion mandated to treatment, and the quality of the physical space. Although African American programs may show poorer levels of engagement than White programs, attribution of engagement in treatment to client level race/ethnicity should be made with caution.

Keywords

African American; differential effectiveness; Medicaid; racial/ethnic data; treatment disparities

INTRODUCTION

The negative consequences associated with drug use disproportionately affect racial minorities and make the quality of substance abuse treatment programs particularly salient for this population (Bluthenthal, Jacobson, & Robinson, 2007; Fosadoes, 2007). Despite

African Americans' need to access quality treatment (Burnett, Bailey, & Toldson, 2006), research studies of treatment success have reported mixed findings regarding disparities between African Americans and Whites. For example, African Americans are more likely to express a negative opinion of their substance abuse treatment experiences (Longshore, Heish, Anglin, & Annon, 1992; McCaul, Svikis, & Moore, 2001), have fewer treatment visits (Brower & Carey, 2003), and have higher dropout rates (Agosti, Nunes, & Ocepeck-Welikson, 1996; Kleinman et al., 1992; McCaul et al., 2001). Despite these indices of less involvement in treatment, findings of racial differences on a variety of treatment outcomes have been inconclusive. When compared to Whites, outcomes for African Americans have been found to be better (Substance Abuse & Mental Health Services Administration [SAMHSA], 1998; Tonigan, 2003), similar (Brower & Carey, 2003; Lowman & Le Fauve, 2003), and worse (Agosti et al., 1996; Brower & Carey, 2003; Kleinman et al., 1992; McCaul et al., 2001). Such contradictory findings raise questions about the potential role of program and client factors other than race/ethnicity in influencing the success rates of African Americans entering substance abuse treatment programs. It is particularly important to consider program factors and differences among individuals apart from race/ethnicity because, if not explicitly included in statistical models, such factors and differences may appear to be related to an individual's race/ethnicity, a variant of the "ecological fallacy."¹

Program Characteristics

Previous research has shown that numerous program characteristics can influence an individual's attitude toward treatment and treatment outcomes, and that African Americans are not evenly distributed among programs that differ in these characteristics. For example, African Americans are overrepresented in publicly funded drug treatment programs (Schmidt, Greenfield, & Mulia, 2006) and are underrepresented in programs with integrated services, which have been shown to be more effective (Knudsen, Ducharme, & Roman, 2007). Other program characteristics known to affect treatment outcomes may differentiate between programs with mostly White and mostly African American clients. These characteristics include organizational factors, such as for-profit status (McCaughrin & Price, 1992), program administrator experience (Magura, Nwakeze, Kang, & Demsky, 1999), physical amenities, staff facilities and space availability (Bakos, Bozic, Chapin, & Neuman, 1980; Brennan & Moos, 1990; Moos, 1997; Timko, 1996; Verderber, 1987; Whitehed, Polsky, Crookshank, & Fik, 1984), staffing patterns (D'Aunno & Vaughn, 1995; Moos & Ingra, 1980), staff-to-client ratios (Welsh, 2000), job autonomy and performance based rewards (Knudsen, Johnson, & Roman, 2003; Nurco et al., 1987; Simpson & Sells, 1982), staff training (De Leon, 2000), organizational climate (Simpson, 2002), and staff consensus about the importance of treatment activities (Melnick, Wexler, Chaple, & Banks, 2006).

Client Factors

Client factors have been shown to affect treatment retention and outcomes. For example, research has demonstrated that high levels of motivation have a positive effect on retention (De Leon, Melnick, & Tims, 2001; Joe, Simpson, & Broome, 1999), whereas high levels of psychopathology have a negative effect on retention (Office of the Surgeon General, 1999).

¹Ascribing characteristics or outcomes to groups that their members, as individuals, do not possess.

Each of these factors provides positive predictive indices for the treatment success of African Americans, who have been found to have higher levels of motivation (De Leon, Melnick, Schoket, & Jainchill, 1993) and lower levels of psychopathology (De Leon, 1989; Duncan et al., 2008) than Whites entering substance abuse treatment programs.

Criminal justice referral is another aspect to be considered when examining race/ethnicity effects in substance abuse treatment programs due to the higher proportion of African Americans in the criminal justice system. Recent studies have found that clients who are mandated by the criminal justice system to substance abuse treatment have fewer positive treatment experiences and exhibit poorer outcomes when compared to clients who are not mandated to treatment (Kelly, Finney, & Moos, 2005; Marshall & Hser, 2002). In an attempt to explain these differences, Howard and McCaughrin (1996) found that organizations with a higher level of court-mandated clients have a higher rate of clients failing to comply with treatment compared with organizations with fewer court-mandated clients. Daughters et al. (2007) found that court-mandated clients were significantly more likely to drop out than clients who were not mandated to treatment.

Kelly et al. (2005) reported that clients who were mandated to treatment were less motivated to change and were less likely to perceive themselves as having a substance abuse problem compared to those who were not mandated. Finally, Marshall and Hser (2002) reported that clients mandated to treatment scored significantly lower on problem recognition, desire for help, and treatment readiness than clients who were not mandated and clients who had no criminal justice contact. Given the disproportionate number of African Americans involved in the criminal justice system and the negative effects of criminal justice involvement on treatment engagement and outcome, it seems likely that the relationship between race/ethnicity and treatment outcome is confounded by criminal justice system mandates and other program factors.

Few studies have examined the relationship between drug treatment racial composition, programmatic factors, and treatment outcomes; moreover, only one of these was conducted among outpatient clients. Howard and McCaughrin (1996) examined the effects of racial composition and programmatic factors on treatment outcomes among a national sample of substance abuse outpatient treatment programs. Although they found a direct relationship between the percentage of African American clients and dropout rates, when organizational characteristics (e.g., public vs. private ownership, treatment locality, staff client ratio) were controlled, the percentage of Black clients was no longer significantly related to treatment participation.

To our knowledge, no studies of residential treatment programs have examined the role of racial composition and programmatic factors on treatment engagement among clients. Although the majority of individuals seeking substance abuse treatment receive care in outpatient facilities (SAMHSA, 2004), those with the highest levels of severity often seek residential substance abuse treatment, which requires more intensive settings (Klein, diMenza, Arfken, & Schuster, 2002). The focus on the characteristics of programs serving those most in need will assist treatment providers and policy makers improve client treatment success.

The study reported here seeks to clarify findings of disparities between African American and White substance abuse treatment clients by examining the role of treatment programs and other non-race/ethnic client characteristics in determining client engagement in treatment, a proxy for treatment outcome (Broome, Simpson, & Joe, 1999; Joe, Simpson, & Broome, 1998; Joe, Simpson, Dansereau, & Rowan-Szal, 2001; Simpson, Joe, Greener, & Rowan-Szal, 2000). To this end, the study examines the role of the racial composition of programs (i.e., majority African American or White), along with other program and client characteristics in influencing client treatment engagement and the role of racial composition of programs in affecting other program differences.

METHODS

Participants

Sampling and data collection occurred between April and September 2004 and are fully described in Melnick et al. (2006). The sampling frame consisted of the *National Directory of Drug and Alcohol Abuse Treatment Programs*, a listing of federal, state, and local government and private facilities that provide substance abuse treatment (SAMHSA, 2004). The sample was also restricted to programs that had been admitting clients for a minimum of 3 years, served an adult population, were characterized as a long-term residential facility (had a minimum planned duration of stay of 60 days²), and were freestanding programs (not part of a hospital, school, or university).

A random sampling procedure with replacement was used to establish a sample of 80 residential treatment programs. The sample was stratified by program size, with 20 programs interviewed from each of the following bed size categories: 15–25, 26–50, 51–100, and more than 100. To ensure a geographically diverse sample, programs were randomly selected from U.S. Census Bureau metropolitan statistical areas in 10 states: New York, New Jersey, Massachusetts, New Hampshire, Illinois, Indiana, Wisconsin, Texas, California, and Arizona. Geographically diverse sampling was used to provide a sample composed of clients with a varied mix of racial/ethnic characteristics. A refusal rate of 32% meant that 118 programs needed to be contacted to achieve a sample of 80 programs. Each program received \$1,000 for participating in the study.

Study data were collected using the Multi-modality Quality Assurance (MQA) instrument (Melnick & Pearson, 2000), which was developed, tested, and used previously for group administration (Melnick & Wexler, 2004; Melnick, Hawke, & Wexler, 2004). Survey respondents in each program consisted of primary drug treatment counselors who were on duty and all clients who were physically present at the facility when data were collected. In total, study participation included 595 staff (99%) and 3,732 clients (96%) physically present when data were collected.

For this analysis, 13 programs had to be removed from consideration. The instrument was revised after being administered to the first 8 programs, which affected the treatment

²Long-term residential treatment, the focus of this investigation, is characterized as treatment more than 30 days (median: 75 days) (SAMHSA, 2004).

engagement scale. When a cluster analysis was performed to determine each program's racial composition, 5 programs were characterized as predominantly Hispanic. This number was considered to be insufficient for comparative analysis and resulted in a net loss of 13 programs, which reduced the staff contribution to the analysis by 58 ($N=537$) and the client contribution by 518 ($N=3,214$).

The administrators described most (65%) as therapeutic communities. Programs were well established and had been admitting clients for a median of 20 years. The median enrollment (i.e., measured as the usual number of clients over the most recent 12-month period) was 71 clients, and the median ratio of primary drug counselors to clients was approximately 1:12. In reporting client characteristics, 76% of programs cited male majorities and half noted White majorities. Regarding staff, 50% of the programs reported that the majority of their staff was male, and 50% reported that the majority of their staff was White, with 38% reporting that the majority of their staff was African American. Group and individual supervision with a clinical supervisor each occurred on an average of approximately 3 times a month.

Most staff members (65%) had at least some college education, most (58%) had substance abuse treatment training outside the program, and slightly less than half (49%) had substance abuse treatment credentials. More than three-quarters (79%) of the staff had 3 or more years of experience in the field, and most (62%) had been employed at their current program for more than 2 years.

Measures

Dependent Variable

Client treatment engagement: Following the framework of Simpson and Joe (2004), treatment engagement was determined by client participation in treatment and the client-staff therapeutic relationship. Three factor-based scales (confidence in treatment, rapport with the counseling process, and therapeutic engagement) were developed from items that had previously predicted retention and 1-year treatment outcomes (Broome et al., 1999; Joe et al., 1998, 2001; Simpson et al., 2000). Confidence in treatment consisted of 4 items that assessed the helpfulness of, and investment in, treatment (e.g., "I feel an attachment and ownership in the program"). Rapport with counseling process consisted of 5 items that measured client satisfaction, as well as perception of counselor support, sincerity, and ability to work together (e.g., "My counselor is sincere in wanting to help me"). Therapeutic engagement consisted of 5 items measuring client sentiment regarding their own effort and progress in treatment (e.g., "I feel good about my progress working on my problems").

These three scales were combined to capture a comprehensive picture of the client perspective of treatment engagement. Individually, the scales yielded coefficient reliability estimates of 0.83, 0.94, and 0.90 for confidence in treatment, rapport with counseling process, and therapeutic engagement, respectively. The combined scale yielded a coefficient of 0.94, which equaled or exceeded the values of the individual scales; this, coupled with inter scale correlations ranging from 0.74 to 0.82, provided sufficient justification to combine the scales into a single measure.

Independent Variables

Treatment implementation: Consensus about the treatment being implemented is a measure of client and staff variability on the importance of various treatment activities within the program. Treatment activities were drawn from three residential treatment modalities: therapeutic communities, cognitive behavioral therapy, and 12-step programs (Lipton, Pearson, & Wexler, 1999). *Consensus* uses variance as a measure of agreement and is measured as within-group variability based on a ratio score, following Melnick, Wexler, and Cleland (2008), in which the actual standard deviation is divided by the theoretical maximum standard deviation and then subtracted from 1 to indicate consensus rather than variability. Consensus about treatment implementation was measured using three scales of 15-point Likert item scale ranging from 0 (“not at all important in our program”) to 3 (“extremely important in our program”). Example items were: “Clients confront unacceptable behavior outside individual and group counseling” (therapeutic communities), “[program] explains the use of thought-stopping techniques” (cognitive behavioral therapy), and “[program] emphasizes the need to rely on a higher power” (12-step program).

Treatment climate: Client and staff ratings of the treatment climate were measured using a 27-point Likert item scale on programmatic characteristics ranging from 0 (“not true in your program”) to 3 (“very true in your program”). Items included: “Clients and staff really feel like a part of the program,” “People around here are pretty interested in understanding how the other person feels,” and “the program puts a lot of trust in people.” This scale yielded Cronbach’s α reliability estimates of 0.88 for clients and 0.84 for drug counselors.

Staff and client ratings of treatment climate and program physical space were combined for two reasons. First, staff and client ratings were substantially and significantly correlated for each measure (treatment climate: $r=0.389$, $P=0.001$; program physical space: $r=0.441$, $P=0.001$), indicating that these measures were not independent assessments of the program. Second, it is acknowledged that both clients and staff may have uniquely biased perspectives on treatment climate and physical space, so a combined perspective could partially cancel out some existing bias.

The program administrator rated the fiscal resources of the program, which were measured by funding per client, salary of an entry-level counselor, four items on program financial flexibility, and eight items on financial assistance available to clients.

The program administrator provided information on staff education (95% of the staff members had either a high school diploma or general educational development degree, and 66% had at least some college), staff experience in the drug treatment field (58% had training outside the program and 49% had substance abuse credentials), years of experience working in substance abuse treatment (26% had 3 to 5 years and 53% had more than 5 years), and tenure in their current program (62% had more than 2 years).

The program administrator also rated program characteristics (encompassing various programmatic factors) that included average program size in the past 12 months, staff tenure in the program, client-to-staff ratio, accepting Medicaid, and the percentage of clients mandated to treatment through the criminal justice system.

Staff and clients rated program atmosphere, including the physical space and client safety within the program. Physical space (client perspective) was measured using three yes-or-no items—client personal space, group space, and recreational space. This scale yielded Cronbach's α reliability estimates of 0.71 for clients and 0.70 for drug counselors. Clients were also asked 9-point Likert scale items on bedrooms and furnishings (Cronbach's $\alpha = 0.92$), whereas primary substance abuse counselors were asked 7-point Likert scale items on offices and furnishings (Cronbach's $\alpha = 0.91$), ranging from 0 ("very poor") to 3 ("very good"). Both staff and clients were asked to rate the common interior areas of the building, measured using 7-point Likert scale items ranging from 0 ("very poor") to 3 ("very good"). This scale yielded Cronbach's α reliability estimates of 0.94 for clients and 0.95 for counselors.

Client safety was measured using one scale of five yes-or-no items. Examples included "have you [client] physically assaulted another client or staff person in the program" and "have any clients been sexually assaulted or harassed while in the program?" This scale yielded Cronbach's α reliability estimates of 0.69 for clients and 0.64 for drug counselors.

Services provided were assessed by yes-or-no questions relating to whether specific services were offered by the program. Staff specified the education and job services, social skills training, and ancillary services that were offered.

Client Race/Ethnicity—Clients were asked their Hispanic/Latino ethnic identity and their racial classification. Clients identifying as Hispanic/Latino were classified as such regardless of the racial category (African American, White, or Other) subsequently indicated. Clients who did not identify as Hispanic or Latino were classified by their racial classification only. Race/ethnicity data were missing for 364 clients, resulting in a final sample for the analysis of 2,850 clients: Hispanic/Latino (21%), non-Hispanic, African American (36%), non-Hispanic, White (37%), and non-Hispanic, Other (6%).

Program Race/Ethnicity Composition—Program race/ethnicity was determined by using the K-means cluster analysis, which seeks to minimize within cluster variance and maximize variability between clusters in an ANOVA-like fashion. This technique is preferable when data sets are particularly large (>1,000) because prior computation of a proximity matrix of the distance/similarity of every case with every other case (required with hierarchical clustering) is not required. The technique also allows for the number of clusters to be specified in advance, which is particularly advantageous for labeling programs according to the three major racial classifications that predominate within this sample.

Clustering variables for the analysis included the proportion of Hispanic/Latino, non-Hispanic, African American, and non-Hispanic, White participants in each program. Advance specification was made for three clusters and a maximum of three iterations. Cluster centers (representing the average value of all clustering variables of each cluster's members) showed that each of the three clusters was relatively homogeneous, comprising an average proportion of the "majority" racial designation ranging from 66% to 79% with "minority" groups averaging no higher than 21% in any one cluster. These cluster centers

yielded 38 White programs and 29 African American programs, and an additional 5 Hispanic programs, which were removed, being insufficient for a comparative analysis.

Analytic Strategy

A *t* test comparison of means was used to test for significant differences across programs and for the effect of client race and program race on client treatment engagement. A linear mixed model analysis was then performed to examine the effects of both client race and program race on client treatment engagement. The strengths of a mixed model in this context are that both the client and program-level independent variables can be considered simultaneously (taking into account the clustering of clients in treatment programs) and that cross-level interaction effects can be considered, such as the interaction between the race of the clients and the predominant race of the treatment program in which clients participate. These strengths allow the effects of different treatment program contexts on different types of clients to be investigated.

RESULTS

Characteristics of Primarily African American and White Programs

Results indicated that White and African American programs differed significantly on several organizational factors. White programs evince greater staff consensus about the treatment being implemented, better staff ratings of treatment climate, longer staff tenure, and more favorable client and staff ratings of physical space (i.e., common program space, client bedrooms, and offices). African American programs evinced more financial assistance (e.g., additional funding sources), greater likelihood of accepting Medicaid reimbursement, and a higher percentage of clients who had been mandated to treatment by the criminal justice system. African American programs also offered more educational, job, and ancillary services (e.g., for mental health, acquired immunodeficiency syndrome prevention, and housing and legal assistance).

Effects of Client Race and Program Race on Client Treatment Engagement

A mixed model analysis was performed to determine the relative contributions of program racial composition, client race, and the interaction between client and program race, controlling for gender, on client treatment engagement. Results showed that program racial composition was a significant predictor of client treatment engagement ($F=7.49$, $P<0.008$), with White programs evincing significantly higher levels of treatment engagement ($X=2.41$) compared with African American programs ($X=2.25$); client race was only marginally significant in the model ($F=2.55$; $P<0.054$). Pair-wise comparisons showed a significant difference between African American ($X=2.39$) and Other ($X=2.24$) clients ($P<0.009$), with a marginally significant difference between Hispanic and Other clients ($P<0.054$), but no significant difference between African American and White clients. Also, the interaction term between the two did not approach significance ($P=0.530$), which suggests that clients in all racial groups were more engaged in primarily White programs and less engaged in primarily African American programs. In other words, the effect of program racial composition on client engagement was similar, regardless of the client's race.

Perhaps most important, the mean levels of treatment engagement were highest for African Americans, a trend that is evident in both primarily African American and primarily White programs. Thus, it would be fallacious to assume that, because levels of treatment engagement are lower in primarily African American programs than those in primarily White programs, the response of African American clients to treatment is poorer than that of White clients. In both primarily African American and primarily White programs, African American clients are slightly more engaged than White clients. Similar to the previous model, client race was only marginally significant ($F=2.45$, $P=0.061$).

Multi-Level Predictors of Client Treatment Engagement

Table 1 shows a dozen variables that significantly (or marginally) differentiate primarily African American and primarily White programs. To arrive at a better understanding of the effects of these variables on client engagement in treatment, a mixed model analysis was performed for each of the 12 variables, controlling for the effects of individual client race and gender. Only significant predictors of client engagement in treatment were considered for further analysis: client consensus on treatment implementation ($F=14.35$; $P<0.001$); program accepts Medicaid ($F=12.03$; $P=0.001$); percentage of clients mandated to treatment ($F=4.55$; $P<0.037$); educational and job services offered ($F=4.32$; $P<0.041$); combined staff and client rating of treatment climate ($F=16.84$; $P<0.001$); and combined staff and client rating of physical space ($F=15.75$; $P<0.001$). Pearson's correlation coefficients are presented in, detailing the strength and direction of the relationships among these six program variables.

A principal component analysis was then performed to summarize the six significant predictors of client engagement in treatment. Factor loadings for each variable on the first principal component were as follows: client consensus (0.673); combined client and staff ratings of treatment climate (0.777); program accepts Medicaid (-0.658); percentage of clients mandated (0.497); combined staff and client ratings of program space (0.748); and number of educational services offered (-0.472). The first principal component was then added to the original mixed model to examine the relative effect of program race, individual client race, the principal component summary variable, and gender on client treatment engagement. Results indicate that program race, which had previously predicted client engagement in treatment ($F=7.49$; $P=0.008$), was no longer significant ($F=.008$; $P=0.928$) when the principal component summary variable was added to the mixed model. Instead, the principal component summary variable, representing a composite of program-level predictors of client engagement, emerged as the significant predictor of client treatment engagement.

DISCUSSION

The study assesses the role of the ecological fallacy in attributing outcomes to African American individuals when treatment program characteristics or other group memberships are responsible for deterring engagement in treatment. These findings suggest that caution should be exercised when interpreting racial differences related to substance abuse treatment. Although programs that serve primarily African American clients showed lower

levels of engagement in treatment, it would be misleading to conclude that this observed disparity is the consequence of racial effects associated with possible cultural differences among individuals. Rather, such differences appear to be program effects wherein programs serving a primarily African American clientele showed lower client engagement scores, whereas African Americans in majority White programs and African American clients in primarily African American programs were as engaged, or more engaged, in treatment than their White counterparts. Furthermore, the study identified several other program-level differences between primarily White and primarily African American programs that, when considered in the analyses, eliminated racial differences between programs.

From a policy perspective concerned with program inputs, the programs are equivalent in many important respects, including funding levels, staff-to-client ratios, staff salary levels, staff educational level, staff training, and supervision; the primarily African American programs actually exceeded the primarily White programs in the number of job and educational services, ancillary, and financial services offered. Although not statistically significant, primarily African American programs had larger annual per client budgets than primarily White programs.

A limitation of the study is that the sample size precluded use of a single model capable of determining the relative importance of the separate factors on client engagement in treatment. These differences existed at the program, organizational, and client levels. At the program level, admission policies that included accepting Medicaid and mandated clients were associated with a greater emphasis on services such as education appropriate for this population. Differences in organizational culture and climate were also apparent. Consensus among primary treatment staff regarding treatment activities is an aspect of organizational culture that has been shown to affect client engagement in treatment through its influence on the consistency of staff responses to clients, which, in turn, affects clients' expectations for the program and engagement in treatment (Melnick et al., 2006). Consensus among clients about the goals and objectives of substance abuse treatment programs is believed to be related to staff consensus and has been shown to influence 1-year treatment outcomes (Melnick et al., 2008). Treatment climate reflects the supportiveness of the treatment program and has been associated with better treatment outcomes (Moos, 1997; Moos, Finney, Ouimette, & Suchinsky, 1999; Moos & Moos, 2003).

At the client level, program differences in treatment engagement between majority African American and majority White programs were associated with the higher percentage of mandated clients in majority African American programs who were, perhaps, less motivated for treatment, and consequently more difficult to treat. For example, lower scores for motivation and readiness for treatment have been reported among inmates entering prison substance abuse treatment programs compared with admissions to community-based residential treatment programs (De Leon, Melnick, & Hawke, 2000). Consistent with this line of thought, mandated treatment did remain significant when added alone to the primarily African American program-level variable in the mixed model analyses. Alternative hypotheses for the differing levels of treatment engagement by program racial composition include that the greater need for habilitation required higher, rather than equivalent, levels of funding and lower staff-to-client ratios or that the greater need for habilitation may have

shifted program priorities within the program to providing a greater range of services such as education to meet client needs and diminished the focus on the substance abuse treatment activities, leaving staff members in less agreement about the relative importance of providing various services versus substance abuse treatment activities in African American programs.

Data Limitations

Data limitations prevented the investigation of additional characteristics that may be important in determining the effects of programmatic characteristics on client engagement in treatment in residential facilities. For example, the study did not directly examine characteristics of racial group processes that might be important to drug abstinence. Previous research has shown a direct relationship between self-reported experiences with racial discrimination and substance use problems (Borrell et al., 2007; Martin, Tuch, & Roman, 2003). Based on these data, a direct relationship could be hypothesized between treatment outcomes and the level of exposure African Americans have compared with Whites, particularly in residential treatment settings where patient interactions are central to the treatment protocol; however, this was not found in the study reported here. African Americans in programs with a majority of White clients fared better than African Americans in programs with a majority of African American clients. Further research should be conducted to explore the interracial and intraracial group dynamics within inpatient drug treatment settings.

Nevertheless, treatment engagement is complex and involves multiple perspectives. The primary focus of treatment engagement in this investigation was on the client; however, additional studies on the engagement of staff in the therapeutic process and the influence of staff on client engagement in treatment will add to our understanding of the influence of programmatic characteristics on client level outcomes.

Another limitation was that the study focused on residential treatment programs, which could have unique effects because residential programs have been reported to be more effective than outpatient treatment for African American clients (SAMHSA, 1998). However, the current findings are consistent with those from outpatient programs in which the relationship between the percentage of African American clients and dropout rates were no longer significant when organizational characteristics were controlled (Howard & McCaughrin, 1996), and expand the generalization of these findings to residential programs.

CONCLUSION

This study suggests caution when interpreting client engagement in treatment by client race and program racial composition because treatment engagement differed at the individual and organizational levels. Although programmatic characteristics and treatment engagement differed according to the racial composition of the treatment program and individual client race, it is unclear whether a determination of treatment effectiveness could be made without the examination of additional outcome measures; thus, the findings must be interpreted within the context of several limitations.

Study limitations notwithstanding, research into racial disparities in substance abuse treatment needs to examine the roles of program, client, and client group membership characteristics when comparing treatment success of African American and White clients. The ecological fallacy is to assume that because African American programs have lower average engagement in treatment than White programs, African American clients must have lower engagement in treatment than White clients. In the current study, comparisons of African American and White clients would have reproduced the ecological fallacy, showing higher engagement in White programs when, in fact, African American clients were as engaged, or more engaged, than their White counterparts. Although this study begins the investigation of the effects of non-race/ethnicity factors in determining differences between majority African American and White programs, the effects of the identified variables need to be further delineated and understood. The results of additional studies in this area have the potential to make important contributions to substance abuse treatment policy. Understanding the role of programmatic characteristics in client outcomes can influence the allocation of resources to specific programmatic factors, on the basis of program racial composition or the proportion of clients mandated to treatment, which have been shown to influence client treatment outcomes successfully.

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TABLE 1

Comparison of Primarily African American and Primarily White Treatment Programs

Program variables	African American (<i>n</i> = 29)	White (<i>n</i> = 38)	<i>t</i> Test Sig.	Cohen's <i>d</i>
Treatment Implementation				
Staff mean (Tx implementation) ^a	2.27 (.25)	2.33 (.27)	ns	-0.21
Staff consensus (Tx implementation) ^b	0.71 (.11)	0.78 (.10)	.008	-0.71
Client mean (Tx implementation) ^a	2.04 (.27)	2.08 (.36)	ns	-0.14
Client consensus (Tx implementation) ^b	0.35 (.10)	0.41 (.14)	.056	-0.49
Combined consensus (Tx implementation) ^b	0.78 (.24)	0.83 (.20)	ns	-0.25
Treatment climate				
Rated by clients ^a	1.51 (.17)	1.59 (.18)	.055	-0.48
Rated by staff ^a	1.52 (.16)	1.67 (.14)	.001	-0.96
Financial resources				
Funding money per client (<i>n</i> = 44)	\$33,272 (\$45,756)	\$21,171 (\$16,314)	ns	0.35
Salary entry level counselor (<i>n</i> = 58)	\$23,230 (\$6,194)	\$23,837 (\$6,022)	ns	-0.10
Financial flexibility (4 items) ³	3.0 (.87)	2.6 (.90)	ns	0.40
Financial assistance (8 items) ³	2.9 (2.6)	1.8 (1.9)	.050	0.50
Staff credentials				
Staff education ^b	0.52 (.14)	0.56 (.17)	ns	-0.26
Staff experience in drug treatment field ²	0.74 (.17)	0.75 (.20)	ns	-0.08
Staff training ^b	0.41 (.23)	0.36 (.22)	ns	0.21
Program characteristics				
Program size (average past 12 months)	140 (189)	119 (142)	ns	0.12
Staff tenure in program ^b	0.65 (.33)	0.81 (.23)	.033	-0.57
Client-to-staff ratio	20:1	30:1	ns	-0.35
Program accepts Medicaid	38% (49%)	14% (35%)	.021	0.57
Mandated by criminal justice system (% of clients)	56% (32%)	28% (25%)	.001	0.98
Program atmosphere				
Client Rating of physical space ^a	1.52 (.25)	1.86 (.25)	.001	-1.36
Staff rating of physical space ^a	1.89 (.50)	2.23 (.32)	.001	-0.81
Program safety—client rating (5 items) ^c	0.82 (.52)	0.65 (.49)	ns	0.33
Program safety—staff rating (5 items) ^c	1.25 (.81)	1.35 (.84)	ns	-0.13
Services provided: staff perspective				
Education/job services (8 items) ^c	4.6 (1.7)	3.2 (1.9)	.002	0.78
Social skills training offered (7 items) ^c	4.9 (1.2)	4.8 (1.2)	ns	0.18
Ancillary services offered (8 items) ^c	5.8 (1.1)	5.1 (1.5)	.028	0.56

^aRange of scores: 0–3.^bRange of index score: 0–1.

^cCount (number of items included in parentheses).

Tx = treatment; ns = not significant.

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TABLE 2

Effect of Individual Client and Program Race on Client Engagement

Client race	Program race		Client totals
	African American program (n = 29)	White program (n = 38)	
African American	2.33	2.45	2.39
White	2.27	2.39	2.33
Hispanic	2.29	2.41	2.35
Other	2.11	2.38	2.25
Program totals	2.25	2.41	

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TABLE 3
Correlations between Independent Predictors of Client Engagement in Treatment

Independent predictors	Consensus	Treatment climate	Medicaid	Mandated	Physical space	Job services
Consensus	–	0.537***	-0.248*	-0.058	0.332**	-0.223
TX Climate		–	-0.299*	-0.195	0.382***	-0.118
Medicaid			–	0.323*	-0.358**	0.340**
Mandated				–	-0.352**	0.190
Physical Space					–	-0.150
Job Services						–

* $P < 0.05$;

** $P < 0.01$;

*** $P < 0.001$.

TABLE 4

Mixed Model Results of Multi-Level Predictors of Client Engagement in Treatment

Independent predictors	<i>F</i>	<i>P</i>
Individual Race	2.46	0.061
Program Race	0.13	ns
Gender principal component	0.53	ns
Summary	23.35	0.001

ns = not significant.

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