Published in final edited form as:

J Ethn Subst Abuse. 2017 ; 16(3): 380–399. doi:10.1080/15332640.2016.1185657.

A comparison of African American and Caucasian stimulant users in 12-step facilitation treatment

K. Michelle Peavy^{a,b}, Sharon Garrett^a, Suzanne Doyle^a, and Dennis Donovan^a

^aAlcohol & Drug Abuse Institute, University of Washington, Seattle, Washington

^bEvergreen Treatment Services, Seattle, Washington

Abstract

Engagement in 12-step meetings and activities has been shown to be a powerful aid to recovery from substance use disorders. However, only limited attention has been given to ethnic and racial differences in attitudes toward 12-step and involvement. This study utilized data from a large multisite trial testing the effectiveness of a 12-step facilitation therapy with stimulant-dependent treatment seekers. We compared baseline differences and treatment outcomes between African American and Caucasian participants. A select few baseline differences were found (i.e., African Americans reported higher levels of spirituality than Caucasians; African American participants indicated more perceived benefits of 12-step involvement; Caucasians were more likely to endorse future involvement in 12-step). There were no outcome differences (e.g., substance use outcomes, 12-step meeting attendance). The tested intervention produced similar outcomes for both groups, indicating that it may be useful across racial categories.

Keywords

African American; stimulant; 12-step

Introduction

Becoming involved in 12-step meetings (e.g., Alcoholics Anonymous, Narcotics Anonymous) and other 12-step activities can be a powerful aid to recovery from substance use disorders (SUDs). A review of the literature on the effectiveness of 12-step meeting attendance reveals that increased 12-step program engagement (e.g., meeting attendance, sponsorship) is correlated with higher rates of abstinence (Kaskutas, 2009; Moos & Moos, 2006; Witbrodt et al., 2014; Zembore, Subbaraman, & Tonigan, 2013), better alcohol-related outcomes (e.g., fewer days intoxicated in the past month, drinking smaller quantities, fewer alcohol-related problems, more confidence to resist alcohol), as well as more friendship support and improved social functioning (Moos & Moos, 2006; Timko, Moos, Finney, Moos, & Kaplowitz, 1999). In addition to studies focusing on alcohol, there is a growing body of literature supporting the 12-step approach for stimulant users (see Donovan & Wells, 2007, for a review). Accordingly, interventions designed to facilitate 12-step

involvement (i.e., Twelve-Step Facilitation; TSF) have also shown positive results in terms of higher abstinence rates compared to other interventions (Project Match Research Group, 1998), as well as increased abstinence when compared to treatment as usual (Kaskutas, Subbaraman, Witbrodt, & Zembre, 2009; Timko & DeBenedetti, 2007; Timko, DeBenedetti, & Billow, 2006).

Much of the aforementioned research examined samples as a homogeneous group, with limited attention to potentially important group differences. In this study, we focus on group differences between self-identified Caucasians and African Americans. We should note that these groups are themselves heterogeneous and that statements made about one particular cultural group oversimplifies the diversity within that group. Research studies comparing racialized groups, including ours, are subject to bias and dilute the complex nature within these groups. Nonetheless, we feel it is important to explore group differences between self-identified Caucasians and African Americans. By understanding disparities in SUD treatment outcomes, we might better design treatment programs and interventions that maximize treatment engagement and reduce drug use, thereby working to reduce overall racial disparities in health outcomes.

We chose to focus on only two discrete, racialized groups for a number of methodological and conceptual reasons. First, “African American” and “Caucasian” were the two most highly endorsed reported race categories in our sample, and as such allowed for majority/minority group comparisons. This is important because these groups have different experiences within our society, namely that African Americans share the common experience of prejudice and oppression. Among the many examples of racism experienced by African Americans with SUDs is the harsh sentencing experienced by African Americans compared to other racialized groups in regard to drug offenses (Stuntz, 2008). In terms of SUD treatment, research indicates that when compared as “race groups,” there are clear disparities in terms of treatment engagement and retention. Specifically, individuals identifying themselves as African American have been found to have poorer treatment engagement (Acevedo et al., 2015) and treatment retention compared to Caucasians (Cooper, MacMaster, & Rasch, 2010; Milligan, Nich, & Carroll, 2004; Montgomery, Petry, & Carroll, 2012; Saloner & Cook, 2013) but higher rates of representation in treatment samples (Substance Abuse and Mental Health Services Administration [SAMHSA], 2004). Comparisons between African Americans and Caucasians with regard to SUD treatment outcomes are mixed, with some results showing no difference in abstinence rates between African Americans and Caucasians (Hillhouse & Fiorenzino, 2001; Milligan et al., 2004) and others showing lower rates of abstinence among African Americans compared to Caucasians (Hser et al., 2006). There may also be important racial/ethnic differences in engagement in 12-step participation. However, we know less about how African Americans with SUDs respond to 12-step involvement compared to Caucasians as well as the differential effect of TSF interventions on these two groups.

Existing literature exploring African Americans’ integration into 12-step programs is somewhat conflicting. Avalos and Mulia (2012) concluded that Alcoholics Anonymous (AA) utilization “may be more important for maintaining abstinence among whites than blacks” (p. 73), according to results indicating that, among those who did not use AA,

African American individuals had higher rates of abstinence compared to White non-AA using participants. In an article describing the development of a culturally relevant treatment approach for African Americans (Glide African-American Extended Family Program; AAEFP), Smith, Buxton, Bilal, and Seymour (1993) discussed problems with traditional 12-step programs in meeting the needs of African Americans. For example, the authors suggested that the misconception that 12-step meetings are “exclusively white, mainstream, middle-class fellowships” (p.101) is a barrier for potential African American group members, noting that the founders of Alcoholics Anonymous came from White, middle-class backgrounds (Alcoholics Anonymous, 1957). Smith et al. (1993) discussed another possible barrier in committing to the 12-step program for African American individuals: the concepts of “powerlessness” and “surrender” may be more difficult for African Americans, given this group’s history of societal powerlessness and loss of independence. Durant (2005) found that African Americans with alcohol use disorders found it difficult to accept the idea that alcoholism is a disease, a concept that is a central tenant of the 12-step philosophy.

Despite these criticisms, evidence suggests that African American individuals seek out 12-step recovery as much as, or even more than, their Caucasian counterparts (Hillhouse & Fiorentine, 2001; Humphreys, Mavis, & Stofflemayr, 1991; Kaskutas, Weisner, Lee, & Humphreys, 1999). As a group, African Americans appear more likely than Caucasians to report a “spiritual awakening” as a result of AA, to have performed service work at a meeting within the past year, and to report feeling a part of AA (Kaskutas et al., 1999). Kingree (1997) similarly found that African Americans reported more affiliation with 12-step than Caucasians. In their study examining TSF and cognitive-behavioral therapy (CBT) with cocaine-dependent individuals, Maude-Griffin et al. (1998) found that, among African American participants assigned to TSF, those reporting high levels of religious beliefs at intake were more likely to achieve abstinence; this relationship did not hold for participants assigned to CBT.

Taken together, the literature suggests there may be important group-level differences between African Americans and Caucasians with SUDs in terms of involvement in and acceptance of 12-step programming. While this provides useful information about the differential effect of mutual support groups, we are left without any knowledge about racial differences when it comes to treatment aimed at increasing involvement in 12-step (i.e., TSF interventions). Further, the majority of the research cited here used samples that were alcohol users or focused on Alcoholics Anonymous specifically. Information about the effectiveness of TSF treatments with substances beyond alcohol (i.e., stimulants) and for specific racialized groups not only adds to the larger body of literature, but is particularly important given that certain African American communities appear to be disproportionately plagued with the destabilizing problems associated with crack cocaine addiction (DePadilla & Wolfe, 2012; Scott, Edwards, Lussier, Devine, & Easton, 2011). In this study, we examine the Stimulant Abuser Groups to Engage in 12-step Programs (STAGE-12) intervention, a combined group and individual 12-step facilitative treatment targeting stimulant abusers (Donovan et al., 2013) to determine whether African American and Caucasian stimulant abusers respond to STAGE-12 in differential ways. We wanted not only to examine whether African American and Caucasian groups differ in terms of treatment outcome, but also to

explore differences among racialized groups in attitudes toward and engagement in 12-step programming.

We hypothesized that there would be differences in treatment outcomes (e.g., abstinence rates or 12-step meeting attendance) between African Americans and Caucasians. Although research indicates that, in general, African Americans tend to have poorer treatment outcomes than Caucasians (Hser et al., 2006), there is some suggestion that this group would respond more positively to an intervention incorporating 12-step concepts than to other interventions (Kingree, 1997). Thus, we hypothesized that African American participants would demonstrate better treatment outcomes in STAGE-12 than the Caucasian participants. We also hypothesized that African Americans would indicate greater spiritual involvement and beliefs than Caucasian participants. This hypothesis is based on the research showing that African Americans respond positively to the spiritual aspects of the 12-step philosophy (Kaskutas et al., 1999; Maude-Griffin et al., 1998). Furthermore, religious involvement tends to be higher for African Americans compared to Caucasians (Taylor, Chatters, Jayakody, & Levin, 1996). Spirituality has been shown to predict more favorable psychosocial outcomes in a substance use disordered treatment sample (Piedmont, 2004), as well as relate to better substance use treatment outcomes, more so for African Americans than for Caucasians (Krentzman, Farkas, & Townsend, 2010).

To explore these hypotheses, we used a large sample from a multisite, randomized clinical trial conducted within the National Institute on Drug Abuse (NIDA) National Drug Abuse Treatment Clinical Trials Network (CTN); this trial evaluated the STAGE-12 intervention compared to treatment as usual. Our objective was to extend the research examining whether racial identity was associated with different substance use and psychosocial outcomes. Addressing this important issue could have implications for treatment matching, treatment adaptation to improve outcomes, and referral to 12-step groups.

Methods

Participants

Participants were recruited from 10 SUD outpatient community treatment programs (CTPs) in the United States. Treatment seekers were included in the study if they were identified as having a stimulant use disorder. The specific and remaining inclusion criteria for this study were as follows: (a) age 18 years or older; (b) in outpatient treatment at participating CTP; (c) stimulant drug use within the past 60 days (or within the past 90 days if incarcerated during the past 60 days); (d) DSM-IV diagnostic criteria for current (within the past 6 months) abuse or dependence on a stimulant drug as primary or secondary drug of abuse; (e) able to provide consent and willing to provide information about alcohol and drug use, be randomly assigned to a treatment condition, and be audio recorded during group and individual counseling sessions. Exclusion criteria included (a) needing detoxification for opiate withdrawal; (b) seeking detoxification only, methadone maintenance, or residential/inpatient treatment; (c) having a medical or psychiatric condition that would make participation hazardous; (d) being incarcerated more than 60 days within the 90 days prior to baseline; or (e) having pending legal action that would prohibit participation in the study. Participants were randomized into Treatment as Usual (TAU) or TAU plus STAGE-12

Substitution. Randomization was stratified by site and by whether or not treatment was court mandated. All study procedures were approved by the Institutional Review Board at the University of Washington, as well as by the review boards of the universities associated with all participating sites.

Treatment conditions

Treatment as usual—All participants received treatment as usual (TAU) delivered by CTP counselors. TAU consisted of a minimum of two sessions and 5–15 hours of weekly outpatient therapy as typically provided by the CTP. CTPs differed in theoretical orientation, some reflecting a 12-step philosophy, which may have included encouragement of clients to become involved in 12-step activities. However, this type of encouragement was not applied in a systematic manner, as in STAGE-12, and TAU counselors did not provide participants with the components of the STAGE-12 intervention described in the following.

TAU plus STAGE-12 substitution—The STAGE-12 intervention (Daley, Baker, Donovan, Hodgkins, & Perl, 2011) substituted for five 90-minute group TAU sessions and three 45–75 minute individual TAU sessions over the course of 5–8 weeks. STAGE-12 replaced a portion of TAU for this group, so that both conditions received an equivalent number of hours of treatment. STAGE-12 group sessions, based on an adaptation of twelve-step facilitation for drug abusers (Baker, 1998) and for delivery in a group format (Brown, Seraganian, Tremblay, & Annis, 2002), focused on helping participants better understand and incorporate core principles of 12-step programs. See Daley et al. (2011) and Donovan et al. (2013) for a full description of the intervention.

Counselors and fidelity

Two STAGE-12 counselors were randomly selected from a pool of volunteers at each participating CTP to conduct the study intervention. Twenty percent of recorded group and individual sessions were randomly selected to be rated by both on-site supervisors and centralized raters. These ratings were used for both fidelity monitoring and supervision. Counselors who were unable to achieve adequate fidelity were asked to complete additional training and increased supervision until they met the fidelity requirement. More information about counselor selection and monitoring can be found in Donovan et al. (2013).

Measures

Research interviews were conducted by bachelor's or master's level research assistants at baseline and weeks 4 and 8, with 3- and 6-month follow-up interviews.

Demographics—This measure included age, gender, race, and ethnicity and was used to create the race variable for the current study. Participants self-identified as American Indian or Alaskan Native, Asian, Black or African American, Native Hawaiian or Pacific Islander, White, or other, and had the option to “check all that apply.” Ethnicity was a separate item on this form and included the identification of “Hispanic or Latino,” “Not Hispanic or Latino,” or “Participant chose not to answer.” Racial and ethnic categories match those used by the U.S. Census Bureau. For the purposes of this study, individuals who self-identified as either “African American” or “White” were included in their respective groups. Neither

group included individuals self-identifying their ethnicity as “Hispanic or Latino,” and neither group included individuals identifying themselves in more than one race category.

Primary drug—The primary drug used by the participant (cocaine, amphetamines, methamphetamines, other stimulants, alcohol, marijuana/hashish, opioids, or benzodiazepines) was classified from the DSM-IV Criteria Checklist interview (Hudziak et al., 1993).

Addiction Severity Index—The Addiction Severity Index, Lite version (ASI-Lite; McLellan et al., 1992) is a multidimensional, semi-structured interview that provides problem severity composite scores (range 0 to 1) in seven areas commonly found in individuals with SUDs: Alcohol, Drug, Medical, Psychiatric, Legal, Family/Social, and Employment. Participants completed the ASI-Lite at baseline and at 3- and 6-month follow-up visits.

Attitudes toward 12-step—Four instruments, administered at baseline, were included to assess initial beliefs and attitudes about the 12-step model. The Survey of Readiness for Alcoholics Anonymous Participation (SYRAAP; Kingree, Simpson, Thompson, McCrady, & Tonigan, 2007; Kingree et al., 2006) is a 15-item assessment that measures ambivalence toward the 12-step approach and readiness to become involved in 12-step groups. It provides a total score and three subscale scores of an individual’s Perceived Severity of their substance use problem, the Perceived Benefits of 12-step participation, and Perceived Barriers to attending 12-step groups.

The 12-step Experiences and Expectations (TSEE), specifically developed for this project, is a brief measure of participants’ prior experiences with 12-step groups (e.g., prior meeting attendance across a number of 12-step self-help groups, how helpful previous group involvement was, and an overall rating from *extremely positive* to *extremely negative* of those experiences) and expectations about 12-step group involvement in their current treatment (e.g., how likely they are to get involved and how helpful the involvement would be).

Spirituality is an important component of the 12-step model. The Spiritual Involvement and Beliefs Scale (SIBS-R; Hatch, Burg, Naberhaus, & Hellmich, 1998) measures multiple aspects of how spirituality is experienced by participants. It includes four subscale scores reflecting Core Spirituality, Spiritual/Existential perspective, personal Application/Humility, and Acceptance/Insight.

The Short Understanding of Substance Abuse Scale (SUSS; Humphreys, Greenbaum, Noke, & Finney, 1996) was used to assess participants’ beliefs about the treatment and etiology of addiction. It includes three factor analytically derived subscales: Disease model, Psychosocial model, and Eclectic orientation.

Treatment outcome measures—Substance use was evaluated at all study visits and for analysis purposes was calculated as the number of days of self-reported stimulant or nonstimulant drug use within 30-day periods assessed by the substance use calendar (SUC),

which is similar to the timeline follow-back procedure (Sobell & Sobell, 1992). Stimulant use includes cocaine, amphetamines, methamphetamines, and other stimulants. Nonstimulant use includes alcohol, marijuana/hashish, opioids, and benzodiazepines.

Level of participation in community recovery meetings was documented at all research visits using the Self-Help Activities Questionnaire (SHAQ), a self-report measure that has been used to describe and measure change in self-help behavior (Weiss et al., 1996, 2005). The assessment window was modified from 1 week to 30 days to allow results to be comparable to other measures. Days of 12-step meeting attendance was also recorded on the SUC.

A Participant Satisfaction Survey (PSS) was completed at the end of the treatment phase (week 8) by those assigned to the TAU plus STAGE-12 Substitution group to assess global satisfaction with, as well as perceived helpfulness of specific components of, the intervention. The global questions were modeled on those used in prior studies that assessed patient satisfaction (e.g., Attkisson & Greenfield, 1994, 1999; Donovan, Kadden, DiClemente, & Carroll, 2002). Specific items included ratings of group and individual sessions, assignments or “recovery tasks,” and use of a volunteer to connect to a recovery meeting.

Data analysis

Analysis of baseline measures—Differences between Caucasians and African Americans on age and years of education were evaluated with *t* tests; a test of two independent proportions was used with the primary drug of choice. Due to nonnormal distributions for all ASI Composite scores, the SYRAAP subscales, and 12-Step Experiences and Expectations (TSEE), the nonparametric Wilcoxon two-sample rank sum test was used to evaluate differences between racialized groups. Self-report responses to the four SIBS-R subscales and its total score, and the three SUSS subscales were assessed by utilizing a generalized linear model (GLM) with gender and age as covariates.

Analysis of treatment outcome measures—Analyses were conducted to assess the moderating effect of self-reported race category with treatment (STAGE-12 vs. TAU) on the outcomes of stimulant use, nonstimulant use, and self-help meeting attendance. Stimulant and nonstimulant use are count data, and due to the excess of zeros and over-dispersion with these two measures, a zero-inflated negative binomial regression model was utilized. This is a mixture regression model with two components: a logistic part for zero inflation (abstinence vs. use) and a negative binomial part to assess the full range of count values at each time-point (midtreatment and end of treatment). The covariate for this model was the average number of days of stimulant use or nonstimulant use within the 90 days prior to randomization. The interaction effects of the race variable and treatment for the zero-inflated models were interpreted by considering both the odds ratios (OR) for the logistic part of the model and the rate ratio (RR) for the negative binomial part of the model, along with their 95% confidence intervals (CI), and was conducted with algorithms for the interaction OR or RR provided by Hilbe (2011).

A regular negative binomial regression model was used for the self-help meeting attendance, with RRs and their 95% confidence intervals used for interpretation. The PSS overall

satisfaction and perceived helpfulness of treatment were assessed by utilizing a GLM model with gender and age as covariates.

Results

Baseline results

All baseline results are summarized in Tables 1 and 2.

Demographics—Of the 395 participants ultimately enrolled and included in the analyses, 43.3% reported their race as African American, and 56.7% reported being Caucasian (see Table 1). The mean age was 39.1, and slightly more women than men were enrolled (58.7% female). African Americans had an average age of about 6 years older.

Drug of choice—Table 1 details results for the sample in terms of drug of choice. Significant differences in the primary drug of choice were obtained. Cocaine was reported as the primary drug by more African Americans than Caucasians (83.0% vs. 36.2%), whereas methamphetamine was the primary choice predominantly among Caucasians (42.0% among Caucasians vs. only 0.6% among African Americans). However, Caucasians tended to select methamphetamines and cocaine equally, in that there was no statistically significant difference in the proportions (42.0% for methamphetamines vs. 36.2% for cocaine).

Addiction Severity Index—Concerning the ASI composite scores, African Americans had statistically significantly higher scores on Alcohol, Medical, and Employment composite scores, but lower scores on the Legal composite when compared to Caucasians. There were no differences between racialized groups on the Drug, Family/Social, or Psychiatric composite scores (see Table 1).

Spiritual involvement and beliefs—African Americans had higher scores than Caucasian participants on the Core Spirituality subscale ($F_{1,329} = 18.71, p < .0001$), the Personal Application/Humility subscale ($F_{1,374} = 10.88, p = .0011$), and the total SIBS-R measure of spirituality ($F_{1,317} = 14.45, p = .0002$). The other two subscales did not reveal statistically significant differences between racialized groups: Perspective/Existential ($F_{1,350} = 0.01, p = .9523$) and Acceptance/Insight ($F_{1,380} = 0.34, p = .5585$).

Readiness for 12-step—Results indicate a statistically significant difference on the Perceived Benefits subscale ($z = 2.35, p = .0187$), with African Americans scoring higher than Caucasians. There were no differences found with the Perceived Severity ($z = 0.08, p = .9345$) or Perceived Barriers ($z = 1.75, p = .0803$) subscales or on the total SYRAAP score ($z = 0.36, p = .7153$).

Experiences and expectations—No significant difference was found between African Americans and Caucasians on the Experiences score ($z = 0.45, p = .6559$). By contrast, a statistically significant difference was obtained on the Expectations score ($z = 1.99, p = .0469$), with Caucasians scoring slightly higher than African Americans. Post hoc analyses on each of the two items composing the Expectations score indicate a significant difference on “how likely they were to get involved” in self-help meetings ($z = 3.49, p = .0005$), with

Caucasians scoring higher than African Americans, but no difference was found on “how helpful the involvement in a self-help group would be” ($z = 0.36, p = .7179$).

Beliefs about treatment and etiology of addiction—The results indicate a statistically significant difference for the Eclectic orientation subscale ($F_{1,338} = 11.21, p = .0009$), with Caucasians scoring higher than African Americans. No differences were found for the other two subscales: Disease model subscale ($F_{1,341} = 2.40, p = .1223$) and the Psychosocial model ($F_{1,353} = 3.62, p = .0580$).

Treatment outcome results

Stimulant use—The zero-inflated regression model indicated no differences in abstinence or in rate of use between racialized groups at midtreatment. The odds ratio for abstinence between African Americans and Caucasians in TAU was $OR = 1.23$ (95% CI = 0.31, 4.94) and in STAGE-12, $OR = 2.35$ (95% CI = 0.56, 9.83). The rate of stimulant use between racialized groups in TAU was $RR = 0.57$ (95% CI = 0.25, 1.31) and in STAGE-12, $RR = 1.67$ (95% CI = 0.66, 4.23). Similar results were obtained at end of treatment but are not detailed here.

Nonstimulant use—Similar to stimulant use, the results reveal no differences in abstinence or in the rate of use between African Americans and Caucasians at both midtreatment and end of treatment. The odds ratio for abstinence at midtreatment between the two race group categories was $OR = 1.61$ (95% CI = 0.36, 7.13) in TAU and $OR = 0.80$ (95% CI = 0.21, 3.03) in STAGE-12. Rate ratios were $RR = 1.32$ (95% CI = 0.59, 3.00) and $RR = 0.74$ (95% CI = 0.33, 1.64) for TAU and STAGE-12, respectively. End-of-treatment results are also similar and are not reported here.

Self-help meeting attendance—At midtreatment and end of treatment, the rate of attending AA, NA, CA, or CMA meetings in the prior 30 days was not different between racialized groups. At midtreatment, $RR = 0.87$ (95% CI = 0.67, 1.14) for participants in TAU and $RR = 1.16$ (95% CI = 0.92, 1.48) in STAGE-12. Analogous results were obtained at the end-of-treatment assessment.

Overall satisfaction and perceived helpfulness of treatment—For participants in the STAGE-12 treatment only, Caucasians indicated higher overall satisfaction than did African Americans ($F_{1, 136} = 3.96, p = .0485$). Differences between African American and Caucasian stimulant users were not found on the perceived helpfulness of treatment ($F_{1, 143} = 1.42, p = .2360$).

Discussion

This study examined baseline and treatment outcome differences between African American and Caucasian participants in a randomized clinical trial testing the STAGE-12 intervention. Consistent with existing literature (Booth, Leukefeld, Falck, Wang, & Carlson, 2006; Kramer, Han, & Booth, 2009; Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2008), African American participants tended to be older and more likely to report cocaine as their primary substance than Caucasians. Caucasian participants

reported a higher likelihood of having attended 12-step groups prior to the study, while African American individuals reported more perceived benefit from prior meeting attendance. Also at baseline, the African American group reported a higher level of spiritual involvement and beliefs (as measured by SIBS-R) than Caucasian participants, which is consistent with previous research (Krentzman et al., 2010). This is a relevant finding because spirituality is an important part of the 12-step model. In fact, spiritual growth is thought to be a change mechanism specific to 12-step programs, one study demonstrating that changes in reported spiritual beliefs predicted better alcohol use outcomes during early 12-step affiliation (Tonigan, Reyes, & McCrady, 2013). Spirituality may play a larger role in the overall recovery efforts of African Americans. Research has shown that spirituality moderates the relationship between traumatic life events and drug use/mental health outcomes among African American women (Staton-Tindall, Duvall, Stevens-Watkins, & Oser, 2013). Differences between African American and Caucasian stimulant users on the SIBS-R could be related to specific features of African American culture, for example, the important role of church in the African American community. It should be noted that we did not find any previous research that examined differences between racialized groups in interpretation of this measure (i.e., measurement equivalence). Therefore, the SIBS-R may not be measuring the same construct in both groups, overlooking important differences between African Americans and Caucasians in spirituality. That said, there is no evidence that the SIBS-R is inappropriate for either group, and previous research has used this measure with samples using majority African American participants (Litwinczuk & Groh, 2007) and with samples that are majority Caucasian (Lease, Horne, & Noffsinger-Frazier, 2005).

The two groups we examined were comparable in terms of their endorsement of medical/disease and psychosocial models by which they indicated understanding addiction. However, the Caucasian group exhibited a higher score on the “eclectic” model scale, which indicates less a reflective belief about the etiology of addiction and more a belief that diverse treatment approaches may be effective with people struggling with SUDs (Humphreys et al., 1996). These last two baseline differences may suggest that African Americans would be more amenable to treatments emphasizing 12-step. However, despite the baseline differences that emerged, there were no differences in treatment outcomes. That is, STAGE-12 did not result in any better or worse treatment outcomes (i.e., substance use, 12-step meeting attendance) for African American participants than it did for Caucasians. The finding that this TSF intervention performed equally well among African American and Caucasian participants is promising, given that much of the previous research on TSF treatments has focused on alcohol, and stimulant use may present unique problem profiles for African American and Caucasian individuals. It should be noted that there were differences in treatment outcome generally (STAGE-12 vs. TAU; see Donovan et al., 2013), as well as differences in outcomes according to level of exposure to the treatment (Wells et al., 2014). However, our results indicate that within treatment groups, there were no differences between African American and Caucasian groups. While previous studies have not compared African Americans and Caucasians on the exact same intervention, Kingree’s (1997) research, as well as research regarding spirituality and its positive effect on treatment

outcome, led us to speculate that African Americans would have better treatment outcomes. One potential reason for the inconsistency includes inadequate measurement of constructs.

With regard to treatment outcomes, our findings indicate a lack of group differences. This information is important for clinicians deciding which evidence-based practice might be best applied to a particular client. Our results show that TSF treatment can be recommended to African American and Caucasian stimulant users, and such a recommendation falls in line with another examination of group differences in which urban American Indian and Caucasian individuals were compared in regard to 12-step attendance and engagement and substance use outcomes (Tonigan, Martinez-Papponi, Hagler, Greenfield, & Venner, 2013). Similarly, these researchers found no group differences. Results demonstrating no differences between racialized groups indicate that encouragement to engage in 12-step facilitation treatment may be appropriate for both African American and Caucasian stimulant users. In addition, while the results add to the body of literature indicating that self-reported race does not predict response to 12-step recovery, null results help to increase our confidence in generalizing treatment outcomes to racial/ethnic minorities. Not all evidence-based practices perform equally as well across subgroups. For example, treatment outcomes were not as favorable for African American cocaine users as they were for Caucasian cocaine users in a contingency management trial (Montgomery, Carroll, & Petry, 2015). We should note that any treatment outcome analyses using “race categories” as an independent variable are relatively rare. Even though this kind of exploration is flawed as described earlier in this article, this line of inquiry is valuable because understanding disparities in treatment outcomes fits into a broader question of how we understand and address health disparities.

Furthermore, conducting comparisons between racialized groups also falls in line with specific researcher recommendations (Burlew, Weekes, et al., 2011). Specifically, these researchers encourage use of data analytic strategies that look at specific racial and ethnic minority groups; as well, they recommend the avoidance of combining racial and ethnic minority groups for data analysis. These researchers also encourage examination of treatment matching, or whether matching counselor/client dyads based on self-identified race makes a difference in terms of treatment outcomes. Finally, they recommend a focus on more recruitment and retention of racial/ethnic minorities in clinical trials research as they point out that racial minorities tend to be underrepresented in research, with poorer retention (Burlew, Larios, et al. 2011; Burlew, Weekes, et al., 2011). In the current study, we were able to obtain a relatively large sample that had some degree of racial diversity and could be used to compare two of the most-represented racial groups. Indeed, the sample size and diversity is a strength of the study.

Limitations

This study has a number of limitations. First, racialized groups may differ on a number of important variables not fully accounted for in our statistical model, such as employment and education. These variables could have contributed to differences in treatment outcomes. In this sample, educational attainment did not differ between African American and Caucasian stimulant users; however, employment did. That this was not included in the final model is a

limitation of these analyses and may need to be explored further in future, similar inquiries. A second major limitation of the study is the absence of data analytic strategies that account for differences in understanding and interpretation of instruments used, namely measurement equivalence. In fact, the recommendations made by Burlew, Weeks et al. (2011) regarding the conduct of effective research with racial/ethnic minorities indicate that measures used in SUD treatment clinical trials should be initially evaluated for their comparative effectiveness across racial and ethnic groups. While certain measures have been examined for this purpose (e.g., Revised Helping Alliance Questionnaire, HAQ-II; Dillon, 2013), we know of no measurement equivalence studies examining the measures used for the STAGE-12 study. Without measurement equivalence, it is unclear whether important between-group differences were left uncovered; similarly, we are unsure to what extent the group differences on the ASI-Lite, for example, demonstrate true differences or reflect interviewer bias. Future studies should address measurement equivalence analysis for the measures used in this study. A final limitation included the current study's emphasis on only two racialized groups; comparison among other racialized groups would not have been permitted given the parent study's sample size and the relatively small number of other minorities represented. As has also been suggested by Burlew, Larios, et al. (2011) and Burlew, Weekes, et al. (2011), we recommend that researchers continue to work toward increased enrollment of racial and ethnic minorities in clinical trials, as well as conduct more treatment-matching studies. Despite the aforementioned limitations, this work is aligned with the greater goal of research aimed at examining the intersection between self-identified race and SUD treatment outcomes. Results indicating no significant differences between African American and Caucasian groups support the recommendation of TSF interventions for individuals of both racialized groups.

Acknowledgments

The authors thank all the individuals involved in the STAGE-12 study, including the clinical and research staff at each of the Community Treatment Programs, as well as participants enrolled in the study.

Funding

This work was supported by the National Institute on Drug Abuse Clinical Trials Network: Pacific Northwest Node (U10DA013714; Dennis Donovan, PI).

References

- Acevedo A, Garnick DW, Dunigan R, Horgan CM, Ritter GA, Lee MT, Wright D. Performance measures and racial/ethnic disparities in the treatment of substance use disorders. *Journal of Studies on Alcohol and Drugs*. 2015; 76:57–67. [PubMed: 25486394]
- Alcoholics Anonymous. Alcoholics anonymous comes of age: A brief history of AA. New York, NY: Alcoholics Anonymous World Services; 1957.
- Attkisson, CC., Greenfield, TK. Client satisfaction questionnaire-8 and service satisfaction scale-30. In: Maruish, ME., editor. *The use of psychological testing for treatment planning and outcome assessment*. Hillsdale, NJ: Lawrence Erlbaum Associates; 1994. p. 402-420.
- Attkisson, CC., Greenfield, TK. The UCSF client satisfaction scales: I. The client satisfaction questionnaire-8. In: Maruish, ME., editor. *The use of psychological testing for treatment planning and outcomes assessment*. Mahwah, NJ: Lawrence Erlbaum Associates; 1999. p. 1333-1346.

- Avalos LA, Mulia N. Formal and informal substance use treatment utilization and alcohol abstinence over seven years: Is the relationship different for blacks and whites? *Drug and Alcohol Dependence*. 2012; 121:73–80. [PubMed: 21940115]
- Baker, S. Twelve step facilitation for drug dependence. New Haven, CT: Psychotherapy Development Center, Department of Psychiatry, Yale University; 1998.
- Booth B, Leukefeld C, Falck R, Wang J, Carlson R. Correlates of rural methamphetamine and cocaine users: Results from a multistate community study. *Journal of Studies on Alcohol*. 2006; 67:493–501. [PubMed: 16736068]
- Brown TG, Seraganian P, Tremblay J, Annis H. Process and outcome changes with relapse prevention versus 12-step aftercare programs for substance abusers. *Addiction*. 2002; 97:677–689. [PubMed: 12084137]
- Burlew AK, Larios S, Suarez-Morales L, Holmes B, Venner K, Chavez R. Increasing ethnic minority participation in substance abuse clinical trials: Lessons learned in the national institute on drug abuse's clinical trials network. *Cultural Diversity and Ethnic Minority Psychology*. 2011; 17:345–356. [PubMed: 21988575]
- Burlew AK, Weekes JC, Montgomery L, Feaster DJ, Robbins MS, Rosa CL, Wu LT. Conducting research with racial/ethnic minorities: Methodological lessons from the NIDA clinical trials network. *The American Journal of Drug and Alcohol Abuse*. 2011; 37:324–332. [PubMed: 21854274]
- Cooper R, MacMaster S, Rasch R. Racial differences in retention in residential substance abuse treatment: The impact on African American men. *Research on Social Work Practice*. 2010; 20:183–190.
- Daley DC, Baker S, Donovan DM, Hodgkins CC, Perl H. A combined group and individual 12-step facilitative intervention targeting stimulant abuse in the NIDA Clinical Trials Network: STAGE-12. *Journal of Groups in Addiction and Recovery*. 2011; 6:228–244. [PubMed: 22859917]
- DePadilla, L., Wolfe, M. Drug abuse patterns and trends in Atlanta – Update, January 2012. Epidemiologic trends in drug abuse: Proceedings of the community epidemiology work group: Highlights and executive summary. Bethesda, MD: U.S. Department of Health and Human Service, National Institutes of Health; 2012.
- Dillon FR. Measurement equivalence of the revised helping alliance questionnaire across African American and non-Latino white substance using adult outpatients. *Journal of Substance Abuse Treatment*. 2013; 45:173–178. [PubMed: 23522849]
- Donovan DM, Daley DC, Brigham GS, Hodgkins CC, Perl HI, Garrett SB, Zammarelli L. Stimulant abuser groups to engage in 12-Step: A multisite trial in the national institute on drug abuse clinical trials network. *Journal of Substance Abuse Treatment*. 2013; 44:103–114. [PubMed: 22657748]
- Donovan DM, Kadden RM, DiClemente CC, Carroll KM. Client's satisfactions with three therapies in treatment of alcohol dependence: Results from project MATCH. *American Journal of Addiction*. 2002; 11:291–307.
- Donovan DM, Wells E. 'Tweaking 12-step': The potential role of 12-step self-help group involvement in methamphetamine recovery. *Addiction*. 2007; 102:121–129. [PubMed: 17493061]
- Durant A. African-American alcoholics: An interpretive/constructivist model of affiliation with alcoholics. *Journal of Ethnicity in Substance Abuse*. 2005; 4:5–21. [PubMed: 16870569]
- Hatch RL, Burg MA, Naberhaus DS, Hellmich LK. The spiritual involvement and beliefs scale. Development and testing of a new instrument. *Journal of Family Practice*. 1998; 46:476–486. [PubMed: 9638112]
- Hilbe, JM. Negative binomial regression. 2nd. New York, NY: Cambridge University Press; 2011.
- Hillhouse M, Fiorentine R. 12-step program participation and effectiveness: Do gender and ethnic differences exist? *Journal of Drug Issues*. 2001; 31:767–780.
- Hser Y, Stark M, Paredes A, Huang D, Anglin M, Rawson R. A 12-year follow up of a treated cocaine-dependent sample. *Journal of Substance Abuse Treatment*. 2006; 30:219–226. [PubMed: 16616166]
- Hudziak JJ, Helzer JE, Wetzel MW, Kessel KB, McGee B, Janca A, Przybeck T. The use of the DSM-III-R checklist for initial diagnostic assessment. *Comprehensive Psychiatry*. 1993; 34:375–383. [PubMed: 8131381]

- Humphreys K, Greenbaum MA, Noke JM, Finney JW. Reliability, validity, and normative data for a short version of the understanding of alcoholism scale. *Psychology of Addictive Behaviors*. 1996; 10:38–44.
- Humphreys K, Mavis B, Stofflemayr B. Factors predicting attendance at self-help groups after substance abuse treatment: Preliminary findings. *Journal of Consulting & Clinical Psychology*. 1991; 59:591–593. [PubMed: 1918563]
- Kaskutas L. Alcoholics anonymous effectiveness: Faith meets science. *Journal of Addictive Diseases*. 2009; 28:145–157. [PubMed: 19340677]
- Kaskutas L, Subbaraman M, Witbrodt J, Zemore S. Effectiveness of making alcoholics anonymous easier: A group format 12-step facilitation approach. *Journal of Substance Abuse Treatment*. 2009; 37:228–239. [PubMed: 19339148]
- Kaskutas L, Weisner C, Lee M, Humphreys K. Alcoholics anonymous affiliation at treatment intake among white and black Americans. *Journal of Studies on Alcohol*. 1999; 60:810–816. [PubMed: 10606493]
- Kingree J. Measuring affiliation with 12-step groups. *Substance Use & Misuse*. 1997; 32:181–194. [PubMed: 9044546]
- Kingree JB, Simpson A, Thompson M, McCrady B, Tonigan JS. The predictive validity of the survey of readiness for alcoholics anonymous participation. *Journal of Studies on Alcohol*. 2007; 68:141–148.
- Kingree JB, Simpson A, Thompson M, McCrady B, Tonigan JS, Lautenschlager G. The development and initial evaluation of the survey of readiness for alcoholics anonymous participation. *Psychology of Addictive Behaviors*. 2006; 20:453–462. [PubMed: 17176180]
- Kramer T, Han X, Booth B. Young adult, rural, African American stimulant users: Antecedents and vulnerabilities. *Journal of Ethnicity in Substance Abuse*. 2009; 8:378–399. [PubMed: 20098663]
- Krentzman A, Farkas K, Townsend A. Spirituality, religiousness, and alcoholism treatment Outcomes: A comparison between black and white participants. *Alcoholism Treatment Quarterly*. 2010; 28:128–150. [PubMed: 22707846]
- Lease SH, Horne SG, Noffsinger-Frazier N. Affirming faith experiences and psychological health for Caucasian lesbian, gay, and bisexual individuals. *Journal of Counseling Psychology*. 2005; 52:378–388.
- Litwinczuk KM, Groh CJ. The relationship between spirituality, purpose in life, and well-being in HIV-positive persons. *Journal of the Association of Nurses in AIDS Care*. 2007; 18:13–22.
- Maude-Griffin P, Hohenstein J, Humfleet G, Reilly P, Tusel D, Hall S. Superior efficacy of cognitive-behavioral therapy for urban crack cocaine abusers: Main and matching effects. *Journal of Consulting and Clinical Psychology*. 1998; 66(5):832–837. [PubMed: 9803702]
- McLellan AT, Kushner H, Metzger D, Peters R, Smith I, Grissom G, Argeriou M. The fifth edition of the addiction severity index. *Journal of Substance Abuse Treatment*. 1992; 9:199–213. [PubMed: 1334156]
- Milligan CO, Nich C, Carroll KM. Ethnic differences in substance abuse treatment retention, compliance, and outcome from two clinical trials. *Psychiatric Services*. 2004; 55:167–173. [PubMed: 14762242]
- Montgomery L, Carroll KM, Petry NM. Initial abstinence status and contingency management treatment outcomes: Does race matter? *Journal of Consulting and Clinical Psychology*. 2015; 83(3):473–481. [PubMed: 25798729]
- Montgomery L, Petry NM, Carroll KM. Moderating effects of race in clinical trial participation and outcomes among marijuana-dependent young adults. *Drug and Alcohol Dependence*. 2012; 126:333–339. [PubMed: 22743160]
- Moos R, Moos B. Participation in treatment and alcoholics anonymous: A 16-year follow-up of initially untreated individuals. *Journal of Clinical Psychology*. 2006; 62:735–750. [PubMed: 16538654]
- Piedmont RL. Spiritual transcendence as a predictor of psychosocial outcome from an outpatient substance abuse program. *Psychology of Addictive Behaviors*. 2004; 18:213–222. [PubMed: 15482076]

- Project MATCH Research Group. Matching alcoholism treatments to client heterogeneity: Project MATCH three-year drinking outcomes. *Alcoholism: Clinical and Experimental Research*. 1998; 22:1300–1311.
- Saloner B, Cook BL. Blacks and Hispanics are less likely than whites to complete addiction treatment, largely due to socioeconomic factors. *Health Affairs*. 2013; 32:135–145. [PubMed: 23297281]
- Scott MC, Edwards L, Lussier LR, Devine S, Easton CJ. Differences in legal characteristics between Caucasian and African-American women diverted into substance abuse treatment. *The Journal of the American Academy of Psychiatry and the Law*. 2011; 39:65–71. [PubMed: 21389168]
- Smith DE, Buxton ME, Bilal R, Seymour RB. Cultural points of resistance to the 12-step recovery process. *Journal of Psychoactive Drugs*. 1993; 25:97–108. [PubMed: 8483054]
- Sobell, LC., Sobell, MB. Timeline followback: A technique for assessing self-reported alcohol consumption. In: Litten, RZ., Allen, JP., editors. *Measuring alcohol consumption: Psychosocial and biological methods*. Totowa, NJ: Humana Press; 1992. p. 41-72.
- Staton-Tindall M, Duvall J, Stevens-Watkins D, Oser CB. The role of spirituality in the relationship between traumatic life events, mental health, and drug use among African American women. *Substance Use & Misuse*. 2013; 48:1246–1257. [PubMed: 24041186]
- Stuntz WJ. Unequal justice. *Harvard Law Review*. 2008; 121:1969–2040.
- Substance Abuse and Mental Health Services Administration. Rockville, MD: SAMHSA Office of Applied Studies; 2004. Treatment episode data sets: Highlights 2004. Retrieved from <http://www.dasis.samhsa.gov/teds04/tedshigh2k4.pdf>
- Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Rockville, MD: 2008. The DASIS Report: Primary Methamphetamine/Amphetamine Admissions to Substance Abuse Treatment: 2005. Retrieved from <http://www.oas.samhsa.gov/2k8/methamphetamineTX/meth.pdf>
- Taylor R, Chatters L, Jayakody R, Levin J. Black and white differences in religious participation: A multisample comparison. *Journal for the Scientific Study of Religion*. 1996; 35:403–410.
- Timko C, DeBenedetti A. A randomized controlled trial of intensive referral to 12 step self-help groups: One-year outcomes. *Drug & Alcohol Dependence*. 2007; 90:270–279. [PubMed: 17524574]
- Timko C, DeBenedetti A, Billow R. Intensive referral to 12-step self-help groups and 6-month substance use disorder outcomes. *Addiction*. 2006; 101:678–688. [PubMed: 16669901]
- Timko C, Moos RH, Finney JW, Moos BS, Kaplowitz MS. Long-term treatment careers and outcomes of previously untreated alcoholics. *Journal of Studies on Alcohol*. 1999; 60:437. [PubMed: 10463799]
- Tonigan JS, Martinez-Papponi B, Hagler KJ, Greenfield BL, Venner KL. Longitudinal study of urban American Indian 12-step attendance, attrition, and outcome. *Journal on Studies on Alcohol and Drugs*. 2013; 74:514–520.
- Tonigan JS, Rynes KN, McCrady BS. Spirituality as a change mechanism in 12-step programs: A replication, extension, and refinement. *Substance Use & Misuse*. 2013; 48:1161–1173. [PubMed: 24041178]
- Weiss RD, Griffin ML, Gallop RJ, Najavits LM, Frank A, Crits-Christoph P, Luborsky L. The effect of 12-step self-help group attendance and participation on drug use outcomes among cocaine-dependent patients. *Drug and Alcohol Dependence*. 2005; 77:177–184. [PubMed: 15664719]
- Weiss RD, Griffin ML, Najavits LM, Hufford C, Kogan J, Thompson HJ, Siqueland L. Self-help activities in cocaine dependent patients entering treatment: results from NIDA collaborative cocaine treatment study. *Drug and Alcohol Dependence*. 1996; 43:79–86. [PubMed: 8957146]
- Wells EA, Donovan DM, Daley DC, Doyle SR, Brigham G, Garrett S, Walker R. Is level of exposure to a 12-step facilitation therapy associated with treatment outcome? *Journal of Substance Abuse Treatment*. 2014; 47:265–274. [PubMed: 25064421]
- Witbrodt J, Yu Y, Bond J, Chi F, Weisner C, Mertens J. Alcohol and drug treatment involvement, 12-step attendance and abstinence: 9-year cross-lagged analysis of adults in an integrated health plan. *Journal of Substance Abuse Treatment*. 2014; 46:412–419. [PubMed: 24342024]
- Zemore SE, Subbaraman M, Tonigan JS. Involvement in 12-step activities and treatment outcomes. *Substance Abuse*. 2013; 34:60–69. [PubMed: 23327505]

Table 1

Demographic and ASI differences between African Americans and Caucasians.

	Total sample <i>N</i> (%)	African American <i>N</i> (%)	Caucasian <i>N</i> (%)	
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)	<i>p</i> value
<i>N</i>	395	171 (43.3)	224 (56.7)	.0041
Mean age	39.11 (9.8)	42.73 (8.7)	36.34 (9.8)	<.0001
Gender (female)	232 (58.7)	91 (53.2)	141 (63.0)	.0516
Mean years of education	12.12 (1.6)	12.07 (1.5)	12.16 (1.7)	.5830
Primary drug				
Amphetamines	2 (0.5)	0	2 (0.9)	—
Methamphetamine	95 (24.1)	1 (0.6)	94 (42.0)	<.0001
Cocaine	223 (56.5)	142 (83.0)	81 (36.2)	<.0001
Other stimulants	1 (0.3)	0	1 (0.5)	—
Alcohol	40 (10.1)	20 (11.7)	20 (8.9)	—
Marijuana/hashish	12 (3.0)	4 (2.3)	8 (3.6)	.1367
Opiates	22 (5.6)	4 (2.3)	18 (8.0)	.0059
Benzodiazepines	0	0	0	—
Mean ASI composite scores				
Alcohol	0.17 (0.2)	0.20 (0.2)	0.14 (0.2)	.0302
Drug	0.16 (0.1)	0.15 (0.1)	0.17 (0.3)	.1988
Medical	0.36 (0.4)	0.43 (0.4)	0.31 (0.3)	.0048
Psychiatric	0.36 (0.2)	0.34 (0.3)	0.38 (0.2)	.0803
Legal	0.10 (0.2)	0.07 (0.2)	0.13 (0.2)	.0021
Family/social	0.25 (0.3)	0.23 (0.2)	0.26 (0.3)	.3094
Employment	0.78 (0.3)	0.84 (0.2)	0.73 (0.3)	<.0001

Note. Differences between African Americans and Caucasians on age and years of education were evaluated with a *t* test; a test of two independent proportions was used with the primary drug of choice; the Wilcoxon two-sample rank sum test was used for ASI Composite scores.

SD = standard deviation.

Table 2

Baseline differences on clinical measures for African American and Caucasian participants.

	Total sample Mean (SD) N	African American Mean (SD) N	Caucasian Mean (SD) N
Spiritual involvement and beliefs			
Core spirituality SIBS-R	83.82 (18.27) <i>n</i> = 333	90.02 (15.01) <i>n</i> = 140	79.32 (19.12) <i>n</i> = 193
Spiritual perspective-existential SIBS-R	25.02 (4.93) <i>n</i> = 354	25.12 (5.15) <i>n</i> = 150	24.94 (4.78) <i>n</i> = 204
Personal application-humility SIBS-R	11.36 (2.21) <i>n</i> = 378	11.82 (2.14) <i>n</i> = 163	11.02 (2.20) <i>n</i> = 215
Acceptance-insight SIBS-R subscale	5.14 (1.64) <i>n</i> = 384	5.04 (1.86) <i>n</i> = 166	5.21 (1.45) <i>n</i> = 128
Total SIBS-R score	114.64 (21.43) <i>n</i> = 321	121.15 (19.06) <i>n</i> = 136	109.86 (21.87) <i>n</i> = 185
Readiness for 12-Step			
Perceived benefit	21.78 (3.74) <i>n</i> = 358	22.24 (3.55) <i>n</i> = 148	21.45 (3.84) <i>n</i> = 210
Perceived severity	22.71 (3.32) <i>n</i> = 364	22.77 (3.19) <i>n</i> = 152	22.67 (3.42) <i>n</i> = 212
Perceived barriers	9.35 (3.81) <i>n</i> = 361	8.97 (3.76) <i>n</i> = 151	9.61 (3.83) <i>n</i> = 210
SYRAAP total	53.84 (5.57) <i>n</i> = 331	54.07 (5.33) <i>n</i> = 135	53.68 (5.73) <i>n</i> = 196
TSEE experiences and expectations			
Experiences	7.96 (1.56) <i>n</i> = 237	7.98 (1.74) <i>n</i> = 93	7.94 (1.44) <i>n</i> = 144
How helpful are self-help groups with problem	4.77 (1.04) <i>n</i> = 237	4.80 (1.17) <i>n</i> = 93	4.76 (0.96) <i>n</i> = 144
Rate overall experience of self-help groups	3.19 (0.70) <i>n</i> = 237	3.18 (0.75) <i>n</i> = 93	3.19 (0.67) <i>n</i> = 144
Expectations	6.78 (1.42) <i>n</i> = 385	6.58 (1.56) <i>n</i> = 168	6.94 (1.29) <i>n</i> = 217
Likely to get involved in self-help in current Tx	3.38 (0.81) <i>n</i> = 385	3.21 (0.90) <i>n</i> = 168	3.52 (0.69) <i>n</i> = 217
Helpfulness of self-help in current Tx	3.40 (1.04) <i>n</i> = 385	3.38 (0.77) <i>n</i> = 168	3.41 (0.75) <i>n</i> = 217
Beliefs about treatment and etiology of addiction			
Eclectic orientation	9.48 (4.01) <i>n</i> = 342	8.54 (4.19) <i>n</i> = 142	10.16 (3.74) <i>n</i> = 200
Disease model	21.71 (4.89) <i>n</i> = 345	22.49 (4.53) <i>n</i> = 143	21.15 (5.07) <i>n</i> = 202
Psychosocial model	12.22 (4.10) <i>n</i> = 357	11.71 (4.21) <i>n</i> = 150	12.59 (3.99) <i>n</i> = 207
Overall satisfaction and perceived helpfulness of treatment			
Satisfaction	33.01 (5.56) <i>n</i> = 140	21.52 (6.18) <i>n</i> = 60	34.14 (5.05) <i>n</i> = 80
Helpfulness	11.21 (2.08) <i>n</i> = 147	10.91 (2.40) <i>n</i> = 66	11.46 (1.78) <i>n</i> = 81

SD = standard deviation; Tx = treatment.