Age differences in outcomes among patients in the “Stimulant Abuser Groups to Engage in 12-Step” (STAGE-12) intervention

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Abstract

Emerging adults (roughly 18–29 years) with substance use disorders can benefit from participation in twelve-step mutual-help organizations (TSMHO), however their attendance and participation in such groups is relatively low. Twelve-step facilitation therapies, such as the Stimulant Abuser Groups to Engage in 12-Step (STAGE-12), may increase attendance and involvement, and lead to decreased substance use.

Aims: Analyses examined whether age moderated the STAGE-12 effects on substance use and TSMHO meeting attendance and participation.

Design: We utilized data from a multisite randomized controlled trial, with assessments at baseline, mid-treatment (week 4), end-of-treatment (week 8), and 3- and 6-months post-randomization.

Participants: Participants were adults with DSM-IV diagnosed stimulant abuse or dependence (N = 450) enrolling in 10 intensive outpatient substance use treatment programs across the U.S.

Analysis: A zero-inflated negative binomial random-effects regression model was utilized to examine age-by-treatment interactions on substance use and meeting attendance and involvement.

Findings: Younger age was associated with larger treatment effects for stimulant use. Specifically, younger age was associated with greater odds of remaining abstinent from stimulants in STAGE-12 versus Treatment-as-Usual; however, among those who were not abstinent during treatment, younger age was related to greater rates of stimulant use at follow-up for those in STAGE-12 compared to TAU. There was no main effect of age on stimulant use. Younger age was also related to somewhat greater active involvement in different types of TSMHO activities among those in STAGE-12 versus TAU. There were no age-by-treatment interactions for other types of substance use or for treatment attendance, however, in contrast to stimulant use; younger age was associated with lower odds of abstinence from non-stimulant drugs at follow-up, regardless of treatment condition. These results suggest that STAGE-12 can be beneficial for some emerging adults with stimulant use disorder, and ongoing assessment of continued use is of particular importance.

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1. Introduction

Emerging adulthood, the period roughly between 18 and 29 years of age, has been characterized as being a unique developmental period as compared to both adolescence and adulthood in more developed, western cultures. Emerging adulthood is described as a time of personal exploration with reduced societal and family restrictions along with fewer responsibilities and more social/personal instability (Arnett, 2000, 2005). This age group also has a higher prevalence of substance use and related substance use disorders than those either younger or older (Substance Abuse and Mental Health Services Administration, 2015).

While emerging adults face an increased risk for substance use disorders, the literature has outlined some specific challenges in providing services to this population. Older age has been associated with a greater readiness to change (Sinha, Easton, & Kemp, 2003), higher rates of treatment completion (Hser, Joshi, Maglione, Chou, & Anglin, 2001; Korte, Rosa, Wakim, & Perl, 2011; Maglione, Chao, & Anglin, 2000; Satre, Mertens, Arean, & Weisner, 2003), and better treatment outcomes (Oslin, Pettinati, & Volpicelli, 2002; Satre et al., 2003; Satre, Chi, & Mertens, 2012). Specifically, Oslin et al. (2002) found that older...
participants were more likely to attend regular treatment visits (85.0% vs.
64.1%, p < 0.01) and adhere to medication for the treatment of alco-
hol use disorder (80.0% vs. 55.3%, p < 0.05) at three-months than were
younger participants. Satre et al. (2003) and Satre et al. (2012) exam-
ined treatment retention six-months following intake into alcohol and
drug treatment, as well as alcohol and other drug use at six-months and
five, seven, and nine years post-intake. While there were no age dif-
fences in treatment initiation, older and middle aged adults stayed
significantly longer in treatment than did adults age 39 or younger (p
< 0.001). They further found that at most follow-up points, older and
middle-aged adults were more likely to have abstained from alcohol
and other drugs within the prior year than were younger adults.
Other studies have found that younger adults are less likely to per-
ceive a need for treatment (Sinha et al., 2003; Wu & Ringwalt, 2004),
to enter treatment following detoxification (Shin, Lundgren, &
Chassler, 2007), and to comply with recommendations for treatment
(Aalto & Sillanaukee, 2000). Potential reasons why younger adults have
less success with traditional treatment have been described by
Bergman, Kelly, Nargiso, and McKown (2016) and include: 1) lower ini-
tial motivation for treatment engagement and abstinence, 2) social net-
works composed of others with high rates of substance use, 3) higher
rates of co-occurring psychiatric disorders, 4) lower levels of conscien-
tiousness (e.g., ability to make it to scheduled meetings and appoint-
ments), and 5) feeling “in-between”, meaning that emerging adults
have more freedom and independence than adolescents, but often greater
dependence on parents or other caregivers than do older adults.
Community-based twelve-step mutual-help organizations (TSMHOs)
are the most commonly utilized form of support for people attempting
to change their substance use and are used both indepen-
dently and in conjunction with more formal treatment (Substance
Abuse and Mental Health Services Administration, 2012). There is evi-
dence that attendance and active involvement in Alcoholics Anonymous
(AA) or Narcotics Anonymous (NA), particularly as a follow-up to more
traditional treatment programs, can result in higher rates of abstinence
among emerging adults (Bergman, Greene, Hoeppner, Slaymaker, &
Kelly, 2014; Bergman, Hoeppner, Nelson, Slaymaker, & Kelly, 2015;
Hoeppner, Hoeppner, & Kelly, 2014; Kelly, Stout, & Slaymaker, 2012,
2013). Hoeppner et al. (2014) examined data from Project MATCH, a
large clinical evaluation of three treatments for disordered alcohol use,
to identify similarities and differences in mediators of AA between
younger (18–29) and older (30+) adults. For younger adults, two of
six mediational pathways were significant, compared to six complete
pathways for adults. The two strongest mediators for young adults
were increased self-efficacy in social situations and a decrease in pro-
drinking social networks, and both pathways were more salient for
younger than for older adults. Notably TSMHO meetings benefitted
younger adults as much as older adults, despite fewer mediational path-
ways. The authors suggest that pathways as yet unidentified may exist
for younger adults. Other research has found the TSF is more effective
with people who have social networks supportive of drinking, as is
often the case for emerging adults, than is Motivation Enhancement
Therapy or Cognitive Behavioral Therapy (Longabaugh, Wirtz,
Zweben, & Stout, 1998; Wu & Witkiewitz, 2008).
Another prospective study of attendance and involvement in
TSMHOs following treatment (Kelly et al., 2013) showed that emerging
adults can be motivated to attend and become active in TSMHOs, and
that those who do demonstrate greater abstinence. In this study,
about a third of the sample had attended at least one TSMHO meeting
in the 90 days prior to entering treatment. This rate increased to 90%
at three-months following treatment, tapering to about 76% a year
after treatment. Frequency of attendance was 2–3 times per month
prior to treatment, and rose substantially to an average of 3–4 times
per week at three months and 1–2 times per week one year after treat-
ment. Importantly, both attendance and active involvement in TSMHOs
were independently associated with an increase in percent of days ab-
stinent and a decrease in days of heavy drinking.

However, despite the benefits, emerging adults appear to be more
difficult to engage in TSMHOs than are older adults. One study looking
at predictors of retention in dual-focus TSMHOs (substance use and psy-
chiatric comorbidity; Laudet, Magura, Cleveland, Vogel, & Knight, 2003)
and another examining factors associated with frequency of meeting at-
tendance (Brown, O’Grady, Farrell, Flechner, & Nurco, 2001) found that
younger adults were less likely to utilize community TSMHOs than were
older adults, demonstrated by lower frequency of meeting attendance
after four months (Brown et al., 2001), and one-year (Laudet et al.,

“Stimulant Abuser Groups to Engage in 12-Step” (STAGE-12; Baker,
Daley, Donovan, & Floyd, 2007; Donovan et al., 2013) is a manualized
combined group and individual Twelve-Step Facilitation (TSF) treat-
ment designed to help individuals with stimulant abuse or dependence
overcome perceived barriers to TSMHO attendance and enhance en-
gagement in 12-step recovery. As such, it may be particularly well suited
for younger people who have historically had more difficulty in engag-
ing in such groups, but for whom there is evidence that participation
would be beneficial. Group sessions focus on increasing attendance
and participation in meetings through five topic areas: 1) acceptance
(Step 1); 2) people, places, and things (habits, routines, and relapse trig-
gers); 3) surrender (Steps 2 and 3); 4) getting active in 12-step pro-
grams; and 5) managing negative emotions (HALT: hungry, angry,
lonely, tired). An explicit focus on people and routines may be particu-
larly important to emerging adults who are more likely to have social
networks comprised of people actively engaged in substance use
(Bergman et al., 2016). In addition, STAGE-12 incorporates an intensive
referral procedure (Timko & DeBenedetti, 2007) that actively connects
participants with a 12-step volunteer in the community who arranges
to attend a meeting with them. This additional support from an experi-
enced adult may be beneficial in increasing conscientious meeting at-
tendance among young adults who are more likely to be new to
TSMHO culture and concepts.

In contrast, Davis, Bergman, Smith, and Kelly (2017) surmised that
TSF therapies may be a mismatch for emerging adults compared to
other therapies, such as Cognitive-Behavioral Therapy, due to lower de-
pendence severity and initial abstinence motivation often associated
with younger age. In a secondary analysis of data from Project MATCH
(Project MATCH Research Group, 1998), they found that, in fact, emerg-
ing adults assigned to TSF had a lower percentage of days abstinent and
greater number of drinks per drinking day during the 12-week treat-
ment than emerging adults assigned to either Cognitive Behavioral Therapy
or Motivational Enhancement Therapy, and to older adults in any treatment
condition. There were no differences in alcohol outcomes by emerging
adult status and treatment condition by the one-year follow-up.

The analyses described here builds on this work by utilizing a differ-
et dataset collected in a National Drug Abuse Treatment Clinical Trials
Network multi-site study that evaluated a group-plus-individual TSF in-
tervention for stimulant users. STAGE-12 had the goal of increasing at-
tendance and participation in TSMHO and ultimately reducing stimulant
and other drug use (Donovan et al., 2013). Analyses of self-re-
ported substance use revealed that STAGE-12 led to increased absti-
nence from stimulant and other drug use during active treatment, as
well as increased TSMHO meeting attendance and involvement through
a six-month follow-up period, among those who are able to achieve ab-
stinence at all. However, among people who did not remain abstinent
during treatment, those in the STAGE-12 group had somewhat higher
rates of substance use compared to those in TAU. Of particular impor-
tance is that age was not a predictor of treatment completion for
those randomized to receive STAGE-12 (Doyle & Donovan, 2014). Treat-
ment completion is a consistent predictor of better treatment outcomes
(McLellan, 2006; Simpson, Joe, Rowan-Szal, & Greener, 1997). The fact
that younger participants were as likely as older participants to com-
plete the STAGE-12 treatment could suggest that younger adults in
STAGE-12 may be able to achieve outcomes similar to their older coun-
terparts, who are often found to fare better in treatment.
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