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Sarah E. Zemore Ph.D., Lee Ann Kaskutas Dr.P.H, Amy Mericle Ph.D., Jordana Hemberg MPH

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**Comparison of 12-step Groups to Mutual Help Alternative for AUD  
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Sarah E. Zemore, Ph.D.; Lee Ann Kaskutas, Dr.P.H.,

Amy Mericle, Ph.D., & Jordana Hemberg, MPH

Alcohol Research Group, Emeryville, CA

**Corresponding Author**

Sarah E. Zemore, Ph.D.

Senior Scientist and Center Associate Director

Alcohol Research Group

6001 Shellmound St., Suite 450

Emeryville, CA 94608

Email : [szemore@arg.org](mailto:szemore@arg.org)

Tel: 510-898-5800; Fax: 510-985-6459

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## Abstract

**Background:** Many studies suggest that participation in 12-step groups contributes to better recovery outcomes, but people often object to such groups and most do not sustain regular involvement. Yet, research on alternatives to 12-step groups is very sparse. The present study aimed to extend the knowledge base on mutual help group alternatives for those with an alcohol use disorder (AUD), sampling from large, active, abstinence-focused groups including Women for Sobriety (WFS), LifeRing, and SMART Recovery (SMART). This paper presents a cross-sectional analysis of this longitudinal study, using baseline data to describe the profile and participation characteristics of attendees of these groups in comparison to 12-step members.

**Methods:** Data from participants 18 and over with a lifetime AUD (N=651) were collected using web-based surveys. Members of alternative 12-step groups were recruited in collaboration with group directors, who helped publicize the study by emailing meeting conveners and attendees and posting announcements on social media. A comparison group of current (past-30-day) 12-step attendees was recruited from an online meeting hub for recovering persons. Interested parties were directed to a webpage where they were screened, and eligible participants completed an online survey assessing demographic and clinical variables; in-person and online mutual help involvement; and group satisfaction and cohesion. Analyses involved comparing those identifying WFS, SMART, and LifeRing as their primary group to 12-step members on the above characteristics.

**Results:** Compared to 12-step members, members of the mutual help alternatives were less religious and generally higher on education and income. WFS and LifeRing members were also older, more likely to be married, and lower on lifetime drug and psychiatric severity; meanwhile, LifeRing and SMART members were less likely to endorse the most stringent abstinence goal.

Finally, despite lower levels of in-person meeting attendance, members of all the 12-step alternatives showed equivalent activity involvement and higher levels of satisfaction and cohesion, compared to 12-step members.

**Conclusions:** Results suggest differences across 12-step groups and their alternatives that may be relevant when advising clients on a choice of mutual help group. Meanwhile, findings for high levels of participation, satisfaction, and cohesion among members of the mutual help alternatives suggest promise for these groups in addressing addiction problems.

## 1. Introduction

### 1.1. Strengths and Limitations of the 12-step Approach

Alcoholics Anonymous (AA) and other 12-step groups constitute an effective, free, and widely available source of support for those who are addicted to alcohol and/or drugs and choose to attend them. An extensive literature that includes both treatment and community studies associates greater 12-step involvement with better recovery outcomes (Kaskutas, 2009; Kelly, Magill, & Stout, 2009; Tonigan, Toscova, & Miller, 1996), and observational studies typically find about twice the rates of abstinence at follow-ups among those attending 12-step groups (vs. not) (McKellar, Stewart, & Humphreys, 2003; Moos, 2008; Timko, 2008; Tonigan, 2008; Tonigan, et al., 1996; Ye & Kaskutas, 2009). Although critics have sometimes suggested that self-selection biases account for these effects, 12-step involvement is typically associated with greater (not lesser) addiction severity, and studies using sophisticated propensity score matching and instrumental variable techniques to address confounds have largely come to similar conclusions (Humphreys, 1996; Ye & Kaskutas, 2009). Moreover, the positive results from randomized trials of 12-step facilitation (TSF) strongly suggest a causal role for 12-step involvement in recovery (Kaskutas, Subbaraman, Witbrodt, & Zemore, 2009; Project MATCH Research Group, 1997; Timko & DeBenedetti, 2007; Timko, DeBenedetti, & Billow, 2006; Walitzer, Dermen, & Barrick, 2009).

Nevertheless, 12-step groups are not appealing to many, and providers have had limited success in cultivating consistent, long-term engagement among clients seeking substance abuse treatment. About 60% of public treatment programs in the U.S. report that the 12-step model is their primary approach, and most encourage or mandate 12-step involvement, with about half holding 12-step meetings onsite (Roman & Johnson, 2004; Substance Abuse and Mental Health

Services Administration, 2011). Further, courts and Employee Assistance Programs (EAP's) routinely recommend or mandate 12-step involvement, often requiring signed attendance slips (Mäkelä et al., 1996; Speiglmán, 1997). Accordingly, large majorities of those participating in formal treatment report attending at least one 12-step meeting (Kaskutas, Ye, Greenfield, Witbrodt, & Bond, 2008). Still, treatment studies reliably indicate that most people fail to meet the recommended, minimal threshold of regular, weekly attendance during the year following treatment (Cloud et al., 2006; Cloud & Kingree, 2008; Kelly & Moos, 2003; McKay et al., 1998; McKellar, et al., 2003; Ouimette, Finney, & Moos, 1997; Tonigan, Connors, & Miller, 2003). This is true even in the context of effective 12-step facilitation interventions aiming to encourage 12-step involvement (Timko & DeBenedetti, 2007; Timko, et al., 2006; Tonigan, et al., 2003).

An additional concern is that mandating 12-step involvement is legally and ethically problematic. This is particularly significant because over a third (~37%) of all admissions to publicly funded substance abuse treatment programs are legally mandated<sup>1</sup>. Since 1996, at least four higher courts have evaluated cases in which corrections institutions or conditions of probation have required attendance at AA, NA (Narcotics Anonymous), or 12-step-based therapy. The courts uniformly ruled that, because of what they judged to be religious aspects of 12-step groups (e.g., prayer, references to God), mandated 12-step attendance violates the First Amendment: "Congress shall make no law respecting the establishment of religion or prohibiting the free exercise thereof..." (Peele, Bufe, & Brodsky, 2000). Notably, the courts agreed that mandating 12-step attendance as one among multiple options (including secular options) is permissible.

## **1.2. Alternatives to the 12-step Model: Women for Sobriety, LifeRing, and SMART**

Fortunately, there are currently a host of alternatives to the 12-step approach that offer

promise for addressing substance use disorders, and many of those recovering from addiction have attended at least one such alternative. The largest known abstinence-focused alternatives to 12-step groups now include Women for Sobriety (WFS), LifeRing Secular Recovery (LifeRing), and SMART Recovery (Self-Management and Recovery Training, or SMART). In the 2010 National Alcohol Survey (Kerr, Greenfield, Bond, Ye, & Rehm, 2004; Zemore et al., 2014), 34% of those who reported having had (but no longer having) an alcohol problem indicated attending a mutual help group alternative<sup>1</sup> to 12-step groups (while 87% had attended a 12-step group; unpublished data). Another national survey targeting individuals in recovery from an alcohol problem (Kaskutas et al., 2014) found that 19-25% of those recruited from Craigslist, a treatment program, or a recovery organization had attended WFS, LifeRing, Secular Organization for Sobriety, or SMART. WFS, LifeRing, and SMART avoid religious content and may therefore attract those deterred by the quasi-religious approach of AA and its counterparts (Schmidt, 1996). Still, they retain many of the components that may help explain the benefits of 12-step groups. For example, all groups provide individuals with a space and context to regularly communicate with others sharing the same problem, and foster nurturing relationships and the exchange of experiential knowledge with peers. They also provide a protocol and resources for guiding personal change, and address both alcohol and drug addiction (Humphreys, 2004). Each alternative hosts free meetings, with funding coming in part from literature sales and donations. All groups also have active online components, such as online meetings, chat groups, and internet messaging.

WFS is one of the oldest mutual help alternatives and the only active alternative

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<sup>1</sup> We use the term “mutual help alternative” to denote all mutual/self help groups for addiction to alcohol not inclusive of 12-step groups. We have used the term “mutual help” (vs. “self help”) to emphasize the importance of peer support within these groups, but also acknowledge the important role of the individual in making and sustaining change.

exclusively for women. WFS was founded in 1975 as an alternative to AA for women, and its development was based on the belief that women require a different approach and separate meetings from men. WFS aims to support personal empowerment, and its treatment/theoretical model is based on a Thirteen Statement Program of positivity to encourage positive thinking, self-esteem, and emotional and spiritual growth. The literature includes four books by founder Jean Kirkpatrick and over 50 booklets and workbooks, along with audio and video recordings. There are about 62 peer-led WFS meetings nationally and 10 peer-led meetings in Canada, with approximately 4 participants per meeting; additionally, about 24 treatment/recovery centers host WFS meetings led by treatment staff. Participants a) take turns reading the Thirteen Statements/Affirmations, 2) discuss a topic for the week, and finally 3) share something positive that happened during the week. The recovery goal is abstinence only (personal communications with WFS Executive Director Becky Fenner, 2016; Fenner & Gifford, 2012; Women for Sobriety, 2016).

LifeRing was founded approximately 20 years after WFS, though it has roots in the older and now mostly inactive Secular Organization for Sobriety (SOS), founded by James Christopher in 1985. LifeRing emphasizes secularity in its approach, and its treatment/theoretical model focuses on social-cognitive change strategies informed by Cognitive Behavioral Therapy and Dialectical Behavioral Therapy. LifeRing's three core books were written by founder Martin Nicolaus. There are about 163 LifeRing meetings nationally across 17 states and additional meetings in Canada (15), the United Kingdom (6), Ireland (9), and Sweden (5), with about 10 participants per group. Similarly to WFS, meetings are typically peer-led, with participants sharing in response to the question, "How was your week?". LifeRing encourages questions, comments, and other feedback throughout the meeting. Similar to WFS,

LifeRing's recovery goal is abstinence (personal communications with LifeRing Board Chair Byron Kerr and Executive Director Robert Stump, 2016; LifeRing Secular Recovery, 2016a).

SMART was founded in 1994, and has roots in Rational Recovery, which is now inactive as a mutual help organization. (Rational Recovery, Inc. now provides information and instruction on recovery, but does not host groups.) SMART's "4-Point Program" teaches tools and techniques to overcome any addictive behavior, so, unlike WFS and LifeRing, it is not focused exclusively on alcohol and drugs. SMART's program is informed by Cognitive Behavioral Therapy, Rational Emotive Behavioral Therapy, and Motivational Enhancement Therapy; SMART has produced many publications, foremost of which is the *SMART Recovery Handbook* (Hardin, 2013). SMART hosts approximately 1,063 meetings nationally across 49 states, with nearly 900 additional meetings in Canada, the United Kingdom, Australia, Europe, Asia, and Africa. Meetings typically have 3-25 participants per group and are led by trained facilitators including mental health/substance abuse treatment providers, peers, or other individuals desiring to help others. Facilitators need not be in recovery. SMART meetings are more didactic than those of WFS and LifeRing, emphasizing education on recovery tools and discussion of the material presented. The program focuses on abstinence, but individuals who are not committed to abstinence are welcome to participate and encouraged to consider how abstinence might be maintained (personal communications with SMART President Tom Horvath and Executive Director Shari Allwood, 2016; SMART Recovery, 2016a; Horvath & Yeterian, 2012).

### **1.3. Current Study's Rationale and Design**

Despite the potential appeal of 12-step alternatives, research on these groups is in its infancy, and longitudinal studies are lacking. Several cross-sectional studies have examined

mutual help alternatives, but most have focused on a single mutual help group, including WFS (Kaskutas, 1989, 1992, 1994, 1996a, 1996b, 1996c), SMART (Kelly, Deane, & Baker, 2015; O'Sullivan, Blum, Watts, & Bates, 2015), SOS (Connors & Dermen, 1996), and Rational Recovery (Galanter, Egelko, & Edwards, 1993). These studies have reliably reported positive associations between length/intensity of involvement and length of sobriety (as well as other beneficial outcomes). Only two known observational studies have examined 12-step groups along with an alternative (Atkins & Hawdon, 2007; Li, Feifer, & Strohm, 2000), and both were again cross-sectional. One was a pilot study providing no information on substance use (Li, et al., 2000). The second was a large study by Atkins and Hawdon (2007) sampling attendees of 12-step groups (n=161), SMART (n=324), WFS (n=236), and SOS (n=104). Multivariate results showed that greater group participation was associated with longer length of sobriety and primary group was not, though whether primary group choice modified the effect of participation was not examined. Also of note, religiosity, measured using a 15-item scale assessing religious/spiritual beliefs and practices, interacted with group type to impact participation: Whereas higher religiosity stimulated participation in 12-step groups and WFS, religiosity was unrelated to participation among SMART attendees and negatively related to participation among SOS attendees.

Meanwhile, two randomized trials have addressed the efficacy of treatments based on Rational Recovery and SMART compared to a control (Brooks & Penn, 2003; Schmidt, Carns, & Chandler, 2001). However, both were very small (with N's=20 and 70), and conclusions are strictly limited by the fact that these studies tested not involvement in mutual help alternatives *per se*, but rather interventions informed by their theoretical principles. Finally, one *longitudinal* randomized trial testing the efficacy of a web-based intervention drawing on SMART principles

(i.e., Overcoming Addictions) has, as a part of the analysis, examined associations between SMART in-person attendance and alcohol outcomes over time (Hester, Lenberg, Campbell, & Delaney, 2013). Participants for this study were randomized to SMART in-person meetings only (SMART Only), Overcoming Addictions Only, or SMART Plus Overcoming Addictions. Unexpectedly, results varied by condition: In the SMART Only condition, number of face-to-face SMART meetings attended at 3 months predicted significantly higher percentage days abstinent (PDA), lower drinks per drinking day (DDD), and fewer alcohol-related problems also at 3 months, as well as improvements in these same outcomes from baseline to 3 months; in the SMART Plus Overcoming Addictions condition, however, SMART attendance was unrelated to outcomes. These inconclusive results underline the need for further research on SMART and other alternatives.

We aimed to extend the knowledge base by conducting the Peer ALternatives in Addiction (PAL) Study, which is the *first longitudinal, comparative survey study of 12-step groups and its current known major alternatives: WFS, LifeRing, and SMART*. The PAL study focuses on those with lifetime alcohol use disorders (AUD's). The current paper is a cross-sectional analysis examining Wave 1 data with the goal of comparing respondents identifying a 12-step group, WFS, LifeRing, or SMART as their *primary group* (hereafter “members” of those groups<sup>2</sup>) on demographics, clinical severity, and mutual help group participation, cohesion, and satisfaction. Twelve-step groups included Alcoholics Anonymous, Narcotics Anonymous, Cocaine Anonymous, Marijuana Anonymous, and Methadone Anonymous. Describing the membership and involvement activities of WFS, LifeRing, and SMART participants remains a high research priority because, as noted, comparative research has been almost completely

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<sup>2</sup> We use the term “members” as a convenient shorthand, acknowledging that not all attendees of a given group may consider themselves members of that group, even while designating that their primary group.

lacking, with no studies having examined LifeRing. Results should be useful to clinicians and other service providers who wish to inform their clients on characteristics of the various mutual help group options and to facilitate an optimal choice. Toward establishing sample representivity, this paper also compares key demographics of PAL respondents (by group) to those of respondents to the most recent internal surveys conducted by AA, WFS, LifeRing, and SMART.

Hypotheses were partially informed by the most recent available data from internal surveys conducted by AA (2014), WFS (2011), LifeRing (2013), and SMART (2015). Respondents to AA's surveys are solicited from a randomly selected subset of in-person meetings and complete paper surveys (S.A, E.T, & C.G., 2008). Recent surveys by WFS, LifeRing, and SMART were publicized via online announcements (including website and social media postings and email blasts) and at in-person and online meetings, and surveys were implemented online (personal communications, WFS Executive Director Becky Fenner, SMART Executive Director Shari Allwood, and LifeRing Board Director Byron Kerr, 2016). Results can be obtained via published reports (Alcoholics Anonymous; LifeRing Secular Recovery, 2016b; SMART Recovery, 2016b) and raw data tables (personal communication, WFS Executive Director Becky Fenner, 2016).

Based on the differing group philosophies, described above, and internal survey data suggesting overall higher socioeconomic status and lower religiosity for participants in the mutual help alternatives, vs. the US population, we hypothesized that 1) members of the mutual help alternatives would be less religious and higher on socioeconomic status (i.e., education and income) than 12-step members. Because internal survey data on WFS and LifeRing further suggest that alcohol is typically the primary drug of abuse for those in attendance (e.g., 96.3% of

LifeRing respondents chose alcohol as their primary drug of abuse, and only 10.3-20.6% of WFS members reported having been addicted to other drugs), and because lower drug severity is typically associated with lower psychiatric severity (Regier et al., 1990). we also hypothesized that 2) WFS and LifeRing members would be lower on prior drug and psychiatric severity than 12-step members. Third, based again on theoretical differences and on internal survey data showing fewer respondents with 5 plus years of clean and sober time in SMART (16.3%) and WFS (23.8%), compared to AA (49%), we hypothesized that 3) members of the mutual help alternatives would be less likely to be advanced in their recovery, and less likely to endorse total abstinence as a recovery goal. Finally, based on internal data suggesting high rates of satisfaction with the mutual help alternatives (e.g., 65.7% of WFS members reported that among numerous recovery supports—including formal treatment—WFS had been “most helpful” in becoming clean and sober; 91.2% of LifeRing respondents reported that they would recommend LifeRing to a friend; and 76.8% of SMART respondents rated SMART’s program an “excellent” or “very good” resource in recovery), we expected that 4) members of the mutual help alternatives would show at least equivalent levels of mutual help group involvement, satisfaction, and cohesion. However, we also expected that, given the much more limited dispersion of in-person meetings, attendance at those meetings would be lower among members of the mutual help alternatives.

## **2. Materials and Methods**

### **2.1. Sample Recruitment and Characteristics**

The Peer Alternatives in Addiction (PAL) Study is a longitudinal study with three waves of data collection (baseline, 6-month follow-up, and 12-month follow-up) incorporating online surveys to measure respondent mutual help participation, substance use, psychiatric and clinical

variables, and demographics, among other variables. Baseline respondents were recruited from 09/2015-10/2015 via collaboration with the Executive Directors of WFS, LifeRing, and SMART; LifeRing's Board Chair; and SMART's President. These collaborators emailed meeting conveners<sup>3</sup> and individual members directly; emailed flyers to conveners to distribute at meetings; and publicized the study via their webpages, social media (e.g., Facebook, Twitter), and at national conferences. A comparison sample of 12-step attendees was recruited by publicizing the study via paid advertisements on IntheRooms, an online meeting hub for those in recovery with a 12-step focus. IntheRooms has over 400,000 users across all U.S. states, with most (79%) reporting membership in AA, NA, and/or CA (IntheRooms: A Global Recovery Community, 2016). Users report a range of time in recovery, with 39% reporting under 3 years, 12% reporting over 3 years, and 41% with no recovery date set (with 8% missing data; personal communication, IntheRooms Co-Founder Ronald Tannebaum, 2016). Study announcements included a brief description of the study and a link to the study webpage. Interested parties who accessed the study webpage were linked to the online consent form and then online screener. All participants were required to be aged 18 or older; be a U.S. resident; report a lifetime alcohol use disorder (AUD); and report attendance at least one in-person meeting of a 12-step group (for alcohol/drug use), WFS, LifeRing, or SMART in the past 30 days. Only participants whose screeners indicated that they met these criteria were advanced to the baseline survey.

Baseline surveys were approximately 25 minutes in length. All respondent received their incentives in the form of \$25 gift certificates via U.S. mail, so that respondents could not be

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<sup>3</sup> We use the term "convener" to refer to those persons primarily responsible for starting and leading meetings. However, each group has its own terminology regarding that role (e.g., the term is "moderator" in WFS and "facilitator" in SMART), and conveners may have slightly different functions. For example, conveners may take a more or less active role in facilitating the discussion; may or may not present readings and other didactic material; and may or may not perform other services, such as assisting with the annual conference. Qualifications and training requirements also differ across groups.

incentivized unless they provided a valid postal address for each completed survey.

## 2.2. Data Verification

A total of 1335 screeners were completed during the data collection period, and among these, 250 cases were disqualified for the following reasons: under 18 (n=1), non-U.S. residency status (n=4), no history of AUD (n=189), and/or no or non-qualifying mutual help group attendance in the past 30 days (n=56). There were 1085 eligible cases showing completion of some portion of the main survey, and 1064 “complete cases” showing completion through the questions just preceding or including the (final) income questions.

All 1064 complete cases were cleaned using multiple strategies to minimize fraudulent data. Fraudulent data were a concern because SurveyGizmo procedures discourage, but cannot prevent, the same person from completing a survey twice or more when a universal survey link is provided to all potential respondents. First, we eliminated all cases where respondents reported names, email addresses, or other personal information duplicating others in the dataset (n=27) and/or duplicate responses to survey questions (n=7). Second, we systematically flagged cases where the computer IP address duplicated that of another case; the postal address provided was invalid; and/or the respondent’s incentive was undeliverable by the U.S. Postal Service. Flagged cases were emailed in an attempt to verify or obtain valid contact information, and those who did not respond with a valid name and postal address were disqualified. This resulted in additional disqualifications of cases flagged for a shared IP (n=189) or invalid postal address/undeliverable incentive (n=179). Third, we screened the remaining cases for inconsistencies in survey responses and time to completion. Another 11 cases were then disqualified because the respondent reported both male gender and WFS participation, yielding a *final N=651*.

These procedures should ensure minimal data fraud, as a given respondent completing

the survey twice or more on any device could remain in the dataset only if he or she provided different responses to each survey while meeting eligibility criteria, and provided *a unique email address and a unique and valid postal address for each survey completed*. Respondents completing the survey twice *on the same device* would be retained only if each email address provided were also *valid*, as in this case, email contact would be initiated due to the shared IP.

### 2.3. Measures

**2.3.1. Basic demographic characteristics.** Surveys assessed gender, age, marital status, race/ethnicity, socioeconomic status (i.e., education, annual household income, and employment status), and religious self-identification (religious, spiritual, unsure, agnostic, or atheist).

**2.3.2. Lifetime and current alcohol and drug severity.** Lifetime and past-12-month (hereafter past-year) alcohol use disorders (AUD's) were assessed using an adaptation of the Alcohol Section of the CIDI (World Health Organization, 1993); items were a subset of CIDI items selected to address each of the DSM-5 criteria. Eighteen items addressed the 11 criteria for a DSM-5 AUD diagnosis (American Psychiatric Association, 2013). The DSM-5 assumes a single, unidimensional construct, with scores  $\geq 2$  positive for AUD; 2-3 symptoms indicate mild, 4-5 moderate, and 6+ severe AUD. We also assessed recency of last alcohol use and, for those reporting alcohol consumption in the prior 12 months, past-year alcohol problem severity using the Short Index of Alcohol Problems (SIP) (Alterman, Cacciola, Ivey, Habing, & Lynch, 2009; Miller, Tonigan, & Longabaugh, 1995). The SIP is a unidimensional 15-item index derived from the Drinker Inventory of Consequences (DrInc) assessing problems in physical, intrapersonal, interpersonal, social roles, and impulse control domains that has been found to be well-correlated with Addiction Severity Index (ASI) alcohol scores (baseline  $\alpha=.88$ ).

We assessed lifetime and past-year drug problems using 2 yes/no items asking whether

there were “times in your life when you were often under the influence of drugs in situations where you could get hurt, for example when riding a bicycle, driving, operating a machine, or anything else?” and “times in your life when you tried to stop or cut down on your drug use and found that you were not able to do so?” These items were drawn from prior scale analyses of items assessing DSM-5 criteria (Borges et al., 2015; Saha et al., 2012) (baseline 12-month Pearson  $r=.81$ ). We also assessed recency of last use of all illegal drugs and legal drugs not taken as prescribed.

**2.3.3. Lifetime and current psychiatric severity.** Surveys included 4 items measuring lifetime psychiatric severity, including whether the respondent was ever diagnosed with a mental health disorder; ever received counseling, psychotherapy, or psychiatric visits for a mental health problem; was ever prescribed medication for a mental health problem; and had ever been hospitalized for a mental health problem. Respondents were also asked how many days in the past 30 they had been troubled by mental health problems, an item drawn from the Psychiatric subscale of the Addiction Severity Index (McLellan, Luborsky, Cacciola, & Griffith, 1985).

**2.3.4. Current recovery goal.** Recovery goal was assessed using a single item (Hall, Havassy, & Wasserman, 1991) asking respondents to select the one recovery goal among 5 that was most true for them at that time, ranging from total lifetime abstinence to controlled use. Responses have been related to lower risk of relapse (Hall, et al., 1991) and versions are often used in clinical assessment (see Supplementary Material for exact wording). Because rates of endorsement for recovery goals inclusive of drinking were low and power was limited, we created a four-category measure by collapsing across 2 conceptually similar goals (i.e., “I want to use alcohol in a controlled manner—to be in control of how often I use and how much I use” and “I don’t want using alcohol to be a habit for me any more, but I would like to occasionally

use alcohol when I really have an urge”).

**2.3.5. Lifetime and current mutual help group participation.** Surveys assessed lifetime and past-30-day participation in both in-person and online mutual help group meetings for each group under study. For those participants reporting in-person attendance at just one group in the past 30 days, that group was coded as their “primary group;” participants attending multiple groups were asked to designate a primary group. Additionally, for all groups attended in-person within the past 30 days, respondents completed 4 yes/no questions measuring other aspects of involvement, using different language for 12-step groups and their alternatives: Participants were asked if they had 1) a “home group” (12-step) or “regular group” (alternative), defined as “a meeting that you usually attend weekly and where you know many of the people,” 2) at least one “sponsor” (12-step) or “close friend” (alternative) in the group “whose number you have and who you can call on for help when you need it”, 3) “led” (12-step) or “convened or facilitated” (alternative) any group meetings in the past 30 days, and 4) done “service” (12-step) or “volunteer work” (alternative) at a group meeting; examples provided included “helping newcomers, setting up chairs, making coffee, or cleaning up after a meeting.” These items were adapted from 4 items used in a standard scale of 12-step involvement (Humphreys, Kaskutas, & Weisner, 1998) and selected because they are typically strongly associated with substance use outcomes (Zemore, Subbaraman, & Tonigan, 2013) and appropriate for use with all groups. Responses were recoded (yes=1 and no=0) and averaged (baseline  $\alpha$ 's .63-.88 across groups).

**2.3.6. Current mutual help group cohesion and satisfaction.** Sense of cohesion for one's primary group was assessed using the Cohesion Subscale of the Curative Climate Instrument (CCI), with slight wording changes to ensure applicability to mutual help groups (Fuhriman, Drescher, Hanson, Henrie, & Rybicki, 1986; Yalom, 1975). Participants were asked

to think about their experiences in their primary group and to report the extent to which they felt 1) they belonged to and were valued by the group, 2) less alone than usual and more included by the group, 3) close to people in the group, 4) they belonged to a group of people who understood and accepted them, and 5) they belonged to a group they liked, with responses from 1(not at all) to 5 (extremely). Responses were averaged (baseline  $\alpha=.93$ ). Last, participants were asked to rate how satisfied they were with their primary groups on a scale from 0 (not at all) to 10 (completely). Group cohesion was highly correlated with satisfaction in the current study (Pearson  $r=.82$ ).

#### **2.4. Internal Survey Data from AA, WFS, LifeRing, and SMART**

Benchmark data were obtained from the most recent internal survey reports for AA, WFS, LifeRing, and SMART, already described in the Introduction. Summary data on gender, age, race/ethnicity, and education levels were extracted from published reports and data tables.

#### **2.5. Analysis**

For all analyses, 12-step groups were aggregated as sample sizes were too small to analyze each individually. To explore sample representivity, we first compared PAL Study subsamples (disaggregating by primary group) to the memberships of AA, WFS, LifeRing, and SMART, as indicated by the most recent internal surveys, on gender, age, race/ethnicity, and education. The primary analyses involved bivariate tests of association between primary group and demographics; substance use and clinical variables; mutual help group involvement; and group cohesion and satisfaction. Tests included Pearson chi squares for categorical outcomes and analyses of variance for continuous outcomes; to limit Type I error we used omnibus tests first, followed—only where significant at  $p<.05$ —by post-hoc comparisons of each mutual help alternative vs. the 12-step sample. Analyses were implemented in SPSS Version 18.

### 3. Results

#### 3.1. Demographic Characteristics

In Table 1, we have divided our sample according to participants' primary groups, and compare the demographics for each PAL group to the demographics of respondents to internal surveys for these same groups. This table suggests overall modest differences between PAL Study respondents and respondents to internal surveys for AA, WFS, LifeRing, and SMART, with one major exception: Women were heavily over-represented in the PAL 12-step sample, compared to AA's internal survey.. Results also show some differences in gender across the SMART samples; age across the 12-step and WFS samples; and race/ethnicity across all three mutual help alternative pairs. Nevertheless, these differences are small in magnitude.

Turning to our main analyses of the PAL data, Table 2 displays demographic comparisons across respondent primary groups. Results suggest significant differences across primary groups on nearly all variables. As hypothesized, members of all of the 12-step alternatives were less likely than 12-step members to self-identify as religious or spiritual and more likely to identify as agnostic/unsure or atheist, with these differences being greatest for LifeRing and SMART. Among all groups, however, a notably small minority identified as religious. Members of all 12-step alternatives were also generally higher on education and income, again as expected, though differences between LifeRing and 12-step members on education were nonsignificant. Unexpectedly, WFS and LifeRing members were additionally somewhat older and more likely to be married than 12-step members. Further., LifeRing and SMART members were more likely to be male than those selecting a 12-step group as their primary group. (All WFS members were female.) Finally, LifeRing respondents unexpectedly showed more racial/ethnic diversity than 12-step members (with more reporting Latino/Hispanic

and Other race/ethnicity), whereas members of 12-step groups, WFS, and SMART were similar on race/ethnicity and largely White.

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INSERT TABLE 2 ABOUT HERE

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### **3.2. Substance Use and Clinical Variables**

Table 3 shows associations between respondent primary group and lifetime and current (past-year) substance use, substance use problems, and mental health problems. Notably, there were no significant differences across members of 12-step groups, WFS, LifeRing, and SMART on lifetime AUD symptoms. However, as expected, members of WFS and LifeRing (but not SMART) were significantly (or marginally significantly) lower on both lifetime drug severity and all but one indicator of lifetime psychiatric severity. Turning to more current measures, comparisons of past-year AUD symptoms and alcohol problems indicate no differences across groups, though, as expected, comparisons of last alcohol use suggest significantly more advanced recovery (i.e., last use 5 years ago or more) among 12-step members. Last, as shown in Figure 1, recovery goal differed significantly across groups, with LifeRing and SMART members being (vs. 12-step members) less likely to endorse the most stringent alcohol recovery goal, and more likely to endorse a recovery goal inclusive of drinking.

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INSERT TABLE 3 AND FIGURE 1 ABOUT HERE

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### **3.3. Mutual Help Group Participation, Cohesion, and Satisfaction**

To conclude, Table 4 shows mutual help group participation, cohesion, and satisfaction

by primary group. As hypothesized, members of the mutual help alternatives uniformly showed lower in-person meeting attendance within the past 30 days than 12-step members; LifeRing and SMART members also showed lower current involvement in *online* meetings than 12-step members. Nevertheless, members of WFS, LifeRing, and SMART showed equivalent levels of mutual help group *activity involvement* relative to 12-step members, as indicated by having a home/regular group, having a sponsor/close friend, leading/convening meetings, and doing service/volunteer work. Further, mean cohesion and satisfaction ratings were close to ceiling across the mutual help alternatives and, unexpectedly, significantly higher than the cohesion and satisfaction ratings of 12-step members for all alternatives.

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INSERT TABLE 4 ABOUT HERE

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## 4. Discussion

### 4.1. Summary of Results and Main Conclusions

Mutual help groups are an appealing resource for recovery from addiction because they are accessible and free, and can be used before, after, and instead of formal treatment. Thus, they offer some form of recovery support for those unwilling or unable to attend formal treatment, and can provide ongoing care following treatment for what has been widely recognized as a *chronic, relapsing condition* not amenable to brief intervention (McLellan, Lewis, O'Brien, & Kleber, 2000). Nevertheless, most individuals do not sustain involvement in 12-step groups, and coercion to attend 12-step groups is problematic. Thus, understanding the nature and effectiveness of alternatives to 12-step groups is a high priority. The current study contributes to the literature on mutual help alternatives for alcohol problems by directly

comparing members of WFS, LifeRing, SMART, and 12-step groups—all reporting a history of AUD—on demographics and clinical characteristics, as well as by evaluating whether members of these groups tend to differ on participation, satisfaction, and cohesion.

Results overall supported our hypotheses, derived from groups' internal survey data and theoretical differences, that members of the mutual help alternatives would be, compared to 12-step members, less religious and higher on education and income. The mutual help alternatives may be especially appealing to secular, highly educated individuals because these alternatives emphasize cognitive-behavioral (i.e., scientifically informed) strategies rather than religious or spiritual change—somewhat in contrast to the Twelve Step program of recovery, which calls for admitting powerlessness over alcohol, acknowledging a Power greater than ourselves, and making a decision to turn our will our lives over to the care of “God as we understand Him” (Alcoholics Anonymous, 1939). Higher SES may also be associated with greater use of private therapists and lower incidence of legal coercion, and thus less encouragement/pressure to attend 12-step meetings. We also found that WFS and LifeRing members were older and more likely to be married than 12-step members. The older age distribution for these groups may reflect their predominant and historical focus on alcohol, as older cohorts are more likely than recent cohorts to report alcohol (vs. alcohol and drugs, or drugs only) as their primary problem (Substance Abuse and Mental Health Services Administration & Center for Behavioral Health Statistics and Quality, 2015). Meanwhile, some unexpected results emerged for gender and race/ethnicity, whereby LifeRing and SMART members were more likely to be male than 12-step members, and LifeRing was more mixed on race/ethnicity than all other groups. These differences may be due in part to sampling biases/error (discussed under Study Limitations), though the relatively high representation of Latinos/Hispanics in LifeRing may reflect LifeRing's heavy concentration

of meetings in California.

Results also supported the hypothesized clinical differences across groups, with WFS and LifeRing members being (vs. 12-step members) lower on both prior drug and prior psychiatric severity, though similar to 12-step members on prior alcohol severity and current alcohol and drug severity. Twelve-step members' relatively high lifetime drug and psychiatric severity may in fact reinforce the program's firm stance on abstinence, as co-occurring drug and mental health problems may make it particularly difficult for those with alcohol problems to recover (Evans, Li, & Hser, 2009; Morojele, Saban, & Seedat, 2012). Meanwhile, in partial support of our hypotheses, members of all of the 12-step alternatives were less likely (vs. 12-step members) to report the longest duration of sobriety (i.e., 5 years plus), and LifeRing and SMART members were less likely to endorse the most stringent recovery goal—that is, lifetime total abstinence.. (WFS and 12-step group members were similarly high on endorsement of total lifetime abstinence as a recovery goal.) Both findings may reflect 12-step groups' twin emphases on total abstinence and “giving back” by continuing to help other alcoholics as part and product of recovery, articulated in Step Twelve (Alcoholics Anonymous, 1939): Though all programs encourage both abstinence and giving back to a significant extent, 12-step groups may be unique in their messaging that *both are critical* to long-term recovery. The 12-step program's focus on giving back could simultaneously ensure high, sustained participation among “old-timers,” who often translate giving back as continuing involvement, and (potentially) contribute to unbroken abstinence by motivating such sustained involvement. Twelve-step groups might also be particularly engaging in the long-term for other reasons, such as the great proliferation and diversity of 12-step meetings throughout the U.S. and/or aspects of the unique culture and meeting content.

Though analyses of the PAL Study's baseline data cannot speak directly to the efficacy of the mutual help groups under investigation, results on participation, satisfaction, and cohesion are relevant to that question. Key findings are that, whereas members of WFS, LifeRing, and SMART attended relatively few in-person meetings in the month preceding the baseline survey (averaging ~1 meeting/week, compared to ~3/week for 12-step members), members of these groups participated in their groups in other ways, showing equivalent participation in group *activities* and, in the case of WFS, very high *online* involvement: WFS members participated in an average of ~6 online meetings in the past month. (The remarkably high levels of online involvement in WFS may be attributable to the especially low availability of WFS in-person meetings, and/or how specifically WFS implements its message forum and chat; this requires further study.) Moreover, members' ratings of group cohesion and satisfaction were high overall (ranging from 7.71-9.11 on a 0-10 scale) but especially high for members of the 12-step alternatives. This set of findings seems to bode well for the efficacy of WFS, LifeRing, and SMART, particularly given that studies on a range of mutual help groups have associated better outcomes with greater involvement in group activities, higher cohesion ratings, and higher satisfaction ratings (Corrigan, Sokol, & Rüsck, 2013; Kelly, et al., 2015; Kendra, Weingardt, Cucciare, & Timko, 2015; Zemore, et al., 2013). Studies on 12-step groups specifically have shown strong associations between participation in 12-step activities and better recovery outcomes, and have sometimes found that the effects of meeting attendance *per se* on abstinence are reduced to nonsignificance when accounting for participation in activities (Kaskutas, 2004; Montgomery, Miller, & Tonigan, 1995; Weiss et al., 2005). This implies that it is participation broadly that matters most: that is, identifying a home or regular group, doing service or volunteer work, developing close relationships with others (for example through sponsorship), and so on.

Meeting attendance may be less critical, though it is probable that (particularly early in recovery) frequent attendance facilitates other aspects of involvement. Future papers will, using follow-up data, directly examine the question of how participation relates to outcomes for each group.

#### 4.2. Implications for Providers

The current results suggest differences across WFS, LifeRing, SMART, and 12-step group members that may be relevant when advising clients on a choice of mutual help group. Demographic and clinical differences may imply that some or all 12-step alternatives are more appealing (and thus effective) for clients who are less religious, higher on SES, older, not experiencing co-occurring drug or mental health problems, and not committed to lifetime abstinence. However, these differences could also, at least partly, reflect vagaries in the ways that people are introduced to the different groups, rather than how an individual might respond once introduced. Another way of exploring how demographic and clinical differences might affect group engagement is to examine whether and how primary group *modified* the associations between respondent characteristics and mutual help involvement. To examine that question, in a series of post-hoc regressions, we examined whether the associations between mutual help group involvement and religious self-identification, education, age, drug severity, psychiatric severity, and recovery goal varied across (and specifically, interacted with) primary group (coded for this analysis as 12-step vs. an alternative). Results revealed significant interactions between primary group (12-step vs. an alternative) and just three variables: religious self-identification ( $p < .01$ ), age ( $p = .08$ ), and recovery goal ( $p < .001$ ). Whereas among 12-step members greater involvement was strongly associated with religious/spiritual (vs. other) identification ( $B = .28$ ,  $p < .001$ ), older age ( $B = .17$ ,  $p < .05$ ), and an abstinence (vs. other) recovery goal ( $B = .39$ ,  $p < .001$ ), among members of the alternatives, neither religious identification nor age was associated with

involvement, and having an abstinence goal was more weakly associated with involvement ( $B=.15, p<.01$ ). This suggests that those who are not religious/spiritual and who are not ready for total abstinence may not be a good fit for 12-step groups, and that recommending an alternative for these individuals (especially LifeRing or SMART) may be wise. The same may also be true for younger people, despite the older age distributions of WFS and LifeRing. The fact that primary group did not interact with education level, drug severity, or psychiatric severity to predict involvement suggests that these characteristics are less relevant to referral.

Regardless, because it may be difficult to know *a priori* which group might appeal most, providers wishing to facilitate mutual help group involvement might encourage clients to try multiple groups. Clients may even choose to continue attending multiple groups as part of their recovery program. In our data, large minorities (18-28%) of those identifying a 12-step alternative as their primary group reported also attending a 12-step group in the 30 days prior to baseline. These findings are a valuable reminder that clients may be attracted to and benefit from two or more ideologically different (and even opposed) groups. A future paper will examine attendance at multiple groups more closely.

#### **4.3. Study Limitations**

In closing, we highlight a few important limitations. First, we acknowledge that, due to several recruitment challenges, we cannot completely ensure representivity of our PAL subsamples. To begin, the mutual help alternatives studied here do not and cannot maintain complete lists of attendees at any given timepoint, so it is not possible for any national study to establish a baseline response rate or to compare responders to nonresponders. This means that it is difficult to rule out possible self-selection biases. Additionally, it was not possible to recruit directly from 12-step groups in the way that we did for WFS, LifeRing, and SMART, as AA and

its counterparts do not participate directly in research. Thus, we used an internet sample for 12-step comparisons here that may differ in some ways from 12-step members broadly. Finally, all surveys were completed online. This means that those with good access to the internet are likely to be over-represented in our sample. We took several measures to obtain the most representative samples possible given these constraints, such as using a wide range of recruitment strategies for our mutual help alternatives that included recruitment from in-person meetings. We also compared our data to internal survey data, finding few major differences in key demographics—with the important exception of over-representation of women in our 12-step sample. However, other sampling biases are possible. For example, we may assume that those who do not benefit from a given group are more likely to drop out, and thus less likely to be sampled. Accordingly, those who benefited most from mutual help involvement are likely to be over-represented in our data. Still, there is no reason to believe that this bias should differ across PAL subgroups, so comparisons across groups should remain informative.

A related limitation is that, because of our reliance on internet data collection, our data may include fraudulent cases (i.e., multiple surveys completed by the same respondent). Although we employed extensive measures to eliminate such cases, we cannot be sure that we were entirely successful. The most likely consequence of data fraud is probably attenuation of effects.

Third, respondents were combined across 12-step groups, despite the fact that members of these groups may well differ on demographic and clinical variables as well as involvement, cohesion, and satisfaction. Combining groups was necessary to optimize power in this preliminary study, but data on differences among 12-step groups would also be useful. Further, results are generalizable only to individuals with a lifetime AUD. Individuals attending the

targeted groups for drug problems only may differ from the present sample.

Finally, our measures of mutual help involvement were somewhat limited. Achieving parallel measures of involvement is an enormous challenge where groups differ in their philosophies, structures, and activities. We used the 12-step literature to identify a core set of activities that are indicative of engagement in those groups, therapeutic in relation to outcomes, and potentially translatable to other groups. Nevertheless, the meaning of these activities as they relate to engagement (and thus outcomes) may well vary across groups, and some uncertainty was unavoidable given the need to use different terms for different groups (e.g., we asked about having a “sponsor” for 12-step members but “close friend” for members of the alternatives, involvement scales were generally reasonable but did vary, suggesting a need for some improvement. It would be helpful for future work to focus directly on building and validating measures of involvement suitable for each group.

Despite these limitations, we feel that the current results are valuable given the extreme scarcity of any data on mutual help groups that are not 12-step-based. We hope that the current results will be used to inform continued study of these groups, and believe that they will provide important context in interpreting any differences across groups in efficacy.

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**Table 1: Demographic comparisons between PAL samples and existing epidemiological survey data.**

	2014 AA Member Survey (N~6000 )	2015 12-step PAL Study (N=208 )	2011 WFS Membe r Survey (N=671 )	2015 WFS PAL Study (N=177 )	2013 LifeRin g Member Survey (N=373)	2015 LifeRin g PAL Study (N=99)	2015 SMAR T Membe r Survey (N=734 )	2015 SMAR T PAL Study (N=167 )
<b>Gender</b>								
% Female	38	68.3***	--	100.0	42.1	38.4	47.6	39.5*
<b>Age</b>								
% 20-29	11 <sup>1</sup>	5.3**	2.7 <sup>1</sup>	1.7***	2.6 <sup>2</sup>	4.0	4.8	6.0
% 30-39	14	12.0	10.0	20.9	9.5	13.1	15.1	18.0
% 40-49	21	27.4	33.8	15.3	23.8	12.1	21.8	26.3
% 50-59	28	34.1	40.8	35.0	30.1	30.3	30.6	25.1
% 60-69	18	16.8	--	21.5	22.1	28.3	21.0	21.6
% 70 plus	7	4.3	--	5.6	11.9	12.1	6.0	3.0
<b>Race/ethnicity</b>								
% White	89	94.2	95.2	91.4**	95.9	85.9***	86.1	94.0*
% Black/Afr. American	4	3.4	0.3	1.7	1.9	0	3.7	1.2
% Latino/Hispani c	3	1.4	1.2	4.6	0	10.1	3.3	3.0
% Other	4	1.0	3.3	2.3	6.0	4.0	6.8	1.8
<b>Education</b>								
% High school diploma or less	---	10.6	7.2	5.7	5.5	4.0	8.7	5.4
% Some college/Assoc. or professional degree	---	42.3	26.3	28.4	32.2	36.4	33.8	28.1
% Bachelor's degree	---	19.7	31.3	38.1	24.8	26.3	25.1	31.1

% Post-graduate training or degree	---	27.4	35.0	27.8	37.5	33.3	32.4	35.3
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Notes. Analyses were Chi squares comparing PAL samples to member survey data; \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ . Limited data were available for AA's member survey. Valid percentages reported.

<sup>1</sup>Estimates are only approximate as age categories were not completely overlapping (i.e., WFS categories were 21-30, 31-40, 41-50, 51-60, and over 60; AA categories were 21-30, 31-40, 41-50, 51-60, 61-70, and over 70; WFS to PAL age comparison made by collapsing 60-69 and 70 plus categories in the PAL data).

<sup>2</sup>Estimates mathematically extrapolated from different age categorizations (i.e., LifeRing categories 18-24, 25-34, 35-44, 45-54, 55-64, 64-74, 75 plus).

**Table 2. Demographics by primary group in the PAL sample.**

	12-step (N=208)	WFS (N=177)	LifeRing (N=99)	SMART (N=167)
<b>Gender</b>				
% Female	68.3	100.0***	38.4***	39.5***
<b>Age</b>				
% 20-29	5.3	1.7**	4.0**	6.0
% 30-39	12.0	20.9	13.1	18.0
% 40-49	27.4	15.3	12.1	26.3
% 50-59	34.1	35.0	30.3	25.1
% 60-69	16.8	21.5	28.3	21.6
% 70 plus	4.3	5.6	12.1	3.0
<b>Marital status</b>				
% Single	17.9	11.3**	13.1†	24.7†
% Sep./Wid./Divorced	37.1	26.6	29.3	27.7
% Married/Partnered	44.4	62.1	57.6	47.6
<b>Race/ethnicity</b>				
% White	94.2	91.4	85.9***	94.0
% Black/Afr. American	3.4	1.7	0	1.2
% Latino/Hispanic	1.4	4.6	10.1	3.0
% Other	1.0	2.3	4.0	1.8
<b>Religious self-identification</b>				
% Religious	24.6	18.1*	7.1***	16.4***
% Spiritual	52.7	47.5	21.4	23.6
% Agnostic/Unsure	18.4	23.2	31.6	30.3
% Atheist	4.3	11.3	39.8	29.7
<b>Education</b>				
% High school diploma or less	10.6	5.7***	4.0	5.4**
% Some college/Assoc. or professional degree	42.3	28.4	36.4	28.1
% Bachelor's degree	19.7	38.1	26.3	31.1
% Post-graduate training or degree	27.4	27.8	33.3	35.3
<b>Annual Household Income</b>				
% \$30,000 or less	38.1	16.2***	16.7***	24.1**
% \$30,001-60,000	19.8	31.1	24.0	25.9
% \$60,001-100,000	23.3	16.8	27.1	18.5
% \$100,001 plus	18.8	35.9	32.3	31.5
<b>Employment status</b>				
% Employed full/part-time	60.1	64.8	55.6	63.5
% Unemployed	10.1	3.4	10.1	8.4
% Other	29.8	31.8	34.3	28.1

Notes. Analyses involved an omnibus Chi square test for significant differences across groups followed,

where significant, by post-hoc tests comparing each mutual help alternative to the 12-step sample; \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , † $p < .10$  for post-hoc comparisons to 12-step members.

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**Table 3: Clinical severity by primary group in the PAL sample.**

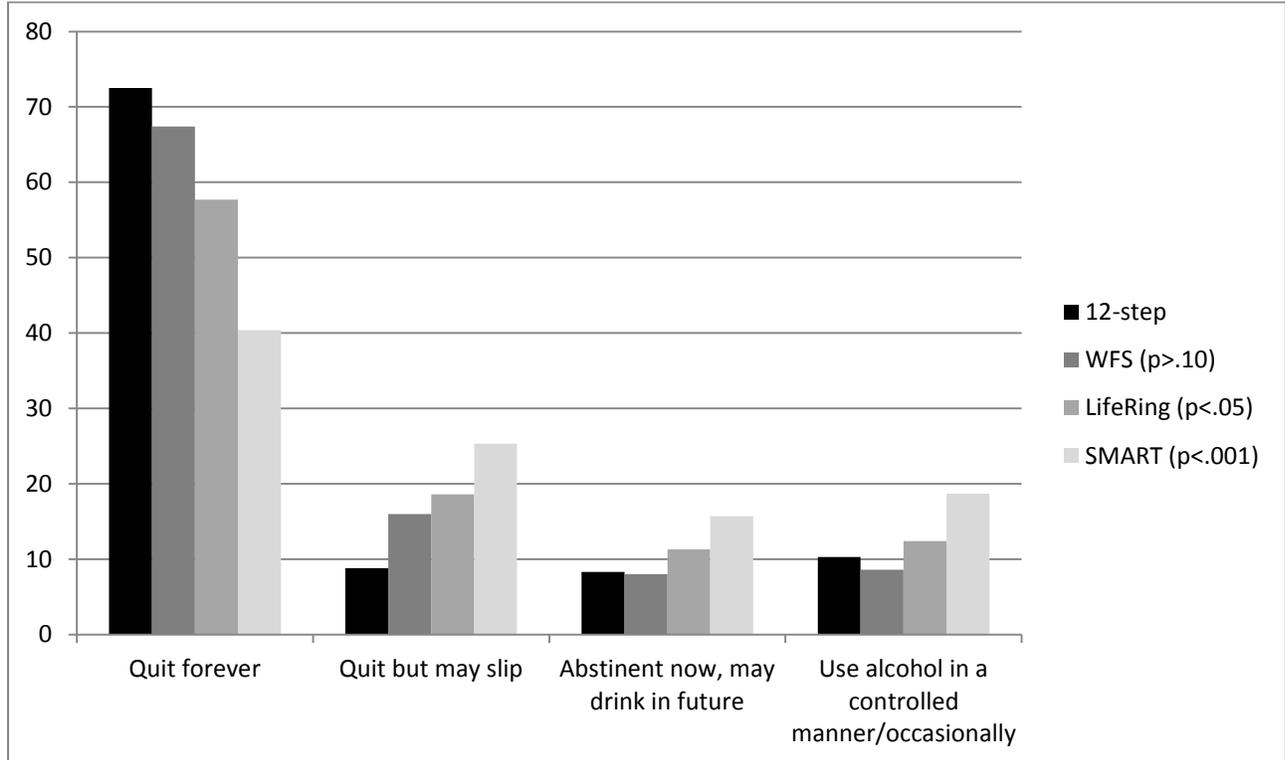
	12-step (N=208)	WFS (N=177)	LifeRing (N=99)	SMART (N=167)
Alcohol problem severity				
Mean (SD) number lifetime AUD symptoms (2-11)	9.6 (1.9)	9.3 (1.9)	9.2 (1.9)	9.1 (2.4)
Mean (SD) number past-year AUD symptoms (0-11)	3.2 (4.4)	4.2 (4.6)	3.2 (4.1)	3.7 (4.4)
Mean (SD) past-year SIP (alc. problems) (0-15)	4.2 (5.9)	5.3 (5.7)	4.1 (5.6)	5.2 (6.1)
Drug problem severity				
% Lifetime DUD symptoms 2 plus	76.9	61.6***	67.7†	71.3
% Past-year DUD symptoms 2 plus	20.2	23.7	12.1	24.6
Mental health (MH) severity				
% Lifetime therapy for MH problems	90.3	81.4*	73.7***	89.2
% Lifetime mental health diagnosis	71.8	54.6***	38.3***	69.6
% Lifetime prescription for MH problems	81.6	72.2*	57.6***	79.5
% Lifetime hospitalization for MH problems	36.2	29.9	24.2	33.5
Mean (SD) days in past 30 troubled by MH problems	7.5 (10.1)	5.8 (9.1) †	3.6 (6.5)***	7.7 (10.1)
Last alcohol use				
% Within past 30 days	14.9	29.9***	18.2*	28.3***
% 30 days-1 year ago	24.5	23.2	27.3	25.9
% 1-5 years ago	21.6	23.7	31.3	31.9
% 5 plus years ago	38.9	23.2	23.2	13.9
Last drug use				
% Within past 30 days	10.6	8.5	3.0†	16.2
% 30 days-1 year ago	14.5	19.3	20.2	16.2
% 1-5 years ago	23.2	19.9	26.3	23.4
% 5 plus years ago	42.5	36.9	35.4	31.1

Notes. Analyses involved an omnibus Chi square test for significant differences across groups followed, where significant, by post-hoc tests comparing each mutual help alternative to the 12-step sample; \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , † $p < .10$  for post-hoc comparisons to 12-step members. AUD is alcohol use disorder; SIP is Short Inventory of Alcohol Problems; DUD is drug use disorder; MH is mental health.

**Table 4: Mutual help group participation, satisfaction, and cohesion by primary group in the PAL sample.**

	12-step (N=208)	WFS (N=177)	LifeRing (N=99)	SMART (N=167)
Primary group participation				
Mean (SD) number past-month in-person meetings	12.6 (13.2)	4.4 (6.9)***	4.8 (3.6)***	5.3 (8.0)***
Mean (SD) number past-month online meetings	5.9 (16.3)	5.1 (18.2)	0.5 (3.2)**	1.1 (3.3)***
Mean (SD) composite group involvement (0-1)	0.64 (0.33)	0.69 (0.30)	0.72 (0.26)	0.64 (0.30)
Primary group cohesion, satisf.				
Mean (SD) group cohesion score (1-5)	3.82 (1.00)	4.47 (0.65)***	4.39 (0.49)***	4.26 (0.70)***
Mean (SD) group satisfaction score (0-10)	7.71 (2.53)	9.11 (1.29)***	8.94 (1.17)***	8.95 (1.23)***

Notes. Analyses involved an omnibus analysis of variance testing for significant differences across groups followed, where significant, by post-hoc tests comparing each mutual help alternative to the 12-step sample; \*\*\* $p < .001$ , \*\* $p < .01$  for post-hoc comparisons to 12-step members.

**Figure 1: Percentage endorsing each alcohol goal by primary group in the PAL sample.**

Note: Analyses involved an omnibus Chi square test for significant differences across groups ( $p < .001$ ) followed by post-hoc tests comparing each mutual help alternative to the 12-step sample; legend lists significance of post-hoc comparisons for each subgroup.

## Highlights

- Presents results from the the first wave of a longitudinal study comparing 12-step groups and abstinence-based alternatives
- Results show many differences across members of WFS, LifeRing, SMART, and 12-step groups, and suggest higher satisfaction and cohesion among the 12-step alternatives
- Conclusions are tentatively supportive of efficacy for the 12-step alternatives
- Referral to these alternatives may be appropriate overall and especially for those low on religiosity and commitment to abstinence

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