Psychology of Addictive Behaviors
2017, Vol. 31, No. 1, 1–20

0893-164X/17/$12.00 http://dx.doi.org/10.1037/adb0000237

Systematic Review of SMART Recovery: Outcomes, Process Variables, and Implications for Research

Alison K. Beck, Erin Forbes, and Amanda L. Baker
University of Newcastle

Peter J. Kelly and Frank P. Deane
University of Wollongong

Anthony Shakeshaft
National Drug and Alcohol Research Centre, University of New South Wales

David Hunt
SMART Recovery Australia, Haymarket, New South Wales, Australia

John F. Kelly
Recovery Research Institute, Massachusetts General Hospital, Boston, Massachusetts, and Harvard Medical School

Clinical guidelines recommend Self-Management and Recovery Training (SMART Recovery) and 12-step models of mutual aid as important sources of long-term support for addiction recovery. Methodologically rigorous reviews of the efficacy and potential mechanisms of change are available for the predominant 12-step approach. A similarly rigorous exploration of SMART Recovery has yet to be undertaken. We aim to address this gap by providing a systematic overview of the evidence for SMART Recovery in adults with problematic alcohol, substance, and/or behavioral addiction, including (i) a commentary on outcomes assessed, process variables, feasibility, current understanding of mental health outcomes, and (ii) a critical evaluation of the methodology. We searched six electronic peer-reviewed and four gray literature databases for English-language SMART Recovery literature. Articles were classified, assessed against standardized criteria, and checked by an independent assessor. Twelve studies (including three evaluations of effectiveness) were identified. Alcohol-related outcomes were the primary focus. Standardized assessment of nonalcohol substance use was infrequent. Information about behavioral addiction was restricted to limited prevalence data. Functional outcomes were rarely reported. Feasibility was largely indexed by attendance. Economic analysis has not been undertaken. Little is known about the variables that may influence treatment outcome, but attendance represents a potential candidate. Assessment and reporting of mental health status was poor. Although positive effects were found, the modest sample and diversity of methods prevent us from making conclusive remarks about efficacy. Further research is needed to understand the clinical and public health utility of SMART as a viable recovery support option.

Keywords: systematic review, SMART Recovery, mutual aid, self-help groups, addiction

Supplemental materials: http://dx.doi.org/10.1037/adb0000237.supp

The burden of addiction is considerable, with a profound and detrimental impact on mortality (Whiteford et al., 2013) as well as health, relationships, employment, and quality of life (Black, Shaw, McCormick, & Allen, 2013; Laudet, 2011). Together, the harms from alcohol, substance, and behavioral addictions such as gambling have been estimated to cost over $28 billion per year

Alison K. Beck, Erin Forbes, and Amanda L. Baker, School of Medicine & Public Health, University of Newcastle; Peter J. Kelly and Frank P. Deane, School of Psychology, University of Wollongong; Anthony Shakeshaft, National Drug and Alcohol Research Centre, University of New South Wales; David Hunt, SMART Recovery Australia, Haymarket, New South Wales, Australia; John F. Kelly, Recovery Research Institute, Massachusetts General Hospital, Boston, Massachusetts, and Department of Psychiatry, Harvard Medical School.

Preliminary findings from this article were presented as part of a symposium conducted at the 35th Conference of the Australasian Professional Society on Alcohol and Other Drugs, Perth, Australia, October–November, 2015. A link to the symposium presentation is available on the SMART Recovery Australia website (http://smartrecoveryaustralia.com.au/2015/11/).

Alison K. Beck and Erin Forbes have no competing interests to declare. Amanda L. Baker, Peter J. Kelly, Frank P. Deane, Anthony Shakeshaft, and John F. Kelly are all members of the SMART Recovery Australia Research Advisory Committee. Amanda L. Baker is a SMART Recovery Australia board member. David Hunt was employed by SMART Recovery as the area coordinator for South Australia, Tasmania, and Victoria.

Alison K. Beck is supported by the National Health and Medical Research Council's Centre of Research Excellence for Mental Health and Substance Use. The funder had no involvement in the development, conduct, or interpretation of this systematic review. We thank Mary Kumvaj for her assistance with designing the search strategy. Protocol Registration: PROSPERO CRD42015025574.

Correspondence concerning this article should be addressed to Alison K. Beck, Level 5, McCauley Centre, Calvary Mater Newcastle, Edith Street, Waratah, 2298 Australia. E-mail: alison.beck@newcastle.edu.au

(Australian Government Productivity Commission, 2010; Manning, Smith, & Mazerolle, 2013). Because the course of addiction is often chronic and characterized by multiple relapses (Sheedy & Whitter, 2009), accessible, long-term support is important.

"Mutual aid" programs represent one avenue for accessing such support. *Mutual aid* refers to the social, emotional, and informational support provided by, and to, group members undergoing recovery from addiction (Public Health England, 2015). Twelve-step models (e.g., Alcoholics Anonymous [AA]) are the largest and most researched source of addiction mutual aid. Within the 12-step model, addiction is conceptualized as a medical and spiritual disease, and a key feature of the recovery process is relinquishing control to a user-defined higher power (Donovan, Ingalsbe, Benbow, & Daley, 2013). For adults with moderate to severe alcohol use disorder, evidence has suggested that improvement following community 12-step participation is at least equivalent to that of professional interventions (Ferri, Amato, & Davoli, 2006; Humphreys et al., 2004; J. F. Kelly, Magill, & Stout, 2009), and in the longer term, active participation increases the likelihood of full sustained remission and recovery (Moos & Moos, 2006; Public Health England, 2015). However, individuals may fail to engage with 12-step groups for a variety of reasons, including a mismatch between personal beliefs and the 12-step philosophy (Horvath & Sokoloff, 2011). To enhance engagement, clinical guidelines advocate for tailored addiction support that accounts for individual needs and preferences (e.g., National Institute for Health Excellence, 2011, 2012). Choice over mutual aid support options is therefore important, and fortunately, alternatives are available (see Humphreys et al., 2004, for a review).

One such alternative is Self-Management and Recovery Training (SMART Recovery). SMART Recovery is one model recommended alongside 12-step by clinical guidelines for both addiction (National Institute for Health Excellence, 2011, 2012) and dual diagnosis (Mills et al., 2010). SMART Recovery is a not-for-profit organization that provides mutual aid in group and online formats (Horvath & Yeterian, 2012). SMART Recovery focuses on self-empowerment and adopts key principles (e.g., self-efficacy) and therapeutic approaches (e.g., motivational interviewing and cognitive–behavioral therapy) shown to be effective in promoting recovery from addiction (see Australian Psychological Society, 2010, for a recent review of the efficacy of these approaches). Unlike 12-step approaches that offer addiction-specific support groups (e.g., Alcoholics Anonymous, Narcotics Anonymous, Gamblers Anonymous), SMART Recovery offers support for a range of addictive behaviors (Horvath & Yeterian, 2012).

Objectives and Importance of the Current Review

Relative to the methodologically rigorous systematic reviews of the efficacy (Ferri et al., 2006) and potential mechanisms of change (J. F. Kelly et al., 2009) of 12-step models, to date, reviews of SMART Recovery (e.g., Horvath & Yeterian, 2012) are narrative in nature and tend to focus on the origins, development, and principles of SMART Recovery. A systematic approach to identifying, summarizing, and evaluating the quality of evidence for SMART Recovery has yet to be undertaken. Furthermore, since Horvath & Yeterian's, narrative review (Horvath & Yeterian, 2012), the evidence base has doubled—an additional four studies, including the first randomized controlled trial (RCT), have been published.

The current review is reported here following established guidelines for conducting systematic reviews (Moher, Liberati, Tetzlaff, Altman, & the PRISMA Group, 2009). We advance the current literature by using an established methodology (Higgins & Green, 2011) to provide a comprehensive, systematic overview and critical evaluation of both published and unpublished evidence for SMART Recovery and include recommendations for future research. We aim to explore whether, for adults with experience of substance and/or behavioral addiction(s), SMART Recovery results in changes in the severity of addiction and its consequences and whether any observed changes are influenced by process variables (e.g., treatment engagement). To help guide understanding of the applicability of these research findings to "real world" settings, we also describe the feasibility of the SMART Recovery approach, including a commentary on economic outcomes and service user satisfaction. To better inform research and clinical care, we also describe the treatment contexts and clinical presentations of participants (e.g., addiction only vs. dual diagnosis). Given not only the high prevalence but also considerable impact of comorbid mental health conditions on addiction recovery (Mills et al., 2010), the assessment and/or change in mental health status reported within the research on SMART Recovery is also discussed.

Method

The current systematic review is exempt from review by a research ethics committee or institutional review board because no primary data collection was undertaken from study participants.

Criteria for Selecting Studies for This Review

Methods were informed by the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins & Green, 2011) and are extensively detailed in the review protocol (Beck et al., 2016). The population of interest was adults (ages ≥18) attending SMART Recovery with current or past problematic experience of at least one addictive behavior (substance and/or behavioral). Study participants could be residing in community, rehabilitation, treatment, and/or correctional settings. The intervention of interest (SMART Recovery) could be delivered in a group format, of any intensity or frequency (including stand alone and/or as an adjunct), by a lay or professional facilitator. SMART Recovery could be compared to inactive and/or active conditions of any intensity, frequency, and delivery method. Evaluations without a comparator group were also eligible. Studies had to provide data for SMART Recovery participants for at least one of the following: (a) severity of addiction and its consequences, (b) process variables (e.g., treatment engagement), or (c) feasibility (see Beck et al., 2016, for definitions). We included the following designs: randomized controlled trials (cluster and parallel design), crossover trials, case series or case controls, one-arm trials, nonrandomized trials, cross-sectional or cohort studies, and case reports. Qualitative-only designs were not included.

Search Methods for Identification of Studies

Figure 1 summarizes the procedure used to identify studies, including databases searched, search terms used, exclusion cri-

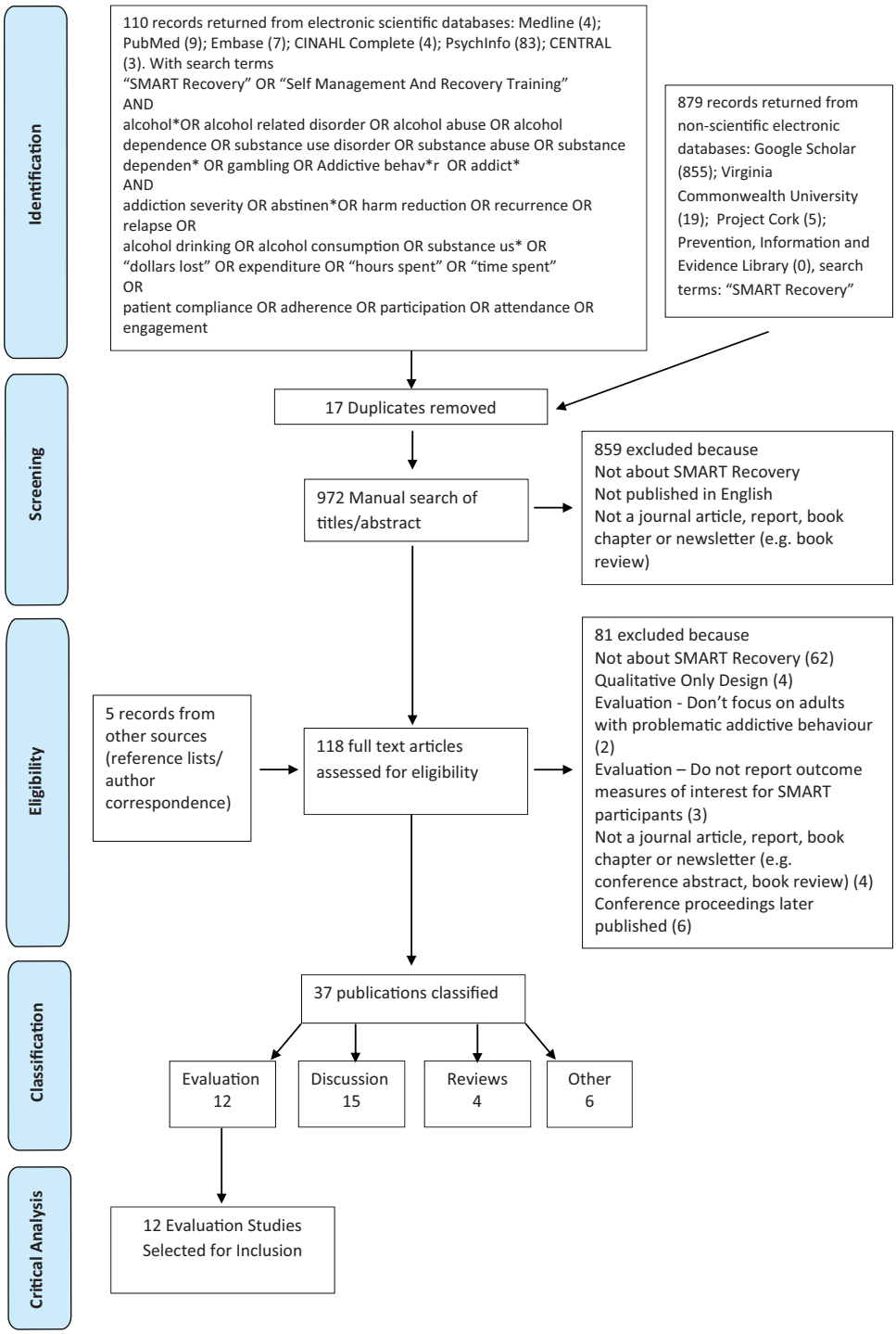

Figure 1. Flowchart of the study selection process. See the online article for the color version of this figure.

teria, and study classification. The full MEDLINE search strategy is provided in File 1 of the online supplemental materials. Abstract, title, key words, and subject headings specific to each database were searched. Subject headings were exploded. No limits were placed on publication year. Publications had to be available in English. Reference lists of identified publications were hand-searched to identify any additional publications. All publications were organized in the reference manager Endnote 2015 (Version X7). The searches were performed in May–June 2015 and rerun in April 2016. Articles were identified and classified according to three steps, explained in the next three sections.

Step 1: Identification and screening. Alison K. Beck performed the searches and reviewed the titles and/or abstracts of the identified 989 publications and used the inclusion criteria to exclude clearly ineligible articles. If eligibility was unclear, the full-text article was accessed.

Step 2: Eligibility and classification. The full-text versions of 118 publications were manually reviewed. Eighty-one publications were excluded. The remaining 37 were classified as "evaluation," "review," "discussion," or "other" according to published definitions (see Beck et al., 2016).

Step 3: Crosschecking. The 118 publications from Step 2 were cross-checked by having a research assistant (Erin Forbes) who was blinded to the results of the initial classification reclassify the publications. The articles excluded in Step 1 were not cross-checked, because they were not relevant to the review. The 12 studies independently classified by Alison K. Beck and Erin Forbes as "evaluation" were retained for further examination.

Data Collection and Analysis

Data extraction was performed by Alison K. Beck and checked by Erin Forbes. Extraction forms were piloted on several articles and modified as needed before use. When multiple reports of the same study were identified (Brooks & Penn, 2003; Penn & Brooks, 2000), data from each report was extracted separately and then combined across multiple data collection forms. Criteria for data extraction (detailed in the protocol; Beck et al., 2016) were adapted from the Downs and Black Scale (Downs & Black, 1998) and the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins & Green, 2011).

Assessment of methodological quality and risk of bias. Assessment of quality and bias was undertaken independently by Alison K. Beck and Erin Forbes.

Downs and Black Scale (Downs & Black, 1998). All nonrandomized studies were evaluated using this 27-item checklist (which is recommended by the Cochrane guidelines for assessing the quality of nonrandomized trials; Higgins & Green, 2011). Consistent with previous concerns about the two items regarding blinding of subjects and therapists (e.g., Baker, Hiles, Thornton, Hides, & Lubman, 2012), these items were not used. Scoring of Item 27 (power) was unclear, so the following convention was used: 0 (*no power calculation reported*), 1 (*power analysis reported, but insufficient power achieved*), and 2 (*power analysis reported and sufficient power achieved*). Item ratings were summed for a total maximum score of 27, with higher scores reflecting greater methodological quality. Raters achieved 80.5% consistency in their initial independent ratings. Discrepancies were then resolved following discussion, and consensus ratings were obtained for all items.

Physiotherapy Evidence Database (PEDro) Scale (Centre for Evidence Based Physiotherapy, 2009). The one RCT identified was also assessed against the 11-item PEDro Scale, a widely implemented and validated tool for assessing the quality of randomized trials. Again, the two items regarding blinding were deemed inappropriate (e.g., Baker et al., 2012) and not scored. The remaining items were assigned a 1 (yes) or 0 (no) rating (Centre for Evidence Based Physiotherapy, 2009), generating a quality score from 0 to 8 points. Raters achieved 100% consistency in their independent ratings.

Cochrane Collaboration's Risk of Bias tool (Higgins & Green, 2011). Risk of bias (within and across all studies) was assessed using the Cochrane Collaboration's Risk of Bias tool. This tool provides an overall risk of bias ("high," "low," or "unclear") based on the following methodological characteristics: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting, and "other" potential sources of bias. Raters achieved 89.2% consistency in their independent ratings. Discrepancies were resolved by discussion, and consensus ratings across all items were obtained.

Results

Description of Studies

Twelve studies were identified (eight published in peer-reviewed journals, four unpublished dissertations). The studies were predominantly cross-sectional (eight of 12). The effectiveness of SMART Recovery was explored in one RCT (Hester, Lenberg, Campbell, & Delaney, 2013), one pre- and posttreatment (prepost) design (described across two publications; Brooks & Penn, 2003; Penn & Brooks, 2000), and one quasi-experimental pseudoprospective study (Blatch, O'Sullivan, Delaney, & Rathbone, 2016). Concurrent mental illness and substance use disorder was the focus of only one study (described across two articles; Brooks & Penn, 2003; Penn & Brooks, 2000).

The SMART Recovery intervention and comparison condition was often poorly described. Intervention content and delivery methods were clearly detailed for only SMART informed or adapted interventions (Blatch et al., 2016; Brooks & Penn, 2003; Hester et al., 2013; Penn & Brooks, 2000). For community-based SMART Recovery groups (and comparison conditions), assessment and/or reporting of SMART Recovery tools, strategies, content, delivery methods, facilitator experience, and training was scarce. Thus, adherence to SMART Recovery guidelines was unclear. Assessment and reporting of concurrent treatment (including pharmacological and psychological) for addiction and/or mental health was also lacking.

Outcomes assessed.

Severity of addiction and its consequences. The severity of addiction and its consequences tended to be assessed in terms of quantity, frequency, and/or duration of use. Other indices (e.g., number of hospitalizations and recidivism) were assessed in three studies (Blatch et al., 2016; Brooks & Penn, 2003; Milin, 2007; Penn & Brooks, 2000), and quality of life in only one study (Brooks & Penn, 2003; Penn & Brooks, 2000). Despite high comorbidity between mental health conditions and substance misuse, standardized assessment of mental health status occurred in only three studies (Brooks & Penn, 2003; Hester et al., 2013; Penn & Brooks, 2000; P. J. Kelly, Deane, & Baker, 2015).

Alcohol-related outcomes were the primary focus of the literature. However, only three studies utilized standardized assessment of alcohol use (Brooks & Penn, 2003; Hester et al., 2013; Milin, 2007). The remainder relied on subjective accounts, including self-reported duration of "abstinence" or "sobriety" (Atkins & Hawdon, 2007; Guarnotta, 2014; Trumble, 2015) and "problems"

(P. J. Kelly et al., 2015; O'Sullivan, Blum, Watts, & Bates, 2015). Only three studies explicitly reported on nonalcohol substance use (Brooks & Penn, 2003; P. J. Kelly et al., 2015; Milin, 2007). Within these, the focus was on illicit drugs, to the relative neglect of other common forms of substance use like smoking (reported by only P. J. Kelly et al., 2015) and misuse of prescription medication (reported by only Milin, 2007). Brooks and Penn (2003) were the only authors to utilize a standardized clinical interview to assess nonalcohol substance use. Theirs was also the only study to employ physiological verification of alcohol and/or substance use (urine analysis; Brooks & Penn, 2003; Penn & Brooks, 2000). The severity and impact of behavioral addictions has yet to be assessed, but two studies did provide limited prevalence data (P. J. Kelly et al., 2015; O'Sullivan et al., 2015).

Process variables. Treatment engagement was the most common process variable assessed (10 of the 12), but only three studies explored its relationship to treatment outcome (Blatch et al., 2016; Brooks & Penn, 2003; Penn & Brooks, 2000; Hester et al., 2013). Other process variables assessed included elements of the therapeutic process (e.g., readiness to change, group cohesion), locus of control, spirituality or religiosity, self-efficacy, resilience, coping, and social support, but few studies (Atkins & Hawdon, 2007; Bogdonoff, 2002; Guarnotta, 2014; Milin, 2007) explored the relationship between these and treatment outcome.

Feasibility. Feasibility tended to be indexed by attendance, including the number of sessions (Hester et al., 2013), duration of involvement (Brooks & Penn, 2003; P. J. Kelly et al., 2015; Li, Feifer, & Strohm, 2000; Milin, 2007; O'Sullivan et al., 2015; Penn & Brooks, 2000), and proportion of participants accessing different types of mutual aid (Blatch et al., 2016). No studies assessed economic outcomes. Two studies (Milin, 2007; O'Sullivan et al., 2015) did report some qualitative data regarding satisfaction.

Methodological quality and risk of bias in included studies. The one identified RCT (Hester et al., 2013) received 6 from a possible 8 points using the PEDro Scale and 22 from a maximum 27 points using the Downs and Black Scale. The methodological quality of nonrandomized trials varied considerably, with Downs and Black ratings ranging from 8 to 19.

The level of risk of bias is presented separately for each study in Figure 2 and as a combined assessment of ratings in Figure 3. File 2 of the online supplemental materials contains justification for each risk assessment. Hester et al. (2013) was the only study to report both appropriate sequence generation and allocation concealment, thereby the only study assessed as having a low risk of

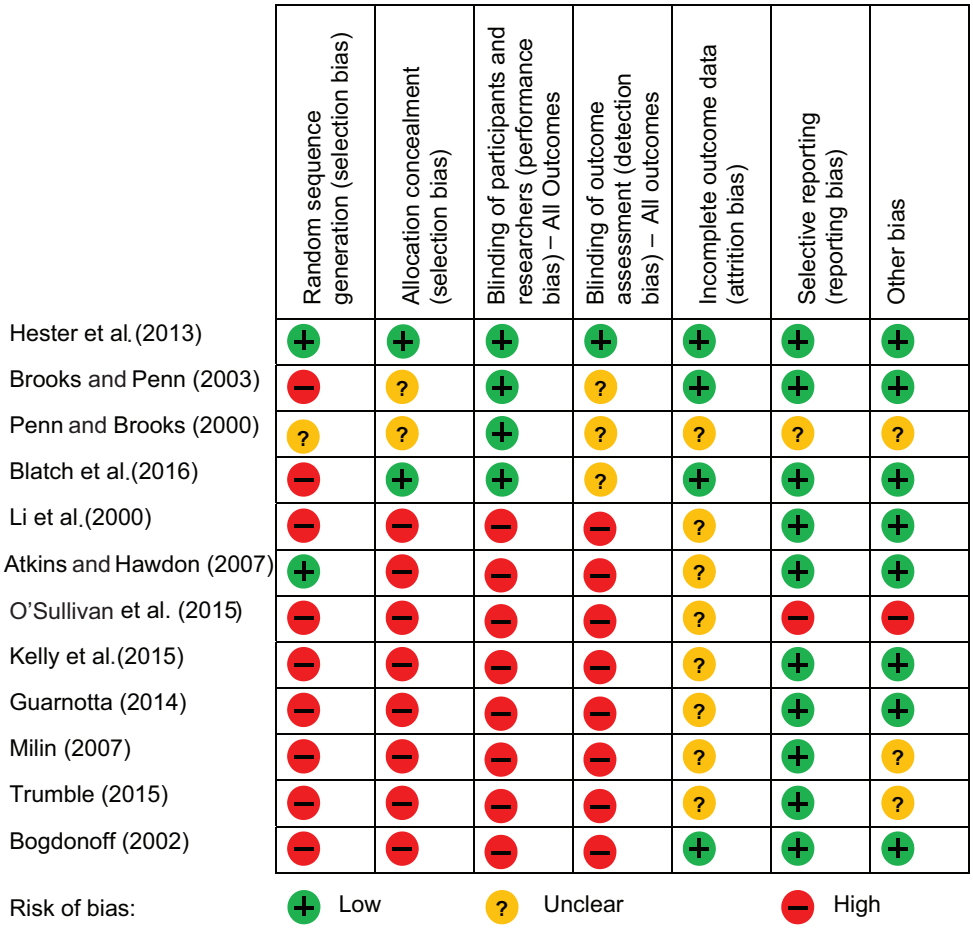

Figure 2. Risk of bias summary. Review authors' judgments about each risk of bias item for each included study. See the online article for the color version of this figure.

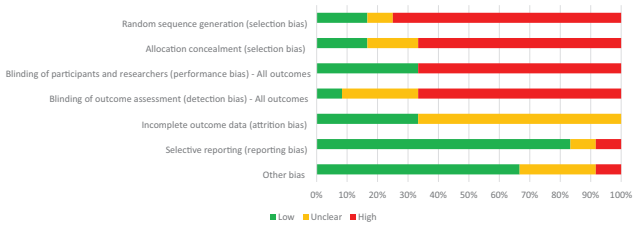

Figure 3. Risk of bias graph. Review authors' judgments about each risk of bias item presented as percentages across all included studies. See the online article for the color version of this figure.

selection bias. Masking of participants and providers in trials of psychological interventions is generally not possible, and therefore there was a high risk of bias in this domain. However, Hester et al. (2013; Brooks & Penn 2003; Penn & Brooks, 2000) and Blatch et al. (2016), used objective outcome assessment and/or collateral information and were therefore deemed to be at low risk of performance bias. Risk of detection bias was assessed as low in only one article (Hester et al., 2013), and three provided insufficient information to make a determination (Blatch et al., 2016; Brooks & Penn, 2003; Penn & Brooks, 2000). Four articles adequately addressed attrition and missing data and were deemed low risk of attrition bias (Bogdonoff, 2002; Brooks & Penn, 2003; Hester et al., 2013; Penn & Brooks, 2000), whereas the remaining eight provided insufficient information. Risk of reporting bias was deemed low in 10 studies, because all planned outcomes were reported (or an explanation provided) and post hoc analyses were clearly specified.

SMART recovery participant characteristics. A total of 7,655 participants were recruited to the included evaluations (1,177 SMART Recovery and 6,478 comparison conditions). Baseline demographic and clinical characteristics of SMART Recovery participants are presented in Table 1. Mean age ranged from 34.2 to 51. The gender distribution (% male) ranged from 39% to 71%. The majority of participants were Caucasian. Between 25% and 82% attained at least a college- or graduate-degree level of certification. Employment (full- or part-time) ranged from 30.7% to 63%. The proportion of individuals who were single or divorced ranged from 23% to 63.9%. The dual diagnosis population had fewer years of education (M = 11.6 years' education), were less likely to be employed (full- or part-time; 20.4%), and more likely to be single or divorced (80%). From the data available, mental health problems and impairment were common.

Average years of alcohol use ranged from 10 to 19.25 years. The majority of participants reported prior treatment and/or multiple quit attempts. The two studies that used the Alcohol Use Disorders Identification Test (AUDIT) at baseline both reported scores >20 (Hester et al., 2013; Milin, 2007), consistent with hazardous alcohol use and likely dependence. Amphetamines (7.3%) and marijuana (3.3%) were variously identified as the most common self-reported primary nonalcohol substance of abuse. Self-reported multidrug use was as high as 70%. In one study, 24.4% of participants endorsed behavioral addiction (sex, pornography, food, spending) alone or in combination with drugs and/or alcohol (O'Sullivan et al., 2015). In another, food (10.5%), gambling (9.7%), and shopping (6.5%) emerged as the top three nonsubstance problematic behaviors (P. J. Kelly et al., 2015).

Effects of Interventions

A summary of key findings for the four types of comparisons identified (community SMART Recovery groups vs. an online intervention, alone or in combination; SMART Recovery–informed interventions vs. active and/or control comparison conditions; community SMART Recovery groups vs. other forms of mutual aid; and community SMART Recovery groups without a comparison condition) are presented in Table 2 and discussed in turn in the next four sections.

Summary of evidence comparing SMART recovery to a SMART Recovery–informed online intervention (alone or in combination). Hester and colleagues (2013) conducted the sole identified RCT and compared SMART Recovery to a SMART Recovery–informed web application (Overcoming Addictions [OA]), alone or in combination. At the 3 months follow-up, SMART Recovery participants with a history of problematic alcohol use demonstrated significant improvement in all outcome measures (percentage of days abstinent, standard drinks per drinking day, and alcohol-related problems; Hester et al., 2013). The level of improvement did not significantly differ between treatment conditions (Hester et al., 2013). Although mental health symptoms were recorded at baseline (mean Brief Symptom Inventory = 19.35, SD = 12.5), change across time was not assessed.

In the SMART Recovery only condition, the number of meetings attended was identified as a significant predictor of improvement in all three primary outcomes (Hester et al., 2013). For the OA plus SMART Recovery group, the total amount of support (including SMART Recovery or other meetings and counselor visits) emerged as the strongest predictor of alcohol-related change. Sixty-eight participants allocated to the SMART Recovery only group (70%) completed the 3 months follow-up assessment. Fifty-eight (85%) of these 68 had attended at least two SMART Recovery meetings, defined by Hester et al. (2013) as the threshold for being considered "treated." Of note, the authors had to abandon their original plan to randomize to an OA-only condition because potential participants were unwilling to be allocated to a treatment condition that would prevent them from attending SMART Recovery meetings.

Summary of evidence for interventions informed by SMART Recovery. Two evaluations of face-to-face interventions informed by SMART Recovery were identified. First, Brooks and Penn (2003; Penn & Brooks, 2000) used a prepost design to compare an intensive, outpatient and partial hospitalization adaptation of SMART Recovery for dual diagnosis to a similarly adapted 12-step program for adults with serious Axis I mental illness and concurrent substance dependence. In this dual diagnosis population, there was an overall reduction in alcohol and substance use across time for both conditions (Brooks & Penn, 2003; Penn & Brooks, 2000). Improvement in Addiction Severity Index (ASI) Alcohol (but not ASI Drug) was superior for 12-step relative to SMART Recovery participants (Brooks & Penn, 2003). However, interpretation is complicated because 12-step baseline ASI Alcohol scores were also significantly higher. Urine analysis indicated that 12-step participants were less likely than SMART Recovery participants to use marijuana at 2 months follow-up (no other substances or follow-up intervals reached significance; Brooks & Penn, 2003). Both groups also demonstrated improvement across several indices of functioning (financial well-being and life

Table 1
Demographic and Clinical Characteristics of SMART Recovery Participants

Study	*N*	Age: *M* (*SD*)	Gender (% male)	Ethnicity (% Caucasian)	Education or degree	Employment	Marital status	Mental health	Addiction		
									Alcohol	Substance	Behavioral
Established community SMART groups versus SMART informed online intervention (alone or in combination)											
Hester et al. (2013)	86	43.4 (10.6)	39	88.4	*M* = 15.93 (*SD* = 2.5) years	—	—	Brief Symptom Inventory: *M* = 19.35 (*SD* = 12.5)	Hazardous alcohol use	Substance dependence excluded	Not assessed
SMART informed interventions versus active and/ or control comparison conditions											
Blatch et al. (2016)	2,882[a]	—	68	27 ATSI	—	—	—	Not assessed	Not assessed	Not assessed	Not assessed
Brooks and Penn (2003)	58	34.2 (8.4)	67.2	72.4	*M* = 11.6 (*SD* = 2.4) years	20.4% (full- or part-time in past 3 years)	80% single or divorced	44.8% mood disorder, 20.7% thought disorder, 15.5% personality disorder; Mean no. times of psychiatric hospitalization = 8.2 (*SD* = 10.5	ASI: *M* = .2825; years of use: *M* = 10.5 (*SD* = 9.6); Longest duration of abstinence = 6.5 months[b]; Mean no. times of alcohol treatment = 3.4 (*SD* = 6)	Substance dependence: 8.8% polysubstance, 14% cocaine, 10.5% amphetamines, 8.8% marijuana; Mean years of use: polysubstance: 9.1 (*SD* = 8.4), marijuana: 8.6 (*SD* = 8.6), cocaine: 4.4 (*SD* = 5.7); Mean no. times of substance use treatment = 3.2 (*SD* = 5.5)	Not assessed
Established community groups: SMART Recovery versus other forms of mutual aid											
Atkins and Hawdon (2007)	321[a]	47 (no *SD*)	58.1[b]	90.3	—	Mean income $55,000	43.4% single or divorced	21.4% reported prior psychiatric hospitalization	Years of use: >10 (78.8%); Past hospitalization (35%); Past outpatient treatment (48.7%)	>70% polysubstance use	Not assessed
Bogdonoff (2002; unpublished dissertation)	53	36 (no *SD*)	24.5	32.4	5.9% bachelors or graduate	12.9% (full- or part-time)	23% single, divorced, separated	Not assessed	Past treatment (60.4%)	No independent assessment of substance use	Not assessed
Guarnotta (2014; unpublished dissertation)	58	42.1 (13.4)	45.1	87.7	51.7% college or graduate	—	63.9% single or divorced	Not assessed	Mean no. days abstinent = 322.4 (*SD* = 323.79)	No independent assessment of substance use	Not assessed
Li et al. (2000)	33	45.79 (11.8)	67	—	82% college or graduate	—	—	Not assessed	Not assessed	Not assessed	Not assessed

(*table continues*)

Table 1 (*continued*)

Study	*N*	Age: *M* (*SD*)	Gender (% male)	Ethnicity (% Caucasian)	Education or degree	Employment	Marital status	Mental health	Addiction		
									Alcohol	Substance	Behavioral
Milin (2007; unpublished dissertation)	60	44 (no *SD*)	56.7	97	30.2% college	64.6% full- or part-time	52.6% single or divorced	Self-reported diagnosis: major depression (40%), severe anxiety/ panic (26.7%), ADHD (8.3%), bipolar (11.7%), SZ (0%), OCD (5%), other (1.7%)	History of problematic alcohol use: Mean no. of months abstinent = 7.13 (*SD* = 10.93); Past treatment: inpatient (25%), residential (15%), individual (46.7%), outpatient (25%)	Drug of choice: cocaine (1.7%), prescription meds (1.7%); Current abuse: marijuana (3.3%) and prescription medication (6.7%) only; Ever abuse: marijuana (56.7%), cocaine (46.7%), heroin (8.3%), methamphetamine (25%), hallucinogens (33.3%), prescription meds (31.7%)	Not assessed
Trumble (2015; unpublished dissertation)	70	51.62 (11.74)	64	95	41% bachelors	48%: income = $35,000 to $100,000	—	Not assessed	Mean no. of days abstinent = 1,417.6 (*SD* = 1,985.28)	No independent assessment of substance use	Not assessed
SMART Recovery without a comparison condition											
Kelly et al. (2015)	124	40.65 (11.38)	56.5	6.5 ATSI	—	30.7% full- or part-time	—	Self-reported diagnosis: 46.7% depression, 29% anxiety, 5.6% bipolar, 4.8 % PTSD, 3.2% SZ or psychotic disorder, 6.5% other; 29% reported a prior suicide attempt; Mean K10: 21.74 (*SD* = 4.91): 47% in high or very high range (>22), 66.4% reported prior treatment, 46.8% reported current medication management	85.6% used alcohol within the preceding 12 months; Mean years of problems (alcohol or substance) = 18.11 (*SD* = 10.97)	Primary substance of abuse: amphetamine (7.3%), heroin (5.6%), tobacco (4.8%), marijuana (3.2%); use ≤ 12 months: tobacco (63%), marijuana (44%), heroin (32.3%), amphetamines (27.4%), analgesics (22.6%), cocaine (12.1%), ecstasy (11.3%)	Food (10.5%), gambling (9.7%), shopping (6.5%), pornography (4.8%), sex (3.2%)

Table 1 (*continued*)

Study	*N*	Age: *M* (*SD*)	Gender (% male)	Ethnicity (% Caucasian)	Education or degree	Employment	Marital status	Mental health	Addiction: Alcohol	Addiction: Substance	Addiction: Behavioral
O'Sullivan et al. (2015)	81	48 (13.1)	66.7	90.1	66.6% graduate or bachelors	63% employed	34.6% single	51% endorsed "psychiatric disability"	Mean years of abuse: 15.62 (*SD* = 11.5); Sobriety attempt: 1st (26.6%); 2–5 (50.6%); 6–10 (11.4%); Mean years of individual counseling 5.14 (*SD* = 7.39)	Drugs (14.8%), + alcohol (9.9%), + alcohol (9.9%), + both (7.4%)	7.3%, + alcohol (7.3%), + drugs (2.4%), + both (7.4%)

Note. Dashes indicate that data were not reported. SMART = Self-Management and Recovery Training; ATSI = Aboriginal or Torres Strait Islander; ASI = Addiction Severity Index; ADHD = attention-deficit/hyperactivity disorder; K10 = Kessler Psychological Distress Scale; SZ = schizophrenia; OCD = obsessive–compulsive disorder; meds = medications; PTSD = posttraumatic stress disorder.
[a] Data available only across all treatment conditions (SMART not available alone). [b] Full-sample gender distribution (41.2% male) was skewed by women-only group (Women for Sobriety), so revised gender distribution without Women for Sobriety participants is reported.

satisfaction; ASI Psychiatric, Employment, and Legal composite scores; psychiatric hospitalization), with between-groups differences on employment and number of psychiatric hospitalizations, both of them in favor of SMART Recovery (Brooks & Penn, 2003; Penn & Brooks, 2000). Observed changes in substance use but not functional outcomes were predicted by attendance (Brooks & Penn, 2003). Overall (i.e., irrespective of treatment condition), greater attendance was associated with less marijuana use but slightly more alcohol use. This latter finding may have been due to floor effects because participants who attended more also had less baseline alcohol use. Between-groups differences emerged in the duration of attendance, with SMART Recovery participants attending significantly fewer days and weeks of treatment relative to 12-step participants (Brooks & Penn, 2003).

Blatch and colleagues (2016) used a quasi-experimental design to compare Getting SMART, a SMART Recovery–informed intervention for offenders (alone, or in combination with SMART Recovery), to a propensity-matched control group. For custodial offenders, all indices of recidivism were consistently lower for Getting SMART participants relative to controls (Blatch et al., 2016; see Table 2). Observed reductions in reconviction (for "any" and "violent" crimes) were even more pronounced for participants who attended both Getting SMART and SMART Recovery. Conversely, the improvements seen following participation in SMART Recovery only did not significantly differ from that of controls. Completion of 10–11 sessions (Getting SMART and/or SMART Recovery) was required to detect a significant therapeutic effect (defined as 25% increase in days to first reconviction; Blatch et al., 2016), and over a third of participants met this threshold (see Table 2). Neither baseline nor change in either mental health status or alcohol or drug use outcomes were reported.

Summary of evidence for SMART Recovery relative to other forms of mutual aid. Five cross-sectional studies compared SMART Recovery to other forms of mutual aid, most commonly AA. Only Atkins and Hawdon (2007) and Milin (2007) included some index of mental health status, with Atkins and Hawdon reporting on prior psychiatric hospitalization and Milin assessing self-reported diagnosis (see Table 2 for data on SMART Recovery participants). Atkins and Hawdon, as well as Bogdonoff (2002) and Trumble (2015), all reported an equivalent duration of sobriety for SMART Recovery and AA participants. Conversely, Guarnotta (2014) found that the duration of abstinence for AA participants was approximately double that of SMART Recovery participants, but the statistical significance of this effect was not assessed. With the exception of years of abuse (which did not significantly differ), Milin (2007) described a more severe addiction profile for AA relative to SMART Recovery participants (including greater substance-related problems, impaired functioning, and poorer quality of life). However, corrections were not made for multiple comparisons.

Milin (2007) also found that "readiness to change" was greater for SMART Recovery relative to AA participants, but contrary to expectations, it did not predict alcohol-related problems. Bogdonoff (2002) found that relative to their AA counterparts, SMART Recovery participants' demonstrated greater future orientation, greater approach coping skills, less conflict, and higher social support. However, contrary to prediction, none of these variables predicted abstinence. Conversely, Guarnotta (2014)

Table 2
Summary of Methodology and Key Findings From Evaluations of SMART Recovery

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings		
			Severity of addiction and its consequences	Process variables	Feasibility
Established community SMART groups versus SMART informed online intervention (alone or in combination)					
Hester et al. (2013); Downs & Black: 22 (max = 27), PEDro: 6 (max = 8), Overall risk of bias: Low	To evaluate the effectiveness of a web application informed by SMART Recovery OA and SMART Recovery in a sample of problem drinkers new to SMART Recovery. Participants had ≤4 weeks' attendance at SMART and hazardous alcohol use as indexed by ≥8 on AUDIT and alcohol consumption outside recommended guidelines.	United States; RCT; OA (n = 19) vs. SMART (n = 86) vs. OA + SMART (n = 83)	Significant improvement in all conditions at 3 months follow-up (no between-groups differences); PDA: Significant main effect (44% vs. 72%); $F(1, 149) = 160.93$, $p < .001$; Group differences $F < 1.0$; DDD: Significant main effect (8.0% vs. 4.6%); $F(1,149) = 61.73$, $p < .001$; Group differences $F < 1.0$; InDUC: Significant main effect (40.8% vs 19.5%); $F(1,149) = 122.28$, $p < .001$; Group differences $F < 1.0$; Change in mental health status not assessed	No. days of face-to-face meetings, online meetings and/or "any support" were identified as significant predictors of change in alcohol use (the relationships that emerged varied according to treatment condition and outcome measure). OA: No. of days of online SMART meetings identified as a significant predictor of PDA (p = .25). SMART: No. of days of face-to-face meetings identified as a significant predictor of all three outcome measures (PDA: r = .358, p = .003; DDD: r = −.250, p = .039; InDUC: r = −.244, p = .045) and change in these from baseline (PDA: r = .274, p = .024; DDD: r = .478, $p < .001$; and InDUC: r = .403, p = .001). OA + SMART: No. of days of "any support" identified as a significant predictor of PDA (r = .306, p = .012) and improvement in InDUC (r = .305, p = .012).	OA: Logged onto the program on average 7.2 times (SD = 6.4); SMART: 71% attended at least two online meetings; Days of face-to-face meetings (M = 3.31), days of online meetings (M = 5.90), days of "any support" (M = 14.85); OA + SR: 85% attended at least two face-to-face meetings; Days of face-to-face meetings: (M = 1.82), days of online meetings (M = 4.42), days of "any support" (M = 12.8)

Table 2 (*continued*)

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings		
			Severity of addiction and its consequences	Process variables	Feasibility
SMART-informed interventions vs. active and/or control comparison conditions					
Blatch et al. (2016); Downs & Black: 16 (max = 27), Overall risk of bias: High	To determine reconviction outcomes for male and female offenders who participated in Getting SMART (a 12-session adaptation of SMART for custodial offenders) and/or SMART Recovery relative to a propensity score-matched control group that did not participate in either program. Participants were offenders who served custodial sentences in New South Wales between 2007 and 2011.	Australia; Quasi-experimental, pseudo-prospective study design; Getting SMART (n = 2,343) vs. Getting SMART + SMART (n = 306) vs. SMART (n = 233) vs. Control (n = 2,882)	Relative to controls: Time to "any" reconviction: Getting SMART: ~8% reduction (HR = .918*; 95% CI [.848, .995]). Neither reduction in SMART (~13%) nor Getting SMART + SMART (~8%) reached significance. Time to "violent" reconviction: Getting SMART: ~13% longer (HR = .867*; 95% CI [.763, .985]); Neither change in SMART (~16% longer) nor Getting SMART + SMART (~25% longer) reached significance. Reconviction rate (any): Getting SMART: ~19% reduction (HR = .808**; 95% CI [.747, .875]); Getting SMART + SMART: ~22% reduction (HR = .784*; 95% CI [.647, .950]); SMART did not reach significance. Reconviction rate (violent): Getting SMART: ~30% lower (HR = .704**; CI [.621, .799]); Getting SMART + SMART: ~42% lower (HR = .578**; 95% CI [.407, .821]). SMART did not reach significance. Mental health status not reported.	Attendance at 10–11 sessions (of either program, alone or in combination) was associated with a significant therapeutic effect (25% reduction in reconviction rate; HR = .764*; 95% CI [.612, .953]). Brief exposure (1–6 sessions) mirrored the control group.	81% attended Getting Smart only; 8% attended SMART only; 11% attended Getting SMART + SMART; 37% attended >12 sessions; 19% attended between 9 and 11 sessions.

(*table continues*)

Table 2 (*continued*)

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings		
			Severity of addiction and its consequences	Process variables	Feasibility
Brooks and Penn (2003); Downs & Black: 14 (max = 27), Overall risk of bias: High; Penn and Brooks (2000); Downs & Black: 8 (max = 27), Overall risk of bias: High	To compare the effectiveness of a SMART and 12-step-informed intervention for dual diagnosis in an intensive outpatient or partial hospitalization setting; Participants had severe mental illness (schizophrenia, bipolar disorder, schizoaffective disorder, major depression) and concurrent substance use disorder (as indexed by diagnostic interview and collateral information).	United States; multivariate multiple baseline comparison (alternate allocation); SMART-informed (n = 58) vs. 12-step-informed (n = 54)	Improvement over time for both groups on the following: Addiction Severity Index (Alcohol, Substance, Employment, Legal and Psychiatric subscales); Urine analysis: marijuana and "other" (cocaine, heroin, amphetamines, and barbiturate use); Lehman Quality of Life (Financial and Life Satisfaction subscales); No. of psychiatric hospitalizations; Significant between-groups differences emerged on only Addiction Severity Index: Alcohol (in favor of 12-step; intercept coefficient = −.0076, SE = .0033; t = −2.28, $p < .05$); 2 months urine analysis: Marijuana (in favor of 12-step; odds ratio = .05); Addiction Severity Index: Employment (in favor of SMART; coefficient = −.0076, SE = .0033, t = −2.28*); Psychiatric hospitalization (in favor of SMART): Significant Time × Treatment interaction, $F(2, 78.6) = 4.239$, $p < .024$; M = 0 vs. 5.52 (SD = 13.7)	Attendance was identified as a significant predictor of marijuana use (better attendance, less likely to use at 2 months; Odds ratio = .05). Greater attendance increased the slope, indicating that alcohol use (ASI) decreased less with greater attendance (time linear slope: attendance coefficient = .0001, SE = .0001, t = 2.51*).	SMART participants attended significantly fewer days than did 12-step participants: M = 81 (SD = 18.3) vs. M = 94 (SD = 21.6); $t(48) = 2.26$, $p < .028$*; SMART participants attended significantly fewer weeks than did 12-step participants: M = 26 (SD = 3.2) vs. 28 (SD = 4.7), respectively; $t(48) = 2.46$, $p < .018$*

Table 2 (*continued*)

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings: Severity of addiction and its consequences	Key findings: Process variables	Key findings: Feasibility
Established community groups: SMART Recovery versus other forms of mutual aid					
Atkins and Hawdon (2007); Downs & Black: 16 (max = 27), Overall risk of bias: High	To explore the relationship between participants' personal religious or spiritual beliefs, the religious or spiritual beliefs of their mutual aid group and level of participation In participants who identified as being "in recovery" and were able to identify a "primary recovery group."	United States; icross-sectional (national survey) SMART (n = 321) vs. 12-step (n = 161) vs. WFS (n = 236) vs. Secular Organisations for Sobriety (n = 104)	Mutual aid group was not predictive of "number of days clean and sober" (Wald χ^2 = 1.11, p = .267)	Significant predictors of sobriety identified were age: β=.272, coefficient = .054*** (SE = .009); no. of close friends in recovery: β=.240, coefficient = .418*** (SE = .093); participation (as indexed by a study-specific instrument): β=.177, coefficient = .045*** (SE = .013). Religiosity and belief in a higher power did not emerge as significant predictors of sobriety.	Mutual aid group = significant predictor of participation. SMART: β = −.193, coefficient = −3.02 (SE = 1.09); WFS: β = −.211, coefficient = −3.63* (SE = 1.04); SOS: β = −.191, coefficient = −4.73* (SE = 1.71). Authors concluded that relative to 12-step, all other groups were less likely to participate.
Bogdonoff (2002; unpublished dissertation); Downs & Black: 17 (max = 27), Overall risk of bias: High	To explore the predictive relationship between recovery and resilience (including self-efficacy, coping skills and internal locus of control constructs embedded within resilience) and to compare these characteristics in SMART Recovery and 12-step groups to see if either type of group was more effective in supporting abstinence during the early period of the first 90 days of recovery. Participants had a history of alcohol and substance abuse and/or dependence and were in the "early stage of recovery" (<30 self-reported days abstinent).	United States; Cross-sectional, prospective, quasi-experimental; SMART (± short- or long-term residential rehabilitation; n = 53) vs. 12-step (± short- or long-term residential rehabilitation; n = 86)	At 90-day follow-up "sobriety" did not significantly differ between 12-step (39.5%) and SMART (39.6%) groups (as indexed by dichotomous self-report assessment (yes/no) of abstinence over the preceding 90 days).	Neither mutual aid group nor any of the following factors were identified to be significant predictors of abstinence: Resilience and optimism (adult resiliency belief system), self-efficacy regarding drinking (Drug Taking Confidence Questionnaire), locus of control (drinking-related internal-external locus of control), coping (Coping Response Inventory), and social support resources (Family/Social Composite score on the Addiction Severity Index). Of potential relevance to the differing underlying philosophies (i.e., the role of relinquishing to a higher power in 12-step), SMART Recovery participants demonstrated greater "approach" coping skills (including logical analysis, seeking guidance, and problem solving), F(1, 132) = 7.11, p = .009.	Did not report on feasibility

(*table continues*)

Table 2 (*continued*)

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings		
			Severity of addiction and its consequences	Process variables	Feasibility
Guarnotta (2014; unpublished dissertation); Downs & Black: 17 (max = 27), Overall risk of bias: High	To explore the relationship between abstinence and self-efficacy for individuals in SMART Recovery and how this compared to the relationship between self-efficacy and abstinence for individuals attending AA. Participants demonstrated a history of problematic alcohol use (as indexed by Michigan Alcohol Screening Test), were abstinent from alcohol or illicit substances for a maximum of 30 days, and reported a "strong commitment" to attend mutual aid.	United States; Cross-sectional, quasi-experimental; SMART (n = 58) vs. AA (n = 64)	Self-reported duration of abstinence for AA (M = 677.2, SD = 1,576.4; range = 30 to 4,589) was approximately double that of SMART (M = 322.4, SD = 323.79; range = 30 to 1,012), but significance not reported	Self-efficacy (as indexed by the General Self Efficacy Scale) did not significantly differ between AA (M = 30.58, SD = 6.3) and SMART (M = 30.28, SD = 5.9), p = .79. Self-efficacy was identified as a significant predictor of abstinence for AA (r = .345, $p < .01$) and SMART (r = .378, $p < .01$) participants, explaining approximately 10.4% of the variance in abstinence time (R^2 = .104).	Did not report on feasibility
Li et al. (2000); Downs & Black: 14 (max = 27), Overall risk of bias: High	To investigate whether AA's higher power concept encourages externally dependent behavior by testing whether AA and SMART members are equal on measures of locus of control. Participants were "in recovery" (at least 8 weeks' mutual aid attendance).	United States; Cross-sectional (survey): SMART (n = 33) vs. AA (n = 48)	This study explored only process measures.	Significantly higher percentage of AA (96%) than SMART (48%) participants reported belief in a higher power, $\chi^2(1) = 24.42$, $p < .0001$; AA participants demonstrated a more external locus of control (DRIE: M = 5, SD = 3.23; range = 0–13) than did SMART participants (M = 2.09, SD = 2.66; range = 0–13), p = .00003. The relationship between process variables and outcome measures was not explored.	Self-reported duration of involvement (months) was significantly longer for AA (M = 66.48, SD = 76.24; range = 3–252) relative to SMART (M = 18.76, SD = 15.54; range = 2–48), t = 3.58, p = .0006

Table 2 (*continued*)

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings		
			Severity of addiction and its consequences	Process variables	Feasibility
Milin (2007; unpublished dissertation); Downs & Black: 17 (max = 27), Overall risk of bias: High	To examine the relationship between consequences of alcohol abuse and motivation to change drinking behavior and to explore similarities and differences between members of AA and SMART. Participants were currently attending mutual aid.	United States; Cross-sectional, between-subjects, correlational. SMART (n = 60) vs. AA (n = 56)	Outcomes for SMART were consistently superior relative to AA, including the following: less hazardous use of alcohol as indexed by AUDIT (M = 22.5, SD = 6.64 vs. M = 26.57, SD = 7.31; p = .002); lower severity and less functional impact of addiction as indexed by the ASI; ASI Alcohol (M = .48, SD = .28, vs. M = .64, SD = .19; p = .001); ASI Drug (M = .05, SD = .09, vs. M = .27, SD = .23; p < .001); ASI Psychiatric (M = .29, SD = .21, vs. M = .42, SD = .25; p = .003); ASI Employment (M = .39, SD = .24, vs. M = .57, SD = .33; p = .001); ASI Family/Social Problems (M = .29, SD = .23, vs. M = .49, SD = .25; p = .001); ASI Legal (M = .06, SD = .21, vs. M = .24, SD = .37; p = .002). Fewer alcohol-related problems: DrINC-R Total (M = 55.27, SD = 23.43, vs. M = 88.48, SD = 25.34; p < .001; DrINC Lifetime (M = 31.88, SD = 7.62, vs. M = 37.11, SD = 7.39; p < .001	Levels of precontemplation were significantly greater in AA (M = −5.59, SD = 3.95) relative to SMART (M = −7.42, SD = 3.42), p < .01. Similarly, levels of contemplation were significantly higher in SMART (M = 5.77, SD = 2.68) relative to AA (M = 3.98, SD = 4.48), p < .05. However, readiness to change was not identified as a significant predictor of alcohol-related problems (all models failed to reach significance).	Duration of involvement was significantly longer for AA (4.95, SD = 1.63) relative to SMART (3.55, SD = 1.8) participants, where 1 = *<30 days,* 2 = *30 days to 3 months,* 3 = *3–6 months,* 4 = *6 months to 1 year,* 5 = *1 to 2 years,* and 6 = *2 years or more.*

(*table continues*)

Table 2 (*continued*)

Study quality rating risk of bias	Aim target population	Country design treatment or comparison groups	Key findings: Severity of addiction and its consequences	Key findings: Process variables	Key findings: Feasibility
Trumble (2015; unpublished dissertation); Downs & Black: 19 (max = 27), Overall risk of bias: High	The purpose of the study was to replicate the results from Li et al.'s 2000 study (that AA will be more externally controlled and SMART more internally oriented) and to explore the relationship to faith in a higher power. Participants were currently attending mutual aid.	United States; Cross-sectional, quasi-experimental; SMART (n = 70) vs. AA (n = 36)	The duration of sobriety did not significantly differ between groups (p = .09); AA: M = 2,506.17days (SD = 6.87 years) vs. SMART: M = 1,417.60 days (SD = 3.88 years)	Both groups demonstrated internal locus of control (as indexed by low scores on the DRIE). SMART was more internal (M = 2.08 SD = 2.47) relative to AA (M = 4.67, SD = 4.01), p = .001. The relationship between locus of control treatment outcome was not assessed.	Did not report on feasibility
		SMART Recovery without a comparison condition			
Kelly et al. (2015); Downs & Black: 13 (max = 27), Overall risk of bias: High	To provide a description of participants, including potential clinical complexities; to examine how frequently participants used cognitive and behavioral skills outside of meetings; to examine the variables that may predict participants' self-reported use of cognitive and behavioral skills. Participants were currently attending SMART meetings.	Australia; Cross-sectional (survey); SMART alone (n = 124)	Duration of alcohol or substance use problems was 18.11 years (SD = 10.97).	Group cohesion = significant predictor (17% of variance) of cognitive restructuring (β = .23), F(3, 113) = 8.42, p < .001; Homework = significant predictor (21% of variance) of behavioral activation (β=.26), F(3, 113) = 10.99, p < .001; significant positive correlation between quality of facilitation and group cohesion (r = .38). Relationship to treatment outcome was not assessed.	The majority of participants attended weekly (72.8%); duration of attendance: M = 8.78 months, SD = 14.11; range = 1 week to 96 months.
O'Sullivan et al. (2015); Downs & Black: 10 (max = 27), Overall risk of bias: High	To describe members of the SMART Recovery community, their motivations for membership; describe SMART facilitators and their educational and training backgrounds; rank order of members' and facilitators' recovery goals. Participants had ≥3 months' attendance at SMART meetings.	United States; Cross-sectional (two-sample exploratory descriptive survey; n = 81)	Duration of problematic addiction was M = 15.62, SD = 11.5; range = 3 months to 40 years.	The relationship between process variables and treatment outcome was not explored.	Frequency of attendance: M = 4.69 meetings per month (SD = 2.64). Duration of attendance: M = 1.58, SD = 1.81; range: 3 months to 10 years. On a 9-point scale (higher scores = greater confidence), mean confidence in SMART's ability to meet recovery goals = 8.16 (SD = 1.24)

Note. SMART = Self-Management and Recovery Training; max = maximum; PEDro = Physiotherapy Evidence Database; AUDIT = Alcohol Use Disorders Identification Test; OA = Overcoming Addictions; AA = Alcoholics Anonymous; RCT = randomized controlled trial; PDA = percentage of days abstinent; DDD = standard drinks per drinking day; InDUC = Inventory of Drug and Alcohol Use Consequences; HR = hazard ratio; CI = confidence interval; ASI = Addiction Severity Index; WFS = Women for Sobriety; SOS = Secular Organisations for Sobriety; DRIE = Drinking Related Internal-External Locus of Control Scale.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

found significant, moderate, positive correlations between abstinence and self-efficacy for both SMART Recovery and AA participants. Atkins and Hawdon (2007) identified additional predictors of sobriety, including participation and number of close friends in recovery.

When Milin (2007) asked SMART Recovery participants about what they "liked" about their mutual aid group, qualitative findings revealed that both general group processes (support, nonjudgment) and key features of the SMART Recovery approach (empowerment, tools or resources, and scientific or theoretical approach) featured in the top five themes extracted (see Table 3). When SMART Recovery participants were asked about what they disliked about prior approaches, responses again pertained to general group processes (e.g., poor boundaries) but this time also referred to prior experience with 12-step approaches (e.g., higher power or religion, perception of powerlessness; see Table 3).

Summary of evidence for SMART recovery without a comparison condition. Two studies without a comparison condition were identified (P. J. Kelly et al., 2015; O'Sullivan et al., 2015). P. J. Kelly and colleagues (2015) explored potential mechanisms of change in SMART Recovery by assessing the extent to which quality of group facilitation, group cohesion, and homework contributed to self-rated use of cognitive–behavioral skills. Group cohesion emerged as a significant predictor of cognitive restructuring, whereas homework was identified as a significant predictor of behavioral activation (P. J. Kelly et al., 2015). Although quality of group facilitation was not identified as a significant predictor of either cognitive restructuring or behavioral activation, a positive

Table 3
Summary of Qualitative Findings

Study	Question and treatment condition	
Milin (2007)	What do you like about your current primary self-help group?[a]	
	12-step (n = 56)	SMART Recovery (n = 60)
	Supportive environment (e.g., helping others, people trying to do the right thing; n = 29)	Internal locus of control (e.g., self-directed, self-empowered; n = 22)
	Fellowship (n = 12)	Supportive environment (e.g., giving and getting help; positive reinforcement; n = 20)
	12-steps give a sense of direction or purpose (e.g., plan of action, structure; n = 10)	Many tools or resources for relapse prevention (n = 17)
	People have common problem (e.g., shared experiences, relate with other alcoholics, sober people; n = 7)	Scientific nature, theoretical (e.g., CBT, REBT; n = 14)
	Availability of groups (e.g., always there, somewhere to go and not drink; n = 4)	Nonjudgmental (e.g., absence of guilt, slip is not catastrophic; n = 7)
	What did you dislike about self-help groups you attended in the past[a]	
	Prior 12-step	Prior 12-step
	Negative attributes of group members (e.g., complaining or whining, cussing or vulgarity, closed off, dishonesty; n = 8)	Higher power, religious (n = 21)
	Disparity among different types of 12-step groups (e.g., NA too rigid about alcohol, lack of sponsorship in MA, could not identify with CA or NA, too much mixing of NA and AA; n = 6)	Powerlessness (n = 19)
	Repetitious (e.g., no new information, retell same stories; n = 5)	Dogmatic, authoritative, rigid (e.g., have to do it one way, problem for life, moderation not an option; n = 18)
	Lack of seriousness (e.g., some not serious about sobriety; n = 5)	Labeling (e.g., "alcoholic," "disease"; n = 11)
	Frequent relapses (n = 3)	People with poor boundaries (intimidating or domineering people, ask me for money, unwanted advances from men, disrespectful, not trustworthy or dishonesty; n = 10)
	Prior SMART	Prior SMART
	Lack of sponsorship (n not reported)	I don't like counseling or advice (n = 1)
		Abstinence is not required (n = 1)
		Same stories repeated (n = 1)
		Easy to be facetious online (n = 1)
O'Sullivan et al. (2015)	Reasons for switching from another mutual aid approach to SMART Recovery[b]	
	Alignment with SMART philosophy, principles, and format (e.g., CBT 51.6%)	
	Difficulties with surrendering to religious affiliations such as a higher power or adoption of a powerlessness identity (26.6%)	
	Still attending both types of mutual aid (18.8%)	
	Outlier responses (3%)	

Note. SMART = Self-Management and Recovery Training; CBT = cognitive–behavioral therapy; REBT = rational emotive behavioral therapy; NA = Narcotics Anonymous; MA = Marijuana Anonymous; CA = Cocaine Anonymous; AA = Alcoholics Anonymous.
[a] The top five from the 13 identified themes are reported here. [b] 79% had switched from another approach (primarily 12-step), and qualitative findings are derived from thematic analysis.

relationship was detected with group cohesion (P. J. Kelly et al., 2015). O'Sullivan and colleagues (2015) sought to explore the recovery goals of SMART Recovery members and facilitators, to describe the educational and training backgrounds of SMART Recovery facilitators, and to describe SMART Recovery members and their motivations for attending. When SMART Recovery members were asked to describe their reasons for switching from another mutual aid approach, their responses closely mirrored those described by Milin (2007; see Table 3). The majority of participants reported that they attended SMART Recovery relative to other forms of mutual aid due to alignment with key features of the SMART Recovery approach (e.g., cognitive–behavioral therapy; 51.6%) or prior difficulties with 12-step approaches (e.g., higher power or religion, perception of powerlessness; 26.8%; see Table 3).

Discussion

This review was designed to provide a comprehensive overview and critical analysis of the current state of evidence for SMART Recovery in adults with substance and/or behavioral addictions. We sought to comment on (a) whether participation in SMART Recovery results in changes in the severity of addiction and its consequences, (b) what factors might influence any changes observed, (c) the feasibility of this approach, and (d) future research directions. Further, given the prevalence of comorbid mental health conditions and their impact on addiction recovery (Mills et al., 2010), we also sought to comment on the assessment, reporting, and/or change in mental health status within the included studies.

A modest body of research, comprising 12 studies, was identified. Although predominantly cross-sectional, three evaluations of effectiveness were identified (Blatch et al., 2016; Brooks & Penn, 2003; Hester et al., 2013; Penn & Brooks, 2000). Participants with alcohol addictions were the primary focus of existing research. The relationship between SMART Recovery and the severity and impact of behavioral addictions has yet to be assessed. Functional outcomes were rarely reported. Feasibility was largely indexed by attendance, and economic analysis has not been undertaken. Little is known about variables that may influence treatment outcome, although attendance (Blatch et al., 2016; Brooks & Penn, 2003; Hester et al., 2013; Penn & Brooks, 2000) represents a potential candidate.

Despite high rates of comorbidity between mental health and substance use disorders within the community (Mills et al., 2010), assessment and reporting of mental health status is limited. Only three studies (Brooks & Penn, 2003; Hester et al., 2013; Penn & Brooks, 2000; P. J. Kelly et al., 2015) utilized standardized instruments to establish a baseline diagnosis or severity, and only one reported on change in mental health outcomes (psychiatric hospitalization; Brooks & Penn, 2003; Penn & Brooks, 2000). Within the literature identified, mental health condition(s), distressing symptoms, and past suicide attempts appear common among SMART Recovery participants. Given that comorbid mental health conditions have the potential to complicate the course and severity of addiction and vice versa (Mills et al., 2010), improved assessment and reporting of mental health outcomes represents an important priority for future research.

The modest sample of articles and diversity of methods prevented us from making conclusive remarks about the efficacy of SMART Recovery, but positive effects were found in dual diagnosis (Brooks & Penn, 2003; Penn & Brooks, 2000) and correctional settings (Blatch et al., 2016). Evidence from the sole identified RCT also supported the benefits of SMART Recovery for reducing the severity and consequences of problematic alcohol use (Hester et al., 2013). It is important to note that this RCT was independently evaluated by two assessors to be of high quality and at low risk of bias, thereby increasing our confidence in these findings. However, an important limitation of these studies is the limited (Hester et al., 2013) or absent (Blatch et al., 2016; Brooks & Penn, 2003; Penn & Brooks, 2000) assessment and reporting of concurrent treatment (pharmacological and psychological) for addiction and/or mental health. Accordingly, the relative contribution of mutual aid and formalized treatment (alone or in combination) to the performance of SMART Recovery remains unclear and represents an important question for future research.

The comparative influence of SMART Recovery on addiction outcomes relative to other forms of mutual aid and/or evidence-based treatments (alone or as an adjunct) has yet to be systematically evaluated. This is not without methodological challenges. SMART Recovery groups are freely accessible in the community; therefore, it may be impractical and possibly unethical (McCrady & Miller, 1993) to randomize some participants to this resource while prohibiting others. Indeed, in the one RCT study the authors had to abandon their original research design, because participants were unwilling to be randomized to a condition where they would be unable to continue face-to-face SMART Recovery meetings. Preference-based trials, evaluation of professionally delivered SMART Recovery groups, or embedding research methods within new community groups as they are established may help bridge this gap between methodological rigor and real-world relevance.

The literature has also suggested that the sobriety of SMART Recovery participants is at least equivalent to that of participants in alternative forms of mutual aid (Atkins & Hawdon, 2007; Bogdonoff, 2002; Trumble, 2015), with some evidence to suggest that the severity and consequences of alcohol addiction is less for SMART Recovery relative to AA participants (Milin, 2007). Conversely, the duration of abstinence has been identified as longer for AA relative to SMART Recovery participants (Guarnotta, 2014). Clinical guidelines have advocated tailoring addiction support to the goals of the individual (Mills et al., 2010; National Institute for Health Excellence, 2011; 2012), so although abstinence may be encouraged, moderated use and/or harm reduction approaches might also be employed. Moreover, in the case of polysubstance use, some but not all substances may be identified as an important focus of treatment. Accordingly, such global ratings of abstinence and sobriety are unlikely to be adequate indicators of clinically meaningful change.

Consistent with the broader literature (e.g., Reardon, Cukrowicz, Reeves, & Joiner, 2002), attendance was identified as a significant predictor of change (e.g., Hester et al., 2013). Further research is needed to clarify not only whether an optimal threshold of attendance exists but to identify the factors involved in engaging participants and encouraging attendance. It is interesting that, despite largely comparable addiction related outcomes, the available evidence suggests that the duration of attendance may be shorter for SMART Recovery relative to 12-step participants

(Brooks & Penn, 2003; Li et al., 2000; Milin, 2007; Penn & Brooks, 2000). Although clearly in need of further investigation, this may be testimony to the feasibility of the SMART Recovery approach. That is, SMART Recovery may represent a more time efficient method for promoting clinically meaningful change. However, further research on the relationship between attendance and the change process within and across different mutual aid groups is needed before firm conclusions can be drawn.

It is important to acknowledge the methodological limitations of this review. First, it covers a small number of heterogenous studies. Drawing comparisons between studies was complicated by differences in outcome assessment, intervention, and comparator groups. Additionally, the studies varied in methodological quality. Only one received a high-quality rating (Hester et al., 2013), and was the only study deemed to be at low risk of bias. We also restricted our literature search to English language publications, so the cross-cultural generalizability of our findings is restricted.

Conclusions

Implications for practice. Given the positive effects of SMART Recovery and SMART Recovery–informed interventions, to enhance client-centered, collaborative care that is tailored to the needs and preferences of the individuals, clinicians need to be aware of the range of mutual aid support options available, including SMART Recovery, and discuss these options with their clients.

Implications for research. To increase understanding of the role of SMART Recovery in facilitating recovery from addiction and to consolidate confidence in the effectiveness of this approach, future research may benefit from improved assessment and reporting of (a) mental health status (e.g., diagnosis, treatment history, symptoms, and functioning); (b) concurrent treatment (pharmacological and psychological) for mental health and addiction; (c) use and consequences of nonalcohol substance use, including greater attention to smoking and prescription opiate misuse; (d) personal and social functioning (e.g., quality of life); (e) severity and consequences of behavioral addictions; and (f) economic outcomes.

We also offer the following suggestions to improve the quality of future research. First, greater utilization of validated data collection methods, including interviewer administered (e.g., timeline follow-back), service user–rated scales (e.g., AUDIT), and biological indices (e.g., saliva) is an important priority. Second, there is a need for greater attention to the relationship between "active ingredients" (e.g., self-management skills), attendance, and the change process within and across different mutual aid groups. Third, where possible, future research would benefit from greater attention to the use and reporting of random sequence generation, allocation concealment, attrition, missing data, and power. Finally, preference-based trials, evaluation of professionally delivered SMART Recovery groups, and/or embedding research methods within new community groups may help to clarify the relative impact of SMART Recovery on addiction outcomes compared to other forms of mutual aid and/or evidence-based treatments.

References

Atkins, R. G., Jr., & Hawdon, J. E. (2007). Religiosity and participation in mutual-aid support groups for addiction. *Journal of Substance Abuse Treatment, 33,* 321–331. http://dx.doi.org/10.1016/j.jsat.2007.07.001

Australian Government Productivity Commission. (2010). *Gambling (2010): Inquiry report*. Retrieved August 5, 2015, from http://www.pc.gov.au

Australian Psychological Society. (2010). *Evidence-based psychological interventions in the treatment of mental disorders: A literature review*. Retrieved May 5, 2014, from https://www.psychology.org.au/practitioner/resources/interventions/

Baker, A. L., Hiles, S. A., Thornton, L. K., Hides, L., & Lubman, D. I. (2012). A systematic review of psychological interventions for excessive alcohol consumption among people with psychotic disorders. *Acta Psychiatrica Scandinavica, 126,* 243–255. http://dx.doi.org/10.1111/j.1600-0447.2012.01885.x

Beck, A. K., Baker, A., Kelly, P. J., Deane, F. P., Shakeshaft, A., Hunt, D., . . . Kelly, J. F. (2016). Protocol for a systematic review of evaluation research for adults who have participated in the "SMART Recovery" mutual support programme. *British Medical Journal Open, 6*(5), e009934. http://dx.doi.org/10.1136/bmjopen-2015-009934

Black, D. W., Shaw, M., McCormick, B., & Allen, J. (2013). Pathological gambling: Relationship to obesity, self-reported chronic medical conditions, poor lifestyle choices, and impaired quality of life. *Comprehensive Psychiatry, 54,* 97–104. http://dx.doi.org/10.1016/j.comppsych.2012.07.001

Blatch, C., O'Sullivan, K., Delaney, J. J., & Rathbone, D. (2016). Getting SMART, SMART Recovery programs and reoffending. *Journal of Forensic Practice, 18,* 3–16. http://dx.doi.org/10.1108/JFP-02-2015-0018

Bogdonoff, D. A. (2002). Resilience as a predictor of abstinence in the recovery from alcohol dependence. *Dissertation Abstracts International: Section B*. The Sciences and Engineering, *63,* 4361.

Brooks, A. J., & Penn, P. E. (2003). Comparing treatments for dual diagnosis: Twelve-step and self-management and recovery training. *American Journal of Drug and Alcohol Abuse, 29,* 359–383. http://dx.doi.org/10.1081/ADA-120020519

Centre for Evidence-Based Physiotherapy. (2009). *PEDro Scale: Centre for Evidence-Based Physiotherapy*. Retrieved May 5, 2015, from http://www.pedro.org.au

Donovan, D. M., Ingalsbe, M. H., Benbow, J., & Daley, D. C. (2013). 12-step interventions and mutual support programs for substance use disorders: An overview. *Social Work in Public Health, 28,* 313–332. http://dx.doi.org/10.1080/19371918.2013.774663

Downs, S. H., & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *Journal of Epidemiology and Community Health, 52,* 377–384. http://dx.doi.org/10.1136/jech.52.6.377

Endnote. (2015). (Version X7.3.1) [Computer software]. Philadelphia, PA: Thomson Reuters.

Ferri, M., Amato, L., & Davoli, M. (2006). Alcoholics Anonymous and other 12-step programmes for alcohol dependence. *Cochrane Database of Systematic Reviews, 3,* CD005032. http://dx.doi.org/10.1002/14651858.CD005032.pub2

Guarnotta, E. (2014). *A comparison of abstinence and perceived self-efficacy for individuals attending SMART Recovery and Alcoholics Anonymous* (Unpublished dissertation). School of Professional Psychology, Alliant International University, San Diego, California.

Hester, R. K., Lenberg, K. L., Campbell, W., & Delaney, H. D. (2013). Overcoming addictions, a Web-based application, and SMART Recovery, an online and in-person mutual help group for problem drinkers, Part 1: Three-month outcomes of a randomized controlled trial. *Journal of Medical Internet Research, 15,* e134. http://dx.doi.org/10.2196/jmir.2565

Higgins, J. P. T., & Green, S. (2011). *Cochrane handbook for systematic reviews of interventions (v. 5.1.0.)* Retrieved May 5, 2015, from http://handbook.cochrane.org/

Horvath, A. T., & Sokoloff, J. (2011). Individuals seeking non-12-step

recovery. In G. W. Lawson & A. W. Lawson (Eds.), *Alcoholism & substance abuse in diverse populations* (2nd ed., pp. 75–90). Austin, TX: PRO-ED.

Horvath, A., & Yeterian, J. (2012). SMART Recovery: Self-empowering, science-based addiction recovery support. *Journal of Groups in Addiction & Recovery, 7*(2–4), 102–117. http://dx.doi.org/10.1080/1556035X.2012.705651

Humphreys, K., Wing, S., McCarty, D., Chappel, J., Gallant, L., Haberle, B., . . . Weiss, R. (2004). Self-help organizations for alcohol and drug problems: Toward evidence-based practice and policy. *Journal of Substance Abuse Treatment, 26,* 151–158. http://dx.doi.org/10.1016/S0740-5472(03)00212-5

Kelly, J. F., Magill, M., & Stout, R. L. (2009). How do people recover from alcohol dependence? A systematic review of the research on mechanisms of behavior change in Alcoholics Anonymous. *Addiction Research & Theory, 17,* 236–259. http://dx.doi.org/10.1080/16066350902770458

Kelly, P. J., Deane, F. P., & Baker, A. L. (2015). Group cohesion and between session homework activities predict self-reported cognitive-behavioral skill use amongst participants of SMART Recovery groups. *Journal of Substance Abuse Treatment, 51,* 53–58. http://dx.doi.org/10.1016/j.jsat.2014.10.008

Laudet, A. B. (2011). The case for considering quality of life in addiction research and clinical practice. *Addiction Science & Clinical Practice, 6,* 44–55.

Li, E. C., Feifer, C., & Strohm, M. (2000). A pilot study: Locus of control and spiritual beliefs in Alcoholics Anonymous and SMART Recovery members. *Addictive Behaviors, 25,* 633–640. http://dx.doi.org/10.1016/S0306-4603(99)00052-0

Manning, M., Smith, C., & Mazerolle, P. (2013). *The societal costs of alcohol misuse in Australia (Trends & Issues in Crime and Criminal Justice No. 454)*. Retrieved from http://www.aic.gov.au/publications/current%20series/tandi/441-460/tandi454.html

McCrady, B. S., & Miller, W. R. (Eds.). (1993). *Research on Alcoholics Anonymous: Opportunities and alternatives*. New Brunswick, NJ: Rutgers Center of Alcohol Studies.

Milin, M. (2007). Which types of consequences of alcohol abuse are related to motivation to change drinking behavior? *Dissertation Abstracts International: Section B*. The Sciences and Engineering, *68,* 6322.

Mills, K. L., Deady, M., Proudfoot, H., Sannibale, C., Teeson, M., Mattick, R., & Burns, L. (2010). *Guidelines on the management of co-occurring alcohol and other drug and mental health conditions in alcohol and other drug treatment settings* Retrieved August 18, 2015, from https://ndarc.med.unsw.edu.au

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & the PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6,* e1000097. http://dx.doi.org/10.1371/journal.pmed.1000097

Moos, R. H., & Moos, B. S. (2006). Participation in treatment and Alcoholics Anonymous: A 16-year follow-up of initially untreated individuals. *Journal of Clinical Psychology, 62,* 735–750. http://dx.doi.org/10.1002/jclp.20259

National Institute for Health Excellence. (2011). *Alcohol-use disorders: Diagnosis, assessment and management of harmful drinking and alcohol dependence*. Retrieved from https://www.nice.org.uk/guidance/cg115

National Institute for Health Excellence. (2012). *Drug use disorders in adults: Quality standard*. Retrieved from https://www.nice.org.uk/guidance/qs23

O'Sullivan, D., Blum, J. B., Watts, J., & Bates, J. K. (2015). SMART Recovery: Continuing care considerings for rehabilitation counselors. *Rehabilitation Counseling Bulletin, 58,* 203–216. http://dx.doi.org/10.1177/0034355214544971

Penn, P. E., & Brooks, A. J. (2000). Five years, twelve steps, and REBT in the treatment of dual diagnosis. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 18,* 197–208. http://dx.doi.org/10.1023/A:1007883021936

Public Health England. (2015). *Improving mutual aid engagement: A professional development resource*. Retrieved August 18, 2015, from http://www.nta.nhs.uk

Reardon, M. L., Cukrowicz, K. C., Reeves, M. D., & Joiner, T. E. (2002). Duration and regularity of therapy attendance as predictors of treatment outcome in an adult outpatient population. *Psychotherapy Research, 12,* 273–285. http://dx.doi.org/10.1080/713664390

Sheedy, C. K., & Whitter, M. (2009). *Guiding principles and elements of recovery-oriented systems of care: What do we know from the research?* (HHS Publication No. SMA 09–4439). Retrieved August 17, 2015, from http://store.samhsa.gov

Trumble, R. G. (2015). *Comparison of drinking-related locus of control in Alcoholics Anonymous members and SMART Recovery participants* (Unpublished dissertation). School of Professional Psychology, The University of the Rockies, Denver, Colorado.

Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E., . . . Vos, T. (2013). Global burden of disease attributable to mental and substance use disorders: Findings from the Global Burden of Disease Study 2010. *Lancet, 382,* 1575–1586. http://dx.doi.org/10.1016/S0140-6736(13)61611-6

Received August 16, 2016
Revision received October 26, 2016
Accepted October 27, 2016 ■