



Implementation of Screening, Brief Intervention, and Referral for Treatment in the Aging Network of Care to Prevent Alcohol, Recreational Drug, and Prescription Medication Misuse

Denise M. Scott¹ · Hanno Petras² · Nnenna Kalu¹ · Gloria E. Cain¹ · Dietrich B. Johnson¹ · Zili Sloboda³ · Robert Emory Taylor¹

Published online: 17 August 2020

© Society for Prevention Research 2020

Although recreational drug use is uncommon among older adults, recent research has shown that recreational drug use patterns and misuse of alcohol and prescription medications among baby boomers are increasing (Barry and Blow 2016; Caputo et al. 2012; Oslin 2004). As older adults generally have chronic conditions that lead to the use of prescription drugs and over-the-counter (OTC) medications, they are more at risk for dangerous alcohol-medication interactions (Breslow et al. 2015). Also, recent increases in rates of death and use of prescription opioids with suicidal intent among older adults have important implications as the USA undergoes rapid expansion of this population (West et al. 2015; Lippold et al. 2019). Despite their heightened vulnerability, few older adults are screened, and most older adults do not receive needed preventive services or early interventions even though evidence-based programs exist. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is considered an evidence-based public health approach for addressing this gap but has rarely been used in the aging network of care (Blow and Barry 2000; Kuerbis et al. 2015). Thus, the focus of this brief report is to document the barriers and facilitators of implementing SBIRT in nonmedical organizations serving older adults and to assess whether older adults can be recruited and retained into this program. This study did not involve randomization of study participants to an experimental condition, and consequently, it is not possible to draw causal inferences about program impact.

Robert Emory Taylor is deceased. This paper is dedicated to his memory.

✉ Hanno Petras
hpetras@air.org

¹ Howard University, Washington, DC, USA

² American Institutes for Research, Washington, DC, USA

³ Applied Prevention Science International, Mansfield, OH, USA

Aging Society

The rapid increase of older adults has been described as a “Silver Challenge.” Individuals 65 years or older have increased by 35% between 2007 and 2017 to over 70 million. By 2040, there will be about 82 million older adults, which means that about 22% of the population will be 65 years or older. Those individuals who reach age 65 have an average life expectancy of 84.3 years. These population developments will create increasing demands of time and attention from healthcare providers (Administration on Aging 2018).

Medication Use and Alcohol Consumption Among Older Adults

Although recreational drug use is uncommon among older adults, recent research has shown that illegal drug use patterns and misuse of alcohol and prescription medications among baby boomers are increasing (Han et al. 2018). Furthermore, research has identified two main groups of older adults who consume alcohol. The first group consists of those who have drunk throughout their lives and are now at high risk of having health-related issues. The second group consists of those who started drinking later in life as a reaction to stress, loss, or health problems. This number may increase in light of the coronavirus pandemic (COVID-19). In general, the second group tends to respond best to the SBIRT approach (Schonfeld et al. 2010).

As older adults generally have chronic conditions that lead to the use of prescription drugs and over-the-counter (OTC) medications, they are more at risk for dangerous drug interactions. Nearly one in five older adults have one or more mental health or substance use conditions. About 16% of women and 11% of men age 65 and older experience symptoms of depression (Gum et al. 2009). Problematic use of OTCs by older adults is usually unintentional, and most misused medications

are obtained legally through prescriptions. However, accidental misuse can progress to abuse if an older adult continues to use medication for the desirable effects it provides. Depending on the definition, estimates of the prevalence of medication misuse, abuse, and dependence among older adults range from 1 to 26% (Colliver et al. 2006; Maree et al. 2016). Medication misuse and abuse can cause a range of harmful side effects (e.g., drug-induced delirium and dementia). Poisoning from pain medication and other drugs containing opioids can result from accidental overdose or failure to recognize these drugs' active ingredients. Older individuals with at-risk drinking are a unique and vulnerable population who require screening and intervention procedures focused on the unique issues associated with alcohol and prescription medication use in later life.

Consequences of Alcohol-Prescription Drug Interactions

According to the National Institute on Alcoholism and Alcoholism Abuse (NIAAA) low-risk drinking guidelines, older adults consuming more than three drinks on one occasion and a total of more than seven in a week (NIAAA 2005) are at risk for injury and illness. Drinking beyond these low-risk guidelines can exacerbate health conditions that are prevalent among seniors, such as diabetes, high blood pressure, heart failure, liver disorders, bone loss, and depression (NIAAA 2019). Given that seniors are taking medication to treat these noted health conditions, the use of alcohol could lead to harmful effects and result in misuse and unintentional overdose.

In 2015, Breslow and colleagues at the National Institute of Health (NIH) conducted a study of over 26,000 adults from the National Health and Nutrition Examination Study (NHANES) to determine their alcohol and prescription drug use (Breslow et al. 2015). They found that over 70% of US adults regularly drink alcohol, and roughly 42% of those who drink also use medications that may interact with alcohol. Utilizing an extensive database of over 1300 medications, they found that 45% of the medications had the potential to interact with alcohol. Many harmful outcomes can be associated with the misuse of alcohol and the interaction of alcohol and medications. These adverse outcomes, which can often go undetected and misdiagnosed, include falls, dizziness, confusion, and memory changes as well as damage to the heart and liver. In summary, alcohol-medication interactions can lead to significant impairments and reduce the capacity to independently perform activities of daily living, especially among older adults.

Lack of Focus on Alcohol Interaction with a Healthcare Provider

Most older adults who are at risk for alcohol or psychoactive prescription medication misuse do not need formal specialized substance use treatment. However, identifying alcohol and substance use problems among older adults is challenging due to the difficulty of diagnosing use problems in the presence of age-related symptoms and decreases in the time physicians spend with older adults, as well as stereotypical assumptions about treatment effectiveness in this population (Bommersbach et al. 2015; Cho et al. 2018). Consequently, older adults are less likely to receive a primary diagnosis of alcohol use disorder. Besides, clinicians are not always aware of prescription drug interactions with alcohol, nor do they know the specifics regarding the quantity and frequency of alcohol consumption that put older adults at risk for alcohol-related problems.

Current Study

SBIRT is commonly implemented in a medical setting, and little is known about implementation in nonmedical settings serving ambulatory older adults. To this end, we investigated two research questions: (1) From an implementation science perspective, what are the facilitators and barriers for implementing SBIRT in nonmedical settings serving older adults? (2) What is the feasibility to recruit and retain older adults in the SBIRT program? This study was approved by the Howard University IRB (IRB-14-MED-54), and informed consent was obtained from all individual participants.

Methods

Study Design

Older adults were recruited from seven service organizations that provide case management, wellness, community social outreach, and primary care services to ambulatory older adults serving all 8 Wards in Washington, DC. Recruitment of older adults into the program was conducted over a period of 21 months. The older adults that receive services at the sites live independently and arrange for their transportation for services. Older adults were assessed at baseline, and those that screened positive were reassessed at 3- and 6-month post-baseline.

Population

A total of 302 older adults ranging in age from 60 to 90 years old, with an average age of 73 years, were included in the

study (see Table 1). The majority were female (72.5%), African-American (95%), and non-Hispanic ethnicity (97.7%). The sociodemographic distribution of the study participants is representative of the larger population served by these organizations based on a data comparison with organizations' annual reporting requirements.

Intervention Design

Screening, Brief Intervention, and Referral to Treatment (SBIRT) involves a three-step process (Hargraves et al. 2017; Babor et al. 2007): universal, brief Screening (S) identifies unhealthy use and dangerous alcohol-prescription drug interactions. For those who pre-screen positive, a full-screen assessment was conducted to determine the level of risk. Brief Intervention (BI) provides feedback about unhealthy use. It focuses on education, increasing patients' insight and awareness about risk related to harmful substance use, and enhancing their motivation toward healthy behavioral change. Active referral to Treatment (RT) facilitated access to treatment.

Intervention Training

A total of 27 staff from the seven organizations were trained in SBIRT by instructors who were trained by the Brief Negotiated Interview Active Referral to Treatment Institute (BNI ART) at Boston University's School of Public Health.

The implementation process of SBIRT was developed with input from key stakeholders at the community partner organizations. Healthcare professionals and administrators at community partner sites were consented and

trained in conducting an SBIRT intervention. HU SBIRT project staff conducted SBIRT training by providing didactics and role-playing. Valid screening instruments that were used included the AUDIT-C and the DAST. Training on Brief Intervention using the Brief Negotiated Interview (BNI) was provided. The BNI training covered motivational interviewing skills, assessing readiness for change, drafting a prescription for change, and information on referral to treatment. Healthcare professionals at the community partner sites conducted the SBIRT intervention. Booster training was provided as needed and requested.

Measures

Screening, Brief Intervention, and Referral to Treatment

A pre-screen instrument collected information on sociodemographic characteristics as well as questions related to the use and frequency of alcohol, drug, and medication use. For alcohol, the modified AUDIT-C was the screening assessment used. A score of 4+ for men (3+ for women) indicated a positive screen. If participants answered "yes" to the use of recreational or misuse of prescription drugs, the Drug Abuse Screening Test (DAST-10; Skinner 1982; Yudko et al. 2007) was used. These assessments were used at baseline, 3 months, and 6 months after program implementation. Referral to treatment was based on alcohol or drug screening score. If participants screen positive for alcohol or drugs, the provider would engage them in a BNI and offer a referral to treatment if the BNI revealed a need for further assistance in lowering their substance use risk.

Table 1 Population characteristics ($N=302$)

	Percent	Percent missing	Differences by site
Gender (Female)	72.5%	0%	$p < .05$
Marital status		0.3%	$p < .01$
Single	31.9%		
Married/domestic partner	15.6%		
Divorced	20.3%		
Separated	3.3%		
Widowed	28.9%		
Race		0.7%	ns
African-American	95%		
American Indian	2.7%		
Asian	0.7%		
Native Hawaiian	0.3%		
White	1.3%		
Ethnicity (non-Hispanic)	97.7%	0.7%	ns
Mean age (Std. dev.)	72.7 (8.04)	1.0%	$p < .001$

Organizational Barriers and Facilitators

To address well-known barriers and facilitators for embedding SBIRT within these organizations (Bernstein et al. 2009; Rahm et al. 2015), a strategy informed by implementation science principles was utilized.

Environmental Scan Research staff met with participating community partners for an introduction to SBIRT and to provide an overview of the implementation study. On a separate visit, HU SBIRT staff conducted interviews with administrators and providers using an environmental scan to survey both internal and external factors that would influence successful implementation and to determine factors that may pose challenges to implementation. Factors that were assessed included infrastructure in terms of agency layout, available space, the frequency of older adults requesting services, and staffing characteristics. Available resources were surveyed to determine the use of screening and intake tools, the degree of privacy and how the confidentiality of information and records are maintained, and if any mechanisms for referring older adults for substance use treatment services are in place. Additionally, information on policy and trends were surveyed to determine the impact of external factors on agency function as it relates to SBIRT implementation.

Organizational Readiness To assess organizational readiness, providers from each organization responded to the “Organizational Readiness to Implementing Change” measure (Shea et al. 2014). This measure consists of 12 items related to change commitment (e.g., People who work here want to implement this change) and change efficacy (e.g., People who work here feel confident that the organization can get people invested in implementing this change). Possible item scores ranged from 1 (= disagree) to 5 (= agree).

Findings

Environmental Scan The environmental scan revealed that the sites did not currently have a screening protocol in place. Other issues included lack of private space to see clients, high staff turnover, lack of available resources, and adherence to the treatment protocol.

Organizational Readiness Change commitment scores ranged from 2.6 to 5 with a mean score of 4.5 (SD = 0.73), and there was significant variation across sites ($F_{(7,4)} = 29.489, p < .01$). Change efficacy scores ranged from 3 to 5 with a mean score of 4.59 (SD = 0.61), and there was significant variation across sites ($F_{(7,4)} = 150.032, p < .001$). Acknowledging the small sample size, we used the median value to identify sites that scored low on change commitment (median = 4.5) and change

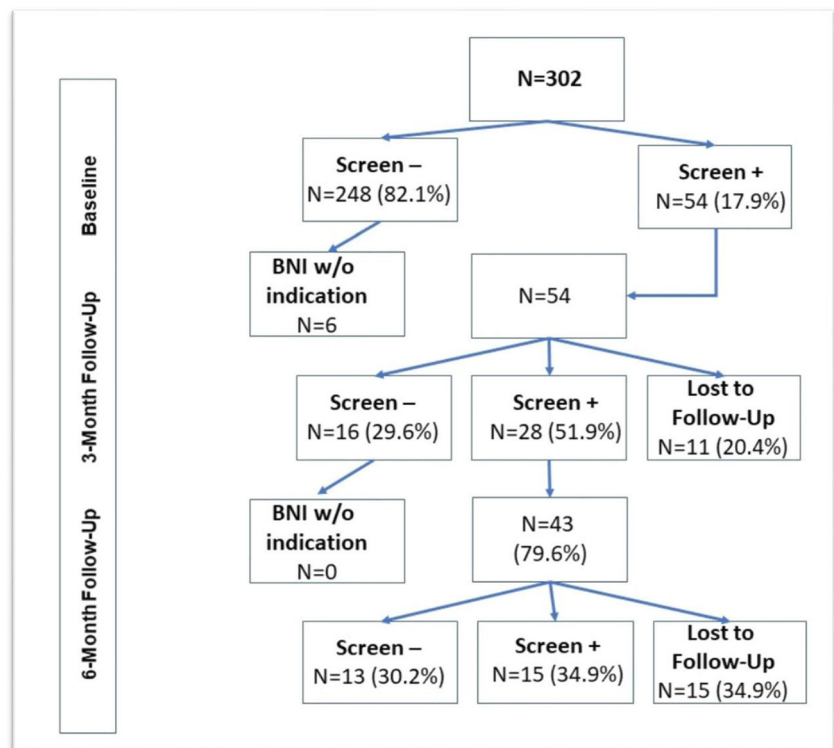
efficacy scores (median = 4.4). Of the sites included in this study, three scored below the median for both dimensions of readiness. Two of these three sites were not able to recruit older adults into the study. The third site experienced significant staff turnover as well as more challenges of integrating SBIRT in their current array of services provided to older adults.

Barriers and Facilitators While a lack of resources and high turnover were commonly identified barriers at the onset of the program, providers still saw the increasing need for SBIRT in their sites. Providers said, “[program] was beneficial for seniors so that if they are at risk and need help, a referral out can be done.” Providers also saw how their familiarity with the community could facilitate SBIRT. A provider stated that “you can tell those that want to lose weight that alcohol adds to calories.” The older adults commented that “the provider was helpful, very nice, easy to talk to. Would be the type of person could talk with and go further into a discussion with,” “[Provider] allowed me to talk. Felt heard, felt like a person, not a number,” “Have no complaints,” and “Would provide a 6 out of 5 if I could” about the patient satisfaction scale used to obtain the senior’s opinion of their SBIRT encounter with the provider. Sites built partnerships with the SBIRT team. Champions were within each site. One site’s investment in SBIRT was championed by the site director, who had a public health background. Sites utilized SBIRT team’s resources (training, health fair participation, educational materials, and SBIRT team-provider feedback) as well as their fellow site resources. We heard statements like “Now know what consider risky drinking levels,” “now know about [other older Adult sites’] facilities,” and “learned about [what types of new] drugs [are] out there.”

Screening Results At baseline, of the 302 older adults recruited, 54 (17.9%) screened positive for alcohol or drug use (see Fig. 1), with the majority screening positive for alcohol use only (77.8%). A small percentage of older adults reported drug use only (11%) or alcohol and drug use (11%). Of the 54 followed-up at 3 months, 28 (51.9%) older adults screened positive (75% of which were for alcohol only and 25% for alcohol and drug use). At the 6-month follow-up, 15 (34.9%) screened positive (70.6% of which were for alcohol only). Additionally, a referral to treatment was offered to 3 participants at baseline, two at a 3-month follow-up, and one at a 6-month follow-up.

Retention Results Of the 54 older adults selected for follow-up, 79.6% at 3 months and 65.1% at 6 months were retained post-baseline follow-ups. These retention rates appear to be in line with or exceeding commonly found rates in clinical settings.

Fig. 1 SBIRT flowchart



Implementation Challenges During this project, several implementation challenges were encountered: First, six older adults at baseline received the Brief Negotiated Interview despite scoring negative on both the alcohol and the drug screen. Second, both at a 3-month and 6-month follow-up, one older adult received the drug, but not the alcohol screener. Third, at baseline, eight older adults scored positive on the alcohol ($N=5$) or the drug ($N=3$) screen but did not receive the BNI. Three older adults at a 3-month follow-up did not receive the BNI. It is unclear whether this was due to scheduling conflicts or deviations from the SBIRT protocol.

Discussion

The overall goal of this study was to evaluate the implementation of SBIRT in a network of aging organizations, the majority of which provide nonmedical services to older adults and investigate the feasibility to recruit and retain older adults in the program. The seven sites varied significantly in their organizational readiness to implement SBIRT, and those organizations which were less ready experienced distinct challenges in recruiting older adults. Organizations with a higher level of readiness achieved recruiting older adults into the study and were able to retain the majority of them over a 6-month follow-up period.

Previous studies have concluded that SBIRT can be extended to nonmedical services that serve older adults

(Schonfeld et al. 2010; Schonfeld et al. 2015); however, to our knowledge, only a limited number of evaluations are available which identified organization's barriers, facilitators, and readiness to implement SBIRT with existing providers employed by the agencies. The agencies that participated in this study had limited resources to implement SBIRT but welcomed the opportunity to receive SBIRT training and implement the program as evidenced by the indicated high level of both change commitment and change efficacy.

Participants for the study were recruited on a voluntary basis. We attribute the success of volunteers signing up to participate in the study to executive leaderships' endorsement of the study and the presence of program champions. This organizational support contributed significantly to the research team's ability to establish trust with the participants. Researchers were allowed to present information about the study during scheduled monthly members' meetings held at the community partner sites. Following the presentation and during subsequent visits to the sites, participants voluntarily signed up to participate in the study. Only rarely did we encounter participants who refused to continue once the study got underway.

Also, this study demonstrated the rate of substance use decreased over time, as shown in a 3-month and 6-month follow-up. These results are similar to previous studies that demonstrated a reduction of substance use among older adults (Schonfeld et al. 2010; Moore et al. 2011).

Future studies could evaluate the sustainability of the SBIRT program and the effectiveness of SBIRT being provided to the older adults, longitudinally, especially considering the recent opioid epidemic. The next steps for this program include a larger randomized controlled trial investigating the effectiveness of the implementation protocol developed from this program in other older adult communities, such as planned retirement independent living communities, where drinking may be associated with social activities. This trial would involve randomizing the implementation protocol informed by lessons learned, such as the role of champions and acceptance of SBIRT-related practices by both providers and the older adult population,

In conclusion, this feasibility study demonstrated that providers who are employed at aging networks are willing and able to implement SBIRT. Also, this study showed that it is possible to recruit older adults and to retain them over a 6-month period. The rates of a positive screen primarily for risky alcohol use among older adults indicate that preventive services targeting alcohol and substance use in this population are needed.

Funding Information Preparation of this manuscript was supported by a grant from the National Institute on Drug Abuse (R34DA038828).

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

References

- Administration on Aging (2018) A profile of older Americans: 2018. Administration on Aging. Administration for Community Living, U.S. Department of Health and Human Services
- Babor, T. F., McRee, B. G., Kassebaum, P. A., Grimaldi, P. L., Ahmed, K., & Bray, J. (2007). Screening, Brief Intervention, and Referral to Treatment (SBIRT) toward a public health approach to the management of substance abuse. *Substance Abuse, 28*, 7–30.
- Barry, K. L., & Blow, F. C. (2016). Drinking over the lifespan: Focus on older adults. *Alcohol Research: Current Reviews, 38*, 115.
- Bernstein, E., Topp, D., Shaw, E., Girard, C., Pressman, K., Woolcock, E., et al. (2009). A preliminary report of knowledge translation: Lessons from taking screening and brief intervention techniques from the research setting into regional systems of care. *Academic Emergency Medicine, 16*, 1225–1233.
- Blow, F. C., & Barry, K. L. (2000). Older patients with at-risk and problem drinking patterns: New developments in brief interventions. *Journal of Geriatric Psychiatry and Neurology, 13*, 115–123.
- Bommersbach, T. J., Lapid, M. I., Rummans, T. A., & Morse, R. M. (2015). Geriatric alcohol use disorder: A review for primary care physicians. In: *Mayo Clinic proceedings* (Vol. 90, No. 5, pp. 659–666). Elsevier.
- Breslow, R. A., Dong, C., & White, A. (2015). Prevalence of alcohol-interactive prescription medication use among current drinkers: United States, 1999 to 2010. *Alcoholism: Clinical and Experimental Research, 39*, 371–379.
- Caputo, F., Vignoli, T., Leggio, L., Addolorato, G., Zoli, G., & Bernardi, M. (2012). Alcohol use disorders in the elderly: A brief overview from epidemiology to treatment options. *Experimental Gerontology, 47*, 411–416.
- Cho, J., Bhimani, J., Patel, M., & Thomas, M. N. (2018). Substance abuse among older adults: A growing problem: Maintaining vigilance is the key to effective recognition and treatment. *Current Psychiatry, 17*, 14–21.
- Colliver, J. D., Compton, W. M., Gfroerer, J. C., & Condon, T. (2006). Projecting drug use among aging baby boomers in 2020. *Annals of Epidemiology, 16*, 257–265.
- Gum, A. M., King-Kallimanis, B., & Kohn, R. (2009). Prevalence of mood, anxiety, and substance-abuse disorders for older Americans in the national comorbidity survey-replication. *The American Journal of Geriatric Psychiatry, 17*, 769–781.
- Han, B. H., Moore, A. A., Sherman, S. E., & Palamar, J. J. (2018). Prevalence and correlates of binge drinking among older adults with multimorbidity. *Drug and Alcohol Dependence, 187*, 4854.
- Hargraves, D., White, C., Frederick, R., Cinibulk, M., Peters, M., Young, A., & Elder, N. (2017). Implementing SBIRT (Screening, Brief Intervention and Referral to Treatment) in primary care: Lessons learned from a multi-practice evaluation portfolio. *Public Health Reviews, 38*(1), 31.
- Kuerbis, A. N., Yuan, S. E., Borok, J., et al. (2015). Testing the initial efficacy of a mailed screening and brief feedback intervention to reduce at-risk drinking in middle-aged and older adults: The Comorbidity Alcohol Risk Evaluation Study. *Journal of the American Geriatrics Society, 63*, 321–326.
- Lippold, K. M., Jones, C. M., O'Malley Olsen, E., & Giroir, B. P. (2019). Racial/ethnic and age group differences in opioid and synthetic opioid-involved overdose deaths among adults aged >18 years in metropolitan areas — United States, 2015–2017. *Morbidity and Mortality Weekly Report, 68*, 967–973.
- Maree, R. D., Marcum, Z. A., Saghafi, E., Weiner, D. K., & Karp, J. F. (2016). A systematic review of opioid and benzodiazepine misuse in older adults. *The American Journal of Geriatric Psychiatry, 24*, 949–963.
- Moore, A. A., Blow, F. C., Hoffing, M., Welgreen, S., Davi, S. J. W., Lin, J. C., Ramirez, K. D., Liao, D. H., Tang, L., Gould, R., Gill, M., Chen, O., & Barry, K. L. (2011). Primary care-based intervention to reduce at-risk drinking in older adults: A randomized controlled trial. *Addiction, 106*, 111–120.
- National Institute on Alcohol Abuse and Alcoholism, U.S. (2005). *Department of Health and Human Services*. <https://pubs.niaaa.nih.gov/publications/practitioner/cliniciansguide2005/guide.pdf>.
- National Institute on Alcohol Abuse and Alcoholism, U.S. (2019). *Department of Health and Human Services*. www.niaaa.nih.gov/older-adults.
- Oslin, D. W. (2004). Late-life alcoholism: Issues relevant to the geriatric psychiatrist. *The American Journal of Geriatric Psychiatry, 12*, 571–583.
- Rahm, A. K., Boggs, J. M., Martin, C., Price, D. W., Beck, A., Backer, T. E., & Dearing, J. W. (2015). Facilitators and barriers to implementing Screening, Brief Intervention, and Referral to Treatment (SBIRT) in primary care in integrated health care settings. *Substance Abuse, 36*, 281–288.
- Schonfeld, L., King-Kallimanis, B. L., Duchene, D. M., Etheridge, R. L., Herrera, J. R., Barry, K. L., & Lynn, N. (2010). Screening and brief

- intervention for substance misuse among older adults: The Florida BRITE project. *American Journal of Public Health*, 100, 108–114.
- Schonfeld, L., Hazlett, R. W., Hedgecock, D. K., Duchenne, D. M., Herrera, J. R., Burns, V. L., & Gum, A. M. (2015). Screening and brief intervention and referral to treatment for older adults with substance misuse. *American Journal of Public Health*, 105, 206–211.
- Shea, C. M., Jacobs, S. R., Esserman, D. A., Bruce, K., & Weiner, B. J. (2014). Organizational readiness for implementing change: A psychometric assessment of a new measure. *Implementation Science*, 9, 7.
- Skinner, H. A. (1982). The drug abuse screening test. *Addictive Behaviors*, 7, 363–371.
- West, N. A., Severtson, S. G., Green, J. L., & Dart, R. C. (2015). Trends in abuse and misuse of prescription opioids among older adults. *Drug and Alcohol Dependence*, 149, 117–121.
- Yudko, E., Lozhkina, O., & Fouts, A. (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. *Journal of Substance Abuse Treatment*, 32, 189–198.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.