OLDER AMERICANS
Substance Abuse & Mental Health
Technical Assistance Center

Evidence-Based Practices for Preventing Substance Abuse and Mental Health Problems in Older Adults

Excerpt: Prevention of Substance Misuse Problems: Alcohol Misuse

Prepared by:

Frederic C. Blow,
Stephen J. Bartels,
Laurie M. Brockmann, and
Aricca D. Van Citters for the Older Americans Substance Abuse and Mental Health Technical Assistance Center

EXECUTIVE SUMMARY

The prevention of substance abuse and mental health problems within the aging population has been recognized as a national priority. The Substance Abuse and Mental Health Services Administration's *Older Americans Substance Abuse and Mental Health Technical Assistance Center* (TAC) is committed to serving as a leading resource for the prevention and early intervention of late-life substance use and mental health problems. Despite the substantial prevalence and adverse consequences of substance use and mental health problems in older persons and the considerable knowledge related to preventing these problems, evidence-based prevention and early intervention services are not widely available nor promoted for this at-risk population. Given financial restrictions facing many health care systems, guidance is needed to direct limited available resources toward the provision of programs that have proven effectiveness. To support this effort, the TAC has reviewed the best available evidence supporting programs that target the prevention and early intervention of substance abuse and mental health problems in older adults.

The purpose of this review is to highlight prevention and early intervention programs that have proven effectiveness. This report identifies the demographic imperative for addressing late-life substance use and mental health problems, describes the current terminology of prevention programs and practices, provides a comprehensive review of the published evidence base for the prevention and early intervention of geriatric substance abuse and mental health problems based on the empirical evidence, and describes dissemination and implementation issues that align with state needs and priorities.

Five specific areas are addressed. These include the prevention and early intervention of alcohol misuse, medication misuse, depression and anxiety, suicide, and co-occurring substance abuse and mental health problems among older adults. This review provides a comprehensive examination of prevention programs in these areas that have been published through September 2005.

Alcohol Misuse

- Brief interventions can reduce alcohol misuse and hazardous drinking among older adults. Specifically, structured brief interventions and brief advice in health care settings have shown to be effective at reducing alcohol consumption in this population.

- Little evidence is available regarding universal prevention programs targeted at the prevention or reduction of alcohol misuse among older adults. Some health education programs have demonstrated increased knowledge among older adults about hazardous alcohol use.

- Recently developed screening and assessment instruments show promise as useful tools to improve identification of older at-risk drinkers and enhance clinician interactions to prevent or reduce alcohol misuse.

Medication Misuse

- Computer-based health education tools designed for older adults have shown gains in knowledge and self-efficacy regarding potential drug interactions, as well as improvements in self-medication behaviors.

- Clinical trials on early interventions with older adults who are at increased risk for medication misuse have had mixed results. Nonetheless, interventions with patients prior to hospital discharge, interventions targeted at changing provider prescription patterns, and home-based medication reviews show some promise to prevent medication misuse.

Depression and Anxiety

- A moderate amount of evidence supports the effectiveness of problem solving therapy (PST) and exercise in preventing the onset or worsening of depression. In addition, targeted outreach is effective in engaging isolated and vulnerable older adults in mental health care.

- More research is needed to determine whether other potentially effective strategies are effective in preventing depression, including: life review, reminiscence therapy, educational classes for older adults and providers, and mind-body wellness.

- Minimal evidence supports prevention programs focused on late-life anxiety.

Suicide

- Supportive interventions that include screening for depression, psychoeducation, and group-based activities have been associated with reduced rates of completed suicide among older adults.

- Telephone-based supportive interventions have also been associated with a reduction in the rate of completed suicide.

- Protocol-driven treatment of depression delivered by a care manager has been associated with reduced suicidal ideation.

Co-occurring Disorders

- Concurrent treatment of substance abuse and depression may be effective in reducing alcohol use and improving depressive symptoms.
- The evaluation and treatment of co-occurring substance use and mental health problems among older adults is an under-studied area.

This report highlights the evidence base for the prevention and early intervention of substance use disorders and mental illness in older adults. Of note, the field of prevention is far less developed than our understanding of the diagnosis and treatment of substance abuse and mental disorders in late-life. In particular, comparatively few scientific efforts have focused on preventive measures, the early identification of and intervention with high-risk individuals, and the promotion of optimal health regarding substance abuse and mental health concerns in late adulthood. However, this summary of the current evidence base provides direction for both providers and consumers regarding substance abuse and mental health prevention and early intervention services. This information can be useful in planning and implementing effective programs and practices, while also underscoring future directions for research and evaluation.

PREVENTION OF SUBSTANCE MISUSE PROBLEMS

The following two sections highlight the current best evidence supporting prevention and early intervention programs targeting the reduction and elimination of two primary areas of substance use disorders among older adults: alcohol misuse and medication misuse. The misuse of alcohol, prescription drugs, and other substances among older adults is a sizeable and growing concern. Problem drinking among older adults in the community is estimated to range from 1-15 percent.[1-3] At-risk or problem drinking, as well as alcohol abuse or dependence, is notably higher among older adults seen in health care settings and residents of nursing homes.[4-6, 7-10] An estimated one in five older Americans (19%) may be affected by combined difficulties with alcohol and medication misuse.[11-14] Problems related to alcohol use are currently the largest class of substance use problems seen in older adults. The substances most commonly abused by older adults besides alcohol are nicotine and psychoactive prescription drugs. Co-occurring problems are frequent, as both nicotine and prescription drug abuse are much more prevalent among older adults who misuse alcohol than among the general older population.[15-18]

Older adults are uniquely vulnerable to substance use disorders due to a variety of biological, psychological, and social changes associated with aging. Older adults have an increased risk for misuse and abuse of medications, as they use a higher number of prescription and over-the-counter medications compared to younger adults. In contrast to younger persons with substance abuse problems who most often abuse illicit drugs, substance abuse problems among older individuals more typically occur from misuse of over-the-counter and prescription drugs. The rates of illegal drug abuse in the current older adult cohort are very low.[19,20] The interactions between alcohol and medications are of notable concern for older populations. Negative interactions between alcohol and psychoactive medications, such as benzodiazepines, barbiturates, and antidepressants, are of particular importance. Alcohol use can interfere with the metabolism of many medications and is a leading risk factor for the development of adverse drug reactions.[21-23] Despite the risks, physical and mental health care practitioners fail to identify most older adults who consume alcohol at risky levels, including any consumption in hazardous combinations with medications, as at-risk or problem drinkers.[4]

The use of nicotine is a significant health problem for older adults. Although tobacco use declines with age, nearly 4 million older adults continue to smoke regularly.[24] In 1999, nearly 23 percent of adults ages 50 to 64 reported past month use of cigarettes. Among those age 65 and older, this figure was about 11 percent.[24] Consistent with younger populations, older women have lower smoking rates than older men.[25] Nicotine addiction often co-occurs with other substance use disorders, and can be a marker for other substance abuse. For example, smoking in older problem drinkers is more prevalent than

in the general older adult population. Some studies indicate that the prevalence of smoking among alcohol dependent individuals generally is above 80 percent;[26] an estimated 60 percent to 70 percent of older male alcohol users smoke a pack or more of cigarettes each day.[27] Smoking is a major risk factor for many of the leading causes of death among individuals age 60 and older,[28,29] and is associated with increased risk of losing mobility [30] and premature death.[31] Smoking also affects the performance of some prescription drugs. For example, smokers tend to require higher doses of benzodiazepines to achieve efficacy than nonsmokers.[32]

As with other substance misuse among older adults, evidence of effective prevention strategies for smoking cessation with older populations is more limited than with younger populations. Many clinicians fail to counsel older patients about the health effects of smoking even though older adults are more likely to quit than younger smokers.[33] Selected strategies that have shown effectiveness in older adult populations include brief interventions. One study found a tailored brief intervention more than doubled 1-year "quit rates" for older adults.[34] A study of older smokers using transdermal nicotine patches found that 29 percent of the subjects quit smoking for 6 months.[35] In addition, there is little evidence that adults in recovery from alcohol problems relapse when they stop smoking. In summary, efforts to prevent substance abuse among older adults should include tobacco consumption as a key health behavior that often co-occurs with substance abuse and with other mental health problems.[36]

Alcohol Misuse

Alcohol misuse, such as drinking above age-recommended limits, binge drinking, or combining alcohol with some medications, is a problem that can be reduced or eliminated among many older adults through prevention and early intervention strategies. Health care settings and organizations providing social or supportive services for older adults, such as the aging services network, represent essential venues for the prevention of and early intervention with alcohol misuse among older adults. Education, resource development, and technical assistance for health and human services organizations, providers, and policymakers around this issue are promising directions for broad-based prevention efforts. Universal prevention strategies such as broad education programs have been able to increase knowledge among seniors about risky drinking practices and ways to limit hazardous alcohol use. A number of screening and assessment tools have been developed and shown to be reliable and feasible for use with this population. Early intervention or targeted prevention strategies such as brief advice by primary care physicians and other brief interventions in health care settings have reduced alcohol consumption among older adults.

Several search engines were used to identify programs addressing the prevention of and early intervention with alcohol misuse among older adults. A number of EBM databases were searched, including the Cochrane Central Register of Controlled Trials (CCTR), Cochrane Database of Systematic Reviews, ACP Journal club, and Database of Abstracts of Review of Effects (DARE). PubMed, PsychInfo, CINAHL, Ageline, Social Services Abstracts, Social Work Abstracts, and ERIC databases were used to identify published literature and other resources using a combination of age-related terms (older, geriatric, elder, late-life, etc.) with the following search terms: alcohol, prevention, early, intervention, brief intervention, screening. Search techniques were also employed to follow promising search directions, such as the "Related Articles" feature in PubMed. Additional searches were performed using the Google search engine and federal agency and grant databases, such as the federal CRISP (Computer Retrieval of Information on Scientific Projects) and National Institutes of Health (NIH) Clinical Trials database.

Universal Prevention

The evidence-base supporting effective universal prevention programs for alcohol misuse among older adults is very limited. To summarize, few population-based prevention programs targeted at the prevention or reduction of hazardous or harmful drinking among older adults have been evaluated rigorously. The best available studies are reviewed below. Please see Table 1 for further details regarding each study.

Health Education

Two recent studies have demonstrated improvements in knowledge of alcohol misuse among older adults using a pretest/posttest evaluation of health education interventions to prevent alcohol misuse. Fink and colleagues describe the development and evaluation of health promotion materials specifically designed to educate older adults about non-hazardous, hazardous, and harmful alcohol use.[37] This project brought together patient focus groups, physicians, educators, and alcohol researchers in developing materials and measures. Participants were patients of UCLA physicians who were community-dwelling adults age 60 or older (n=101). The materials consisted of a written booklet and pamphlet. Knowledge and self-efficacy scores increased among participants from a pretest assessment to an immediate posttest. Process evaluation results also indicated high levels of feasibility and patient satisfaction. The authors concluded that older adults were motivated and able to learn about age-appropriate and recommended alcohol use. In a different pilot study among women aged 54-90 (n=32),

Eliason and Skinstad [38] found that older women, particularly moderate to heavy drinkers, demonstrated improved knowledge regarding alcohol and medication misuse and other health behaviors immediately after a 60-minute educational presentation. These programs did not assess longer-term knowledge retention, so it is unclear whether the immediate knowledge and self-efficacy gains are sustainable over time.

Preventive Physician Visits

There has been very limited research regarding the effectiveness of general preventive health counseling among older adults. In a randomized trial, Medicare beneficiaries (age 65 and older) were assigned either to an intervention group (n=1573) that offered yearly preventive visits for 2 years and optional counseling visits to their primary care provider or to a control group (n=1524) that received usual care.[39] Information was collected at baseline and at 2 years. The intervention visit included history and physical exam, screening and immunization, and review of lifestyle health behaviors. Differences were observed between the intervention and control groups in the extent to which changes occurred in smoking and problem alcohol use, but none of the differences were statistically significant. There was virtually no difference between the groups in changes to sedentary lifestyle. Problem alcohol use was defined as any positive response to the Cut down, Annoyed, Guilty, Eye-opener (CAGE) Questionnaire; the CAGE was repeated at 2-year followup. The authors concluded that the study demonstrated the difficulty of bringing about health behavior change in older patients during the course of a yearly preventive visit for 2 years with their primary care physician when the visit encompasses screening and immunizations, as well as physician-directed health behavior counseling. The study implied that more targeted preventive measures are needed than a general preventive visit to effect changes in specific health behaviors.

A series of health promotion demonstration programs (the Rural Health Promotion Program) offered health screening and disease risk factor interventions, including alcohol counseling, at no cost to rural Medicare beneficiaries (aged 65 and older).[40,41] The evaluation indicated that older rural Americans modestly increased their use of a range of prevention/health promotion services if covered by Medicare. However, the study did not analyze the participation in the alcohol counseling because few people were eligible to receive those services after assessment (~2%). Inclusion into the program was determined by a Health Risk Appraisal (HRA) interview, but the authors did not report the specific criteria used to determine eligibility for preventive alcohol counseling among these Medicare beneficiaries.

Screening and Assessment

Accurate identification of alcohol misuse and risky drinking behaviors is important in the prevention and early intervention of geriatric alcohol misuse.[42] In particular, despite the common occurrence of alcohol problems, health care personnel often fail to recognize problem drinking among older patients.[4,43] A number of screening tools are often used with older adults, but only a few have been developed and evaluated specifically for use with this population. The Michigan Alcoholism Screening Instrument-Geriatric Version (MAST-G) and its shorter version (SMAST-G) were developed as screening instruments to detect alcohol abuse and dependence among older adults.[44-46] Quantity and frequency measures have also been identified as essential screening tools among older adults, as recommended alcohol consumption levels for older adults are lower than those for adults under age 65.[4,47,48]

Several recent studies have evaluated the Alcohol-Related Problems Survey (ARPS) and a shorter version (Short ARPS or shARPS). The ARPS was developed and has tested reliably as a screening measure designed for older adults, intended to identify risks of alcohol consumption due to age-related physiological changes, declining health and functional status, and medication use.[49] It classifies drinking as non-hazardous, hazardous, or harmful. Non-hazardous drinking is defined as consumption with no known risks for adverse physical or psychological health events, hazardous drinking is consumption with such risks, and harmful drinking results in adverse events. Fink and colleagues [50] compared the ARPS to three validated alcohol screens: the Cut down, Annoyed, Guilty, Eye-opener (CAGE), Short-Michigan Alcohol Screening Test (SMAST), and Alcohol-Use Identification Test (AUDIT). Current drinkers 65 years and older (n=574) completed the ARPS and AUDIT in primary care clinics; after random assignment, half of the group completed the CAGE and half completed the SMAST. The ARPS identified nearly all drinkers detected by the CAGE, SMAST, and AUDIT and detected hazardous and harmful drinkers not identified by these measures. These drinkers used medications or had medical conditions that placed them at risk for adverse health events. Moore and colleagues evaluated the validity and reliability of the ARPS and the shorter shARPS.[51] The two measures were compared against a "LEAD" standard ("longitudinal evaluation done by experts employing all available data": a medical record review, a clinical interview, and a telephone interview with a collateral informant) among a sample of 166 drinkers aged 60 years and older in 10 internal medicine clinics. The ARPS and shARPS proved to be sensitive in identifying older drinkers with a spectrum of alcohol use disorders. They were also more sensitive than the AUDIT and the SMAST-G in identifying older persons who may be at risk or experiencing harm due to alcohol use. The authors suggest that these instruments provide information on specific risks associated with alcohol use not obtained by other screening measures and may therefore better facilitate clinician-provided interventions.

Combined Screening and Health Education

Nguyen, Fink, and colleagues evaluated the feasibility of a combined alcohol-screening and health education system for older patients: the Computerized Alcohol-Related Problems Survey (CARPS) system.[52] The CARPS system is a screening and health education device that processes and produces individual drinking risk reports based on an individual's survey responses. The study was conducted among primary care patients age 60 and older (n=106), examining completion rates, participant drinking characteristics, and patient attitudes. Nearly all participants were able to complete the program while waiting for a scheduled physician appointment (median time 15 minutes). Sixty-seven percent of participants reported learning new information, 78 percent had never discussed alcohol with a physician, and 31 percent intended to do so. The authors concluded that combined screening and health education were feasible in health care settings such as primary care practices. Please note in the Indicated and Selective Prevention Strategies section below that a randomized trial is underway to evaluate the effectiveness of the CARPS system.

Indicated and Selective Prevention Strategies (Early Intervention)

Clinical trials for brief intervention with at-risk older drinkers have shown effectiveness with this population. There is a substantial evidence base indicating that brief interventions in a variety of clinical settings are effective at reducing alcohol consumption among adults of younger ages.[1,53-56] To date, three randomized clinical trials have examined brief interventions to reduce hazardous drinking among older adults in primary care settings. Please see Table 2 for more information regarding each study.

Brief Interventions in Primary Care Settings

A controlled clinical trial, Project GOAL (Guiding Older Adult Lifestyles), examined the efficacy of brief physician advice in reducing the alcohol use and use of health care services of older adult problem drinkers.[2] The study involved 43 family physicians and internists in 24 community-based primary care practices in Wisconsin. Subjects age 65 or older were randomized into a control group (n = 71) or an intervention group (n = 87). Intervention group patients received two 10- to 15-minute physician-delivered counseling sessions scheduled 1 month apart. Sessions included advice, education, and contracting using a scripted workbook, as well as a followup telephone call by a nurse 2 weeks after each session. Control group patients received a general health booklet. At total of 146 patients (92.4%)

participated in the 12-month followup procedure. No significant differences were found between the control and intervention groups at baseline in alcohol use, age, socioeconomic status, depression, onset of alcohol use, smoking status, activity level, or use of mood-altering drugs. Intervention group patients demonstrated a significant reduction in 7-day alcohol use, episodes of binge drinking, and frequency of excessive drinking ($p < .005$) compared with the control group at 3, 6, and 12 months after the intervention. Specifically, among the older adults who received the physician-delivered brief intervention, there was a 34 percent reduction in 7-day alcohol use, 74 percent reduction in mean number of binge-drinking episodes, and 62 percent reduction in the percentage of older adults drinking more than 21 drinks per week compared with the control group. Due to the small number of events, patterns of health care utilization were not extensively analyzed. This study provided the first direct evidence that brief physician advice can decrease alcohol use by older adults in community-based primary care practices. The methods were replicable and reasonably transferable to comparable health care settings.

Gordon and colleagues [57] compared the effects of three types of early interventions in a randomized clinical trial among older patients (age 65 and older) with hazardous drinking and examined whether older patients responded similarly to younger populations. Forty-five older enrollees met criteria for hazardous drinking and were randomized to receive Motivational Enhancement (ME, n = 18), Brief Advice (BA, n = 12), and Standard Care (SC, n = 12). At baseline, older adults drank more alcohol and abstained fewer days than the younger cohort ($p < 0.05$). During the 1-year study, older adults in all three conditions increased the number of days abstained, decreased the number of drinks per day, and reduced the number of total days per month drinking. There were trends toward decreases in the alcohol consumption measures in the ME and BA treatment arms compared to SC. The older groups' response to all interventions was similar to that of the younger cohort in the larger study. Despite extremely low sample sizes, the authors suggest that brief interventions reduce alcohol consumption in older adults similarly to younger populations.

The Health Profiles Project was a randomized clinical trial that examined the effectiveness of an age-specific brief alcohol intervention for older adults in primary care settings who report drinking above recommended limits.[58] Health screening, including specific questions regarding alcohol use and misuse, was conducted with more than 14,000 older patients (age 55 and over) seeking health care in 46 primary care clinics located in southeast Michigan and northwest Ohio. A total of 446 older patients who screened positive for hazardous drinking were randomized either to a brief (20-25 minute) alcohol intervention or control condition. Intervention group patients received an intervention appointment during which the clinician and patient would review together a Brief Alcohol Intervention booklet that included the patient's self-reported drinking data and develop a contract to reduce at-risk drinking. Control group patients received an intervention appointment and were given a general health advice booklet (addressing

a range of health behaviors including alcohol use as well as nutrition, exercise, smoking, etc.). Participants were re-assessed at 3, 6, 12, and 18 months post-intervention. Preliminary results show significantly more reduction in frequency and quantity of alcohol consumption for the brief intervention compared to the control condition. These results suggest that an easy-to-administer, elder-specific brief alcohol intervention is effective in reducing at-risk drinking among older adults and shows promise in improving long-term alcohol-related health outcomes for this population.

A substudy of the Health Profile Project examined male veterans in the sample and estimated the effects of the brief intervention on health care use in that population.[59] Male veterans exposed to the intervention (n=100) used more outpatient medical services in the short term compared to the control group. Long-term effects on inpatient/outpatient use were not observed. These findings suggest that brief interventions aimed at reducing drinking may be associated with increased efforts to seek health care. The authors concluded that early detection and management of alcohol-related or other illnesses might be expected to accrue savings in later years due to positive health behavior changes.

Ongoing Selective Prevention Programs Under Evaluation

A search of current federally funded research identified three ongoing projects that are specifically designed to prevent alcohol misuse among older adults. All three focus on the identification of and brief intervention with at-risk older drinkers in health care settings. The CARPS system, described above, is the focus of a current research project funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA).[60] The project is a randomized trial of the effectiveness and cost-effectiveness of an integrated patient provider intervention to prevent harmful, hazardous alcohol use (risks for problems) in older adults. The patient intervention uses the CARPS, which results in printed Patient and Physician Reports with classification of the patient as a harmful, hazardous or non-hazardous drinker and reasons for the classification. The Patient Report references a companion educational booklet developed for older adults. The provider component is based on a physician intervention with proven effectiveness. The proposed research design involves randomization of 28 primary care physicians in four clinics and their eligible patients age 65+ to the intervention vs. "usual care." Outcomes include the comparative effectiveness of a patient and physician educational intervention to prevent geriatric alcohol hazardous and harmful use, the comparative costs of the intervention, and the post-effectiveness of the intervention, all relative to usual care. Effectiveness measures include alcohol consumption behaviors, health-related quality of life; proximal outcomes examined include knowledge and self-efficacy.

A NIAAA-funded study is underway identifying at-risk drinkers using the shARPS.[61] The investigators proposed a 12-month, randomized, controlled trial involving 880 individuals attending primary care clinics at two non-academic sites. The intervention consists of advice given to both at-risk drinkers and their physicians personalized to address the particular reasons an individual is identified as an at-risk drinker. At-risk drinkers will be randomized to receive either brief advice about at-risk drinking (intervention) or a booklet on healthy behaviors (control). Assessments are planned at baseline, 3 months and 12 months. Planned analyses will assess the effect of the intervention on the prevalence of at-risk drinking, the amount of drinking, and the numbers of risks identifying those subjects still considered at-risk drinkers. This study will be the first to assess a preventive intervention to reduce risks of alcohol use, alone or in conjunction with comorbidity and medication use among older adults in primary care.

Funded by NIAAA, the stated aim of Project SHARE (Senior Health and Alcohol Risk Education) is to examine whether patient and provider education can decrease risky alcohol use and reduce health care costs in persons 65 years of age and older.[62] The proposed research design involves randomization of 28 primary care physicians in four clinics and their eligible patients age 65+ to an intervention or "usual care" condition. The intervention will include a "tested computerized screening and education system that was developed especially for older adults and their providers, supplemented by a well-established intervention for physicians." Expected total study enrollment is 1,229; the study timeline is May 2005-August 2010. Outcome measures include hazardous and harmful drinking, health-related quality of life, utilization and costs, as well as alcohol knowledge, alcohol-related self-efficacy, and functional status.

In addition to ongoing clinical trials, a recent collaborative publication from the National Council on the Aging and SAMHSA, entitled "Promoting Older Adult Health," describes several promising programs and partnerships that have been developed to address alcohol misuse, as well as medication and mental health problems in older persons.

Conclusions

Alcohol problems among older adults are associated with increased health care utilization and significant health care expenditures. Studies have indicated that targeted prevention and early intervention with this population can impact subsequent health care utilization. Prevention and early intervention programs, including those focused on risk and protective factors associated with this age group, are some of the most promising approaches to maximizing health outcomes and minimize health care costs among older adults. These programs represent the future of age-appropriate care for the

growing number of older Americans. A range of prevention/intervention strategies available to older adults including prevention and education for persons who are at risk but nondependent drinkers, accurate identification and screening tools, brief advice during medical visits by primary care providers, and structured brief intervention protocols. These approaches offer providers and consumers options that meet different needs and preferences of older adults across the spectrum of drinking patterns. While progress has been made in understanding the effectiveness of preventive alcohol screening and brief interventions with older adults, there are challenges to matching these models to different service settings and different subgroups of older adults.

The scarcity of prevention programs addressing geriatric alcohol misuse in the published literature is notable. This review of the existing evidence base indicated that a number of the evaluated prevention programs that have included alcohol may have failed to identify alcohol misuse among older adults accurately (i.e., see Wallace and colleagues[63] discussion in the Depression & Anxiety section). For example, using the CAGE as the only measurement instrument will likely identify only those with alcohol abuse or dependence issues.[1,52,64] Further, CAGE scores are a lifetime measure ("Have you ever felt the need to Cut-down?"), so are less sensitive to measuring change. As the CAGE does not have high validity with older adults,[1] if used, it should ideally be part of a larger questionnaire or interview that includes quantity/frequency questions, and questions about consequences. Other health promotion programs directed at older adults, such as the one examined by Huang and colleagues,[65] did not address alcohol misuse. Although study authors identified the importance of mental health promotion among older adults, the study did not indicate specific information provided on alcohol misuse or measure changes in knowledge in this area.

Table 1. Prevention and screening of late-life alcohol misuse

Reference	Study Design	Model/Conditions	Age	Sample	Followup	Outcome Measures and Results	Limitations/Comments
Fink et al., 2001[37]	Pretest/Posttest Evaluation; Feasibility Evaluation	Patients were contacted by telephone and asked to come early/stay late next dr. appt: 40 min for pre- and post test plus read health educ booklet and pamphlet	60+ Range: 60-89 Mean: 72	101 male and female patients with variety of MDs	Immediate posttest	Increased knowledge and self-efficacy after intervention. High levels of satisfaction and interest with materials.	No measure of behavior. Feasible to replicate easily.
Burton et al., 1995 [39]	RCT Johns Hopkins Medicare Preventive Services Demo	Interv: Yearly preventive visits for 2 years + optional counseling visits w/PCP Control: Usual care	65+ Interv: Age 65-74: 60.9% Age 75-84: 33.4% Control: Age 65-74: 62.0% Age 75-84: 32.5%	Medicare beneficiaries (male and female). Problem alcohol use identified with any + CAGE score. Interv: n=2105 Control: n=2090	Followup 2 years: 3097 of 4195 (73.8%)	No statistical differences between interv and controls in changes in problem alcohol use.	Use of 1 or more + CAGE score as only measure for problem alcohol use in this population is a limitation. Supports idea that targeted preventive strategies are needed.
Lave et al., 1995; 1996 [40, 41]	RCT Rural Health Promotion Program	Three arm study Interv 1: free hospital-based health promotion services Interv 2: free physician-based health prom services Control: Offered no health prom services	65+ Range: 65-79 Age 65-69: 41.4% Age 70-74: 38.1% Age 75-79: 20.4%	Medicare beneficiaries (male and female). Participants offered "alcohol counseling" health promotion services after Health Risk Appraisal interview but no info re: HRA criteria. Interv 1: n=1312 Interv 2: n=1347 Control: n=1225	Ongoing tracking of use of health promotion services	2 % eligible for alcohol counseling; authors did not model participation due to low #'s. General outcomes included participants' use of free health promotion/prevention services.	Screening criteria unknown. Likely inaccurate measure of those older adults appropriate for alcohol misuse prevention services.

Table 1. Prevention and screening of late-life alcohol misuse (continued)

Reference	Study Design	Model/Conditions	Age	Sample	Followup	Outcome Measures and Results	Limitations/Comments
Eliason & Skinstad, 2001 [38]	Pretest/Posttest Evaluation (Pilot test)	Two 60 min educational programs presented at local senior center	Range: 54-90 Mean: 75	32 female participants	26 of 32 participants completed immediate posttest (81% response rate).	16-item knowledge test plus demographics and alc/med consumption info. Participants, particularly moderate to heavy drinkers, improved knowledge significantly.	Small sample size. No measure of behavior, although some participants did indicate behavioral intentions to reduce alcohol.
Nguyen et al., 2001 [52]	Feasibility Evaluation CARPS	Patients completed computerized (CARPS) survey, received printed report of his/her data and related education to reduce risks. Patients also completed survey re: usefulness and feasibility of CARPS	60+ Age 60-74: 60% Age 75+: 40%	Male and female patients in community group practice and community health center; current drinkers (defined as 1 drink in 12 mos) Participants: n=106	One-time evaluation, no followup	Nearly all pts were able to complete while waiting for a scheduled appt (median time 15 min). 67% participants reported learning new information; 78% had never discussed alcohol with MD, 31% intended to do so. MDs in clinics found useful.	Replicable. No measure of behavior. Presence of CARPS data encouraged alcohol use discussions between MD and patient.
Fink et al., 2002 [50]	Instrument Comparison ARPS	All patients completed ARPS and AUDIT; one half of total group also completed CAGE, other half completed SMAST	65+ Range: 65-100 Mean: 75	Male and female patients in two primary care clinics; current drinkers (defined as 1 drink in 12 mos) ARPS: n=574 AUDIT: n=553 CAGE: n=277 SMAST: n=273	One-time evaluation, no followup	ARPS identified nearly all drinkers detected by the CAGE, SMAST, and AUDIT; detected hazardous and harmful drinkers not identified by these measures. These drinkers used medications or had medical conditions that placed them at risk for adverse health events.	ARPS is sensitive and identifies unique subset of at-risk drinking older adults often missed in other commonly used screens. Reliance on computer scoring/complicated algorithms to determine drinking category is limits replicability.
Moore et al., 2002 [51]	Instrument Evaluation ARPS and shARPS	Compared ARPS, shARPS, AUDIT, and SMAST-G against "LEAD" standard: medical record review, clinical interview, interview with collateral informant	60+ Mean Age: 74.3 Range: 60-93	Male and female drinking patients in 10 internal medicine clinics Participants: n=166	One-time evaluation, no followup	Compared to LEAD: Sensitivity ARPS: 93% Specificity ARPS: 63% Sensitivity shARPS: 92% Specificity shARPS: 51% Sensitivity AUDIT: 28% Specificity AUDIT: 100% Sensitivity SMAST-G: 52% Specificity SMAST-G: 96%	See above. May be more sensitive than AUDIT and SMAST-G due to ability to assess comorbidities.

Table 2. Alcohol misuse early interventions

Reference	Study Design	Model/ Conditions	Age	Sample	Followup	Outcome measures and Results	Limitations/ Comments
Fleming et al., 1999 [2]	RCT Project GOAL	Interv: Booklet and 2 10-15 minute MD-delivered counseling sessions 1 month apart, plus 1 nurse call 2 weeks after each visit Control: General Health Booklet	65+ Range: 65-85	Male and female patients with problem drinking in 24 primary care clinics. Problem drinking defined as >11 drks/wk for men, >8 for women; 2 or more + CAGE; or 4 or more drks/occ for men, 3 for women in past 3 mos Interv: n=87 Control: n=71	Followup 3,6, and 12 mos 92.4% patients completed 12-month followup	Interv group compared to control: 34% reduction in 7-day alcohol use; 74% reduction mean # of binge-drinking episodes; 62% reduction in % of older adults consuming greater than 21 drinks/wk No significant changes in health status. Health care util not analyzed due to small # of events.	Strong evidence of efficacy; consistent with literature for younger adults. Costs involved in physician time/visits plus nurse followup call. B.I. workbook and procedures feasible to replicate.
Gordon et al., 2003 [57]	RCT Posthoc analysis by age of ELM study	Three arm study ME: Motivational enhancement 45-60 min sessions with research interventionist, + 2 10-15 min booster sessions 2 & 6 wks after initial BA: Brief Advice 1 10-15 min session SC: Standard Care	65+	Male and female patients with hazardous drinking in 12 primary care clinics. Haz drinking defined as 8 or > AUDIT score or 16 or more drks/wk for men, 12 or more for women. ME: n = 18 BA: n = 12 SC: n = 12	Followup 1, 3, 6, 9, and 12 mos (1, 3, 9 by telephone; 6 and 12 in person).	Over the year, all three groups increased days abstained, decreased # of drks/day and # of total drinking days in month. Trend toward decreases in alc consumption for ME and BA compared to SC, but not stat significant. Similar response to younger cohort.	Interventions conducted by research interventionists, not patient's physician. Sample size is small. May provide evidence of effects of screening: 5 followups plus baseline in 1 year.
Blow et al., in progress [58]	RCT Health Profiles Project	Interv: 1 20-25 min interv appt with clinician to review pt drinking data and make contract to reduce drinking Control: 1 interv appt + general health advice booklet	55+ Mean: 66±6.4	452 subjects (26 % African-American) Male and female patients with at-risk drinking in primary care clinics. At-risk drinking defined as >12 drks/wk for men, >9 for women; or 4 or more drks/occ for men, 3 for women 2x or more in past 3 mos	Followup 3, 6, 12, 18 mos. 92% patients completed 12-month followup	Preliminary results show significantly more reduction in frequency and quantity	Study analysis still being completed. Includes broader age group and diverse sample. Adds to evidence base for B.I. among older adults.

Table 2. Alcohol misuse early interventions (continued)

Reference	Study Design	Model/Conditions	Age	Sample	Followup	Outcome Measures and Results	Limitations/Comments
Copeland et al., 2003 [59]	RCT Substudy Health Profile Project	Same as above	55+ Range: 55-81 Interv: 65.7±6.3 Control: 66.1±6.5	Male veterans in VA primary care settings with at-risk drinking (defined above) Interv: n=100 Control: n=105	Same as above	Interv patients used more outpatient medical services in short term (9 mos post-interv). Effects on long-term util of inpat/outpt services not observed (19 mos post-interv).	Cost-effective B.I. may increase health care-seeking and appropriate treatment early.

RESEARCH NEEDS AND FUTURE DIRECTIONS

Attention to the prevention and appropriate treatment of substance abuse and mental health problems was identified as a major priority for older adults by the President's New Freedom Commission on Mental Health.[66] As identified in this review, there is a need for organizing, disseminating, and understanding evidence-based prevention and early intervention programs for late-life substance abuse and mental illness. While progress has been made in understanding the effectiveness of these programs and practices for older adults, there are challenges to matching these models to different service settings and different subgroups of older adults.

The growth in the aging population will have a significant impact on the substance abuse and mental health service delivery systems.[67-69] In anticipation of this growing problem, it is essential that substance abuse and mental health services meet the specific needs of older adults. For instance, cohorts of the young-old (e.g., baby boomers) and the old-old have different patterns of service utilization and different perceptions of stigma associated with receiving care for substance use or mental health disorders. Moreover, the prevalence of substance abuse, mental health disorders, and suicidal ideation vary across ethnic groups.[70,71-76] Mental health services are infrequently utilized by older minority populations [77] and lower utilization rates may be associated with limited access, stigma, distrust of mental health providers, and limited availability of culturally-competent services.[78, 79] The lack of information on specific ethnic differences and culturally-appropriate service provision represents a limitation of the current evidence base. A greater understanding of cultural and ethnic differences is needed to enhance the ability to provide appropriate prevention and early intervention to older minorities with substance use and mental health disorders. For instance, social marketing associated with universal prevention interventions should be specifically tailored to cultural and language differences of ethnic groups. In addition, cultural competence should be enhanced across the full spectrum of prevention interventions.

This report provides a comprehensive review of the evidence for prevention and early intervention of alcohol abuse, medication misuse, depression and anxiety, suicide, and co-occurring disorders in older adults. As indicated by our findings, the development of preventive interventions associated with substance abuse surpasses that associated with mental health problems. However, the development and rigorous evaluation of programs that target both of these areas are sorely needed. In addition, there is a need to identify methods to appropriately translate information from clinical trials and research settings into the health care arenas where older adults most frequently receive care, and into social services settings where they receive other needed services. Likewise, population-based programs that target broad audiences of older adults may also offer hope for the universal prevention of substance use and mental health problems. In summary, substance use and mental health problems pose significant

risks for the functioning and well-being of older adults. Although several prevention and early intervention programs have been developed, there is a considerable need for dissemination and implementation of effective programs, as well as for further research aimed at the development and testing of novel programs.

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