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# Use of web-based screening and brief intervention for unhealthy alcohol use by older adults

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ABSTRACT

*Background:* While the number of older adults who engage in unhealthy drinking is increasing, few studies have examined the role of online alcohol screening and intervention tools for this population. The objective of this study was to describe characteristics of drinking behaviors among older adults who visited an alcohol screening and intervention website, and compare them to younger adults.
*Methods:* We analyzed the responses of visitors to Alcoholscreening.org in 2013 (n = 94,221). The prevalence of unhealthy alcohol use, behavioral change characteristics, and barriers to changing drinking were reported by age group (ages 21–49, 50–65, 66–80). Logistic regression models were used to identify characteristics associated with receiving a plan to either help cut back or quit drinking.
*Results:* Of the entire study sample, 83% of respondents reported unhealthy drinking (exceeding daily or weekly recommended limits) with 84% among 21–49 year olds, 79% among 50–65 year olds, and 85% among adults over 65. Older adults reported fewer negative aspects of drinking, lower importance to change, highest confidence and fewer barriers to change, compared to younger adults. In the adjusted model, females (AOR = 1.45, $p < 0.001$) and older adults (AOR = 1.55, $p < 0.002$) were more likely to receive a plan to change drinking behaviors.
*Discussion:* An online screening and intervention tool identified many older adults with unhealthy alcohol use behaviors and most were receptive to change. Web-based screening and interventions for alcohol use have the potential to be widely used among older adults.



## 1. Introduction

Unhealthy alcohol use is common in the United States (Moyer & Preventive Services Task Force [USPSTF], 2013) and accounts for significant disability and preventable death (Jonas, Garbutt, Amick, et al., 2012; Jonas, Garbutt, Brown, et al., 2012; Murray & Lopes, 1996). Unhealthy alcohol use is commonly defined as the use of alcohol that includes risky use, problem drinking, and alcohol use disorder (Saitz, 2005). Brief screening can identify people with unhealthy alcohol use and coupled with brief interventions, can improve outcomes (Moyer, Finney, Swearingen, & Vergun, 2002). Screening and behavioral counseling interventions for unhealthy alcohol use are therefore recommended by the U.S. Preventive Services Task Force (USPSTF) (Moyer & USPSTF, 2013). However, many individuals are never screened or do not receive interventions even if they screen positive for unhealthy alcohol use (Friedmann, McCullough, & Saitz, 2001; Weisner & Matzger, 2003). Barriers to screening for unhealthy alcohol use in the healthcare system include lack of time and challenges of integrating screening into routine clinical workflow (Anderson, Laurant, Kaner, Wensing, & Grol, 2004; Friedmann et al., 2001; Johnson, Jackson, Guillaume, Meier, & Goyder, 2011; McCormick et al., 2006; Spandorfer, Israel, & Turner, 1999; Sterling, Kline-Simon, Wibbelsman, Wong, & Weisner, 2012). Due to these challenges, web-based screening and intervention for unhealthy alcohol use has garnered increasing interest (Dedert et al., 2015; Ritterband & Tate, 2009; White et al., 2010).

Web-based screening and interventions for alcohol and other substance use have focused on younger populations, such as university students (Arnaud et al., 2016; Bewick et al., 2008; Tait & Christensen, 2010), and adult workers mostly under the age of 65 (Boon, Risselada, Huiberts, Riper, & Smit, 2011; Dedert et al., 2015; Westrup et al., 2003). Although alcohol is the most common substance used among

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older adults (Blazer & Wu, 2009b; Holroyd & Duryee, 1997; Kuerbis, Sacco, Blazer, & Moore, 2014; Merrick et al., 2008; Moore et al., 2009), and rates of alcohol use disorder among older adults are expected to rise considerably with the aging Baby Boomer generation (Han, Gfroerer, Colliver, & Penne, 2009), only two studies have focused on online screening tools for older adults (Fink et al., 2016; Kuerbis, Hail, Moore, & Muench, 2017).

While a recent study showed dramatic increases of both binge drinking (19.2% relative increase) and alcohol use disorder (23.3% relative increase) from 2005–2006 to 2013–2014 among older adults (Han, Moore, Sherman, Keyes, & Palamar, 2017), older adults are less likely to be screened for unhealthy alcohol use (Duru et al., 2010; Kuerbis et al., 2014; Oslin, 2000). While older adults use the internet at lower rates compared to younger populations, there have been significant increases in digital health utilization by the older population (Levine, Lipsitz, & Linder, 2016). With evidence that online alcohol screening and intervention can benefit certain populations (Dedert et al., 2015; White et al., 2010), online tools have the potential to increase screening and provide access to interventions for older adults with unhealthy alcohol use.

AlcoholScreening.org, supported by the Partnership for Drug-Free Kids and the Boston University School of Public Health, is a website that originated in April 2001. The website provides free and anonymous online self-assessment of alcohol consumption patterns and identifies individuals with unhealthy alcohol use. The website also provides personalized education and referral for help with alcohol problems. To better understand the prevalence and characteristics of older adults who visit this site that screens and provides brief intervention for unhealthy alcohol use, and to compare them to younger and middle-aged adults, we examined data from those visiting the website in 2013.

## 2. Materials and methods

### 2.1. Website

AlcoholScreening.org provides a free and anonymous online self-screening tool to assess alcohol use and provide feedback, and is designed based on the health belief model (Andreasen, 1995). A description of the development of the website and how it was disseminated to the public can be found elsewhere (Saitz et al., 2004). The website meets the USPSTF standard for a brief intervention: normative feedback; advice; and assistance in developing a plan to change (Moyer & USPSTF, 2013). The screening protocol is based on the National Institute on Alcohol Abuse (NIAAA) and the U.S. Department of Agriculture (USDA) defined drinking levels in the last 30 days "frequency and quantity" questions and guidelines (Department of Health and Human Services [DHHS] & USDA, 2015; NIAAA, 2016a).

Normative feedback tells the individual whether his or her reported consumption is likely to be "safe" or if it exceeds recommended low risk drinking limits. The definition of low risk limits for the website include ≤7 drinks/week and ≤3 drinks on a single day for women and men over the age of 65, and ≤14 drinks per week and ≤4 drinks on a single day for men aged ≤65 based on NIAAA and USDA guidelines (DHHS & USDA, 2015; NIAAA, 2016a). The feedback compares the person's drinking to a national norm for gender and invites the participants who exceed low risk limits (i.e., unhealthy drinking) to participate in answering more questions that may lead to a plan to change (i.e., a brief intervention). If the respondent does not exceed either weekly or single day limits, they view a final web page that says: "*Your answers suggest that alcohol is not likely to be harming your health because you don't drink more than the USDA Recommended Guidelines*."

If the respondent reports exceeding *either* weekly or single day limits, they are given a message about risk of harm to health or injury and asked the following: "*To help you learn more about your drinking, may we ask you a few more questions?*" If they choose "*Yes*" they are given questions to answer including rating how important it is to them to make a change in their drinking; what negative consequences they associate with drinking; how hard it will be to make a change; and the barriers they see in their way. Feedback associated with their answers is immediate, and they are asked if they would like to receive a plan to reduce or stop their drinking. Those who choose to continue are provided with advice about effective ways to overcome their fear of failure and the barriers they have identified. The concluding screen is a summary of the session presented as *My Plan for Change* that the participant can download and print. If they choose "*No*" to the initial invitation to answer more questions about their drinking, they are routed to a page that seeks to understand why they do not want to engage and offers suggestions for the person to participate in the brief intervention.

### 2.2. Questions and measures

Data were collected anonymously by the website and are unable to be traced to any identifiable individual. Participants are asked to provide their current age, gender, and zip code, but no other personal information is collected. Information on alcohol use patterns collected include the largest number of drinks consumed in a single day in the past month (response options 0–10), average number of drinking days per week (1–7), number of drinks consumed on a typical drinking day (0–10). We calculated number of drinks per week from the number of drinking days per week and number of drinks consumed on a typical drinking day.

For respondents who exceed recommended alcohol use guidelines, the follow up questions on alcohol use behaviors include: "How important is it to change your drinking?" (0 not important-10 important); "What's not so good about your drinking?" (18 choices are provided e.g. I get hangovers, it's affecting a relationship, see Table 3 for all choices); "If you did decide to change your drinking today, how confident are you that you could do it?" (0 not confident–10 confident); "Take a look at the common barriers to changing your drinking below, and check the ones that you think may make it difficult for you too." (7 choices are provided e.g. my friends and family drink, see Table 3 for all choices); "Do you want to explore ways to quit using alcohol all together or to cut back on the amount of alcohol you drink?" (Yes/No). If respondents click the next page they then receive a plan for change.

### 2.3. Study sample

We limited this study to a sample of users of the website between January 1st and December 31st, 2013 and between the ages of 21–80. Adults over 80 were excluded due to the limited number and many responses of age 99, which are unlikely to be accurate. We divided the visitors into three age groups to represent younger adults (age 21–49 years old), middle-aged adults (50–65 years old), and older adults (66–80 years old).

### 2.4. Definition of unhealthy alcohol use

For our analytical sample, among all ages and by the three age groups, we calculated the proportion of site visitors who exceeded safe drinking limits (for descriptive purposes defined as unhealthy alcohol use) as defined by the NIAAA that includes the lower recommended drinking limits for older adults. For our analysis, these were defined as: a) for women of all ages and men >65 years of age as 4 or more drinks in one day or 8 or more drinks per week and b) men 65 years and younger as 5 or more drinks in one day or 15 or more drinks per week (HHS & USDA, 2015; NIAAA, 2016a, 2016b).

### 2.5. Statistical analysis

Descriptive analysis of user responses was used to report demographic characteristics and alcohol use patterns with use of chi-