Full length article

Comparing daily drivers of problem drinking among older and younger adults: An electronic daily diary study using smartphones

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ABSTRACT

Background: By 2030, numbers and proportions of older adults with substance-use problems are expected to increase. While risk factors for problem drinking in late life have been identified, it remains unknown whether these factors drive daily drinking among older problem drinkers. This study examined the daily drivers of drinking among problem drinkers, moderated by age, utilizing ecological momentary assessment (EMA).
Method: Participants (N = 139), ages 20–73, received daily EMA online surveys completed via a smartphone prior to initiation of treatment. Multilevel modeling tested the moderating impact of age on within- and between-person relationships between drinking and focal predictors (mood, loneliness, boredom, stress, poor sleep, social factors, alcohol salience, commitment and confidence not to drink heavily).
Results: Older adults reported greater alcohol consumption when daily boredom levels were higher. Heavier drinking among younger adults was associated with poorer sleep quality. Greater daily confidence, daily commitment and daily alcohol salience did not impact drinking to the same extent for older adults as for younger adults. Greater person-level commitment predicted reduced drinking equivalently across age, but low person-level commitment predicted greater drinking among older adults compared to their younger counterparts.
Conclusion: Older adults may have unique daily drivers of drinking that are not fully realized in current research and intervention efforts. Addressing the growing substance-use treatment needs among this population will require identifying the unique drivers of drinking among older adults, such as boredom, when compared to younger adults.

1. Introduction

As Baby Boomers (born 1946–1964) age, the number of older adults in the United States will almost double between 2010 and 2030 (Institute of Medicine, 2012). In this context, both numbers and proportions of older adults with substance use problems are expected to increase (Han et al., 2009). Unlike preceding generations, prevalence rates of substance use remain high among Baby Boomers as they age (Moore et al., 2009; Substance Abuse and Mental Health Services Administration, 2013). Thus, there is a growing public health challenge of how to better identify, assess, and treat alcohol and substance use and abuse among this population (Institute of Medicine, 2008, 2012).

Alcohol remains the most commonly used substance among middle-aged and older adults (Arndt et al., 2011; Moore et al., 2009). Middle-aged and older adults who drink more than the recommended guidelines for healthy alcohol consumption (e.g., males < 65: < 14 standard drinks per week, < 4 on one occasion; for males > 65 and females: < 7 standard drinks, < 3 on one occasion (National Institute on Alcohol Abuse and Alcoholism, 2013)) are quite prevalent. Among adults 50 and older who completed the 2014 National Survey on Drug Use and Health, 14.9% reported drinking more than these recommended amounts, and 3.7% endorsed criteria for alcohol use disorder (AUD)—a significant increase from 12.5% and 3.0%, respectively, in 2005 (Han et al., 2017).

Aging-related biological changes in the body and brain that start around age 50 can increase one's vulnerability to the deleterious effects of alcohol (Hanson, 2011; Oslin and Mavandadi, 2009). As one ages, there is an increased health risk of drinking with both medical

conditions (e.g., hypertension, depression) and associated prescription medications, for which alcohol may be contraindicated (Moore et al., 2007). These risk factors can lead to loss of independence, increased falls, increased hospitalizations and reduced length and quality of life for these individuals (Moore et al., 2007; Sacco et al., 2015b). Thus, there is growing urgency to better understand potentially unique aspects of substance use and misuse among those 50 and older compared to their younger counterparts in order to best prevent and treat those at risk for harm (Institute of Medicine, 2008, 2012) among this group.

1.1. Factors associated with older adult problem drinking

Life events and social transitions common in late life are thought to be risk factors for hazardous (greater than recommended guidelines) drinking and AUD in later life (Moore et al., 2017). For example, bereavement, ill health, loneliness, caregiving for an ill spouse, forced changes in living arrangements, retirement or loss of occupation are associated with hazardous alcohol use among middle-aged and older adults (Brennan et al., 1999; Center for Substance Abuse Treatment, 1998; Myers and Harper, 2004). The few treatment-based studies of middle-aged and older adults found continued and/or relapse to hazardous drinking was associated with: depressed mood, loneliness, boredom, stress, sleep problems, and social pressure (Blow et al., 2000b; Carstensen et al., 1985; Dupree et al., 1984; Schonfeld et al., 2000). Epidemiological studies recruiting from the community or primary care also found that depressed mood, loneliness, boredom, stress, sleep problems, and social factors were predictors or correlates of problem drinking in middle to late life (Adlaf and Smart, 1995; Blow et al., 2000a; Borok et al., 2013; Brennan et al., 1999; Christopherson et al., 1984; Kuerbis and Sacco, 2012; Moos et al., 1990; Moos et al., 2010a,b; Schonfeld et al., 2010).

While these existing studies provide important foundational knowledge, study limitations prevent generalization to today's middle-aged and older adult population. A majority of studies were not implemented with Baby Boomers, a cohort known to have distinct, more permissive attitudes toward substance use compared to previous generations; and a majority of the treatment study samples were all male (e.g., Blow et al., 2000b). In addition, all studies excluded constructs central to theories of behavior change and treatment: motivation, self-efficacy (Kuerbis et al., 2013; Morgenstern et al., 2016), and alcohol salience, defined as the prominence of alcohol cues and/or availability (Witteman et al., 2015). Given that older hazardous drinkers are suspected to have long entrenched patterns of alcohol use, older adults are thought to have lower motivation, lower self-efficacy, and a lower threshold for responding to alcohol salience (e.g., exposure to drinking contexts) compared to younger counterparts with presumably shorter relationships with alcohol (Center for Substance Abuse Treatment, 1998; Sjoerds et al., 2014). Past failures among older adults to change behavior may cause differentially low self-efficacy to change patterns of drinking and may then impact motivation to implement behavior change.

Finally, all of the aforementioned studies evaluated risk factors in aggregate—how overall levels of risk factors influence overall levels of drinking. Virtually nothing is known about the day-to-day influences on drinking among middle-aged and older adults. For example, while drinkers aged 50+ with higher levels of depression or loneliness may drink more regularly or heavily, they may be less apt to drink on days when feeling particularly depressed or lonely. Understanding what drives daily drinking for middle-aged and older adults compared to younger adults is important for optimal prevention and intervention.

1.2. Use of ecological momentary assessment with middle-aged and older adults

One way to better understand daily predictors of drinking is to utilize ecological momentary assessment (EMA) to study dynamic patterns of behavior over time. EMA is a methodology defined as "repeated collection of real-time data on subjects' behavior and experience in their natural environment" (Shiffman et al., 2008), in which constructs are assessed daily (or more frequently). While studies using EMA with older adults exist (e.g., Sacco et al., 2015a; Steptoe and Wardle, 2011), EMA has not been widely used among middle-aged and older adults in relation to alcohol use. Older adults are often excluded from studies focusing on AUD that use EMA due to age-related exclusion criterion or persistent stereotypes that older adults are unwilling or unable to engage with mobile technology (Kuerbis et al., 2017).

1.3. The current study

This study used secondary data analysis to test whether age moderated relationships between daily- and person-level focal predictors (specifically, mood, loneliness, boredom, stress, poor sleep, social factors, commitment not to drink heavily, confidence not to drink heavily, and alcohol salience) and drinking among problem drinkers aged 20–73. It was hypothesized that age would significantly moderate the previously identified risk factors for drinking in later life—such that older age would interact with lower mood, greater loneliness, more boredom, more stress, poorer quality sleep, lower pro-drinking social influence, and less alcohol salience to predict greater drinking. It was also hypothesized that commitment and confidence would not impact drinking as strongly for older adults as for younger adults.

2. Method

Data was collected during a week of baseline assessment prior to the start of a randomized controlled trial with problem drinkers (Morgenstern et al., 2016). All procedures were approved by the Institutional Review Board.

2.1. Participants

Participants seeking treatment to reduce but not stop drinking were recruited using advertising online and in local media. Prospective participants were screened by phone and, if eligible, scheduled for an in-person screening assessment. Participants were eligible if they: (1) were age 18–75; (2) consumed an estimated weekly average > 15 or 24 standard drinks per week, for women and men respectively, and (3) had a current AUD. Participants were excluded if they had: (1) a substance use disorder or were regular (greater than weekly) drug users; (2) a serious psychiatric disorder or suicide or violence risk; (3) physical withdrawal symptoms or a history of serious withdrawal symptoms; (4) a legal mandate to substance abuse treatment; (5) social instability (e.g., homeless); (6) a desire to achieve abstinence at baseline; or (7) a desire or intent to pursue additional substance abuse treatment during the treatment period.

2.2. Procedures

For the in-person screening assessment, participants were asked to complete a series of standard, global self-report assessments. Afterwards, participants were asked to complete a daily online survey via a smartphone, once in the morning and once in the evening, for the next seven days prior to randomization. Participants were then assessed again at baseline, the point of randomization. No data from the treatment period was included in the present analysis.

2.2.1. Daily assessment procedures

Participants received text message prompts twice each day (morning, evening) asking that they complete an online survey using the web browser on their smartphone. Participants who did not have a smartphone of their own were given one to use for the duration of the study; all but three participants included in the current analysis already