Characteristics of individuals seeking a text messaging intervention for problem drinking: Adults 51 and older versus middle-aged and younger adults

Alexis Kuerbis
CUNY Hunter College

Katherine van Stolk-Cooke
University of Vermont

Frederick J. Muench
Northwell Health

Research Article

Characteristics of online treatment seekers interested in a text messaging intervention for problem drinking: adults 51 and older versus middle-aged and younger adults

Alexis Kuerbis*[1], Katherine van Stolk-Cooke[2] and Frederick J. Muench[3]

[1]Assistant Professor, Silberman School of Social Work, Hunter College at City University of New York, 2180 Third Avenue, Rm 435, New York, NY 10035, USA

[2]Doctoral Student, University of Vermont, Department of Psychological Science, 2 Colchester Avenue, Burlington, VT, 0540, USA

[3]Director of Digital Health Interventions, Department of Psychiatry, Northwell Health, 1010 Northern Boulevard, Suite 311, Great Neck, NY 11021, USA

Abstract

According to the Institute of Medicine, the vast older adult population is estimated to have mental health and substance use disorders at unprecedented rates and will place high demand on an unprepared healthcare system. Online and mobile health interventions, such as text messaging, could provide an alternative form of frontline intervention that could alleviate some of the burden on the healthcare system; however, it remains unknown what are characteristics of adults over 50 who might be interested in a mobile health behavioral intervention and how they may differ from their younger counterparts. To explore the characteristics of those interested in a text messaging intervention by age, we examined screening data for a randomized controlled trial testing a text messaging intervention to reduce drinking among 1,128 hazardous and problem drinkers, aged 21-30, 31-50, and 51 and older. Participants were recruited online through website advertising on alcoholscreening.org and moderationmanagement.org. Results demonstrated that over a quarter of individuals pursuing online and/or text messaging treatment were 51 and older. These participants reported heavy drinking, with significantly greater number of days drinking and binge drinking than the younger groups, but with fewer consequences. Across age groups, a vast majority of participants were female. Findings demonstrate that a group of adult heavy drinkers 51 and older already pursue online treatment and are interested in using a text messaging intervention to help them reduce drinking, suggesting an avenue to engage this population using an alternative frontline treatment.

Introduction

In 2012, the Institute of Medicine published an extensive report on the urgent need for mental health and substance abuse services and providers to serve the impending "silver tsunami" [1]—a vast aging population who will place high demand on an unprepared healthcare system. Both the proportions and actual numbers of older adults needing treatment for substance use disorders (SUD) are expected to grow substantially. Rates of SUD among individuals 50 years and older are projected to increase from about 2.8 million in 2006 to 5.7 million in 2020. Among these, one of the most common conditions is hazardous or problem drinking, with as many as 16% of individuals 65 and older reporting heavy drinking [2,3], defined as drinking beyond recommended safe guidelines of seven drinks or fewer per week [4].

In addition to a surprising dearth of treatment options [5,6], numerous barriers to treatment prevent older adults from accessing care. Older adults with SUD tend to avoid seeking treatment due to shame or stigma from dealing with such issues for the first time later in life and a perception that their use is not severe enough to merit treatment [7-9]. Other formidable barriers to treatment include high cost, lack of transportation, and the unavailability of age sensitive treatment [10,11].

Online and mobile health interventions, such as short message service (SMS), otherwise known as text messaging, are thought to be a promising means to intervene with groups of individuals who may actively avoid or have difficulty accessing traditional treatment, and have thus been the focus of much research over the last decade [12-

16]. Mobile health interventions provide a flexible, convenient, and accessible format for assessment and intervention that can be used to provide both ancillary services to existing face-to-face treatments and independent interventions.

Despite the promise of mobile interventions for older adults, there remains a persistent stereotype that middle-aged and older adults have negative attitudes towards technology—fostering an age-based "digital divide" [17], such that adults in later life are thought to avoid mobile technologies. Despite these stereotypes, empirical evidence demonstrates that Baby Boomers, who in 2015 were between the ages of 51 and 69, are significantly more comfortable and competent in using technology than the generations that preceded them [18,19]. Moreover, a majority of older adults (including the generation prior to Baby Boomers) report positive attitudes towards mobile technologies like text messaging and smartphones [19-25].

Text messaging interventions are currently utilized with older adults for medication adherence, appointment reminders, prescription

Correspondence to: Alexis Kuerbis, LCSW, Ph.D., Assistant Professor, Silberman School of Social Work, Hunter College at City University of New York, 2180 Third Avenue, Rm 435, New York, NY 10035, USA; Tel: 917-301-7903; E-mail: ak1465@hunter.cuny.edu

refills [20,24,26-28] and specific medical conditions [29,30], and they demonstrate at least preliminary efficacy and consumer satisfaction, highlighting the promise of these technologies with older adults. Based on the success of SMS in engaging younger individuals in treatments traditionally associated with high levels of stigma (e.g. sexual health, alcohol abuse) French *et al.* [31], it is possible mobile technologies may enhance the reach of alcohol interventions and older adults' engagement in alcohol treatment. The characteristics of adults over 50 who might be interested in or pursue a text messaging intervention, and how they may differ from their younger counterparts, remain unknown.

To explore the characteristics of those interested in a text messaging intervention by age, we examined screening data from a randomized controlled trial piloting a text messaging intervention to reduce drinking among a wide group of hazardous and problem drinkers [32]. Recruitment for the study took place online, through websites focused on alcohol education and help-seeking. Thus screening data provided information about the characteristics of individuals seeking help online for problem drinking—those who completed the survey were interested in learning more about a text messaging intervention to help them reduce drinking. The aim of this paper is to describe the individuals who completed the screening survey by age, with a particular focus on adults 51 and older compared to their middle-aged and younger adult counterparts, to better understand the characteristics of those interested in an online or text message intervention.

Method

Recruitment and procedure

Participants were recruited between April 2014 and January 2015 through online alcohol screening and help-seeking sources, such as AlcoholScreening.org and Moderation Management. Advertisements offered individuals the opportunity to screen for a research study to find out if a text messaging intervention could help them manage their alcohol consumption. Prospective participants were directed to the study website, which offered basic information about the study and a link to a brief screening survey on SurveyMonkey.com. Once the web screening was completed, IP blocking ensured that participants could only complete the survey once from any given device. The survey contained 22 items, and took approximately five minutes to complete. Those who were ineligible were provided more information about where to seek help for reducing their drinking. Eligible participants were directed to a phone based clinical interview to determine eligibility for the parent study. Data utilized for the current study are only from the online screening survey.

Participants

The survey was completed by a total of 1,148 individuals. Of those, 1,138 reported their age. Three groups were created in order to better describe and understand age differences in individuals interested in participating in a text messaging intervention to help reduce drinking: younger adults (aged 21 to 30), middle-aged adults (31-50) and older adults (aged 51 and older). Individuals reporting they were 20 or younger (N=10) were excluded from this report. Individuals 66 and older (N= 22) were barred from providing responses to certain items, as being older than 65 was an exclusion criterion for the larger study. A question asking about gender was added to the survey after about half the sample had been collected. Questions regarding drug use and social support were added to the survey starting with the response of the 726th respondent. In an effort to reduce participant burden,

individuals who reported experiencing moderate to severe shakes or tremors as a result of abstaining from drinking (marker of withdrawal) were barred from answering certain drinking-related questions, as withdrawal symptomatology was an exclusion criterion from the larger study. Within the survey, these individuals were bounced directly to questions pertaining to their drinking goals. Given skip patterns and changes in the screening survey throughout the study, the sample size of the respondents varies by item and is reported for each item in the Results section below. The primary sample utilized here contained 1,128 participants.

Measures

Demographics. Participants were asked questions about age and gender. Age was measured as a categorical variable, with age categories grouped in 5-10 year increments. The possible range in age for this analysis was 21 to 66 or older.

Amount and frequency of drinking. Participants were asked about their drinking over the past 90 days using QFV-30, the brief consumption measure [33]. They were asked 1) how many days on average per week they drank alcohol, 2) how many standard drinks they consumed on average per drinking day, 3) what was the largest number of drinks they had in one sitting, and 4) how many days out of the past 90 did they have four or more drinks in a single day. Participants were then asked to use the above questions as a general guide to summarize the number of drinks they had over the last 90 days.

Other drug use. Participants were asked how many days in the past month they used a "mind altering substance other than alcohol". Participants were provided with a list to prompt memory about the kinds of substances this could include, including prescription medications that are being used off label.

Withdrawal symptoms. Due to the fact that this was a screening tool for a larger study, participants were asked about whether or not they experienced shakes or tremors when they had stopped drinking for more than a day or two. The question further clarified that it was not asking about drinking too much or having a hangover. Participants could indicate "no", "yes (mild – barely noticeable)", "yes (mild – moderately noticeable)", "yes (severe shakes and tremors)".

Perspectives of drinking. Participants were asked several questions related to their perspectives of drinking. One item assessed the level of harm drinking has caused to the participant's life. The response set for this item ranged from 1 "It has caused no harm whatsoever" to 10 "It has caused the worst harm possible (e.g., serious health conditions, financial despair, loss of family, jail)." Participants were next asked how much reducing their drinking would benefit their life overall, with a response set ranging from 1 "It will not benefit my life in any way" to 10 "My quality of life will improve massively if I reduce my drinking." Participants were then asked to complete two items about the level of effort required to resist drinking when one has planned not to drink and level of effort required to resist drinking heavily once one has started drinking. Response sets ranged from 1 "No effort, I can resist drinking no matter what the circumstances are/I can always control how much I drink" to 10 "Extreme effort, it is extremely difficult for me to resist drinking, even when I plan to abstain/it is extremely difficult for me to refrain from drinking heavily once I have started drinking." Finally, participants were asked "compared to your friends, do you drink the same, more, or less?"

Drinking goal. Participants were asked to describe their overall drinking goals. The response set included 1) reducing the number

of days one drinks, but not the amount consumed on a given day; 2) reducing the amount of drinks consumed on a particular day, but not the number of days; 3) reducing the days and the amount of drinks on each day; and 4) did not know how, but wanted to reduce drinking. Participants were asked how important it was to achieve this goal, with a response set ranging from 1 "Not at all important" to 10 "This is the most important goal I have". Next, participants were asked how much effort it would take to reach their goal, with a response set ranging from 1, "No effort at all, I will meet my goal without even trying" to 10, "Extreme effort, it will be one of the hardest things I have ever done."

Social support. Participants were asked about the level of social support in their lives related specifically to reducing drinking. Participants were asked who in their lives, if anyone, knew that they were trying to reduce their alcohol use. Next, if participants indicated anyone knew about their desire to reduce, participants were asked how supportive these individuals were of the participant's desire for change.

Analytic plan

Analyses were primarily descriptive in nature. Descriptive statistics were used to characterize the three age groups (18-30; 31-50; >51). Where appropriated, chi square and one way ANOVA tests, with Bonferroni or Tamhane's post hoc tests, were implemented to isolate which group differences were statistically significant.

Results

Sample demographics

Of the 1,128 participants, 26% reported being 51 and older. See Table 1 for basic demographics by age group. The largest proportion of participants reported an age between 31 and 40. Among those who reported gender (N=566), 28.4% were male.

Drinking and other drug use

Table 1 shows the reported quantity and frequency of drinking across the age groups. Groups significantly differed from one another in the number of days they drank per week, with younger adults drinking the fewest days and older adults drinking the most days. On the days they drank, participants across groups reported heavy drinking with an average between 4 and 5 standard drinks per drinking day. The older group reported significantly more days of binge drinking in the past 90 days than the youngest group. Of the participants who responded to the question about the number of days they used drugs, just under two thirds of participants across age groups reported no days of taking non-prescribed medications or other drugs. Descriptively, the youngest group reported a higher frequency of drug use than the other two groups.

Withdrawal symptoms.

Table 2 demonstrates the rates of reported withdrawal symptoms, in which the youngest group demonstrated a significantly greater proportion of mild to moderate symptoms compared with the other two groups.

Perceptions of drinking

Table 2 also shows the participants' perceptions of the effect drinking has on their lives. The three age groups were significantly different from one another on perceptions of the level of harm drinking had caused, with the youngest group reporting the most harm and the oldest the least. All the groups reported equivalent levels of potential

Table 1. Characteristics of study sample

Variable	Age Group		
	Younger 21-30 M (SD) or %	Middle-Aged 31-50 M (SD) or %	Older ≥51 M (SD) or %
Demographics Age	(N=227)	(N=608)	(N=293)
21-25 years old	41.0		
26-30 years old	59.0		
31-40 years old		53.6	
41-50 years old		46.4	
51-60 years old			73.0
61-65 years old			19.5
66 years old and older			7.5
Gender	(N=104)	(N=299)	(N=163)
Female	67.3	72.2	71.8
Male	32.7	27.8	27.0
Transgender	0.0	0.0	1.2
Drinking	(N=183)	(N=498)	(N=236)
Number of days drank per week[a]	4.8 (1.7)	5.1 (1.7)	5.7 (1.5)
Number of drinks per drinking day	5.1 (2.5)	4.9 (2.5)	4.6 (2.6)
Binge drinking (No. of days drank 4+ drink in past 90 days)[b]	32.3 (24.6)	36.2 (27.8)	40.4 (30.8)
Days Used Other Drugs in Last Month	(N=64)	(N=203)	(N=101)
0 days	59.4	65.5	67.3
1-4 times	17.2	16.3	19.8
1-2 times per week	6.3	3.4	3.0
2-3 times per week	6.3	3.0	3.0
4-5 times per week	7.8	3.9	3.0
Nearly every day	3.1	7.9	4.0

[a] $p < .001$, all three groups significantly differed from one another;
[b] $p = .01$, oldest group significantly different from only the youngest group.

benefit from reducing drinking. All reported equivalent levels of effort required to control their drinking if they had a plan; however, each group reported significantly different levels of effort required to control their drinking once they had already started, with the youngest group reporting the greatest effort and the oldest the least. A majority of all the groups reported drinking more compared to their friends.

Goal for drinking

Table 3 shows the goals elected by participants. A majority in each group aimed to reduce both the number of drinking days and the amount of alcohol on the days they drank as their goal. There was a descriptively higher proportion of young adults who aimed to reduce the amount of drinks per day versus the number of drinking days compared to the other two groups, but this was not a statistically significant difference. The perceived importance of meeting the selected goal was rated as highly important by all groups, yet importance for the younger group was significantly lower than the other two groups.

Social support

The middle-aged group descriptively reported higher proportions of people knowing and were significantly more likely to report spouses knew about their drinking goal. Not surprisingly, the youngest group reported sharing their drinking goals with a spouse significantly less than the other two groups. It may be that a large proportion of

Table 2. Withdrawal symptoms and perceptions of drinking and drinking control

Variable	Age Group		
	Younger 18-30 (N=217) M (SD) or %	Middle-Aged 31-50 (N=588) M (SD) or %	Older ≥51 (N=264) M (SD) or %
Withdrawal symptoms[d]			
No	73.3	79.8	84.1
Yes, mild	19.4	13.9	13.3
Yes, moderate	6.5	4.9	2.7
Yes, severe	0.9	1.4	0.0
Level of harm drinking causes in life[a,e]	5.6 (2.1)	5.1 (2.0)	4.7 (2.4)
How beneficial will reducing drinking be[b]	7.5 (2.1)	7.6 (2.0)	7.5 (2.1)
Level of effort:			
To resist drinking when have no plan to drink[c]	6.7 (2.2)	6.6 (2.3)	6.5 (2.3)
To resist drinking heavily once started drinking[c,f]	7.3 (2.3)	6.7 (2.5)	6.2 (2.7)
Compared to my friends, I drink:			
Less	3.7	3.1	3.4
The same amount	26.4	22.2	15.6
More	69.9	74.7	81.0

[a] Response set: 1 "It has caused absolutely no harm whatsoever" to 10 "It has caused the worst possible harm"
[b] Response set: 1 "It will not benefit my life in any way" to 10 "My quality of life will improve massively if I reduce my drinking"
[c] Response set" 1 "No effort" to 10 "Extreme effort"
[d] Groups significantly different at $x^2(6) = 13.0, p < .05$.
[e] All groups significantly different from one another. $F(2, 1059) = 12.4, p < .001$
[f] All groups significantly different from one another. $F(2, 1058) = 12.8, p < .001$

these individuals were not partnered or married. The youngest group reported the least amount of support overall, with 33.8% reporting that nobody knew they were trying to reduce their drinking. While the proportions may have differed slightly, the quality of the support was equivalent across groups and relatively high.

Discussion

Results of this study demonstrated that a substantial number of hazardous drinkers 51 and older express interest in receiving a text messaging intervention to help them reduce their drinking. Over a quarter of participants who screened for the randomized controlled trial of a pilot text messaging intervention was 51 and older, much higher than the rates of heavy drinking observed among this age group in epidemiological surveys (Blazer & Wu, 2009). This is particularly noteworthy given that recruitment strategies were not at all age specific. In addition, the vast majority of respondents across age groups reported their gender was female, suggesting that women may be particularly interested in attempting to change their drinking in private with some mobile intervention support.

Older adults were heavy drinkers reporting a greater number of days of binge drinking and drinking more days in general each week than their younger counterparts. Despite such heavy drinking, the older cohort reported fewer withdrawal symptoms and generally perceived their drinking as less harmful compared to their younger counterparts. These individuals may be far more entrenched in their habits, with lives that accommodate heavy drinking with few obvious consequences. Still, like the younger cohorts, older participants acknowledged a high level of perceived benefit to reducing drinking and a perception that they drank more than their friends. A majority of older participants reported having a goal of wanting to limit both the number of days

and the amount of alcohol they drank. Spouses or partners were overwhelmingly the primary support for older adults to reduce their drinking, followed by other family. Results highlight the need to build resources for this unique cohort, who may experience more deleterious effects from heavy drinking [34,35] and barriers to treatment [11] compared to their younger counterparts. These resources could include services that involve family members to capitalize on available social support.

This study demonstrates that a group of adults 51 and older are actively interested in a text messaging intervention for hazardous drinking, providing an alternative avenue to engage this population in a frontline treatment. Utilizing SMS as an intervention also addresses a variety of the barriers to treatment experienced by older adults, including cost and lack of transportation. These findings are consistent with the scant literature on older adults and text messaging that report that older adults often elect into text messaging interventions, when available, and that they find these types of interventions convenient, feasible, and at least preliminarily effective [20,24,26].

While existing text messaging interventions demonstrate efficacy in improving both physical and mental health outcomes across a variety of demographics and conditions [12,13,36], adults over 50

Table 3. Drinking goal and social support for goal

Variable	Age Group		
	Younger 18-30 M (SD) or %	Middle-Aged 31-50 M (SD) or] %	Older ≥51 M (SD) or %
Which best describes your drinking goal?	(N=206)	(N=564)	(N=270)
I want to limit the amount of alcohol I drink in one day, but not the number of days I drink.	16.8	11.5	9.4
I want to reduce the number of days I drink, but not the amount I drink.	5.9	3.4	4.1
I want to limit the amount AND number of days I drink.	66.3	75.5	77.1
I don't know but I want to reduce my drinking.	10.9	9.4	9.4
Importance of Goal[a,d]	8.3 (1.6)	8.7 (1.5)	8.7 (1.3)
Level of effort to achieve goal[b]	6.7 (2.2)	6.6 (2.3)	6.5 (2.3)
Which people in your life know you are trying to reduce your alcohol use?	(N=65)	(N=205)	(N=102)
Nobody[c]	33.8	19.5	25.5
Partner/Spouse[f]	32.3	60.5	50.0
Other family[g]	21.5	19.0	31.4
Very close friends	24.6	33.2	23.5
Close friends	13.8	12.2	8.8
Most of my social circle	4.6	2.0	2.0
Nearly everyone	1.5	0.0	1.0
Level of support from people who know[c]	5.0 (1.1)	5.0 (1.3)	5.0 (1.4)

[a] Response set: 1 "Not at all important" to 10 "This is the most important goal I have"
[b] Response set: 1 "No effort" to 10 "Extreme effort"
[c] Response set: 1 "They do not want me to change" to 7 "They are actively helping me to reduce my drinking and support my goals". 4 was marked "They are supportive of my goals, but not helping me to reduce".
[d] Youngest group significantly different from the other two age groups. $F(2, 1038) = 5.9, p < .01$
[e] Groups significantly different. $x^2(2) = 5.9, p < .05$.
[f] Groups significantly different. $x^2(2) = 16.1, p < .001$.
[g] Groups significantly different. $x^2(2) = 6.0, p < .05$.

have generally been excluded from those studies. Few studies on text messaging interventions: 1) focus on adults over 50 as a target population, 2) include them in the study sample, or, 3) when they are included, report findings by age group. Among those studies that do, results demonstrate no difference between the willingness of adults 50 and older and younger adults to receive text message appointment or medication adherence reminders [37]. More research is needed to study the effect of these interventions with older adults.

Study limitations

This study has several limitations. Findings should be interpreted with caution. It is limited in its varying sample size, preventing a more complete picture of those seeking online help for drinking. Generalizability is limited only to those individuals seeking help for drinking online who responded to an advertisement about participating in a study on text messaging for drinking. Due to the decision tree nature of the survey, some data for individuals excluded from the parent study are missing. Therefore, the true proportions of characteristics of individuals at any age who may be interested in a text messaging intervention for hazardous drinking remain unknown.

Conclusions

Despite these limitations, this study still provides important preliminary information about who may be interested in mobile health interventions among adults over 50 for behavioral health issues. This is an important initial step in understanding the broad applicability of mobile health interventions across age groups. It also provides concrete data to support the notion that older adults are amenable and, in some cases, may even initially prefer text messaging interventions to address behavioral health issues—which can provide an important avenue for services that are otherwise unavailable or undesirable.

Funding

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