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**Saying No to Another Beer: Association of Positive Age Stereotypes with Lower Prevalence
of Alcohol Use Disorder among Baby Boomer Veterans**

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M.P.H. Thesis
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Abstract

Alcohol use disorder (AUD) is a problem for older veterans. This study examines whether positive age stereotypes may be associated with lower prevalence of alcohol use disorder in this group. Prevalence estimates of demographic and military characteristics were analyzed by Alcohol Use Disorder status and age group. The cohort consisted of participants in the National Health and Resilience in Veterans Study. The Alcohol Use Disorder Identification Test, that assesses AUD DSM5 symptoms was used to measure AUD prevalence, number of symptoms, an alcohol consumption subscore, and an alcohol consequences subscore. Positive age stereotypes were associated with lower levels of all four measures. Stratified analysis showed that to be true for the baby boomer age group, but not for the younger age group. Interaction analyses yielded a significant interaction between age group and age stereotypes for all outcomes. It was found that the older group had prevalence estimates of AUD that were as high as the younger cohort. Aging individuals require screening for AUD as younger individuals. Also, improving age stereotypes may be a preventative measure for late onset AUD.

Alcohol use disorder, a DSM 5 diagnosis, defined as “a problematic pattern of using alcohol that results in impairment in daily life or noticeable distress,” (American Psychiatric Association, 2013) is thought to be a particular problem for baby boomers (born between the years of 1946 and 1964). For the baby boomers and older, prevalence estimates show that 12.2% are heavy drinkers (Huang et al., 2006). According to a recent Institute of Medicine report, baby boomers are entering retirement with a high level of alcohol abuse (Eden et al, 2012) and others may start to develop alcohol problems in later years (Grant and Dawson, 1997; O’Connell et al., 2003).

The approximately 9 million baby boomer veterans may be higher risk of AUD than their civilian counterparts (Kerfoot et al., 2011). Veterans have higher rates of alcohol consumption than both active duty military members and civilians (Hoerster et al., 2012; USDVA Population Projection Model, 2015). Alcoholism is one of the most prevalent health risk behaviors among veterans (Eden et al., 2012). Poorer health behaviors and outcomes may be especially true for the veterans who tended to have served during the Vietnam War. In a study that compared Vietnam veterans to non-veterans and their excessive drinking behaviors, veterans were more likely to drink excessively than their civilian peers (Boscarino, 1980).

There are a number of reasons to explain why AUD could be higher in baby boomers in general and baby boomer veterans in particular. First, AUD is thought to be a response to stress (Brady and Sonne, 1999; Corbin et al., 2013); Stress may be higher among baby boomer as they start to retire. This may be a particularly stressful transition for this group because this cohort values agency related to having an occupation (Ekerdt et a., 1989; Perreira and Sloan, 2001). Also, the anti-aging industry, which has exploded in the past two decades, has targeted the baby boomers with the message that it is important to avoid aging and hold onto their youth

(Schoemann & Branscombe, 2011). Furthermore, some organizations such as the growing number of retirement communities that target baby boomers support and sometimes facilitate heavy drinking, which promotes problem drinking (Alexander and Duff, 1988; Klein and Jess 2002).

The reason that AUD may be higher among baby boomer veterans is alcohol use is often used as a coping mechanism in response to military related stress (Brinson and Trainor, 2010). Also, since many veterans who belong to the baby boomer cohort fall into the Vietnam War Veterans category, their challenges are magnified. The Vietnam War led to severe trauma due to complicated dynamics both during and after the war. Guerilla warfare and combat exposure led to long-term psychological distress (Schlenger et al., 2007). Additionally, the protest of the Vietnam War extended to a lack of social support for returning veterans and enduring feelings of guilt (Glover, 1984). This particular group of military members is known for their high rates of alcohol use disorder, and psychological trauma (Apostle, 1998; Wessley & Jones, 2004).

Most of the research on AUD has identified risk factors. In the following study, we examined a potential protective factor that might operate in this group: positive age stereotypes, which have been to be stress-buffering. Specifically, we examined whether positive aging stereotypes might be associated with lower risk of AUD among baby boomers.

The mechanism by which positive age stereotypes are associated with lower risk of alcoholism might involve the positive age stereotypes reducing the impact of everyday stressors. Positive aging stereotypes have been shown to yield a lower physiological response to stress than negative aging stereotypes (Levy, 2000). Positive age stereotypes also buffer the effects of encountering stressful events (Levy et al., 2015). Therefore, the internalization of positive stereotypes could have the same impact on alcohol use behaviors. Because alcohol use disorder

is thought to be an outcome of stress (Brady and Sonne, 1999; Corbin et al., 2013), it is possible that positive aging stereotypes are protective against some of this stress. Conversely, those with more negative age stereotypes may exacerbate everyday stressors. Alcohol use may be the coping mechanism that is employed in response.

The theoretical framework that we used for our study is Levy's (2009) stereotype embodiment theory, which postulates that aging is at least partially a social construct and both positive and negative stereotypes which individuals take in from their culture can affect health and functioning in later life (Levy, 2009). According to this theory, although age stereotypes are internalized at a young age, age stereotypes start to have their impact when they become self-relevant in later life. Stereotypes have been shown to affect both physical and mental health outcomes including Alzheimer's disease biomarkers (Levy et al., 2015), cardiovascular stress responses (Levy et al., 2000), memory (Levy et al., 2012), and health behaviors (Levy & Myers, 2004; Allen, 2015). The current study extends this research by examining whether positive age stereotypes are also associated with an addictive behavior.

Thus, the hypotheses examined are as follows:

- (1) Positive age stereotypes will be protective for alcohol use disorder among the baby boomer cohort.
- (2) Baby boomers are more likely to benefit from positive aging stereotypes being associated with lower levels of Alcohol use disorder than younger adults as the positive age stereotypes should be more self-relevant to the older group.

Methods

Participants

The National Health and Resilience in Veterans Study (NHRVS) is a nationally representative dataset of the veteran population across the United States (Pietzrak and Cook, 2013). It was compiled by GfK Knowledge Networks, Inc., which recruited U.S. adults by both cell and home phone numbers as well as by post. While many studies of Veterans are conducted through the VA, this sample was from the general population. As such, it is representative of a majority of the veteran population across the country. Additionally, in order to make the sample generalizable to all U.S. veterans nationwide, post-stratification weights were applied by overall demographic characteristics based on the US Census (Pietzrak et al., 2013).

Statistical Analysis

To examine characteristics of the sample that met the criterion for alcoholism, prevalence estimates were conducted with chi-square test for difference for the categorical demographic variables. Both the unweighted raw data and the post-stratification weighted estimates developed were compared using chi-square test for difference. Continuous variables (age and years in the military) were analyzed with means and t-tests.

The outcome measure of alcohol use disorder was modeled in two ways. First, the WHO guidelines for a positive result for an alcohol use disorder were treated as a binary outcome and modeled with logistic regression. Second, for the three outcome measures of alcoholism that assess it as a continuous variable (Alcohol Use Disorder Identification Test (AUDIT) as a total score and the two AUDIT subscores of consumption and consequences) multiple linear regressions were conducted

After understanding the initial prevalence estimates and differentiation the proposed explanatory variables were analyzed alongside a series of covariates.

Interaction analyses were conducted to examine the second hypothesis that baby boomers are more likely to benefit from positive aging stereotypes being associated with lower levels of alcoholism than younger adults. Interaction among the age groups and age stereotypes were examined for all of the AUDIT outcomes. In addition, all models were examined in both the younger and baby boomer samples.

Measures

Moderator: Age group

The age group of particular interest was the baby boomer cohort (born between 1946 and 1964). In 2013 when this sample was collected by the Knowledge Networks this population was aged 49 to 67. As such, the age groups studied were: 18- 49 and 49 to 67.

Predictor: Positive Age Stereotypes

Age stereotypes were measured by a three question version of the ERA-38 questionnaire. The items were: “Every year that people age, their energy levels go down;” “It’s normal to be depressed when you are old;” and “Forgetfulness is a natural occurrence just from growing old.” Participants then responded with *definitely false*, *somewhat false*, *somewhat true*, and *definitely true*. Responses were scored as definitely false as 3, somewhat false as 2, somewhat true as 1, as definitely true as 0. Scores ranged from 0 to 9. While each statement stated a negative aging stereotype, the manner in which the variable was scored was to indicate that the lower the rates of agreement with negative aging stereotypes, the higher the score. Thus, a higher score indicates more positive age stereotypes.

Outcome: Alcohol Use Disorder

For alcoholism and alcohol use the validated 10 question Alcohol Use Disorders Identification Test (AUDIT 10) measure was used assesses the DSM5 symptoms of AUD; it has

been found to be valid and reliable in the general population (Saunders et al., 1993), among older adults (Morten et al., 1996) and among male and female veterans (Bradley et al., 2006; Bradley et al., 2003).

This measure was examined in the four ways (Allen et al., 1997): Total score, positive screening for alcoholism, consumption subscore and consequences subscore. The overall measure of the AUDIT questionnaire is scored from 0 to 34. The positive screening cut-off that is suggested by the World Health Organization team that developed and validated the Audit is 8 or higher for a man and 7 or higher for a woman (Saunders, 1993). The 3-item consumption subscore includes such items as, “*How many drinks did you have on a typical day when you were drinking in the past year?*” The seven-item consequences subscore includes such items as “*How often during the last year have you failed to do what was normally expected from you because of drinking?*”

Covariates

The covariates that were included in all models were known risk factors for alcohol use disorders and/ or known to be associated with the predictor (Nolen-Hoeksama, 2004; Ruan et al., 2007, Schumm et al., 2012): race, gender, education level, Post-Traumatic Stress Disorder (PTSD) or depression, and combat exposure. Depression was particular important as it often a dual diagnosis with PTSD and the outcome of alcoholism. PTSD, depression, and alcoholism in their co-occurrence exacerbate the other, and therefore require controlling in analysis (Brinson and Treaner, 1989).

As some of the participants served in war, to take into account the mental health consequences of war, any analysis of alcoholism among veterans, therefore, should control for

PTSD, depression and trauma exposure if possible (Boscarino, 1995). In the current study, our dataset allowed us to adjust for these variables in all models.

PTSD was measured using the VA's PTSD Checklist, which features 17 statements such as, "Repeated, disturbing memories, thoughts, or images of your WORST stressful experience. The respondent then chooses "*not at all, a little bit, moderately, quite a bit, or extremely*" in regards to how much the problem has bothered him or her both throughout his or her lifetime (Forbes et al., 2000). Lifetime depression was measured using the M.I.N.I. (Mini-International Neuropsychiatric Interview), which is a short, yes/no questionnaire with questions such as "Were you ever much less interested in most things or much less able to enjoy most of the time, for two weeks?" (Lecrubier et al., 1997). Given the limited number of minorities in the sample, the most effective means of adjusting for race was through white and not-white rather than through all possible minority races in the sample. To be conservative, age was also included in the models although it was not significantly associated with alcohol use.

Results

In using weighted estimates, gender, and education were found to be statistically significant in their association with a positive screen for alcohol abuse. Females (9.33%) were less likely to screen positive on the AUDIT than males (17.62%). As education increased, the frequency of a positive screen on the Audit-10 decreased. Those with less than a high school education had the most positive screens (23.89%). Those with at least a bachelor's degree had the lowest frequency of 9.09%.

Further demographic prevalence estimates compared the baby boomers to the younger age group. Age, combat status, gender, and education were all found to be significantly different

between the age groups. The differences between the cohorts could contribute to different behavioral patterns in alcohol use. These variables were all controlled for in the further analysis.

Hypothesis One

Supporting hypothesis one, positive aging stereotypes were found to be protective for alcoholism among the baby boomer cohort. Among the baby boomers positive aging stereotypes were associated with lower odds of screening positively for alcohol use disorders (see Figure 1). The adjusted odds ratio was 0.848 $p=.0086$ (95% confidence interval (CI): 0.0.750, 0.959). Using AUDIT-10 as a continuous measure, positive aging stereotypes were associated with a lower score on the overall alcohol use disorder scale, t -value -2.67 , $p < 0.0079$. Similarly, among the baby boomers positive aging stereotypes were associated with a lower alcohol consumption subscore, t -value $= -5.23$, $p=0.0136$, and lower alcohol consequences subscale: t -value $= -5.23$, $p < .0001$. In all these models, all covariates were included.

Hypothesis Two

Supporting hypothesis two, baby boomers were more likely to benefit from positive aging stereotypes being associated with lower levels of alcoholism than younger adults are.

In interaction analysis between the age groups and aging stereotypes with all covariates, significance was found for all measures. Type 3 was used for the sum of square measure. With AUDIT-10 as a categorical variable, the interaction term yielded $\chi^2 = 3.6996$ $p=.0464$. With AUDIT-10 as a continuous variable, the interaction $F=4.05$, $p=.0446$. For the Alcohol consumption measure, the interaction was $F= 5.30$, $p=.0216$. With alcohol consequences, the interaction term yielded $F=14.06$, $p=.0015$.

Further, to understand the nature of the interaction, the young veterans were examined separately. Among all four outcome measures, as expected, the young did not show the

association between age stereotypes and alcohol use disorders. Using AUDIT-10 as a categorical measure, among the young, no association was found between aging stereotypes and this outcome yielded an odds ratio estimate of 1.033 ($p = 0.7151$; 95% CI (0.868, 1.229)). Using AUDIT-10 as a continuous measure, among the young, again no association was found between aging stereotypes and the AUDIT-10 cumulative score; $t\text{-value} = 0.60$ $p = .5511$. Again, when AUDIT-10 consumption was examined as expected, this relationship was not found for the young; $t\text{-value} = 1.14$, $p = .2556$. Lastly, when AUDIT-10 consequences was examined, the youngest group did not have a significant association, $t\text{-value} = 0.28$, $p = .7789$.

Discussion

As hypothesized, positive age stereotypes were found to be associated with lower risk of alcohol use disorder among the baby boomers. This was found with all four measures of alcohol abuse and after controlling for relevant sociodemographic and military variables. This study extends previous research by showing that positive age stereotypes may act as resource against current alcoholism in later life. It is important that in addition to other potential risk factors, aging stereotypes should also be incorporated into preventing, screening, and treating Alcohol Use Disorders.

In addition, as predicted, it was found that this advantage of positive aging stereotypes being associated with lower risk of alcoholism only emerged for the older cohort. This finding is consistent with stereotype embodiment theory and previous studies that have found that age stereotypes have increased salience when they start to become self-relevant and thus are more likely to have an impact on health outcomes (Levy, 2009; Levy et al., 2011). Aging stereotypes are not yet relevant to the youngest group because they tend to see older individuals as distant others that are outside their group.

Our study also found that the alcohol use disorder prevalence estimates did not significantly differ between the older sample and the younger sample and were actually slightly higher among the older group: 16.76% compared to 15.97%. This level of alcohol use and potential abuse suggests that the boomers are engaging in risk behaviors like their younger counterparts, in contrast to the inaccurate stereotype that risky behaviors are diminished in later life. Both the baby boomer and the younger cohort of veterans had a higher prevalence of alcohol use disorder as compared to the general population, which has a national average of 9.8% (SAMSHA, 2014).

The clinical implications for the prevalence rates are far reaching. The negative health outcomes that are associated with high rates of alcohol consumption need to be accounted for among the baby boomer cohort of veterans. Furthermore, knowing that positive age stereotypes are associated with lower frequency of a positive screen on the AUDIT can be incorporated into care provided. Since there is a causal relationship between alcohol and at least 60 unique medical conditions (Room et al., 2005), age stereotypes' interaction with alcohol behavior should be used to better care for those suffering from an alcohol use disorder.

Even psychological research focused on improving the health and well-being of older individuals uses strongly ageist language. These same studies place undue focus on older individuals in terms of them being in need of care rather than being self-sustaining for contributing members of society (Schaie, 1993). Furthermore, psychiatrists who treat older individuals are also plagued by ageist ideas. They hold negative misconceptions associated with aging, and overestimate diseases related to dementia and Alzheimer's (Gatz & Pearson, 1988). Since they are the ones both diagnosing and delivering treatment for alcoholism, it is likely that ageism also influences psychiatrist's interactions with their aging patients and alcoholism. The

negative misconceptions could manifest in terms of underdiagnosing mental health related to risk behaviors.

It is crucial that this attention to alcohol use should be maintained regardless of whether a veteran is 25 or 65 as the prevalence estimates indicate that there is not a significant difference in the two age groups and age was not a risk factor for alcohol abuse. As Bowman and Gerber (2006) discussed in their call to action for providers, ageism impacts the manner in which elderly (including some baby boomers) are treated, especially when it comes to alcohol use. Our findings are consistent with their analysis that baby boomers are at risk drinkers in need of providers' special attention to their alcohol behaviors.

There are several known risk factors for alcoholism including mental illness and exposure to trauma. Whereas they are valuable resources for future interventions, there are relatively few tools that can be used immediately for preventing or improving the outlook of alcoholism among current and future generations. Since positive aging stereotypes were associated with lower rates of alcoholism, it posits that this has important implications. Thus one way to improve the onset of late in life alcoholism may be to seek ways of improving aging stereotypes. Negative aging stereotypes may also be seen as a risk factor that is taken into account by health care providers treating aging veterans.

While the research conducted was cross-sectional, aging stereotypes, there is reason to assume that the age stereotypes preceded the alcoholic tendencies. Aging stereotypes are learned from a young age (Montepare & Zebrowitz, 2002). These stereotypes are then reinforced over time (Levy, 2009). In addition, a recent study, it was found that age stereotypes are stable over time (Levy et al, 2015)

As Levy (2009) asserts in her stereotype embodiment theory, stereotypes are internalized throughout the life course. As a rule, when the media interacts with aging it is negative. So although aging stereotypes are only manifesting in associations with risk behaviors at the middle age, there may be benefit to intervening early. If positive aging stereotypes were to be incorporated into socio-cultural norms to combat ageism and negative aging stereotypes, risk behaviors like alcoholism might be impacted later in the life course, and the outlook improved.

Future research could examine the alcohol abuse over time and whether interventions that improve aging stereotypes help reduce alcohol abuse disorder in later life. A limitation of this study is that only one wave of the dataset was used for the analysis. A longitudinal study focusing on the changes in alcohol behaviors over time in relation to aging stereotypes should be conducted. This would also facilitate a better understanding of the exact age when aging stereotypes become relevant, thereby improving intervention targeting. In future research, it would be beneficial to examine the association of age stereotypes with alcoholism in non-military members. This information could be used to improve care over time to the general populations.

Strengths of the study include a large representative sample, an outcome measure that has been validated in young and older adults, focus on a high-risk group, and similar findings with four different ways of assessing the outcome measure. The consistent findings across the different methods of pursuing the information speak to the strength of the association between aging stereotypes and problem drinking. Also, that this study included veterans who were recruited from the general population rather than from the usual VA-recruited sample is a strength as it might pick up on a more representative presentation of alcoholism.

Relevant recommendations for program development

Training doctors is especially important because substance use is still predominantly considered a somewhat taboo topic among health care providers of the older populations (Idso, 2009). Medical professionals are still often uneducated about basic geriatric needs (Bardach and Rowles, 2012) so anything beyond the most basic care would be covered even less. Substance use is something that is not considered standard or normal, regardless of the fact that in the veteran populations it is. As such not only do doctors need to be trained to look for substance use, they need anti-ageism training to facilitate better care for the many patients with continuing alcohol use issues.

As Boomers age the clinical staff who provides care needs to be aware of the level of substance use that exists within the baby boomer population. Informed practitioners will facilitate improved care related to alcoholism and therefore the health consequences associated with high rates of alcohol consumption. Providers should be more attuned to the fact that members of the baby boomer cohort may still be using alcohol in the same way as their younger counterparts do.

Most importantly, aging stereotypes are not fixed. The fact that they are alterable should be embraced as a means of improving the outlook for alcohol use among baby boomers. Ageism is omnipotent in the media, and a change in media presentations could improve aging stereotypes. It is necessary to shift the discourse on aging to incorporate positive stereotypes rather than allow the discourse to continue negatively.

There is currently a significant media hype surrounding the impending consequences of the baby boomers aging. The language surrounding the aging boomers is often “the burden” of the older individuals, which is markedly negative. In fact, it suggests that the boomers will no longer be productive members of society. Since the boomers are such a large and powerful

cohort, their aging process has the power to alter ageism in the country. Changing the dialogue around aging boomers may improve the outlook of alcohol use disorders.

Given the size of the baby boomer cohort, the number of individuals requiring care will increase (Blow & Barry, 2012). By 2030, the size of the 65 plus population will increase from 40.3 million to 72.1 million with the burden of alcohol use disorder also increasing (Eden, 2012). Projection analyses predict a 70% increase in the substance abuse treatment needed from the year 2000 to 2020 indicating a rate disproportionate to the population increase. Choi et al. (2015) found that the baby boomers had significantly higher rates of alcohol use disorder than those over the age of 69 in 2015.

Veterans, specifically Vietnam Veterans, have numerous stereotypes that surround their life course. The fact that aging stereotypes were associated with alcohol use disorders suggests that other stereotypes may have similar effects.

The compelling prevalence estimates surrounding aging veterans and their behavior mirroring that of the younger cohort suggest that the VA needs to prepare for aging veterans who are continuing to use alcohol as they age. Therefore, not only do the providers need to be educated on the risks surrounding this population, but resources for treatment of alcohol use disorders in this population should be developed.

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Tables and Figures

Table 1
Weighted Prevalence Estimates by Sociodemographic and Military Variables

Characteristic	Entire Sample 960.64	AUDIT 10 No 802.29	AUDIT 10 Yes 158.35	Test for Difference χ^2 or t	p [†]
Sociodemographic Characteristics					
Age (years), mean \pm SD	52.04 \pm 12.32	52.04 \pm 12.24	52.05 \pm 12.93	-0.01	0.99
Age Group				0.90	0.75
< 49	336.67 (35.05)	282.89 (84.03)	53.77 (15.97)		
49 to 67	623.98 (64.95)	519.4 (83.24)	104.58 (16.76)		
Gender, n (%)				5.68	0.017
Male	828.89 (86.29)	682.83 (82.38)	146.06 (17.62)		
Female	131.75 (13.71)	119.46 (90.67)	12.29 (9.33)		
Education, n (%)				15.54	<0.01
Less than high school	26.71 (2.78)	20.33 (76.11)	6.38 (23.89)		
High school graduate	277.40 (28.88)	219.95 (79.29)	57.45 (20.71)		
Some college	396.43 (41.27)	325.56 (82.12)	70.87 (17.88)		
BS/BA or higher	260.10 (27.08)	236.45 (90.91)	23.65 (9.09)		
Race, n (%)				0.34	0.56
White	654.39 (68.12)	549.66 (84.00)	104.73 (16.00)		
Other	306.25 (31.88)	252.63 (82.49)	53.62 (17.51)		
Combat n (%)	397 (41.34)	320.12 (80.63)	76.88 (19.37)	4.06	0.04
Lifetime PTSD or Depression	222.72 (23.18)	171.96 (21.43)	50.76 (32.06)	8.3782	<0.01

Note: Overall demographic characteristics for the sample were calculated with an analysis of screening positive or negative for alcoholism with the AUDIT 10 measure. The cutoff for the AUDIT measure, per the WHO guidelines was 7 for women and 8 for men. Both general demographic characteristics and military characteristics were included. These base prevalence estimates were calculated using post stratification weights as developed by Knowledge Networks Inc.

Comparison of Characteristics Between the Age Cohorts

Table 2

Characteristic	Young Cohort (n = 336.67)	Baby Boomer Cohort (623.98)	Test for Difference χ^2 or t	p [†]
Sociodemographic Characteristics				
Age (years), mean \pm SD	38.13 \pm 8.29	59.55 \pm 5.47	49.92	<0.01
Gender, n (%)			35.1305	<0.01
Male	259.49 (77.08)	569.40 (91.25)		
Female	77.17 (22.92)	54.58 (8.75)		
Education, n (%)			17.42	<0.01
Less than high school	8.03 (2.39)	18.68 (2.99)		
High school graduate	76.25 (22.65)	201.15 (32.24)		
Some college	168.03 (42.39)	228.4 (36.60)		
BS/BA or higher	54.35 (25.05)	175.75 (28.17)		
Race, n (%)			4.00	0.05
White	215.55 (64.03)	438.84 (70.33)		
Non-White	121.11 (35.97)	185.14 (29.67)		
Combat n (%)	156.46 (46.47)	240.54 (38.57)	5.63	0.02
Lifetime PTSD or Depression	92.93 (27.60)	129.79 (20.80)	5.68	0.02

Figure 1
Association of Positive Age Stereotypes with
Lower Alcohol Use Disorder

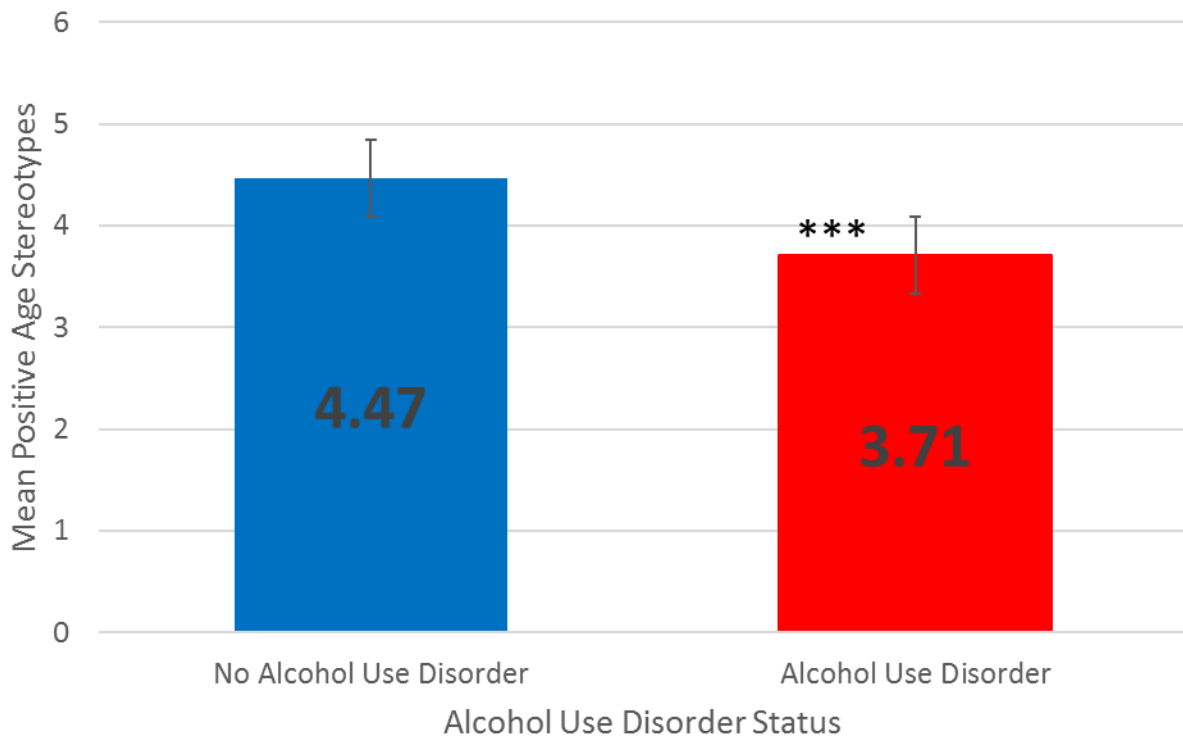


Figure 2

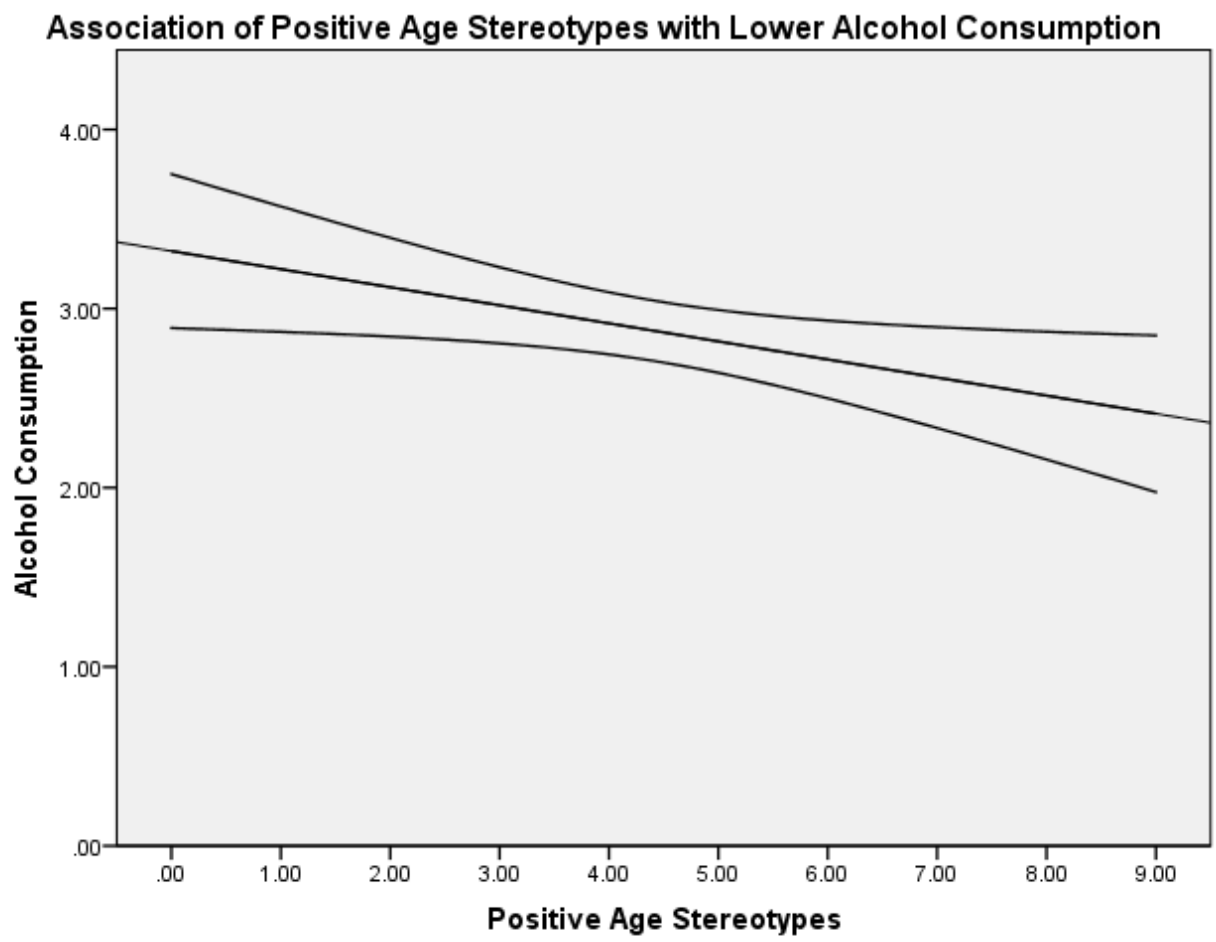


Figure 3

