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Age-Based differences in Treatment Outcome among Alcohol Dependent Women

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Abstract

The literature suggests that women are at higher risk for negative consequences from alcohol use than men and that these risks are compounded by age. The current study investigated how alcohol dependent women from different age groups might differ in terms of baseline functioning and treatment response. The sample consisted of 181 participants drawn from 2 randomized clinical trials of cognitive behavioral treatments for alcohol dependent women. Demographic and psychopathology data were obtained at baseline using the SCID (Structured Clinical Interview for DSM disorders) I for Axis I disorders and the SCID II or Personality Disorders Questionnaire for Axis II disorders. Social networks data were collected using the Important People and Activities Interview. Drinking data were collected at baseline and follow-up using the Timeline Follow Back Interview. Analyses of Variance (ANOVAs) revealed that older women had better psychosocial functioning in terms of being better educated and reporting fewer Axis I disorders. Also, older women had more supportive social networks in terms of more people, a smaller percentage of heavy drinkers, and a non-drinking spouse. Older women reported a less severe lifetime substance use history with a later age of first drink, later onset of alcohol use disorders, fewer lifetime abuse/dependence items, and less drug use. However, they reported drinking more frequently and more heavily over the 90 days prior to treatment. Finally, older women were more compliant with treatment and responded better by reducing drinking frequency and percentage of heavy drinking days. Suggestions to enhance treatment efficacy for younger women are made as well as suggestions for future research.

Keywords

Women; Alcohol; Treatment Outcome; Aging; Older Adults

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The disparity that once existed between men's and women's drinking rates appears to be narrowing (Epstein & Menges, in press; Wilsnack, Wilsnack, & Hillersturmhofel, 1994). Younger cohorts of women have reported drinking rates similar to their male counterparts (Keyes, Grant & Hasin, 2008; Substance Abuse and Mental Health Services Administration, 2004). As these cohorts age over the next 20 years, we can expect an increase in the prevalence of drinking problems among older women (Gfroerer, Penne, Pemberton, & Folsom, 2003). In the U.S., past year prevalence of alcohol abuse or dependence was .51% for women aged 65 and older, 2.58% for women aged 45 to 65, and 5.92% for women aged 30 to 44 (Grant et al., 2004). The prevalence rates for the middle and older group are double what they were in 1991 (Holdcraft & Iacono, 2002).

Compared to men, women of all ages are at a higher risk for negative physical, social, and psychological consequences from at-risk and problem drinking. Women have less body water, less lean muscle mass, and lower levels of acetaldehyde than men, resulting in higher blood alcohol concentration from the same weight-adjusted level of alcohol consumption. A consequence of this is "the Telescoping Effect": women demonstrating a shorter latency from onset of regular drinking to the development of alcohol related sequelae (Redgrave, Swartz, & Romanoski, 2003; Wilsnack et al., 1994). However, differences in the manner that women consume alcohol may mitigate some of these expected negative effects (Moos, Schutte, Brennan, & Moos, 2009). Women are more likely to consume alcohol with meals, over longer periods of time, and are more likely to consume less of the drinks served to them relative to men.

As women age, their vulnerability to the negative consequences of drinking is compounded. NIAAA defines low risk drinking for people over the age of 65 as no more than 1 standard drink/day, or 7 drinks/week. Adams, Barry & Fleming (1996) found that 12% of women over the age of 60 drank more than 7 drinks/week. Among women 55 years and older, 3.4% engaged in at-risk drinking, which is 9 or more drinks per week (Blow et al., 2000). As people age, the apparent benefits conferred by consistent low-risk alcohol consumption decline sharply (Lin, Guerrieri, & Moore, 2011). Impaired hepatic and renal function diminishes the ability of older women to metabolize alcohol, allowing smaller amounts to lead to higher blood alcohol levels (Sanjuan & Langenbucher, 1999). The diminished effectiveness of the blood/brain barrier with age places older women at an even higher risk of alcohol related problems (Epstein, Fischer-Elber, & Al-Otaiba, 2007). Older women who combine alcohol with prescription drugs face the risk of cross-addiction and the augmentation of the effects of alcohol such as over-sedation, and an increase in the risk of falling (Blow, 1998). Furthermore, alcohol may decrease the effectiveness of some medications, including anti-depressants.

Levinson & Levinson (1996) described phases of adult lifespan development linked to specific age ranges, in which women typically face a number of unique events and challenges in their lives. Early adulthood is broadly characterized by making and implementing decisions related to marriage, career, and family; middle adulthood typically is focused intensely on career and transitioning of caretaking roles vis a vis children and parents, and late adulthood presents the challenges and/or joys of retirement, more free time, widowhood, grandparenting, failing health, and loss. A number of age-typical events related to the later lifespan phases pose risk factors for the development of alcohol use disorders (Blow, 2000; Liberto & Oslin, 1997), such as disruption of marital status either by divorce or widowhood, or loss of the parental role as children leave the home. Menopause is associated with a higher risk for depression due to hormonal fluctuations. Retirement can be associated with a loss of identity, a sense of purposelessness, and substantial free time, all of which are potential risk factors for increased drinking. Decreased mobility, loneliness and/or poor health also can lead to an increase in alcohol use.

Older women face a unique set of barriers to treatment entry for alcohol problems. They are more likely to seek treatment at general healthcare facilities than at alcohol programs (Thom, 1986; Weisner & Schmidt, 1992). Women tend to under report drinking and other psychiatric problems, and if they do seek treatment, tend to report depression and anxiety as their presenting problems (Proudfoot & Teeson, 2002; Wu, Kouzis, & Leaf, 1999). They are less likely to have health insurance and more likely to suffer from decreased mobility. Women tend to experience greater stigma and shame from having alcohol use disorders and so may delay their attempts to seek treatment (Small, Curran, & Booth, 2010).

There are treatments that cater exclusively to women such as Women for Sobriety and women-only AA groups. Furthermore, there are treatments available for older adults that are elder-specific in terms of therapy content and process (Blow & Barry, 2002; Fleming, Manwell, Barry, Adams, & Stauffacher, 1999), which are typically brief interventions in primary care settings. Some cognitive behavioral treatment programs have elder-specific programming (Atkinson, 1995; Blow et al., 2000; Schonfeld et al., 2000) that attend to problems of older adulthood such as grief and loneliness, and suggest case management approaches. However, no treatments are available on a wide scale specifically for older women with alcohol problems.

It is not clear whether specialized treatment is necessary for older women with alcohol problems. There is some evidence to suggest that older women respond better to treatment than older men (Satre, Blow, Chi, & Weisner, 2007; Satre, Mertens, & Weisner, 2004), but there is little research on the differential response of women in various lifespan periods to age-nonspecific treatment. The current study examined age-based differences (older versus middle-aged versus younger women) in a sample of alcohol dependent females at baseline and in response to an outpatient treatment protocol. The purpose of the analyses was to identify unique characteristics that might inform efforts to tailor interventions to different phases of women's lives and future research on mediators or moderators of response to lifespan-tailored treatments.

Method

Participants

Data for the current study were drawn from two randomized clinical trials of manual-guided Cognitive Behavioral Therapy (CBT) for alcohol dependent women. In Study 1, participants were randomized to one of two conditions: Alcohol Cognitive Behavioral Couples therapy (ABCT) or Individual Cognitive Behavioral Therapy (ABIT). In Study 2, participants were offered the option of individual or couples treatment after which they were randomized to one of two individual treatments (Alcohol Individual "generic" CBT or Alcohol Individual Female Specific CBT) or one of two couples treatments (Alcohol Cognitive Behavioral Couples therapy or Blended [Couple and Individual] Alcohol Behavioral therapy).

Inclusion criteria for both studies were that the participant be female, aged 18 years or older, meet criteria for current alcohol dependence or abuse, be actively drinking in the past 30 days, have no gross cognitive deficits or current psychotic symptoms, and be in a committed relationship with a male partner (married, cohabiting, or dating for at least one year). The two studies differed in terms of one inclusion criterion. Study 1 required that participants have a spouse who was willing to participate in all assessments and possibly in all therapy sessions if randomized to the couple therapy condition. For Study 2, participants were given the choice at screening of whether they would like their partner to participate in the intake session and treatment sessions. A categorical variable was used as a covariate in the current study analyses to account for the fact that one study offered participants a choice in their treatment (1) and the other did not (0).

Participants included in the current analyses were 102 women from Study 1 and 99 women from Study 2, for total sample size of 181. The study sample was largely white (96%) and married (85%). Fifty-eight percent were employed either full or part time and 17% were homemakers. The average years of education completed was 14.8 years with a mode of 12 years; median participant income was \$20,000 and median household income was \$86,200. The average age of the combined sample was 46 ($SD = 9.2$, range = 25 to 68). Participants were divided into three groups based on age ranges associated with lifespan phases described in the lifespan development literature (Levinson & Levinson, 1996), in accordance with natural breaks in the frequency distribution of our sample: early adulthood, under age 45 (50% of sample), age 45–55 (35% of sample) and over age 55 (17% of our sample). The distribution of participants from each study into the three age groups was not significantly different (Table 1).

Measures

Time Line Follow Back (Sobell & Sobell, 1992)—The Time Line Follow Back (TLFB) is an interview that allows for the determination of substance use frequency and intensity for 90 days prior to treatment by way of retrospective reports. Participants are presented with calendars to serve as memory cues. The TLFB was administered at baseline and at every research assessment thereafter. The interview allows for the calculation of percent days drinking (PDD), percent heavy drinking days (PHD), and mean drinks per drinking day (MDD), the primary dependent variables in the current analyses. The TLFB has demonstrated excellent reliability ($r = .94$) and good face validity. Percent (not absolute number) of drinking days was used as an outcome measure to facilitate combining within treatment results across the two studies, which provided different lengths of treatment.

The Important People and Activities Inventory (Longabaugh, Beattie, Noel, Stout, & Malloy, 1993)—The Important People and Activities Inventory (IPA) is an interview used to assess social networks. It has demonstrated good reliability (.80) and possesses good face validity. Variables used for the current study include: the number of people in the participant's social network, whether the spouse/partner is a heavy drinker, percentage of the social network that consists of non-drinkers, and percentage of the social network that consists of heavy drinkers.

The Areas of Change Questionnaire (Weiss & Birchler, 1975)—The Areas of Change Questionnaire (ACQ) presents the participants with 34 relationship behaviors and asks the participant to rate on a 7-point scale how much partner change is desired. The ACQ has demonstrated high internal consistency ($\alpha = .89$) and good construct validity by significantly correlating ($r = -.70$) with an established measure of marital adjustment, the Marital Adjustment Scale. The total want score reported by participants was used in the current study.

Dyadic Adjustment Scale (Hunsley, Best, Lefebvre, & Vito, 2001)—The Dyadic Adjustment Scale (DAS) assesses the quality of functioning within a dyad. In Study 1, the 32-item version was used and in Study 2 the 7-item short form was used. Both measures have demonstrated adequate reliability (.96 and .76) and good construct validity by discriminating among married, separated and divorced participants.

The Structured Clinical Interview for DSM-IV Disorders, I & II (First, Spitzer, Gibbon, & Williams, 1997, 2001)—The Structured Clinical Interviews for DSM-IV Disorders I and II (SCID-I) are semi-structured interviews used to assess for the major DSM-IV Axis I and Axis II disorders, respectively. The SCID-I has demonstrated good reliability with kappa agreements ranging between .70 and 1.00. It has demonstrated good

concurrent and discriminant validity. The SCID II has demonstrated good reliability with kappa agreements ranging between .65 and .98. It was found to possess diagnostic power (ratio of true test results and number of tests administered) ranging between .45 and .95. There is poor agreement between the SCID II and other personality measures, as is the case among personality measures in general. The SCID II was used in Study 1 to assess for Axis II disorders.

The Personality Diagnostic Questionnaire-4th version (Hyler et al., 1988)—The Personality Diagnostic Questionnaire - 4th version (PDQ4) is a 100 item, self-administered, true/false questionnaire used to assess for the DSM-IV Axis II disorders. It has demonstrated good reliability with test-retest correlations ranging between .65 and .99. The PDQ4 demonstrated high sensitivity and moderate specificity for most axis II disorders but also a high rate of false positives. The PDQ4 was used in Study 2 to assess for Axis II disorders.

Procedure

Participants for both studies were recruited using newspaper advertisements, an online website, and word of mouth as well as from local clinics. After an initial telephone screen, participants were scheduled for an in-person clinical screen to explain the study, confirm eligibility, and obtain informed consent. The clinical screen was followed by a baseline research interview prior to the start of treatment. The mean number of days between the baseline interview and the first session of treatment was 10.2 days ($SD = 6.06$) for Study 1 and 11.2 days ($SD = 5.58$) for Study 2. PHD and PDD changed significantly between the baseline interview and the first session of treatment (Figure 1), suggesting assessment reactivity effects (Epstein et al., 2005).

In Study 1, both the in-person clinical screen and the baseline interview were conducted with the participant's partner present. Women were then randomly assigned to 20 sessions of either Alcohol Cognitive Behavioral Couples therapy (ABCT) or Individual Cognitive Behavioral Therapy (ABIT). In-person or telephone follow-up research sessions were conducted at 3, 6, 12, 15, and 18 months post baseline; for the current study only the immediate post-treatment follow up (i.e. within treatment) data are presented. The within treatment period for Study 1 was from baseline to 6 months post baseline.

In Study 2, the in-person clinical screen was either with (in the couple arm) or without (in the individual arm) the partner and the baseline interview was conducted with the woman alone (without the partner) in both study arms. If the participant chose couples treatment ($n = 20$), she was randomized to one of the following conditions: 12 sessions of either Alcohol Cognitive Behavioral Couples therapy or "Blended" therapy consisting of 6 sessions of Alcohol Behavioral Couples therapy and 6 session of Individual Cognitive Behavioral Therapy. If the participant chose individual treatment ($n = 79$), she was randomly assigned to 12 sessions of either Alcohol Individual "generic" CBT or Alcohol Individual Female Specific CBT. In-person or telephone follow-up research sessions were conducted at 3, 9, and 15 months post baseline; for the current study only the immediate post-treatment follow up (i.e. within treatment) data are presented. The within treatment period for Study 2 was from baseline to 3 months post baseline.

Analysis

Preliminary analyses to determine the appropriateness of combining samples

—The current study focused on characteristics and outcomes of participants by lifespan group (not by treatment assignment). Given that the inclusion/exclusion criteria were almost identical across the studies except for the choice component of Study 2, and given that the treatment protocols were common across studies, we evaluated the appropriateness of

combining the two samples. Exploratory analyses were conducted to ascertain whether there was sufficient similarity between the two samples to combine them, and to identify potential covariates based on sample differences for subsequent analyses. The samples were compared on baseline variables likely to be related to treatment response among women; variables that were significantly different between the samples and that also were significantly related to treatment outcome were used as covariates in subsequent analyses as specified below.

The two samples did not differ on years in relationship, number of children, years of education, income, marital status, race, percent drinking days or percent heavy drinking days at baseline, or substance use history (years problem drinking, age of first drink, onset of abuse or dependence, and number of lifetime drugs used). Compared to Study 2 women, Study 1 women on average were younger (mean of 45 vs 48), $F(1,199) = 4.94$, $p = .03$, and less likely to be employed, 52% vs 77%; $\chi^2(1, N = 201) = 13.45$, $p < .001$ (probably because 25% of women in Study 1 were homemakers). Study 1 women had higher mean drinks per drinking day at baseline than women in Study 2, $M = 8.2\%$ vs 6.6% ; $F(1,179) = 5.80$, $p = .02$. Study 2 women reported more Axis I disorders, $M = 1.35$ vs $.90$; $F(1,179) = 5.93$, $p = .02$, were more likely to have a current major depressive episode at baseline, 23% vs 12%; $\chi^2(1, N = 181) = 3.91$, $p < .05$, lower relationship satisfaction as reported on the DAS scale, $M = 2.4$ vs 3.1 ; $F(1,197) = 9.97$, $p = .002$, and to have a partner who drank heavily, 31% vs 17%; $\chi^2(1, N = 180) = 5.00$, $p = .03$.

Of the variables that differed significantly between Study 1 and Study 2, those that also correlated significantly with the change in PDD over the treatment period were: number of Axis I disorders, $r = -.15$; $p = .045$, and relationship satisfaction (DAS score), $r = .18$; $p = .017$. Of the variables that differed significantly between Study 1 and Study 2, those that also correlated significantly with the change in PHD were number of Axis I disorders, $r = .21$, $p = .006$, and heavy drinking status of the partner, $r = .20$, $p = .007$. None of the variables that differed significantly between Study 1 and Study 2 correlated significantly with the change in MDD. Additionally, treatment study (Study 1 versus Study 2) was found to correlate only with the change in PDD, $r = -.16$; $p = .041$.

Outcome analyses—Analyses of Variance (ANOVA) were conducted to investigate differences in baseline characteristics among the 3 age groups (younger than 40, 40–55 and older than 55). Repeated measures ANCOVAs were conducted to investigate differences in the drinking outcome measures (PDD, PHD, MDD) from baseline to the within-treatment period (6 months for Study 1 and 3 months for Study 2) while controlling for the relevant covariates. For repeated measures ANCOVAs using PDD as the outcome measure, number of Axis I disorders, baseline relationship satisfaction, and treatment study were entered as covariates; for repeated measures ANCOVAs using PHD as the outcome measure, number of Axis I disorders and heavy drinking status of the partner were entered as covariates.

Results

Baseline Characteristics

Demographic variables—The average age within each age category was 38.3 ($SD = 4.19$) years for the younger group (range = 25–44), 49.1 ($SD = 2.98$) years for the middle group (range = 45–55), and 61.5 ($SD = 3.71$) years for the older group (range = 56–69). The groups did not differ in terms of marital status, the number of children, household income or individual income. Groups differed significantly in terms of years of education completed, $F(2,177) = 3.66$, $p = .03$, with the younger group averaging 14 years, the middle group averaging 15 years, and the older group averaging 15.4 years. The groups also differed in terms of employment, $\chi^2(2, N = 178) = 7.54$, $p = .02$, with the middle group more likely to

be employed (70%) than the younger (61%) and older groups (58%), and the older group was more likely to be retired, 21%; $\chi^2(2, N = 184) = 8.22, p = .02$, than the middle (3%) and younger (9%) groups.

Relationship functioning—The total sample averaged 16 years in a relationship ($SD = 11.06$; mode = 10), ranging from .5 to 42 years. There was a significant difference by age group, $F(107) = 34.02, p < .001$, with the younger group averaging 9.2 years ($SD = 5.95$), the middle group averaging 17.5 years ($SD = 8.73$), and the older group averaging 28.6 years ($SD = 12.99$). The groups did not differ significantly in terms of relationship satisfaction as measured by the DAS or the AOC.

Alcohol and drug use severity—A one-way ANOVA with age group as the independent variable and PDD at baseline as the dependent variable was significant, $F(1,180) = 5.09, p < .01$. Post-hoc tests revealed that the older group drank more frequently (77.1%) than the middle ($p = .01$; 72.6%) and younger groups ($p = .01$; 61.3%) but there was no difference between the middle and younger groups. A one-way ANOVA with MDD as the dependent variable was not significant. A one-way ANOVA with PHD (3 drinks or more) at baseline as the dependent variable was significant, $F(2,180) = 3.08, p = .05$. The older group reported significantly greater PHD (62.7%) than the middle (60.1%) and younger groups (49.6%) but the middle and younger groups did not differ.

An ANOVA with age group as the independent variable and age of first drink as the dependent variable revealed a significant difference, $F(2,176) = 8.71, p < .001$. The younger group reported earlier age of first drink (15 years) than the middle (17 years) and older (18 years) groups but the middle and older groups did not differ significantly. Also, the older group had a later age of onset of either alcohol abuse or dependence (whichever came first), 41 years, $F(2,182) = 37.89, p < .001$, than the middle, 29 years, and younger groups, 23 years.

The groups differed in terms of the number of alcohol abuse items endorsed (out of a maximum of 4 items, $F(2,176) = 15.48, p < .001$. Post-hoc analyses revealed significant differences among the age groups such that the older group endorsed fewer items (1.6) than the middle group (2.3) who in turn endorsed fewer items than the younger group (2.8). Number of alcohol dependence items endorsed did not differ significantly across age groups.

The groups also differed significantly in terms of the number of different drugs used, $F(2,183) = 18.59, p < .001$. Post-hoc analyses revealed that the older group reported significantly fewer lifetime number of drugs used (0.6) than the middle (2.1) group, and the middle group reported significantly fewer lifetime number of drugs used than the younger group (2.9). Benzodiazepine use reported as being prescribed by a doctor was not elevated among the older group. Illicit benzodiazepine use did not differ among the three groups.

Psychopathology—The age groups differed significantly in terms of current Axis I diagnoses, $F(2,180) = 3.48, p = .03$. Post-hoc analyses revealed that the older group reported fewer Axis I disorders pretreatment (.3) than the younger group (.79). No other comparisons were significant. In terms of specific Axis I disorders, the age groups did not differ in terms of prevalence of depression at baseline. The age groups differed significantly in terms of anxiety disorders ($\chi^2(2, N = 181) = 6.32, p = .04$). A higher percentage of women in the younger group (28%) were diagnosed with an anxiety disorder at baseline than women in the middle (15%) and older (10%) groups. In terms of percentage of Axis II disorders, there were no significant differences by age group.

Social support—The younger group reported fewer people (7 versus 9 for the middle and older groups) in their social networks, $F(2,179) = 5.62, p < .01$. The older group reported a smaller percentage of heavy drinkers in their social networks (7.5%) than the middle and younger groups (11.4% and 14.6%, respectively), $F(2,179) = 3.18, p = .04$.

Within Treatment Behavior

Treatment compliance—An ANOVA with age group as the independent variable and the percentage sessions completed as the dependent variable revealed a significant difference, $F(2, 198) = 8.35, p < .001$. No covariates were included in this analysis because no baseline or treatment outcome differences by study were found to correlate with the percentage of sessions completed. Post-hoc analyses using Tukey studentized range comparisons at a .05 level of significance revealed that the younger group completed significantly fewer sessions of the total protocol-defined sessions than either of the older groups. There was no significant difference between the middle and older group in the percentage sessions completed.

Treatment response—Across the entire sample, participants significantly improved in terms of PDD $t(171) = 19.64, p < .001$, MDD, $t(142) = 8.89, p < .001$, and PDH, $t(171) = 17.39, p < .001$ from 3 months pretreatment to 3 or 6 months post baseline assessment (the within-treatment periods).

A repeated measures ANCOVA was run with age group as the independent variable and PDD at baseline and 3 or 6 months post baseline as the dependent variables and treatment study (Study 1 versus Study 2), total SCID I diagnoses, and DAS score as covariates. Results revealed a significant main effect of time, $F(1,164) = 55.74, p < .001$ (see Table 2). There also was a significant interaction between age group and time, $F(2,164) = 3.90, p = .02$ (see Figure 2). The interaction suggests that older women reduced PDD more so than younger women.

A repeated measures ANOVA with age group as the independent variable and MDD at baseline and 3 or 6 months post baseline as the dependent variables revealed a significant main effect of time, $F(1,140) = 66.66, p < .001$ (see Table 2). Preliminary analyses indicated that no covariates were necessary this analysis. The interaction between age group and time was not significant.

A repeated measures ANCOVA was run with age group as the independent variable and PHD at baseline and 3 or 6 months post baseline as the dependent variables and total SCID I diagnoses and heavy drinking status of the partner as covariates. Results revealed a significant main effect of time, $F(1,166) = 181.95, p < .001$ (see Table 2). There was a significant interaction between age group and time, $F(2,166) = 5.55, p < .01$ (see Figure 3). The interaction suggests that older women reduced PHD more so than younger women.

Discussion

The aim of the current study was to investigate lifespan differences (older versus middle aged versus younger) in a sample of alcohol dependent women before treatment and in their response to outpatient, cognitive-behavioral alcohol treatment. The ultimate goal of the study was to begin to identify clinical characteristics that might cluster in particular life-span phases and might relate to treatment response for alcohol dependence among women. Identification of uniquely age-related clinical characteristics of alcohol dependent women might facilitate design of more effective treatments for women tailored to each phase of the lifespan in which these risk factors may cluster.

Older women in the current sample fared significantly better during treatment than younger women in terms of drinking outcome. They reduced their drinking days, and the number of days they engaged in heavy drinking, more so than their younger counterparts. It appears that across the board, older women responded better to the treatment than younger women. The findings suggest that CBT, as delivered in these clinical trials, may not be ideally suited to the needs of younger women with alcohol use disorders, and that treatment might be better tailored to their needs. Potential targets for tailoring treatment are suggested by the results of the baseline analysis although further analyses are needed to determine which, if any, are true mediators.

At baseline, the younger group endorsed more DSM-IV (APA, 2000) alcohol abuse but not dependence criteria than did the older group. The alcohol abuse items tap psychosocial consequences, while alcohol dependence items tap psychological and physiological consequences of alcohol misuse. Thus, this finding suggests that younger women might be more likely to present with more alcohol related psychosocial consequences, while also experiencing a similar level of psychological and physical consequences as older women. As such, women at earlier lifespan periods might benefit from treatment or prevention efforts that emphasize identification of psychosocial consequences, such as arguments about their drinking, driving while intoxicated, obligations negatively affected by drinking, etc. to facilitate motivation to address their excessive use of alcohol.

The age groups differed significantly in terms of the lifetime number of drugs used. The older group reported fewer drugs used than the other groups. This finding probably reflects a cohort effect suggesting that drug use is more prevalent among young women (Epstein & Menges, in press) and highlights the importance of assessing for and addressing potential problems with substances other than alcohol among young women. The literature suggests that benzodiazepine use is likely to be more prevalent in older cohorts than in younger ones. However, benzodiazepine use, both physician prescribed and illicit, was not elevated among the older group in the current sample. Also, a greater propensity towards using a variety of drugs might be an indication of greater sensation-seeking or impulsivity in the younger cohort. Although sensation-seeking is more prevalent among male drinkers (Hittner & Swickert, 2006), in as much as that prevalence is the result of socialization, sensation-seeking may be more elevated among younger female drinkers compared to older female drinkers because of falling pressure to conform to gender-role stereotypes. Interventions aimed at directly combating sensation-seeking tendencies might also benefit treatment, although further research is needed to verify the prevalence of the problem among younger female cohorts.

The age groups also differed in terms of the number of Axis I disorders. The older group met criteria for fewer Axis I disorders than the younger group. Furthermore, the younger group was more likely to be diagnosed with an anxiety disorder than the other groups. Although research on the impact of comorbid disorders on treatment is still evolving, there is some indication of an association between comorbidity and poor outcomes (Baillie, Stapinski, Crome, Morley, Sannibale, Haber, & Teesson, 2010). Since co-morbidity appears to be more prevalent among younger women in the current sample, treatment might be improved by assessing for and addressing co-morbid disorders, particularly within the anxiety spectrum, alongside issues of substance use.

The age groups differed in terms of social support variables. At baseline, younger women had less social support in general and less support for abstinence. They were more likely to have smaller social networks, were more likely to have a heavy drinking partner, and had a larger percentage of heavy drinkers in their social network. Together, these factors undermine treatment success and may make younger women less promising candidates for

couple therapy for alcohol problems, given the likelihood of having an unsupportive partner (McCrady, 2004). Therefore, younger women might especially benefit more from treatment aimed at helping them expand their social networks and elicit the kind of support that would bolster their efforts to remain abstinent. Treatment on social support variables and outcome among women of different lifespan periods is indicated.

Finally, the age groups differed in terms of treatment compliance. The younger group completed fewer sessions than the middle and older groups. This finding is consistent with findings in the literature suggesting that older age is associated with better treatment adherence (Oslin, Pettinati & Volpicelli, 2002). Poorer compliance might be due to a lack of motivation, which could be addressed by having a greater emphasis on motivational enhancement in earlier sessions. Poorer compliance also might be due to younger women being discouraged by a treatment that does not appear to address their unique needs (Brady & Ashley, 2005). Tailoring treatments to the needs of younger women might itself improve compliance. Finally, poorer compliance might be a reaction to treatments that are perceived as being less efficacious. Improving treatments to target age-related mechanisms of change might be an avenue towards enhancing efficacy earlier in treatment and this improving compliance (Lien, Lu, Ma & McGuire, 2010).

It might be argued that the above recommendations already constitute what is considered good clinical practice: assessing for multiple substances, addressing co-morbidity, monitoring motivation, enhancing social networks, and bolstering the ability to manage multiple responsibilities. However, the fact that a systematic, age-based difference in treatment response emerged suggests that something remains amiss. Perhaps the manual-guided treatment prevented sufficient flexibility to tailor treatments to individual clients, or the content of the manual was insufficiently relevant to the younger women in the study. Ideally, a clinician would have ample time to more completely assess a client and tailor treatment accordingly. However, this is rarely the case and is less likely to be so with the restrictive demands of managed care. Guidelines to clinicians that allow them to focus their efforts in response to anticipated needs of their clients will likely improve outcomes.

Given the cross-sectional nature of the study, age differences and social generational cohort effects cannot be separated. The differences among the age groups in the sample may be due to true age-linked differences, or may be due to age-related cohort effects for women who were born at different points in time. Social generation (cohort) analyses comparing stability of each cohort's attributes over decades of time are limited, but so far show that generational changes point to narrowed gender gaps in education and employment (Yang, 2008). The timing of lifespan periods such as early and older adulthood have been pushed back for various reasons such as increased demand for post-secondary education and better health care, respectively, and there is increasing variability within each lifespan period, yet the challenges associated with each lifespan period have remained the same over the decades (Yang, 2011). The ultimate goal of the current study, to identify moderators of change related to particular life-span phases, is based conceptually on a modified idiographic approach to identify unique patient profiles that might be responsive to personalized treatment strategies within particular patient subgroups. Research within the lifespan framework necessarily bridges the nomothetic-idiographic divide by imposing age-related subgroupings on population samples and allowing individual and general findings to guide further efforts within the realm of one or the other (Nesselrode, 2006). In fact, it can be argued that all relevant and clinically applicable research should be similarly concerned and not neglect one type of research for the other. Nonetheless, lifespan research, and any age-related research, faces the potential of cohort confounds. The current findings are a first step towards contributing to the lifespan research literature on drinking among women. Further

research testing the current findings in samples drawn from different cohorts is necessary to determine whether the current findings are cohort-bound.

The current findings may not be generalizable to all women with alcohol use disorders. Study inclusion criteria restricted participation to those women who were partnered for at least a year with a member of the opposite sex. Results might not be applicable to women who are single, recently partnered, or in same-sex relationships. Further research is needed to investigate the needs of these populations.

In summary, with a less severe drug use history, superior social networks, and less severe drinking history, it is no surprise that older women had better drinking outcomes during treatment than their younger counterparts. However, older women drank more at baseline than younger women, suggesting perhaps that age-specific life stressors played a role in the rapid development of drinking problems.

While the current study did not link specific lifespan issues to treatment response, the results do suggest that such an approach might yield useful information to guide treatment development targeted to common risk factors that cluster in lifespan phases. For instance, a more thorough analysis of stressors such as retirement, excessive free time, “empty nest,” or changing self-concept should be conducted to investigate mechanisms by which older women develop drinking problems so that effective preventative efforts can be enacted. Similarly, specific life stressors relevant to younger women who develop drinking problems should be explored. More anxiety and poor social support for abstinence may indicate a generally negative experience of a lifespan period, and drinking might serve as a way to cope with a busy and perhaps unsatisfying time. The findings help to identify stressors common to that phase of life to target in the development of female-specific treatments, to address the needs of younger women and help them more effectively negotiate life events and stressors. It is possible that treatments should be targeted not to particular groups of women segregated by age, but to specific sets of risk factors regardless of age or lifespan period in which they occur. The current results suggest that the exploration of the differential response to current treatments across the lifespan, and identification of common stressors associated with age groups is a promising area for further research and may be a valid avenue for developing more efficacious treatments.

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Figure 1. Percentage of drinking days and heavy drinking days in the 90 days before baseline and from baseline to the first treatment session. There was a significant (** $p < .01$) reduction in PDD ($\Delta = 12$) and PHD ($\Delta = 14$) between baseline and the start of treatment.

Figure 2.
Plot of Percent Drinking Days against Time for Each Age Group.

Figure 3.
Plot of Percent Heavy Drinking Days against Time for Each Age Group

Table 1

Distribution of Participants across Samples

Age	Total N	% of Total Sample
	Study 1/Study 2	% Study 1/% Study 2
Under 45	85	50%
	55/30	54%/38%
45–55	66	35%
	32/34	31%/43%
Over 55	30	17%
	15/15	15%/19%

Table 2

Repeated Measures Analysis of Drinking Outcome with Age Group as the Independent Variable and Drinking Outcomes as Dependent Variables

Outcome measure	Variable	df	F	h_p^2
Percent Drinking Days	Age Group	2	0.83	0.01
	Time	1	55.74 ***	0.25
	Interaction	164	3.90 *	0.05
Mean Drinks per Drinking Day	Age Group	2	1.89	0.03
	Time	1	69.66 **	0.33
	Interaction	140	2.50	0.03
Percent Heavy Drinking Days	Age Group	2	0.08	0.00
	Time	1	181.95 ***	0.52
	Interaction	166	5.55 **	0.06

*
p<.05,

**
p<.01,

p<.001