



Prevalence of Concurrent Prescription Opioid and Hazardous Alcohol Use Among Older Women: Results from a Cross-Sectional Study of Community Members

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Abstract

Concurrent use of prescription medications and alcohol is prevalent among older adults and impacts women more than men, however little is known about characteristics of older women who use both. The current analysis aims to evaluate those characteristics. Participants were recruited through HealthStreet, an outreach program. Community health workers (CHWs) assess health needs and concerns among community members. CHWs collect demographic, substance use, and other health data from participants. Female participants (≥ 50 years) interviewed November 2011–November 2017 were included and stratified into four groups: neither prescription opioid nor hazardous alcohol use (three or more drinks in a single day), hazardous alcohol use only, prescription opioid use only, and both prescription opioid and hazardous alcohol use. Chi square and ANOVA tests were used to compare these groups. Among the 2370 women (53% black; mean age 61 years), 70% reported neither prescription opioid nor hazardous alcohol use, 12% reported hazardous alcohol use only, 15% reported prescription opioid use only, and 3% reported use of both in the past 30 days. Concurrent prescription opioid and hazardous alcohol use were significantly associated with comorbid depression and anxiety ($p < 0.0001$); women who endorsed prescription opioid use only were significantly more likely to report a history of back pain, cancer, or diabetes compared to their counterparts ($p < 0.0001$). Nearly a third of women reported prescription opioid and/or hazardous alcohol use in the past 30 days. Because the risk and consequences of concomitant alcohol and opioid use increase with age, interventions tailored to women are needed.

Keywords Prescription opioids · Drinking · Women · Community-engaged research

Introduction

Alcohol use is the third leading cause of preventable death in the United States (US) [1]. More than half (56%) of adults in the US report drinking in the past 30 days [2], and although older adults are less likely to drink than their younger counterparts, the frequency of alcohol use among older adults is increasing [3, 4]. Studies conducted in the community estimate the prevalence of heavy drinking among older adults ranges from 1 to 15% [5]. Prescription opioids also cause significant public health consequences. Use of opioids increases with age, and non-medical use is on the rise across

the life span [6]. Recent studies have shown that the increase in prescription opioid misuse is associated with negative health outcomes [7], including suicidal intent [8] among older adults, which has serious public health implications as the US elderly population continues to grow. Moreover, alcohol dependence is strongly associated with other substance use [9]. A recent study found that nearly half of people who drink alcohol also take prescription medications such as narcotics and central nervous system agents, which can increase the effects of alcohol. The majority of those reporting use of both were 65 years of age or older [10].

The combined use of alcohol and prescription opioids has severe health consequences [11], especially among older adults [12], and particularly among women. While women are less likely than men to drink heavily [13, 14], they are more negatively impacted by this behavior than men. Specifically, health-related outcomes resulting from alcohol use such as liver disease, brain disease, cancer,

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heart disease, and psychiatric disorders are associated with a 50–100% higher mortality rate for women compared to men [15–17]. Opioid abuse among women is a growing concern as well, with a greater risk of opioid overdose occurring among older women compared to younger women [18, 19]. Fatal opioid overdoses increased 400% among women compared to 237% for men from 1999 to 2010 [20]. Alcohol misuse and dependence are also associated with psychiatric comorbidities such as depression [21] and anxiety [22]; women report those mental health conditions more frequently than men [23]. Women are also prescribed medications that can lead to abuse more often than men [24]. Thus, we must be vigilant to understand the increased risk of substance use disorders and other mental health conditions among women specifically.

Vigilance requires the field to examine the characteristics of older women who concomitantly use alcohol and opioids, especially among women who are not recruited through treatments programs and emergency departments alone. Many recent studies have focused on opioid-dependent populations in treatment, and there is limited epidemiologic data available regarding prescription opioid use in a community setting [25]. We had the opportunity to contribute to the literature in this area with our own community engagement program in one area of North Central Florida, the 3rd most populous state in the US with the highest proportion of adults 65 years of age and older.

Materials and Methods

Setting and Subjects

Participants were recruited by community health workers (CHWs) through HealthStreet, a community outreach initiative at the University of Florida. CHWs from HealthStreet meet with community members in public areas like bus stops, libraries, or parks. CHWs engage community members by briefly describing the purpose of HealthStreet, obtaining consent among those interested, and then assessing health conditions and concerns using the Health Intake Form. Upon obtaining signed informed consent, information provided by participants is used to document the health status of the community and to link participants to medical and social services as well as opportunities to enroll in health research [26]. HealthStreet members who self-identified as female, aged 50 years and older, and enrolled between November 2011 and November 2017 were included in this study. This study was approved by the University of Florida Institutional Review Board.

Measures

Once enrolled, data on demographics; current health status, including existing medical conditions; and health behaviors, including drug use, are collected from each participant during an in-person interview conducted by a CHW using a 98-item intake questionnaire. Demographic variables include age, gender, race (*black, white, or other*), and marital status (*never married; currently married; or separated, divorced, or widowed*). Information regarding socioeconomic status includes employment (*full time or part time*), level of educational attainment (coded *more than high school or high school and less*), any type of medical insurance (*yes or no*), the average number of dependent children, and food insecurity (*yes or no*). To assess food insecurity, participants are asked: “Have there been times in the last 12 months when you did not have enough money to buy food that you or your family needed?”. Health status variables include history of depression, anxiety, back pain, cancer, heart attack, and diabetes (*yes or no*). Health status information is assessed by asking: “Have you ever been told you had, or have you ever had a problem with [medical condition]?”. Additional self-reported information includes the number of emergency room (ER) visits in the last 6 months and whether the participant had seen a doctor in the last 6 months or had a physical checkup in the last 12 months. Body mass index (BMI) was calculated based on self-reported height and weight collected during the intake interview.

Finally, information on substance use is assessed. Past 30-day, hazardous alcohol use is assessed by asking: “Within the last 30 days, have you had more than three drinks like beer, wine, or liquor in a single day?”. Past 30-day use of prescription opioids is assessed by asking: “Have you ever used prescription pain medications like Vicodin®, oxycodone, codeine, Demerol®, morphine, Percocet®, Darvon®, hydrocodone?” and “If yes, have you used prescription pain medications in the last 30 days?”. Past 30-day sedative use is assessed by asking: “Have you ever used prescription medications for anxiety or sleep like Valium®, Xanax®, or Ambien®?” and “If yes, have you used prescription medication for anxiety or sleep in the last 30 days?”. Based on responses to these questions, women’s drug use was classified into one of the following groups: (1) no past 30-day, hazardous alcohol use and no past 30-day prescription opioid use (no current hazardous alcohol or prescription opioid use); (2) past 30-day, hazardous alcohol use only (hazardous alcohol only); (3) past 30-day prescription opioid use only (prescription opioid only), and (4) both past 30-day, hazardous alcohol and prescription opioid use (both).

Data Analysis

Frequencies for each characteristic were tabulated overall and by the four-level substance use variable. Chi square analyses were conducted to test for differences in categorical characteristics of women by substance use. For categorical variables for which expected cell counts were less than or equal to five, Fisher's exact test was indicated; Monte Carlo estimates of exact *p*-values were computed. ANOVA was used to test for differences in continuous characteristics. All analyses were conducted in SAS, Version 9.4 [27].

Results

Of the 12,053 community members contacted by CHWs, 9622 (80%) enrolled in HealthStreet and completed the intake questionnaire. Data from a total of 2370 women were included in these analyses after excluding men and women less than 50 years of age. The mean age among participants included in these analyses was 61 years (*SD* = 8.2). Most (53%) described themselves as black/African-American, nearly half (49%) had more than a high school degree, and over half (55%) was divorced, separated or widowed. Nearly one-third (27%) was employed (full-or part-time), with more than two-thirds reporting health insurance (74%); approximately half also reported food insecurity (46%).

A total of 433 women (18%) reported past 30-day prescription opioid use; 353 (15%) reported past 30-day hazardous alcohol use (Table 1). When categorized by opioid and alcohol use in the past 30 days, we found that 1650 (70%) reported neither opioid nor hazardous alcohol use; 287 (12%) reported hazardous alcohol use only; 367 (15%) reported opioid use only, and 66 (3%) reported both opioid and hazardous alcohol use.

There were no significant differences in race among the four groups; however, women did differ significantly by all other characteristics examined (Table 1). Over half of the women reporting neither opioid nor hazardous alcohol use had more than a high school education; whereas, fewer than half of the other three groups had more than a high school education (*p* = 0.0003). Women who reported hazardous alcohol use only were significantly more likely to have been never married and women who reported use of both prescription opioids and alcohol in the past 30 days were significantly less likely to be currently married (*p* < 0.0001). The proportions of women in each group reporting any employment were smallest among women who reported opioid use only and both opioid and hazardous alcohol use, while the proportions of women in each group reporting food insecurity was largest in these same two groups (*p* < 0.0001).

A smaller proportion of women who reported neither opioid nor hazardous alcohol use than their counterparts

in the other three groups reported depression, anxiety, or both (*p* < 0.0001). History of back pain, cancer, and diabetes all differed significantly among the four groups, with the women who endorse prescription opioid use were significantly more likely to report a history of back pain, cancer, or diabetes (*p* < 0.0001). Women reporting opioid use only or both opioid and hazardous alcohol use had the highest proportions also reporting sedative use in the past 30 days (*p* < 0.0001). Women who reported opioid use only had higher BMI on average, more frequent visits on average to the ER in the last 6 months, the largest proportion to see a doctor in the last 6 months, and the largest proportion to have a physical check up in the past 12 months compared to the other groups (*p* < 0.0001).

Discussion

In this community sample, we found a higher rate of past 30-day prescription opioid use among older women (50+ years) than the national rate for women 40 and older (18% vs 8%) [28]. The Centers for Disease Control and Prevention (CDC) reports the rate of past 30-day opioid use is significantly higher among older individuals (40+ years) compared to younger individuals (20–39 years) [7]. However, in our study, we observed that the group who reported both past 30-day prescription opioid and hazardous alcohol use was comprised of the largest proportion of younger women (50–64 years) among the four groups. Additionally, the CDC reports the rate of all deaths due to drug overdose was highest among women aged 45–54 years [20]. This is of particular relevance as our sample includes this age group.

The high use of prescription opioids may be a result of the differences in prescribing rates between men and women. Previous studies report women are approximately 50% more likely to be prescribed prescription opioids and to use them compared to men [29]. This increased rate of prescriptions for women may be, at least in part, due to increased subjective pain ratings. Pain sensitivity varies between men and women, and women have a higher incidence of chronic conditions that cause pain [30]. This may be related to the higher prevalence of prescription opioids among women compared to men. Our findings are in line with the literature in regards to prescription opioid use and chronic conditions including pain and cancer.

The use of opioids for cancer pain management is common [31] as the rates of cancer are increasing. At the same time, use of opioids for chronic non-cancer pain is increasing [32]. In our sample, women who reported using prescription opioids in the last 30 days were significantly more likely to report back pain (69%) and cancer (26%). These women also more frequently reported having insurance, visiting the ER and seeing a doctor in the last 6 months, and having

Table 1 Self-reported characteristics by past, 30-day prescription opioid and/or hazardous alcohol use among community-enrolled women, n = 2370

	Total n = 2370 N (%) ^a	Neither n = 1650 N (%) ^a	Alcohol Only n = 287 N (%) ^a	Opioids Only n = 367 N (%) ^a	Both n = 66 N (%) ^a	p value
Age						
50–64 years	1724 (73)	1145 (69)	242 (84)	277 (75)	60 (91)	<0.0001
65+ years	646 (27)	505 (31)	45 (16)	90 (25)	6 (9)	
Race						
White	1008 (43)	717 (43)	122 (42)	146 (40)	23 (35)	0.3276
Black/African-American	1246 (53)	848 (51)	149 (52)	208 (57)	41 (62)	
Other	115 (5)	84 (5)	16 (6)	13 (3)	2 (3)	
Education						
High school or less	1201 (51)	800 (49)	160 (56)	193 (53)	48 (73)	0.0003
More than high school	1160 (49)	841 (51)	127 (44)	174 (47)	18 (27)	
Marital status						
Never married	417 (18)	261 (16)	78 (27)	59 (16)	19 (29)	<0.0001
Currently married	640 (27)	467 (28)	72 (25)	90 (25)	11 (17)	
Separated, divorced, or widowed	1304 (55)	916 (56)	136 (48)	216 (59)	36 (55)	
Employment						
Food insecurity	641 (27)	485 (30)	94 (33)	52 (14)	10 (15)	<0.0001
Health insurance	1091 (46)	681 (42)	150 (52)	216 (59)	44 (68)	<0.0001
Dependent children, mean number (SD)	1749 (74)	1224 (74)	181 (63)	297 (81)	47 (71)	<0.0001
	2.4 (1.8)	2.4 (1.9)	2.1 (1.6)	2.6 (1.9)	2.6 (1.7)	0.0012
Mental health						
Depression	793 (34)	487 (30)	104 (36)	173 (47)	29 (44)	<0.0001
Anxiety	656 (28)	390 (24)	84 (29)	151 (41)	31 (47)	<0.0001
Both depression and anxiety	475 (20)	278 (17)	59 (21)	115 (31)	23 (35)	<0.0001
Chronic disease						
Back pain	1258 (53)	819 (50)	138 (48)	254 (69)	47 (71)	<0.0001
Cancer	402 (17)	266 (16)	35 (12)	94 (26)	7 (11)	<0.0001
Heart attack	118 (5)	75 (5)	8 (3)	31 (8)	4 (6)	0.0048
Diabetes	560 (24)	400 (25)	40 (14)	108 (30)	12 (18)	<0.0001
Sedative use						
BMI, mean (SD)	369 (16)	192 (12)	45 (16)	109 (30)	23 (35)	<0.0001
	30 (7.7)	30.6 (7.7)	28.2 (7.0)	31.6 (7.8)	29.6 (8.0)	<0.0001
ER visits in last 6 months, mean number (SD)	0.61 (1.7)	0.51 (1.8)	0.50 (1.0)	1.11 (1.65)	0.71 (1.4)	<0.0001
Seen a doctor in past 6 months	1941 (82)	1330 (81)	201 (70)	351 (96)	59 (89)	<0.0001
Physical checkup in past 12 months	1810 (77)	1252 (76)	205 (71)	301 (82)	52 (79)	0.0136

p value = p value of Chi square, Monte Carlo or ANOVA

^aUnless otherwise noted

had a physical in the last 12 months. These factors may increase access to prescription opioids, thus increasing the likelihood of prescription opioid use among this group of women compared to the other groups. Interestingly, women who reported prescription opioid use only in the last 30 days compared to women who reported drinking only or who used neither prescription opioids nor alcohol were less likely to be employed (14% vs. 33% vs. 30%, respectively) and more likely to have food insecurities (59% vs. 52% vs. 42%, respectively).

In addition to prescription opioids, alcohol also negatively impacts women's health. Though women typically

drink less than men, especially as they grow older, the consequences of drinking are greater for older women. Differences in body structure by sex affect absorption rates for alcohol. This may also contribute to women being more likely to have long-term health problems related to drinking compared to men [33]. Compared to men, women are more likely to develop alcohol use problems later in life [15], which can further result in adverse health effects. For example, women who are older are more likely to use medication for anxiety and depression [15] which when combined with alcohol can be harmful. Results from our study show that women who reported prescription opioid use with or

without alcohol in the past 30 days more frequently reported mental health problems including depression and anxiety. Interestingly, these women also were more likely to report using sedatives in the past 30 days, which may be related to their anxiety or depression. The combination of prescription medication and alcohol is dangerous. However, in our sample only a small proportion (3%) of women reported both prescription opioids and drinking in the past 30 days.

Even so, examining the characteristics of older women who use these substances is extremely important because of the public health consequences of prescription opioid and alcohol use. The US population continues to age, and it is predicted that one in five US residents will be 65 years or older by 2030 [34]. Thus, it is important to examine risks among older adults and in particular, women, as they will utilize a large portion of health care resources related to the health conditions described above.

Strengths and Limitations

This study has limitations. The data used in this analysis are self-reported, which may result in misclassification. To minimize this possibility, the outcome variable (prescription opioid and/or alcohol use) was based on recall of only the past 30 days. Furthermore, the data pertaining to prescription opioid use examined use in general and did not ask specifically about nonmedical use of prescription opioids. Additionally, we do not have information on frequency of use for prescription opioids or hazardous alcohol use. In spite of these limitations, this study has several strengths, including its large size and racial diversity. This method of recruitment provides the unique opportunity to engage with underrepresented populations within their own communities. In addition, we collected data on concomitant alcohol and opioid use which increases the risk of poor health outcomes compared to opioid or alcohol use alone, especially among older, underrepresented women. To our knowledge, no other study recruits older women in the community on a daily basis.

Conclusion

Findings in this community sample show that 30% of older and middle aged women report either prescription opioid use or hazardous drinking in the last 30 days, a significant public health risk. In addition, this community sample included a population of middle-aged and older women who have significant exposure to medical professionals who prescribe opioids. Results of this analysis are of importance to physicians in informing them of the need to be aware of the prevalent hazardous alcohol use among this population and the need to prescribe alternatives to opioids. Future studies should be done among this age group specifically that lead to

interventions for women in this age group. As the US population continues to age, the potential harmful public health consequences of hazardous drinking while taking prescription opioids must be reduced.

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Compliance with Ethical Standards

Conflict of interest The authors report no relevant financial conflicts.

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