Drug and Alcohol Dependence 205 (2019) 107694

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Short communication

Trends in first-time treatment admissions for older adults with alcohol use disorder: Availability of medical and specialty clinical services in hospital, residential, and outpatient facilities

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ARTICLE INFO

Keywords:
Older adults
Alcohol use disorder
Treatment
Acamprosate
Naltrexone
Mental health

ABSTRACT

Background: Alcohol use disorder (AUD) is a growing problem among older adults. The aim of this study was to quantify trends in first-time treatment admissions for older adults with AUD in the U.S., and examine the medical and specialty clinical services offered by treatment facility type.

Methods: Patient level data were collected from the Treatment Episode Data Set for Admissions between 2004–2017. Joinpoint regression was used to identify unique trends in first-time treatment admissions for older adults with AUD. Provider level data were collected from the National Survey of Substance Abuse Treatment Services (N-SSATS) for the most recent year, 2017. N-SSATS data were grouped by facility type (inpatient/hospital, residential, and outpatient treatment) to examine differences in medications and clinical services.

Results: Among all persons seeking first-time treatment for AUD with alcohol as their primary drug of choice (n = 3,606,948), there was a significant increase in the proportion of older adults seeking treatment from 2004 to 2017 (p-trend < 0.001), with an average annual percent change of 6.8% (95% confidence intervals: 6.2%–7.4%). The majority of older adults with AUD sought treatment in outpatient and residential facilities, which compared to hospital-based facilities had lower odds of offering supervised detoxification, acamprosate, naltrexone, psychiatric medications, or mental health services (all p-values < 0.001). Fewer than 25% of hospital-based and 20% of residential or outpatient facilities offered specialty services for older adults.

Conclusions: U.S. substance abuse treatment providers are not compensating for the changing nature of admissions by older adults, and are not providing state of the art services for this population.

1. Introduction

Alcohol use disorder (AUD) is highly prevalent yet often goes undiagnosed and untreated, especially among older adults (DiBartolo and Jarosinski, 2017). Globally, several countries including the United Kingdom, Australia, and China report that heavy or risky drinking among older adults is a significant public health concern (Kraus et al., 2015; Rao and Roche, 2017; Wang et al., 2017). In the United States, there is converging evidence via the National Survey on Drug Use and Health (Han et al., 2017) and the National Epidemiologic Survey on Alcohol and Related Conditions (Grant et al., 2017) that rates of binge drinking and AUD are increasing among older adults. These trends outpace all other age groups in the U.S., and there is a need to better understand if and how the substance use disorder (SUD) treatment system is responding to increasing rates of AUD in older adults. The age range that defines 'older adults' is not clear in SUD research (Carew and Comiskey, 2017); for the purpose of this manuscript, we will refer to older adults as those individuals aged 55 and older because they would not be classified as 'mid-life' and may begin experiencing age-related health problems (Petry, 2002; Huhn et al., 2018).

Older adults are often medically complicated and are more likely than the general population to have co-occurring health and mental health issues coupled with AUD (Han et al., 2018; Bright et al., 2018; Milic et al., 2018; Wu et al., 2018). Thus, it might be especially

Abbreviations: AUD, alcohol use disorder; TEDS-A, treatment episode data set for admissions; N-SSATS, National Survey of Substance Abuse Treatment Services; AAPC, average annual percent change; CI, confidence intervals

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https://doi.org/10.1016/j.drugalcdep.2019.107694
Received 27 June 2019; Received in revised form 18 October 2019; Accepted 24 October 2019
Available online 28 October 2019
0376-8716/

important for older adults with AUD to be managed medically by a physician (Menninger, 2002; Kohn et al., 2004). FDA-approved medications for AUD include acamprosate (Sass et al., 1996), naltrexone (Volpicelli et al., 1992), and disulfiram (Substance Abuse and Mental Health Services Administraion, 2009; Skinner et al., 2014). While acamprosate and naltrexone have relatively benign side effect profiles and might be well-tolerated in older adults who are on multiple classes of medications (Barrick and Connors, 2002), there have been only two controlled research studies on AUD medication strategies in this population, both of which supported the use of naltrexone for relapse prevention (Tampi et al., 2019) Since few controlled studies of medications (and other treatment strategies) have addressed alcohol use in older populations, public health officials have called for increased research on assessment and treatment for older adults with AUD (Sorocco and Ferrell, 2006; Wang and Andrade, 2013; Crome and Crome, 2018).

While alcohol use and AUD are growing problems in the older adult community, there are no recent reports on trends in treatment admissions for older adults and/or services available in SUD treatment facilities. Thus, the aim of this study was to quantify trends over time in first-time treatment admissions for older adults with AUD in the U.S., and examine the medical and clinical services available in various treatment settings. Trend analyses utilized the proportion of older adults rather than total numbers to examine the likelihood that providers within the addiction treatment system would treat older adults, and in light of recent studies that suggest that binge drinking, while still problematic, has decreased among younger adults in recent years (Patrick and Terry-McElrath, 2017; Krieger et al., 2018). We hypothesized that there has been an increase in the proportion of U.S. older (55+) adults seeking treatment for AUD over time, and that treatments offered would vary as a function of the intensity of service provided.

2. Methods

2.1. Sample collection

Patient level data were collected from the Treatment Episode Data Set for Admissions (TEDS-A) between 2004–2017 (N = 25,865,198). TEDS-A is a publicly available database of patients entering state certified substance abuse treatment facilities (Center for Behavioral Health Statistics and Quality, 2018). For the current study, only first-time treatment admissions for AUD with alcohol as the primary drug of choice (n = 3,606,948) were used in order to eliminate the possibility that individuals could be counted multiple times (given they could have multiple treatment admissions over the years), and to examine the facility type where first-time admissions seek treatment, which might have an impact on the intensity of treatment and medical services provided. Previous treatment attempts are a self-reported variable in TEDS-A and there are no identifiers linking patients across multiple admissions. Older adults with AUD were defined as persons 55 and older at time of treatment entry (n = 314,584), because that is the oldest age category in the TEDS-A database (for years 2004–2015), and persons 55 and older are considered to be through “mid-life” and moving toward the retirement phase of their careers.

Provider level data were collected from the National Survey of Substance Abuse Treatment Services (N-SSATS) for the most recent year, 2017 (N = 13,585). The N-SSATS is a publicly available database of substance abuse treatment facilities, and includes data on facility type, medications offered, and clinical services available, such as medication types and specialty mental health treatments (Center for Behavioral Health Statistics and Quality, 2018). Facility type was grouped for this study to include three levels of care: inpatient/hospital, residential, and outpatient treatment settings.

2.2. Statistical analyses

To identify trends in first-time treatment admissions for older adults with AUD, joinpoint regression was used for the years 2004–2017 to examine the proportion of adults 55 and older as a function of all admissions for first-time AUD treatment. Joinpoint regression is specifically designed to identify unique trends in cross-sectional data over time by optimizing the number of single regression lines (0 joinpoints equals 1 regression line) that best fit the shape of the data across time points. Significance of each trend is determined by comparing the slope of each regression line to 0, with alpha < 0.05. This approach also yields an average annual percent change (AAPC) for the entire time period and within each unique trend. The total number of first-time treatment admissions for AUD with alcohol as the primary drug of choice for 55+ and persons under 55 is reported as a function of year in Supplementary Fig. 1. In addition, sex-based differences in older adult first-time admissions were examined for the most recent trend (2012–2017) using chi-squared analysis.

Group comparisons by facility type (inpatient/hospital, residential, outpatient) were analyzed via Kruskal Wallis H test with Bonferroni correction for multiple comparisons. Key variables included medical services/medications (detoxification, oral naltrexone, extended-release naltrexone, acamprosate, disulfiram, psychiatric medications) and clinical services (mental health services, senior/older adult services). Trend analyses were performed in Joinpoint version 4.6.0 (National Cancer Institute, Bethesda, MD), and all other analyses were performed in SPSS version 24.0 (IBM Statistics, Armonk, NY)

3. Results

3.1. Trends in older adults seeking treatment for alcohol use disorder

Among all persons seeking first-time treatment for AUD with alcohol as their primary drug of choice (n = 3,606,948), there was a significant increase in the proportion of older adults seeking treatment from 2004 to 2017 (p-trend < 0.001), with an AAPC of 6.8% (95% confidence interval (CI): 6.2%–7.4%). Within this time period, three individual trends were identified (with joinpoints in 2009 and 2012). The first trend occurred from 2004 to 2009 (p-trend < 0.001), with an AAPC of 4.5% (95% CI: 3.9%–5.2%). The second trend occurred from 2009 to 2012 (p-trend < 0.001), with an AAPC more than double the prior period (10.5%; 95% CI: 7.7%–13.3%). Finally, the third trend occurred from 2012 to 2017 (p-trend < 0.001), with an AAPC still greater than the first period, but somewhat diminished from the second period (6.9%; 95% CI: 6.3%–7.5%) (See Fig. 1). There were no sex-based differences in treatment admissions between 2012 (26.0% female) and 2017 (26.4% female). While the *proportion* of older adults seeking treatment for AUD continued to rise across all years examined, the *total number* of new admissions remained relatively stable after 2008, although the total number increased between 2015-2017. Since 2008, there was a steady decrease in the total number of adults under 55 seeking treatment for AUD, contributing to the increased proportion of older adults seeking treatment for AUD (Supplemental Fig. 1).

3.2. Medical and clinical services offered by facility type

Treatment facilities were grouped into inpatient/hospital (n = 715), residential (n = 2,942), and outpatient (n = 9,928) treatment settings. There were significant differences found among medical services/medications and clinical services offered, such that inpatient/hospital facilities offered more medications and clinical services compared with residential and outpatient facilities, and residential facilities offered more medical services/medications, but fewer mental health services, compared with outpatient facilities (see Fig. 2 for details).

4. Discussion

From 2004 to 2017, there was steady growth in the proportion of older adults seeking first-time treatment for AUD at state-certified

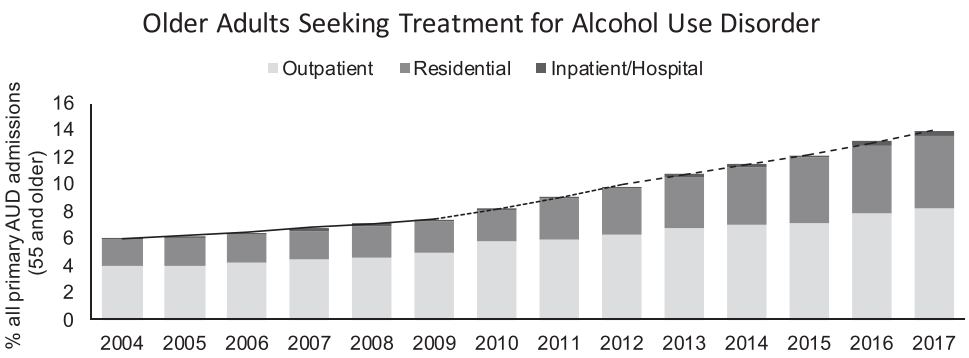

Fig. 1. Trends in older adults seeking treatment as a function of all first-time treatment admissions for alcohol use disorder (AUD) with alcohol as the primary drug of choice. Stacked bars represent the type of facility where older adults presented to treatment. Joinpoint regression was utilized to identify unique trends, represented by regression lines from 2004 to 2009 (solid line, p-trend < 0.001), 2009–2012 (dotted line, p-trend < 0.001), and 2012–2017 (dashed line, p-trend < 0.001), respectively.

addiction treatment facilities (Fig. 1). Whereas previous studies have revealed increasing trends in older adults seeking treatment for illicit substance use (Carew and Comiskey, 2017), including opioid use disorder (Huhn et al., 2018), AUD remains a highly prevalent issue in this population. Interestingly, while there was evidence of a *proportional* increase, the total number of older adults seeking treatment for AUD has remained relatively stable over the past 10 years. The difference seen here is due to the fact that the total number of individuals under the age of 55 who are seeking first time treatment for primary AUD has declined markedly (Supplementary Fig. 1). Thus, treatment providers who specialize in AUD are increasingly likely to treat older rather than younger adults, as the age distribution of persons first appearing for treatment has shifted. This change may raise new challenges, given the high rates of co-morbid physical and mental health conditions in the older population (Qato et al., 2015; Han et al., 2018; Wu et al., 2018).

Adding further concern to this phenomenon, the majority of older adults sought treatment in outpatient facilities where medical services were scarce relative to hospital-based facilities (Figs. 1 and 2). Only 11.8% of outpatient facilities offered supervised detoxification, and fewer than 25% offered medications to treat AUD, including acamprosate, oral or extended-release naltrexone, or disulfiram (Fig. 2). Surprisingly, only 38.2% of outpatient clinics offered medications to treat co-morbid psychiatric conditions, despite the fact that 68.1% offered specialty services for mental health conditions. Medical treatment for mental health conditions should go hand-in-hand with AUD treatment, considering that mental health conditions are often associated with alcohol misuse in the general population (Kessler et al., 1997), and mental health conditions are fairly common in older adults, especially major depressive disorder (Lyness et al., 1999; Bartels et al., 2002). Co-occurring AUD and major depressive disorder is highly prevalent in older adults (Hasin et al., 2005; Bartels et al., 2006), and because of this, treatment facilities should either have in-house capabilities to prescribe medications for these conditions or should be prepared to refer older adult patients to providers in order to fill these gaps in treatment.

In addition to outpatient facilities, a growing proportion of older adults sought first time treatment in residential facilities between 2004–2017, and a very small proportion sought treatment in hospital-based programs. Residential facilities had significantly greater odds of offering medications/medical services than outpatient facilities, however the practical differences were very small (for instance, the difference between residential compared with outpatient facilities offering acamprosate was only 5.1%; Fig. 2). Hospital-based facilities, where older adults were least likely to seek treatment, had the highest odds (by a wide margin) of providing a level of care that is appropriate for this population, including supervised detoxification, medications to treat AUD, and mental health services and/or medications to treat co-occurring mental health conditions. Given that the proportion of older adults seeking treatment for AUD will likely increase over time, public health officials should closely examine the level of medical care available at residential facilities.

Fewer than 25% of hospital-based and 20% of residential or outpatient facilities offered specialty services for older adults, similar to a previous study of 346 private treatment centers reporting that 18% provided specialty services for older adults (Rothrauff et al., 2011). In addition to AUD and mental health care, there are several other medical consequences associated with AUD in older adults that should be addressed in the course of treatment. Cognitive decline is a major issue in older adults with AUD, as evidenced by previous research reporting that older patients with AUD are nearly five times more likely to have dementia when compared to older patients without AUD (Caputo et al., 2012). Indeed, problematic alcohol use is broadly associated with cognitive decline, dementia, and Alzheimer's disease in older adults (Mukamal et al., 2003; Peters et al., 2008; Anstey et al., 2009), which also increases the risk of mortality (Thomas and Rockwood, 2001). Medications such as memantine and cholinesterase inhibitors might be useful in older adults with AUD, however clinical research on this topic is needed to determine whether cognitive decline can be halted or reversed in AUD recovery.

The results of this study suggest that there is a growing need to treat older adults with AUD in the U.S. Research outside the U.S., particularly cohort studies in the United Kingdom, Australia, and China, demonstrate that problematic alcohol use among older adults is prevalent across cultures and may reflect both environmental and/or aging-related issues that confer unique risk in this population (Kraus et al., 2015; Rao and Roche, 2017; Wang et al., 2017). The consequences for

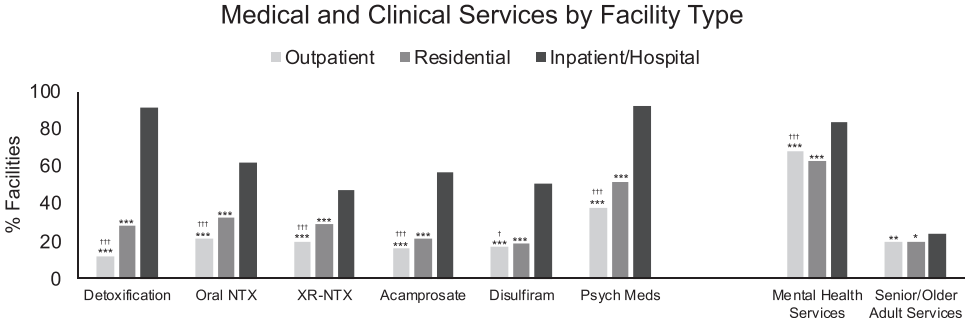

Fig. 2. Medical services/medications and clinical services as a function of treatment setting in substance abuse clinics in 2017. Kruskal Wallis H tests with Bonferroni correction for multiple comparisons were utilized to identify significant differences among different types of treatment facilities. Difference between Inpatient/Hospital and other *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$; Difference between Residential and Outpatient ††† = $p < 0.001$, † = $p < 0.05$. NTX = naltrexone; XR-NTX = extended-release naltrexone; Psych = Psychiatric.

older adults with problematic drinking or AUD may also be unique compared to younger individuals, as older adults often take multiple classes of medications that might interact with alcohol, and are at high risk to experience adverse drug-alcohol interactions that result in emergency department visits (Qato et al., 2015; Castle et al., 2016). In addition, older adults compared to the rest of the population are at higher risk for disability, morbidity, and mortality that stems from alcohol-related chronic diseases (Ryan et al., 2013; King and Lipsky, 2015). Many older adults with problematic drinking report using alcohol to manage pain (Brennan et al., 2005) and are also more likely to engage in non-medical prescription drug use (Blazer and Wu, 2011). Future research should address these issues in this potentially vulnerable population.

4.1. Limitations

This study is limited by the inability to examine older age groupings beyond 55 years and/or the exact age of persons entering treatment, which would allow for more granular analyses of the characteristics of older adults with AUD, and by the inability to confirm that admissions had not previously attempted treatment, as previous treatment attempts are self-reported in the TEDS-A; however, the benefit of utilizing de-identified data within the TEDS-A database is the ability to examine treatment admissions across the U.S. The TEDS-A only reports persons entering treatment at state-certified addiction treatment facilities, and does not capture persons entering treatment at other sites, such as primary care office visits. In addition, provider-level data from the N-SSATS are useful to understand medications and specialty services offered by various facilities, but does not provide data regarding when or how much these services are utilized. However, the data presented in this study combine two national databases to provide an overview of trends in treatment admissions for AUD as well as the types of medications and specialty services that could be offered by various types of facilities, and this linkage helps to better understand service needs that are currently inadequately addressed.

5. Conclusions

There was a steady increase in the proportion of older adults being admitted for AUD in addiction treatment facilities between 2004–2017. The majority of these older adults sought treatment in outpatient or residential facilities that were not likely to offer medications to treat AUD or co-morbid psychiatric conditions. Treatment providers and policy makers should be aware of this trend and address the need to deliver comprehensive medical and clinical services to this population.

Role of funding

The work described in this manuscript was funded by the National Institute on Drug Abuse: NIDAUG3 DA048734 (Huhn) and Ashley Addiction Treatment.

Contributors

All authors contributed to the research design, data interpretation, and writing of this manuscript. Author ASH performed all data analyses.

The work described in this manuscript was funded by the National Institute on Drug Abuse: NIDA UG3 DA048734 (Huhn) and Ashley Addiction Treatment. Author ASH receives research funding from Ashley Addiction Treatment through his university. Over the past 36 months, ECS has served on advisory boards, received grant funding from, and/or consulted for Alkermes, Analgesic Solutions, Caron, Egalet, Indivior Pharmaceuticals, Innocoll Pharmaceuticals, The Oak Group, Otsuka Pharmaceutical Development and Commercialization, and Pinney Associates. He has received honoraria from the World Health Organization, and is currently collaborating with Innovative Health Solutions. Author GAO owns shares of Synaptic Research LLC. All opinions expressed and implied in this paper are solely those of the authors and do not represent or reflect the views of the Johns Hopkins University or the Johns Hopkins Health System or Ashley Addiction Treatment. Authors JGH and AR report no conflicts.

Declaration of Competing Interest

The work described in this manuscript was funded by the National Institute on Drug Abuse: NIDA UG3 DA048734 (Huhn) and Ashley Addiction Treatment. Author ASH receives research funding from Ashley Addiction Treatment through his university. Over the past 36 months, ECS has served on advisory boards, received grant funding from, and/or consulted for Alkermes, Analgesic Solutions, Caron, Egalet, Indivior Pharmaceuticals, Innocoll Pharmaceuticals, The Oak Group, Otsuka Pharmaceutical Development and Commercialization, and Pinney Associates. He has received honoraria from the World Health Organization, and is currently collaborating with Innovative Health Solutions. Author GAO owns shares of Synaptic Research LLC. All opinions expressed and implied in this paper are solely those of the authors and do not represent or reflect the views of the Johns Hopkins University or the Johns Hopkins Health System or Ashley Addiction Treatment. Authors JGH and AR report no conflicts.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.drugalcdep.2019.107694.

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