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PRESCRIPTION TRANQUILIZER/SEDATIVE SOURCES FOR MISUSE IN OLDER ADULTS

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Abstract

Background: Older adult prescription tranquilizer/sedative misuse is understudied, despite evidence of increased misuse prevalence and significant associated consequences (e.g., suicidal ideation). Identification of misuse sources could limit such misuse by offering policymakers and clinicians targets to limit diverted tranquilizer/sedative medication.

Objective: To establish the prevalence of tranquilizer/sedative misuse sources in older adults and investigate associated poor outcomes.

Methods: Data were from the 2009–14 National Survey on Drug Use and Health, including participants endorsing one or more past-month tranquilizer/sedative misuse sources (n= 3,162) with older adult (50–64 and 65 and older; n= 160) tranquilizer/sedative source prevalence estimated and compared to younger cohorts.

Results: Adults 65 and older had the greatest physician source use (38.2%) across ages. Physician source use in those 50 and older, relative to those obtaining medication from friends/family for free, was linked to a higher prevalence of both past-year prescription opioid misuse (58.6% versus 34.9%) and serious psychological distress (50.1% versus 11.6%).

Conclusions/Importance: Physician source use is particularly prevalent in adults 65 and older, and adults 50 and older using physician sources appear at elevated risk of consequences. Careful monitoring of psychiatric symptoms in older adults receiving tranquilizers/sedatives appears warranted. Older adults use a unique pattern of tranquilizer/sedative misuse sources, as compared to younger groups, further signaling that older adult misuse processes differ from those in younger groups.

Keywords

Tranquilizer; benzodiazepine; sedative; misuse; source; older adult

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INTRODUCTION

Prescription drug misuse (PDM; medication use in ways not intended by the prescribing clinician or use without a prescription) is a major public health concern in the US and Europe, given significant increases in PDM prevalence and overdose (Kandel, Hu, Griesler, & Wall, 2017; Wise, 2016). While most overdose is driven by opioid misuse, benzodiazepine use and misuse has been a major contributor to the increases in overdose deaths (Kandel et al., 2017). Older adults use benzodiazepine and sedative-hypnotic medication more frequently than younger groups (Maree, Marcum, Saghafi, Weiner, & Karp, 2016), despite significant consequences related to such use in older adults (e.g., cognitive impairment, falls). As such, the Beers Criteria classifies benzodiazepine or sedative-hypnotic medication use as generally inappropriate in older adults (American Geriatrics Society Beers Criteria Update Expert Panel, 2015).

Benzodiazepine and sedative-hypnotic misuse is understudied (Schepis, Teter, Simoni-Wastila, & McCabe, 2018), particularly in older adults (Maree et al., 2016), but the consequences of older adult misuse are likely more significant than those associated with prescribed use. Older adult tranquilizer (a survey term capturing primarily benzodiazepine medication) and sedative PDM prevalence has increased in US older adults (Schepis & McCabe, 2016) and is associated with poor outcomes (e.g., past-year suicidal ideation and substance use disorder [SUD]) (Schepis, Teter, et al., 2018). Given these consequences, prevention strategies that limit older adult tranquilizer/sedative PDM would have significant public health value. One target for prevention could be sources older adults use to obtain tranquilizer/sedative medication for PDM (Hulme, Bright, & Nielsen, 2018).

Accordingly, our primary aim was to identify the sources of tranquilizer/sedative medication for misuse in US older adults (50 years and older), with this cutoff for older adults based on our past research and research by others on PDM (Mowbray & Quinn, 2015; Schepis, McCabe, & Teter, 2018a). Older adults were also split into two cohorts (50-64 years and 65 and older) to better identify age-specific sources. This split within the overall older adult group was chosen based on changes in likelihood of retirement, social network composition and social isolation, with evidence of decreasing friend contacts in those 65 and older and increased overall isolation (Courtin & Knapp, 2017; van Tilburg, 1998). These changes in social network composition could affect the likelihood of specific opioid PDM source use, with decreasing reliance on friend sources. Also, past research that suggests differences between the 50-64 year and 65 and older cohorts in PDM prevalence (Schepis & McCabe, 2016), tranquilizer/sedative PDM correlates (Schepis, Teter, et al., 2018) and opioid PDM sources (Schepis, McCabe, et al., 2018a).

In addition to the comparisons between the 50-64 year and 65 and older groups, tranquilizer/sedative sources in younger groups were estimated to allow to illustrate changes throughout the lifespan. Finally, *post hoc* comparisons in risk behavior engagement (e.g., prescription opioid misuse) and mental health correlates (e.g., DSM-IV major depression) between older adults using physician sources only and those only using friend/family sources for free medication were conducted, as these were the two most frequent sources in older adults.

METHODS

We used the aggregated 2009-14 datasets of the National Survey on Drug Use and Health (NSDUH), an annual survey across the US population aged 12 and older. Sampling uses an independent, multistage area probability design, creating nationally representative estimates. The NSUDH was approved by the IRB of Research Triangle International and this work was exempted from further oversight by the first author's institution. More information on the NSDUH is available elsewhere (Substance Abuse and Mental Health Services Administration [SAMHSA], 2010).

The 2009-14 NSDUH public use files included 3,162 respondents with data on tranquilizer/sedative misuse sources. Those reporting tranquilizer/sedative sources were predominately female (52.3% overall, 54.7% in those 50-64 and 57.0% in those 65 and older) and White (78.6% overall, 80.8% in those 50-64 and 81.5% in those 65 and older).

Measures

In those endorsing past-month tranquilizer/sedative PDM, medication source is assessed: "...during the past 30 days, you used prescription [tranquilizers/sedatives] that were not prescribed for you or that you took only for the experience or feeling they caused. How did you get these prescription [tranquilizers/sedatives]?" Sources were aggregated into six mutually exclusive categories, per past research in older adults (Schepis, McCabe, & Teter, 2018b): (1) "physician sources only", (2) "stole/fake prescription only", (3) "free from friend/relative only", (4) "purchased only", (5) "other source only", and (6) multiple sources (use of two or more sources).

Included sociodemographic variables were: *sex*, *race/ethnicity* and *age group*. Other correlates, selected from past work on older adult PDM (Schepis, Teter, et al., 2018), were: *past-year opioid misuse*, *past-year tranquilizer/sedative SUD*, *past-year any SUD*, *past-year major depression*, *past-year serious psychological distress*. The SUD and major depression variables were from DSM-IV criteria (American Psychiatric Association, 2000), with good psychometrics (SAMHSA, 2010). Past-year serious psychological distress comes from the K6 assessment of nonspecific psychological distress (Kessler et al., 2003) for the worst month in the past year; scores ≥ 13 (of 24) are positive for serious psychological distress, and the serious psychological distress assessment is reliable and valid.

Data Analyses

Analyses utilized STATA 15.1 (College Station, TX). Data incorporated the complex survey design, and adjusted person-level weights (weight/six) created unbiased population-based estimates. The Taylor series approximation was used, with adjusted degrees of freedom, to create robust variance estimates. Initial analyses employed weighted cross-tabulations to estimate prevalence and 95% confidence intervals of tranquilizer/sedative sources by age group, with an omnibus Rao-Scott chi-square test (Rao & Scott, 1984) to evaluate age-based differences. Controlling for age group, sex and race/ethnicity, design-based logistic models evaluated differences in older adult risk behavior prevalence for those using "physician sources only" and those using "friends/family for free only" as their source. Other sources

were excluded because of concerns about statistical power and the potential for erroneous estimates of risk behavior engagement.

RESULTS

As presented in Table 1, the pattern of prescription tranquilizer/sedative misuse sources changes across the lifespan (design-based $F(10.02, 1062.25) = 3.34, p = 0.0003$). Specifically, use of “physician sources only” increased from young adulthood through the lifespan, with the most notable increase from the 50-64 age group to those 65 and older (17.6% to 38.2%). In both the 50-64 cohort and those 65 and older, use of “physician sources only” was the second most common source for misuse, with use of “friends/family for free only” as the most common source (50-64: 56.6%, 65 and older: 48.9%). Older adults using multiple sources composed the third most prevalent groups, with 11.7% of those 50-64 years and 10.0% of those 65 and older in this group. Finally, use of “theft/fake prescriptions only”, “purchases only” and “other sources only” for tranquilizer/sedative medication was seen in less than 8% of older adults in each age cohort.

Older adults using “physician sources only” and using “friends/family for free only” did not differ in terms of past-year tranquilizer/sedative use disorder ($p = 0.07$), any SUD ($p = 0.45$) or major depression ($p = 0.44$) prevalence. In contrast, those using “physician sources only” were more likely to engage in past-year opioid misuse ($p = 0.025$, 58.6% versus 34.9%) and to have past-year serious psychological distress ($p = 0.001$, 50.1% versus 11.6%).

DISCUSSION

Consistent with recent work on older adult prescription opioid misuse sources (Schepis, McCabe, et al., 2018b), we found increasing use of “physician sources only” as individuals aged, with the greatest increase from those 50-64 years of age to those 65 and older. These results further suggest that those 65 years and older are unique in terms of PDM sources, with less reliance on purchases and multiple sources and greater reliance on physician sources than younger individuals (McCabe, Teter, Boyd, Wilens, & Schepis, 2018).

Increasing use of “physician sources only” by older adults, however, was not without increases in adverse health outcomes. When compared to those using “friends/family for free only” as a source, older adults using “physician sources only” were more likely to endorse both past-year opioid misuse and past-year serious psychological distress. The elevated serious psychological distress rates are understandable in light of the primary indications for tranquilizer/sedative medication, which are psychiatric in nature. Older adults with clinically significant anxiety or insomnia may receive tranquilizer/sedative medication, and the elevated serious psychological distress score may be a manifestation of the underlying psychopathology. Higher rates of opioid misuse in older adults using “physician sources only” may result from higher rates of pain conditions in older adults with clinically significant anxiety and sleep disorders (Gulia & Kumar, 2018). Thus, higher rates of co-occurrence of tranquilizer/sedative and opioid misuse in older adults using “physician sources only” may result from the clustering of undertreated pain, sleep and anxiety conditions.

When combined with the elevated rates of past-year opioid misuse in older adults using “physician sources only”, though, reason for concern emerges. Previous work suggests that opioid and benzodiazepine misuse are each associated with an increased likelihood of suicidal ideation in older adults (Schepis, Simoni-Wastila, & McCabe, 2019). The high rates of older adult sedative/tranquilizer exposure (Maree et al., 2016) and significant misuse-related consequences indicate a need for careful screening and monitoring of older adults prescribed tranquilizer/sedative medications, as they may be more likely to experience suicidality and misuse opioid medication. The combination of opioid and benzodiazepine medication elevates risk for overdose, concerning in those older adults with suicidality.

Limitations

First, the data are cross-sectional and self-report, so no causal inferences should be drawn and self-report bias needs to be considered. Second, self-selection bias was also likely. Third, while the NSDUH makes extra efforts to sample older adults in assisted living or other controlled access dwellings, it is likely that these older adults were somewhat undersampled (Cunningham et al., 2015). Finally, the sample of adults 65 years and older with tranquilizer/sedative misuse was small, and future research with larger samples is needed to further understand processes related to tranquilizer/sedative medication misuse in this population.

Clinical Implications and Conclusions

The findings of the present study suggest that physicians and other health professionals are well-placed to address older adult tranquilizer/sedative misuse. These professionals should consider educating all individuals prescribed tranquilizer/sedative medication about the risks of diversion, and proper medication storage and disposal. Those who divert tranquilizer/sedative medication to older adult friends or family members may be unaware of the significant side effects associated with use of these medications, and they are likely unaware of the significant potential risks posed when tranquilizer/sedative medications are combined with opioid medication or other psychoactive medications. Older adults prescribed tranquilizer/sedative medications could benefit from education on the risks of medical misuse (i.e., misusing one’s own prescription), and healthcare professionals may use heightened screening and monitoring for signs of concurrent opioid and tranquilizer/sedative use or misuse and for psychiatric symptoms.

In all, these data further support that US adults 65 years and older are a unique population in terms of PDM sources, and suggest that PDM-related findings in younger individuals may not apply to older adults. Older adults using “physician sources only” appear to be a more vulnerable population, given their elevated rates of opioid misuse and psychological distress.

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Table 1:

Sources of Tranquilizer/Sedative Medication for Misuse across the Lifespan (n = 3,162)

Tranquilizer/Sedative Sources ¹	Adolescents (12-17 years) (n = 540)	Young Adults (18-25 years) (n = 1,586)	26-34 years (n = 450)	35-49 years (n = 426)	50-64 years (n = 136)	65 years and older (n = 24)
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Physician only	14.6 (10.6-19.7)	9.9 (8.1-12.1)	14.5 (10.7-19.3)	16.4 (12.7-20.9)	17.6 (11.1-26.9)	38.2 (17.3-64.6)
Theft/Fake Prescription only	10.2 (7.3-13.9)	5.4 (3.8-7.4)	1.2 (0.5-2.7)	3.6 (1.9-6.5)	2.9 (0.5-14.2)	no cases
Friend/Relative for Free only	33.2 (28.2-38.6)	42.1 (38.7-45.5)	51.0 (45.3-56.7)	50.6 (44.9-56.2)	56.6 (45.0-67.6)	48.9 (28.8-69.4)
Purchases only	22.7 (18.5-27.7)	25.9 (22.9-29.1)	18.2 (14.6-22.5)	13.5 (10.0-17.8)	7.7 (3.6-15.8)	2.3 (0.4-12.2)
Other Sources only	6.7 (4.2-10.5)	4.0 (2.7-5.9)	3.5 (2.0-6.2)	5.1 (2.9-8.7)	3.5 (1.3-9.0)	0.7 (0.1-5.5)
Multiple Sources	12.6 (9.2-17.0)	12.8 (10.9-14.9)	11.6 (8.0-16.7)	10.9 (7.5-15.5)	11.7 (5.6-22.6)	10.0 (1.2-50.7)

Source: NSDUH, 2009-2014 cohorts.

¹Tranquilizer/sedative sources are mutually exclusive.