



Short communication

## Retirement and drug abuse: The conditioning role of age and retirement trajectory <sup>☆</sup>

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### ABSTRACT

Although recent research on the link between retirement and drinking behavior among older adults suggests that retirement may also serve as a risk factor for drug abuse, the latter association has yet to be subject to rigorous research. We examined this association, as well as the possible conditioning effects of age and retirement trajectory, using a sample of 978 retirement-eligible workers (some having retired, others deferring their retirement) from 3 blue-collar employment sectors: (e.g., construction, manufacturing, and transportation). The findings indicate a weak but significant positive association between retirement and the severity of drug abuse. Age moderated the retirement–drug abuse relationship with – among older workers – higher rates of drug abuse found among those deferring retirement and lower rates among those actually retiring, and the exact opposite pattern found among younger retirement-eligible workers. Also, as hypothesized, the moderating effects of age on the association between retirement and drug abuse were weaker among those opting to return to work post-retirement as opposed to those fully retiring.

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As baby boomers age and retire, the prevalence of drug abuse among older adults (i.e. those 50 years and older) is expected to increase (Colliver, Compton, Gfroerer, & Condon, 2006). Given that the use of illegal (Schedule I) drugs (e.g., marijuana, cocaine) is relatively rare among older adults (Abrams & Alexopoulos, 1988), the bulk of this increase is expected to occur with respect to adults' non-medical use of over-the-counter and prescription drugs and/or use of prescribed (Schedules II, III, and IV) or over-the-counter drugs in excess of the directions (NIDA, 2007). Indeed, with 1 in 4 older adults currently using prescription drugs, the potential for such abuse is substantial, particularly since these individuals typically use more prescription and over-the-counter drugs than young people, and since they often take multiple drugs that may have particularly severe interaction effects on their cognitive and physical functioning due to advancing age (Blow, 2001).

Yet, while researchers know a great deal about the etiology of alcohol problems in the older population (e.g. Bacharach, Bamberger, Cohen, & Doveh, 2007; Bacharach, Bamberger, Sonnenstuhl, & Vashdi, 2004), research on drug abuse among older adults remains limited, with only a handful of studies examining the socio-psychological factors potentially associated with drug abuse (Simoni-Wastila, Pharm, & Yang, 2006), and – to the best of our knowledge – no studies examining the possible link between work-related factors and drug abuse among older adults. Consequently, in the current study we examine the relationship between retirement and drug abuse.

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## 1. The effects of retirement age and trajectory

Retirement is increasingly a multi-faceted concept, with workers selecting from among several alternative retirement “trajectories” (Herzog, House, & Morgan, 1991; Doeringer, 1990; AARP, 2003), allowing them to retire at ages ranging from 45 to 75 and beyond. While many retire and disengage from the workforce on full or partial/early retirement benefits as soon as they become eligible to do so, others often continue to work beyond eligibility because they enjoy their jobs or because they do not wish to give up their income (AARP, 2003). Moreover, an increasing number of workers engage in partial or “bridge” retirement, retiring from their employer upon eligibility, but returning to the workforce on either a part or full-time basis because they miss work or need the additional income (Herzog et al., 1991). Still, others retire upon first becoming eligible either because their employers buy out their contracts or as an alternative to lay-off. These so-called “early” retirees are generally younger and, after retiring, seek part- or full-time employment up to the point of their future, “real retirement” (Hardy, Hazelrigg, & Quadagno, 1996). Indeed, recent studies indicate that workers are retiring at an early age – 50% retire by age 60 with most indicating that they plan to work during retirement (Doeringer, 1990; AARP, 2003). Consequently, the nature of the retirement–drug abuse relationship may be contingent upon employee age, and whether these workers actually disengage from the workforce upon retirement or rather remain in the workforce and engage in other work subsequent to taking their retirement benefits.

We expect age to have an attenuating effect on the retirement–drug abuse relationship for several reasons. First, among those most interested in retiring at the first opportunity (i.e., at the youngest possible age) may be those already misusing drugs. These individuals are most likely to view retirement as a means by which to avoid being fired and thus losing their benefits. Second, those retiring at a younger age may be at increased risk of drug abuse, particularly if they have been forced into retirement (e.g., due to health reasons) with insufficient economic security and have physical and/or psychological problems for which they have been using drugs. Being younger retirees, they may also be among the rare older adults using illegal drugs, putting them at additional risk.

This attenuation effect of age is likely to be reinforced to the extent that older workers defer their retirement. Retirement-eligible workers who delay retirement and continue to work (i.e., those retiring at an older age) may also be at heightened risk of drug abuse, particularly if they feel forced to stay on the job for financial reasons, or if their work is physically demanding. Such workers may use drugs as a means by which to self-medicate financial strain and/or concerns about retirement-related economic insecurities. Furthermore, being older, they may also be at heightened risk to abuse drugs as a means by which to cope with the physical demands of their job, which may become increasingly challenging as older workers age. To the extent that the severity of drug abuse problems may increase as retirement-eligible workers defer retirement and age on the job, the link between retirement and drug abuse may similarly be weakened. Consequently, *Hypothesis 1 posits that: The impact of retirement on drug abuse severity will be contingent upon employee age with the effects of retirement (as opposed to retirement deferral) on drug abuse severity being weaker among older retirement-eligible individuals.*

However, we also expect this attenuating effect of age on the retirement–drug abuse relationship to itself be contingent upon retirement trajectory, with age exerting a weaker attenuation effect on the retirement–drug abuse relationship among those opting for “bridge” (as opposed to full) retirement. Specifically, since the ability of younger retirees to abuse drugs is likely to be limited to the extent that they opt to remain in the workforce subsequent to retiring, and since older workers opting for bridge retirement may face concerns similar to those deferring retirement and hence be motivated to use drugs in a similar manner to them (i.e., to self-medicate, physical job demands and/or concerns about retirement-related economic insecurities), the attenuating effect of age on the retirement–drug abuse relationship may itself be contingent upon the nature of retirement trajectory taken. Consequently, *Hypothesis 2 posits that: The attenuating effect of age on the relationship between retirement and drug abuse severity will be contingent upon retirement trajectory such that this attenuation effect will be stronger among those fully retiring than among those employed on a part- or full-time basis.*

## 2. Method

### 2.1. Subjects

Data were collected from 978 retirement-eligible employees from 9 national and local unions representing workers in 3 blue-collar employment sectors (transportation, manufacturing and construction) on the basis of telephone interviewing (nominal response rate of 35%). Of these, 661 respondents (68%) were males and 317 were females (32%), and 77% of them were married.

### 2.2. Measures

*Drug abuse severity* was measured on the basis of the DAST-10 (Skinner, 1982), a brief screening instrument used to assess possible abuse of drugs other than alcohol in the past 12 months. We assessed respondents' *employment status* as one of three categories, namely (a) eligible for retirement benefits but did not retire (i.e., not yet retired or still working), (b) retired with benefits but engaged in part-time or full-time bridge employment (i.e., engaged in bridge employment), and (c) took retirement benefits and withdrew from workforce entirely (i.e., fully retired). The majority of respondents ( $n=541$ , 55%) had fully retired, 142 (15%) were engaged in bridge employment, and 295 (30%) were still working. *Age* was assessed on the basis of a 6-point, categorical variable generated on the basis of respondents' age at the time of retirement eligibility as follows: 1 = 39–43, 2 = 44–48, 3 = 49–53, 4 = 54–58, 5 = 59–63, 6 = 64–70. We controlled for *gender*, *marital status*, and *health status*. Marital status is a

**Table 1**  
Descriptive statistics and correlations

Variable	N	Mean	SD	1.	2.	3.	4.	5.	6.
1. DAST	970	0.34	0.66						
2. Age (category)	975	4.00	0.95	0.03					
3. Married	975	0.77	0.42	0.03	0.1**				
4. Hospitalization	975	0.14	0.35	0.04	0.02	0.03			
5. Gender	976	1.32	0.47	-0.07	-0.32***	-0.31***	-0.05		
6. Fully retired vs. others	976	0.55	0.5	0.07*	0.37***	0.07*	0.03	-0.22***	
7. Bridge retirement vs. others	976	0.14	0.35	0.02	-0.20***	0.004	-0.02	0.02	-0.46***

\* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$ .

dichotomous variable with married coded as 1 (78%) and all other statuses coded as 0. In order to assess respondents' health status, participants were asked whether they had been hospitalized in the past year. Positive responses were coded as "1" and negative, as "0." Furthermore, we took employment sector into consideration by specifying sector (transportation, manufacturing or construction) as a random effect.

### 2.3. Analysis

As the dependent variable, the DAST, was a count variable, representing the number of questions regarding drug abuse to which the respondent answered 'yes', we tested our hypotheses on the basis of negative binomial regression analyses (e.g. Cameron and Trivedi, 1998; Frone, 2008).

## 3. Results

Means, standard deviations and correlations among the variables are displayed in Table 1. The mean level of the DAST was 0.34 (S.D.=0.66) with a sample prevalence of a DAST score of 1 or more =26%. As can be seen in Table 2, the random effect of sector was not significant in any of the models examined. Consistent with the correlation results presented in Table 1, the results generated in these analyses draw a picture of retirement as having a generally positive association with drug abuse. Controlling for gender, age, hospitalization, and marital status, being fully retired, as opposed to still fully employed approximately four years after retirement eligibility, is associated with an increased severity of drug abuse (estimate=0.36,  $p < 0.05$ ) (see Table 2 Model 2). Moreover, the significant Delta -2 Log Likelihood ( $p < 0.001$ ) indicates that the inclusion of retirement status significantly contributes to the model's explanatory potential. It is important to note, however, that bridge retirement was not significantly different from deferring retirement with respect to its association with drug abuse severity.

Regarding Hypothesis 1 (which posited that age conditions the retirement–drug abuse relationship), the results presented in Model 3 of Table 2 indicate a significant interaction between age and *full* retirement (as opposed to deferred retirement) (estimate=-0.34  $p < 0.05$ ). The fact that the interaction between age and *bridge* retirement (as opposed to deferred retirement) is not significant is consistent with our second hypothesis in which we posited that the attenuating effect of age would itself be stronger among those opting for full retirement than among those opting for bridge retirement. The significant Delta -2 Log Likelihood ( $p < .001$ ) indicates that the inclusion of the interaction between retirement status and age significantly contributes to the model's explanatory potential.

**Table 2**  
Negative binomial HLM regression with DAST as the dependent variable

Model	Model 1: control variables		Model 2: with retirement		Model 3: with moderation of age	
N	968		968		968	
Effect	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Intercept	-1.11	0.51	-1.30	0.51	-2.04	0.70
Age	0.06	0.07	0.03	0.08	0.23	0.15
Married	0.06	0.16	0.06	0.16	0.07	0.16
Hospitalization	0.20	0.17	0.19	0.17	0.20	0.17
Gender	-0.27	0.16	-0.21	0.16	-0.22	0.16
Fully retired vs. still working (deferred retirement)			0.36*	0.16	7.71*	0.68
Bridge retirement vs. still working (deferred retirement)			0.30	0.21	0.27	0.80
Age* fully retired					-0.34*	0.17
Age* bridge employment					0.02	0.21
Random effect of employment sector	0.18	0.21	0.74	0.16	0.67	0.16
-2loglikelihood	4064.84		4048.83		4026.31	
$\Delta$ -2loglikelihood			16.01***		22.52***	

\* $p < 0.05$ , \*\* $p < 0.01$  and \*\*\* $p < 0.001$ .

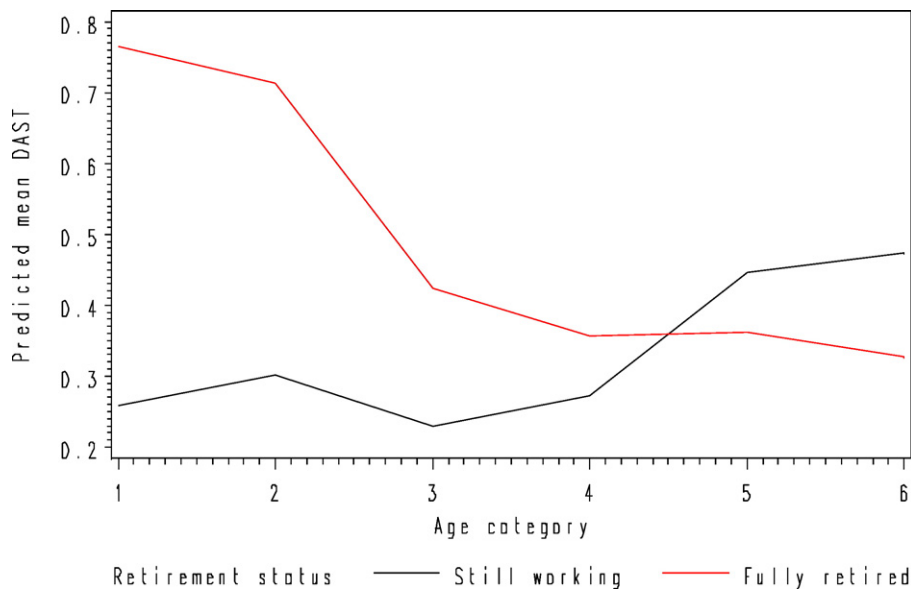


Fig. 1. Plot of moderating effect of retirement status on the relationship between age and drug abuse.

In order to understand the meaning of this interaction effect we decomposed the interaction graphically. As can be seen in Fig. 1 (with the values presented in Table 3) the attenuating effect of age is a result of two complementary phenomena noted earlier. First, age is associated with increased drug abuse severity for those deferring retirement (i.e., working despite their retirement eligibility). Secondly, age is associated with decreased drug abuse severity among those who have retired. Consistent with our hypothesis, in the fully retired group, the older the retirees are, the fewer the drug-related problems they have, with the substantial difference between age groups 2 (those aged 44–48) and 3 (those between 49 and 53). In a post-hoc *t*-test analysis we found a significant difference between the mean predicted DAST of these two groups ( $t_{93}=7.56, p<0.001; \eta^2=0.4$ ). For those who are still fully employed the pattern is the opposite with those who are older experiencing more severe drug abuse than those who are younger. The most substantial difference was found between age groups 4 (those between 54 and 58) and 5 (those between 59 and 63). In a post-hoc *t*-test analysis we found a significant difference between the mean predicted DAST of these two groups ( $t_{221}=9.85, p<0.001; \eta^2=0.31$ ). This pattern may be explained by the potential need of older employees to self-medicate the pain associated with blue-collar work in old age.

#### 4. Discussion and conclusion

This study is important because it is the first to examine the relationship between retirement and drug abuse. Our results are interesting for several reasons. First, consistent with the claim of Patterson and Jeste (1999), we found that older adults are not immune from drug abuse: 26% of the sample reported having at least one problem relating to drug abuse, and over 2% reported a level of addiction high enough to justify formal, clinical assessment. Second, we found that, in general, being fully retired, as opposed to deferring retirement (at least for approximately four years after retirement eligibility), is associated with increased drug abuse severity. However, consistent with our first hypothesis, we also found that this main effect of retirement is conditioned by age. For those who have fully retired, age is inversely related to drug abuse severity with younger retirees reporting more abuse-related problems than older retirees. This relationship is reversed for those who defer retirement and remain employed at their primary workplaces. That is, younger, retirement-eligible workers who defer retirement and continue to work reported fewer drug-related problems than their older peers reported.

Table 3

Predicted DAST means and standard deviations by age group and working status

Age category	Still working			Fully retired		
	<i>n</i>	Mean	std	<i>n</i>	Mean	Std
1 – 39–43	6	0.26	0.05	3	0.76	0.09
2 – 44–48	27	0.30	0.08	11	0.71	0.10
3 – 49–53	175	0.23	0.09	84	0.42	0.12
4 – 54–58	160	0.28	0.11	165	0.36	0.10
5 – 59–63	63	0.45	0.13	266	0.36	0.06
6 – 64–70	6	0.47	0.05	7	0.33	0.09

Finally, consistent with Hypothesis 2, we found that retirement is linked to drug abuse severity only to the extent that retirees completely disengage from the workforce (i.e., opt for full retirement). Individuals, regardless of age, opting for bridge retirement reported levels of drug abuse severity not significantly different from those reported by individuals deferring retirement altogether, perhaps because, as noted earlier, many of the same motivations to abuse drugs that exist for those deferring retirement exist for those opting for bridge retirement.

Our findings give credence to the public health call for a shift in focus among treatment planners to address the special needs of an older population of substance abusers. Moreover, they suggest that the workplace might be an effective arena for intervention and counseling with older adults. Such counseling might help older workers find other means besides self-medication by which to cope with the physical and psychological strains associated with work or impending retirement.

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