



# Cognitive and Behavioral Risk Correlates of Marijuana Use by Older Adults

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## Introduction

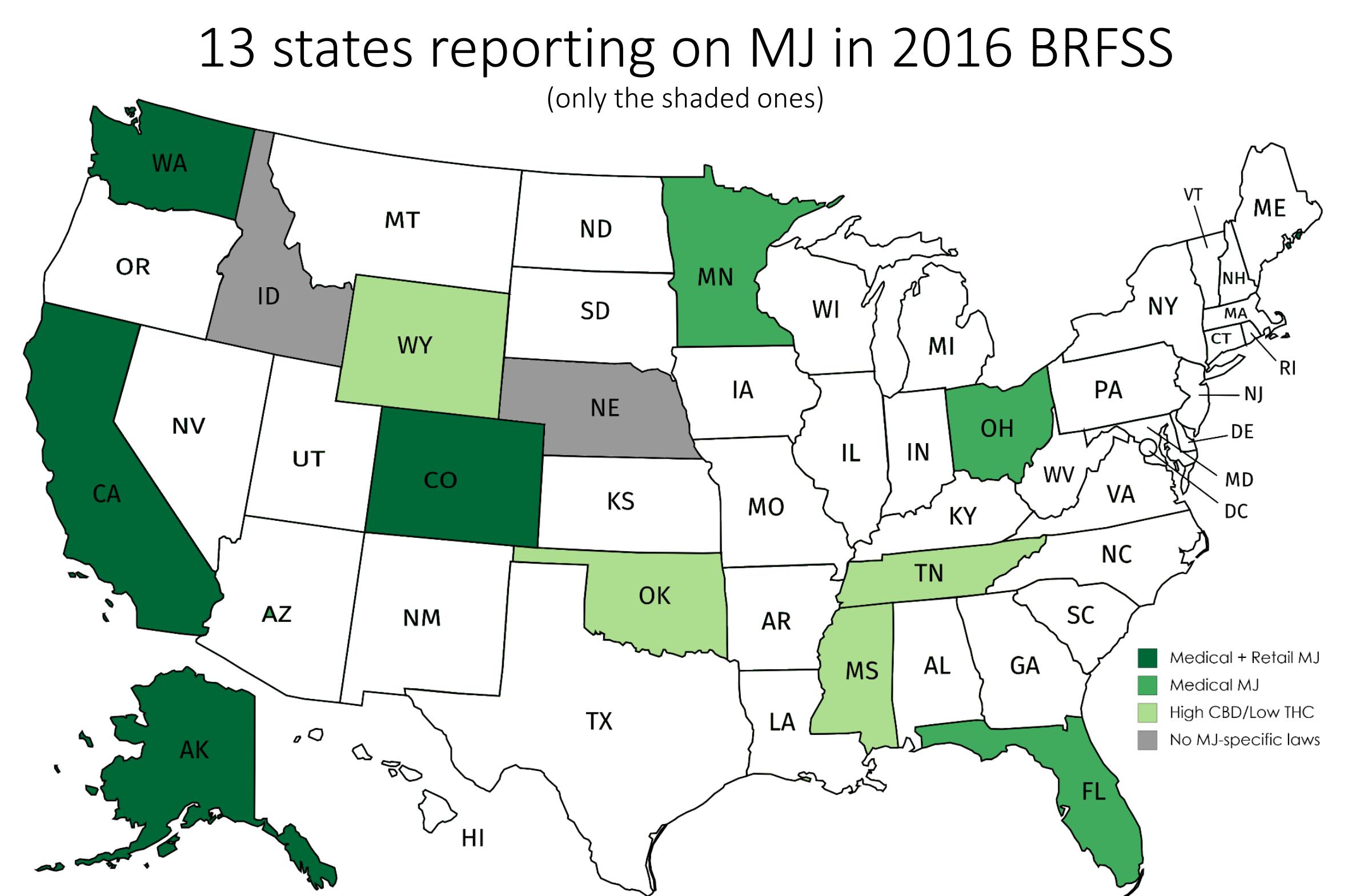
- Older adults are a fast-growing segment of the population, and their use of marijuana (MJ) is growing as well, according to data from the National Survey on Drug Use and Health (NSDUH).<sup>1</sup>
- Little is known about older MJ users, as most research has examined young adults, in whom MJ use is associated with cognitive impairment and behavioral risk-taking.
- Using data from the Behavioral Risk Factor Surveillance System (BRFSS), we examined whether similar associations are evident among adults age 45 and older.

## Methods

- In 2016, 13 states optionally queried MJ use in the prior 30 days as part of their annual BRFSS state survey.
  - During the past 30 days, on how many days did you use MJ or hashish?
  - During the past 30 days, how did you use MJ?
- 4 states queried confusion or memory loss (AK, ID, TN, WA)
  - Have you experienced confusion or memory loss that is happening more often or is getting worse?
- Data were obtained from the CDC BRFSS website and the WA Department of Health.
- Because days of MJ use were skewed, two past 30-day MJ use variables were created:
  - ANYMJ30, any MJ use (0=no, 1=yes)
  - DAYSMJ30, days MJ used (0=0, 1=1-4, 2=5-19, 3=20-30)

## Results

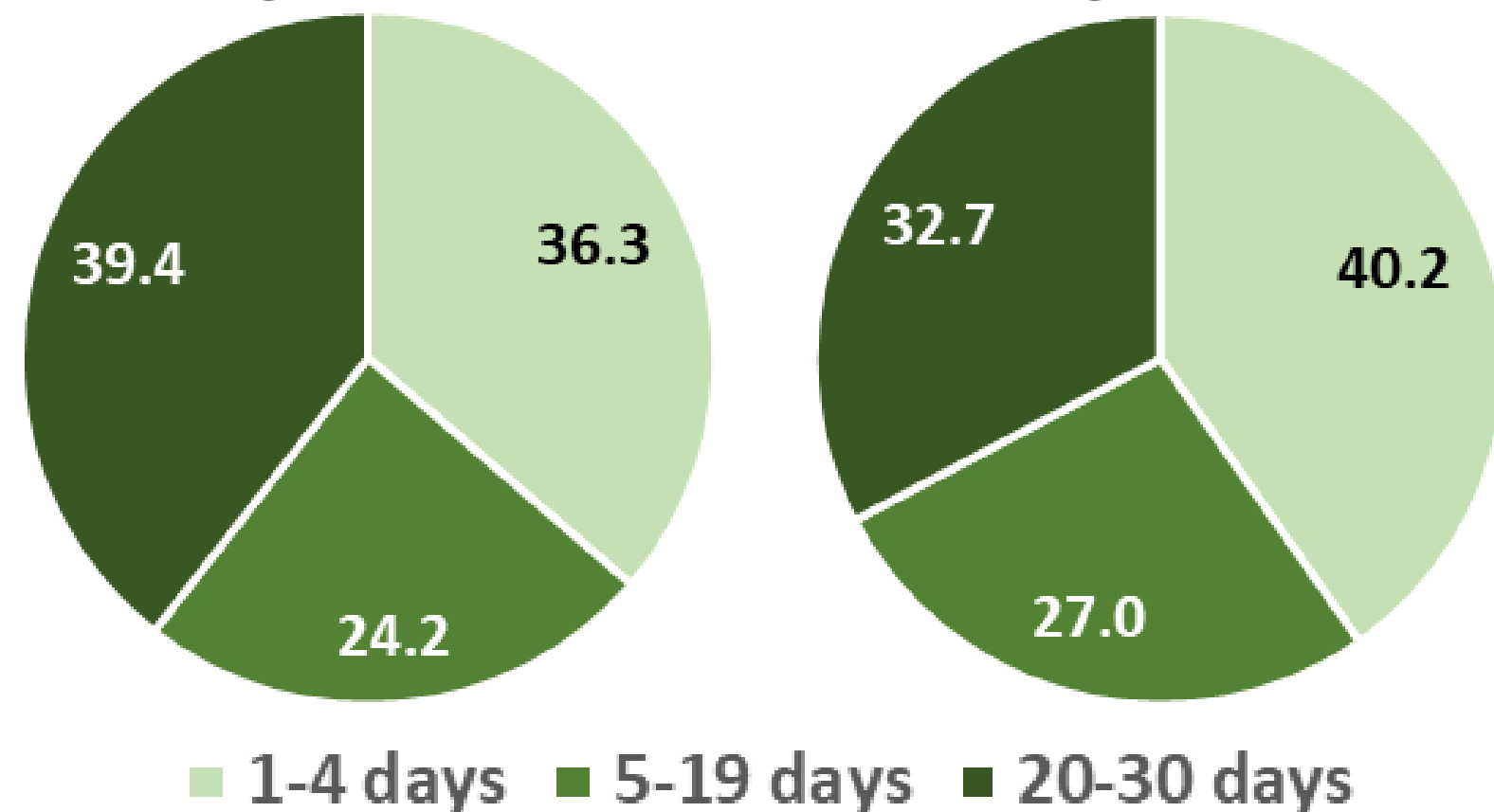
- Of N = 129,782 in the 13-state dataset, 74.1% were age 45 or over (n = 96,123), of whom 4% reported MJ use in the past 30 days.
- Overall, 6.1% of 45-64 year olds and 1.9% of 65+ year olds reported MJ use in the past 30 days.
- As expected, the highest rates of reported MJ use by older adults were in states with legalized medical and retail MJ sales.
- Among those who reported MJ use in the past 30 days, 39.4% of 45-64 year olds and 32.7% of 65+ year olds reportedly used 20+ days out of 30.
- Smoking was the most common method of use (87.3% of those 45-64, 75.4% of 65+), followed by edibles (19.5% of those 45-64, 23.2% of 65+), and vaping (11.2% of those 45-64, 10.5% of 65+).



% Reporting MJ Use in Past 30 Days by State

State	Age		Total
	45-64	65+	
Alaska (AK)	12.8%	6.7%	10.5%
Washington (WA)	12.2%	4.7%	8.4%
Colorado (CO)	11.1%	4.0%	7.8%
California (CA)	10.5%	3.9%	7.7%
Florida (FL)	5.7%	1.6%	3.5%
Oklahoma (OK)	4.1%	0.5%	2.2%
Minnesota (MN)	3.8%	1.1%	2.6%
Idaho (ID)	3.8%	1.1%	2.4%
Ohio (OH)	3.6%	0.8%	2.2%
Tennessee (TN)	3.4%	0.6%	2.0%
Wyoming (WY)	3.2%	1.0%	2.1%
Mississippi (MS)	2.7%	0.3%	1.5%
Nebraska (NE)	2.1%	0.3%	1.2%
<b>Overall</b>	<b>6.1%</b>	<b>1.9%</b>	<b>4.0%</b>

Days MJ Use in Past 30 Days Among Users  
Age 45-64      Age 65+



## Results

- Both any MJ use and level of MJ use were correlated with worse physical and emotional health, concentration difficulties, and confusion/memory loss, particularly in those 45-64.
- MJ use was most strongly correlated with problem alcohol use and cigarette use.
- Sexual risk was correlated with MJ use among all older adults age 45+.
- MJ use was unrelated to confusion/memory loss or seatbelt use in those age 65+.

**Correlations Between MJ Use and Risk Indices**

	Age 45-64		Age 65+	
	anymj30	daysmj30*	anymj30	daysmj30*
Would you say that in general your health is [poor-excellent]	<b><i>-.058</i></b>	<b><i>-.064</i></b>	-.001	-.008
Days* reported physical health not good past 30 days	<b><i>.077</i></b>	<b><i>.078</i></b>	<b><i>.023</i></b>	<b><i>.025</i></b>
Days* reported mental health not good past 30 days	<b><i>.102</i></b>	<b><i>.098</i></b>	<b><i>.053</i></b>	<b><i>.053</i></b>
Days* reported func not good d/t phys/ment past 30 days	<b><i>.066</i></b>	<b><i>.070</i></b>	<b><i>.027</i></b>	<b><i>.034</i></b>
Amount of sleep - 3 levels	.000	-.004	-.003	-.002
Limited any way d/t phys/ment/emot probs	<b><i>.091</i></b>	<b><i>.091</i></b>	<b><i>.037</i></b>	<b><i>.042</i></b>
Ever told you had a depressive disorder	<b><i>.082</i></b>	<b><i>.078</i></b>	<b><i>.048</i></b>	<b><i>.050</i></b>
Reported having fallen in past 12 months	<b><i>.068</i></b>	<b><i>.061</i></b>	<b><i>.027</i></b>	<b><i>.028</i></b>
Amount of falls in past 30 days - 3 levels	<b><i>.078</i></b>	<b><i>.074</i></b>	<b><i>.031</i></b>	<b><i>.031</i></b>
Difficulty concentrating, remembering, deciding due to physical/mental/emotional condition	<b><i>.082</i></b>	<b><i>.082</i></b>	<b><i>.023</i></b>	<b><i>.023</i></b>
Worsening confusion or memory loss in the past year	<b><i>.080</i></b>	<b><i>.079</i></b>	.018	.018
How long since last routine checkup?	<b><i>.062</i></b>	<b><i>.064</i></b>	<b><i>.043</i></b>	<b><i>.042</i></b>
How long since last visited a dentist?	<b><i>.064</i></b>	<b><i>.070</i></b>	<b><i>.013</i></b>	<b><i>.020</i></b>
Had at least one drink of alcohol in past 30 days	<b><i>.075</i></b>	<b><i>.052</i></b>	<b><i>.071</i></b>	<b><i>.057</i></b>
Reported drunk driving in past 30 days	<b><i>.068</i></b>	<b><i>.058</i></b>	<b><i>.070</i></b>	<b><i>.065</i></b>
Binge alcohol use within the past 30 days	<b><i>.127</i></b>	<b><i>.108</i></b>	<b><i>.103</i></b>	<b><i>.092</i></b>
Heavy alcohol use within the past 30 days	<b><i>.115</i></b>	<b><i>.107</i></b>	<b><i>.077</i></b>	<b><i>.075</i></b>
Alcohol use days per month	<b><i>.119</i></b>	<b><i>.100</i></b>	<b><i>.089</i></b>	<b><i>.077</i></b>
Average alcohol drinks per week	<b><i>.107</i></b>	<b><i>.110</i></b>	<b><i>.052</i></b>	<b><i>.056</i></b>
Classified as at-risk drinker per NIAAA	<b><i>.121</i></b>	<b><i>.123</i></b>	<b><i>.074</i></b>	<b><i>.073</i></b>
Have you ever been tested for HIV?	<b><i>.082</i></b>	<b><i>.081</i></b>	<b><i>.067</i></b>	<b><i>.067</i></b>
Any HIV risk situations in the past year	<b><i>.095</i></b>	<b><i>.080</i></b>	<b><i>.038</i></b>	<b><i>.032</i></b>
How often do you use a seatbelt?	<b><i>-.033</i></b>	<b><i>-.029</i></b>	<b><i>-.007</i></b>	<b><i>-.007</i></b>
Have you smoked at least 100 cigarettes in your entire life?	<b><i>.162</i></b>	<b><i>.156</i></b>	<b><i>.073</i></b>	<b><i>.070</i></b>

\*Days: 0=0, 1=1-4, 2=5-19, 3=20-30  
**bold p<.05, bold italic p<.01**

- Crosstabs were computed to examine odds of risk by MJ use by age group.
  - Those who reported using MJ in the past 30 days were [MJ] times as likely to report [RISK] as those who reported not using MJ.

	Binge Alcohol Use in Past 30 Days (yes/no)				Heavy Alcohol Use in Past 30 Days (yes/no)			
	Age 45-64				Age 45-64			
	OR	No MJ	MJ	N	OR	No MJ	MJ	N
Value	3.12	0.91	2.83	47164	3.46	0.88	3.06	47189
Lower	2.87	0.92	3.05		3.12	0.90	3.34	
Upper	3.40	0.90	2.63		3.83	0.87	2.80	

	Drunk Driving in Past 30 Days (yes/no)				HIV Risk Situations in Past Year (yes/no)			
	Age 45-64				Age 45-64			
	OR	No MJ	MJ	N	OR	No MJ	MJ	N
Value	5.64	0.93	5.26	46151	4.32	0.95	4.09	46078
Lower	4.75	0.94	6.17		3.58	0.96	4.89	
Upper	6.70	0.92	4.48		5.21	0.94	3.43	

## Discussion

- 45-64 year old MJ users were more likely to report cognitive and behavioral risk than non-using counterparts (1.91-3.71x).
- Compared to their non-using counterparts, senior MJ users were much more likely to report behavioral risk (4.09-5.26x).
- Importantly, these are correlational data, so causation is uncertain.
- Nonetheless, naïve older users should be cautioned about possible effects of MJ.
- More research is needed on interaction between effects of aging and MJ intoxication

	Difficultly Concentrating in Past 30 Days (yes/no)				Worsening Confusion or Memory Loss (yes/no)			
	Age 45-64				Age 45-64			
	OR	No MJ	MJ	N	OR	No MJ	MJ	N
Value	2.64	0.89	2.36	26260	4.44	0.84	3.71	47853
Lower	2.21	0.92	2.74		3.81	0.86	4.20	
Upper	3.15	0.87	2.03		5.18	0.81	3.29	

	Age 65+				Age 65+			
	OR	No MJ	MJ	N	OR	No MJ	MJ	N
	Value	4.73	0.90	4.28	20445	4.85	0.93	4.53
Lower	3.38	0.94	5.77		3.20	0.97	6.64	
Upper	6.63	0.87	3.18		7.35	0.90	3.10	

## Reference

<sup>1</sup>Han BH, Sherman S, Mauro PM, Martins SS, Rotenberg J, Palamar JJ. Demographic trends among older cannabis users in the United States, 2006-13. *Addiction*. 2017 Mar;112(3):516-25.

## Acknowledgment

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