

# Weeding Out Labor? Marijuana Laws and the Time Use of Young Adults

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# Motivation

## Pot and gaming combo could pose hidden health risks, researchers warn

New findings 'underscore the need for targeted interventions'



By Angelica Stabile · Fox News

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## Journal of Behavioral Addictions

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► *J Behav Addict.* 2025 May 15;14(2):660–678. doi: [10.1556/2006.2025.00040](https://doi.org/10.1556/2006.2025.00040) ↗

### Video gaming and cannabis use: A scoping review

[Emilie Y Jobin](#)<sup>1</sup>, [Andrée-Anne Légaré](#)<sup>1,\*</sup>, [Katerine Lehmann](#)<sup>1</sup>, [Eva Monson](#)<sup>1</sup>

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CRISIS AND ALERTS, HEALTH ADVOCACY, NEWS, PREVENTION EDUCATION

## *Cannabis and Gaming Risks: Studies Reveal Link to Psychotic Disorders*

NOVEMBER 18, 2025 | BY WRD NEWS TEAM

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# Research Question

- Does the legalization of recreational marijuana change how young adults use their time? How does this compare to middle-aged adults?
- Shorthand: Is there any evidence of the weed-smoking, video-game playing, labor-force-dropout young man?

# Prior work

- Correlation studies, using data on individual self-reported use of cannabis
  - Marijuana use is associated with worse labor market outcomes (Popovici & French, 2014)
  - Marijuana use is not associated with labor market outcomes (Johnson & White, 1995; Kerr, et al. 2019)
  - Males have lower employment rates and lower hours of work with cannabis use; females only lower employment rates (Bray, et al., 2000)

# Prior work

- Studies using differential timing of marijuana laws
  - Dave, et al (2022) find recreational legalization:
    - Increases use
    - No changes in employment and earnings (no diffs by age, gender)
  - Jergins (2022) uses ATUS, finds marijuana legalization laws
    - Increase Pr(woman 30-39 in LF)
    - Decrease time unemployed men 20-29 look for work
  - Nicolas & Maclean (2019) find that older adults (51+) report lower pain & higher work participation after medical marijuana was legalized
  - Chakraborty, et al. (2021) find a lower unemployment rate with no change in the size of the labor force in CO counties where marijuana was legalized

# Our Contribution

- We use a two-stage difference-in-difference approach and time-diary data to compare the effects of recreational marijuana legalization on the employment and other uses of time of young adults vs middle-aged adults and men vs women

# Estimation Strategy

- Use the differential timing of recreational marijuana legalization laws by state to generate an estimate of the impact of legalization on the time use of young adults and middle-aged adults, separated by gender
- Activities evaluated
  - Work, sleeping, HH activities, socializing, games, tv, and more
- Model used: Gardner's 2-stage DiD
- Compare to OLS

# Data: American Time Use Survey

- Collected by Census from random sample of Current Population Survey outgoing rotation group
- Survey half on weekends (25% each), half on weekdays (10% each)
- 2003 – 2023
- Diary day for 1 person in household - individual reports activity, researcher categorizes
- Age 15+, civilian, non-institutionalized
- Our focus:
  - Young adults (22-34)
  - Middle-aged adults (35-50)

# Data: American Time Use Survey

- The elephant in the room:

Yes, ATUS has a code for drug use. The number of individuals coded with this is nearly zero, which we KNOW is not accurate



# Activity Codes Used

- Socializing, relaxing, and leisure (top tier 12)
  - Subset: playing games, leisure computer use, tv (also eval. separately)
- Sleeping (top tier 01, second tier 01)
- Working, work-related (top tier 05)

  

- Education, education-related (top tier 06)
- Household activities (chores, upkeep) (top tier 02)
- Household services and care of others (top tiers 02, 03, 04, 07)
  - Top tier codes for hh activities, care & help of those in and outside of hh, and consumer purchases

  

- Volunteering (top tier 15)
- Religious and spiritual activity (top tier 14)

## Examples: Socializing, relaxing and leisure (top tier 12)

- Socializing and communicating with others
- Attending or hosting social events
- Relaxing and leisure (games, music, radio, tv, movies, drug use\*, relaxing, arts & crafts, collecting, reading, writing)
- Arts & entertainment (not sports)
- Subset: playing games, leisure computer use (also eval. separately)

## Examples: Household activities (top tier 02)

- Interior cleaning (cleaning, picking up)
- Laundry; sewing, repairing, maintaining textiles
- Food and drink prep, presentation, clean-up
- Interior & exterior maintenance, repair, décor
- Lawn and garden
- Animals and pets
- Vehicles
- Appliances, tools, toys
- Household management (bills, organization, planning, mail & messages, email, home security)

## Examples: HH services & care of others (02, 03, 04, 07)

- Previous slide activities
- Caring for and helping HH and non-HH children and adults
- Activities related to HH children's education, health
- Purchases – store, telephone, internet (gas, non-grocery food, clothing, tickets)
- Researching purchases

## Sample Characteristics

Characteristic	Young Adults	Middle-Aged Adults
Age	27.97	42.56
Female	0.50	0.51
Race		
White	0.80	0.80
Black	0.12	0.13
Asian	0.06	0.05
Other Races	0.01	0.01
Education		
Less than high school	0.09	0.10
High school graduate	0.45	0.42
Associate degree	0.09	0.10
Bachelor degree	0.27	0.23
Postgraduate degree	0.10	0.15
N	45,212	74,657

## Young Adults: Average Daily Minutes in Activity

Activity	All YA	Male YA	Female YA	Difference?
Socializing	240.29	260.80	219.99	Y
Games & Computer	30.55	42.51	18.72	Y
Games	18.52	28.88	8.28	Y
Computer leisure	12.03	13.64	10.44	Y
TV	129.00	139.59	118.51	Y
Sleeping	529.67	521.78	537.48	Y

## Young Adults: Average Daily Minutes in Activity

Activity	All YA	Male YA	Female YA	Difference?
Job	258.28	301.02	215.96	Y
Education	24.35	23.37	25.33	N
HH Activity	87.37	63.21	111.29	Y
HH Activity, Service, & Care	161.74	109.83	213.14	Y
Volunteering	4.30	4.07	4.54	N
Religious / Spiritual	5.21	4.57	5.84	Y

## Middle-Aged Adults: Average Daily Minutes in Activity

Activity	All MA	Male MA	Female MA	Difference?
Socializing	231.04	242.65	219.77	Y
Games & Computer	15.69	17.66	13.79	Y
Games	7.28	8.80	5.80	Y
Computer leisure	8.42	8.86	7.99	Y
TV	136.13	150.23	122.47	Y
Sleeping	508.56	501.72	515.20	Y

## Middle-Aged Adults: Average Daily Minutes in Activity

Activity	All MA	Male MA	Female MA	Difference?
Job	273.04	323.42	224.20	Y
Education	5.82	3.91	7.68	Y
HH Activity	114.36	83.12	144.65	Y
HH Activity, Service, & Care	189.05	139.62	236.98	Y
Volunteering	7.75	6.91	8.57	Y
Religious / Spiritual	7.14	6.08	8.17	Y

# Estimated Model

- LHS: individuals' minutes spent on a specific activity
- RHS:
  - Legal recreational marijuana (measured in state month-year)
  - Control variables:

. partnered/married	. age
. lives with parent	. race
. female	. educational attainment
. year of diary day	. diary day is a weekend
  - Standard errors clustered at state level

## Young Adults: Diff in Diff Results (Gardner)

Activity	Coef (Std. Err.)		
	All YA	Male YA	Female YA
Socializing	11.12** (5.155)	14.42** (7.024)	8.24 (5.725)
Games & Computer	2.69 (3.831)	2.63 (4.819)	2.40 (3.911)
Games	2.93 (3.322)	4.07 (5.135)	1.41 (2.075)
Computer leisure	-0.24 (2.119)	-1.44 (2.632)	0.99 (2.806)
TV	1.36 (3.310)	-0.60 (4.070)	4.28 (4.292)
Sleeping	4.30 (3.414)	5.82 (6.184)	2.56 (4.158)

Note: Results from OLS diff-in-diff models are consistent with magnitude and significance.  
 \*\* indicates significant at 5% level

## Young Adults: Diff in Diff Results (Gardner)

Activity	Coef (Std. Err.)		
	All YA	Male YA	Female YA
Job	-16.07* (8.363)	-22.44** (10.463)	-10.03 (10.976)
Education	-0.90 (3.247)	1.54 (3.335)	-3.69 (5.245)
HH Activity	2.27 (2.907)	3.18 (3.244)	1.50 (3.886)
HH Activity, Service, & Care	-2.55 (3.816)	2.84 (3.478)	-7.72 (5.188)
Volunteering	-0.82 (0.688)	-1.32 (0.845)	-0.24 (0.975)
Religious / Spiritual	-1.78*** (0.628)	-1.93* (1.110)	-1.64*** (0.617)

Note: Results from OLS diff-in-diff models are consistent with magnitude and significance

\*\*\* indicates significant at 1% level; \*\* at 5% level; \* at 10% level

# Interpretation of Effects of Legal Recreational Marijuana

- Young adults
- No evidence they play more video games or computer games
- ~ 5% increase in avg daily mins spent socializing for males
- ~ 7% decrease in avg daily mins spent working for males, no change for females
- ~ 42% decrease in participation in relig/spirit activities for males, 28% for females

## Middle-Aged Adults: Diff in Diff Results (Gardner)

Activity	Coef (Std. Err.)		
	All MA	Male MA	Female MA
Socializing	-5.51* (3.250)	0.41 (4.170)	-11.63*** (4.112)
Games & Computer	1.86 (1.142)	3.78 (1.899)**	-0.54 (1.014)
Games	1.74* (0.960)	3.77** (1.558)	-0.71 (0.972)
Computer leisure	0.12 (0.577)	0.01 (0.887)	0.17 (0.846)
TV	-8.98*** (2.558)	-7.02** (3.262)	-10.08*** (3.773)
Sleeping	1.12 (2.701)	2.29 (2.930)	0.13 (3.707)

Note: Results from OLS diff-in-diff models are consistent with magnitude and significance  
 \*\*\* indicates significant at 1% level; \*\* at 5% level; \* at 10% level

## Middle-Aged Adults: Diff in Diff Results (Gardner)

Activity	Coef (Std. Err.)		
	All MA	Male MA	Female MA
Job	-8.00 (7.295)	-18.81** (7.790)	3.19 (9.233)
Education	0.93 (1.064)	1.69*** (0.568)	0.27 (1.987)
HH Activity	6.43*** (2.447)	3.85 (3.427)	8.53** (3.307)
HH Activity, Service, & Care	4.02 (3.479)	2.86 (0.51)	4.60 (5.616)
Volunteering	0.18 (0.646)	-0.93 (0.793)	1.30 (1.082)
Religious / Spiritual	-1.38*** (0.494)	-1.30** (0.524)	-1.41** (0.716)

# Interpretation of Effects of Legal Recreational Marijuana

- Middle-aged adults
- Evidence males play more video games
  - 21% increase in “games and computers” driven entirely by increase in games (+42% given low average of games)
- ~ 5% decrease in avg daily mins spent socializing for females, driven by decrease in tv (-8%);
- Males also -4.7% for tv, seem to trade tv for games
- ~ 5.8% decrease in avg daily mins spent working for males, no change for females, but
- Also see a small but large in percentage terms increase in education for males
- ~ 42% decrease in participation in relig/spirit activities for males, 28% for females

# Takeaways?

- Men work less once recreational marijuana is legal, especially young men
  - Women have no change in work
- Young men are socializing more
- Middle-aged men are playing more games
- Middle-aged women socialize less & spend less time in leisure, but more time on household activities

# What do we do with these results?

- We were surprised to see so little happening with young adults – no evidence of this caricature of the pot-smoking, basement-dwelling, NILF young males
- They are socializing more – “I get by with a little help from my friends”?
- Some evidence middle-aged males working less
- Gender matters in findings
- Interesting reduction in religious/spiritual behavior

# What's next?

- Deeper look at some of the increases and decreases
- Can we tell if intensive or extensive margin?