

Consumption of cigarettes, alcohol, and marijuana in Manhattan after the September 11th terrorist attacks

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September 11th terrorist attacks

- Approximately 3,000 persons dead
- Approximately 28,000 surviving family members of these victims
- Approximately 2,400 physically injured
- Approximately 11,600 family members of physically injured victims
- Estimated 111,000 direct witnesses; virtually everyone saw it on TV
- Massive economic damages; about 100,000 jobs lost

Disasters that Result in Serious Psychological Sequelae

- Widespread damage to property
- Serious and ongoing financial problems
- Caused by human intent
- Associated with a high prevalence of trauma or loss of life

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Disasters and substance use

- Several studies have shown that survivors of disaster have substantial burden of psychiatric disorders
- Substance use well-documented co-morbid factor accompanying PTSD and depression
- Most research focused on direct survivors of disaster
- Little research in general population post-disaster

September 11th sequelae study methods

- Random digit dial telephone survey of Manhattan residents living below 110th Street
- Random selection of respondent in household; 10 calls per number dialed
- 35 minute questionnaire; 5-8 weeks after terrorist attacks
- Questions about demographics, trauma event experiences, lifetime stressors, substance use, PTSD, depression
- All analyses weighted to account for number of persons in household and number of telephones

Sampling Area: Manhattan, NYC



Substance use questions

- How many [cigarettes/alcohol/marijuana] did you [smoke/drink] during the week *before* September 11th?
- How many [] did you [] during the *past week*?

Measures of psychopathology (PTSD)

- Modified from National Women's Study: asks if respondents ever had a period of 2 or more weeks during which they experienced each PTSD symptom
- Information collected about recency of all symptoms
- Kappa coefficient of agreement between NWS PTSD module and SCID administered by clinicians was 0.77 for lifetime PTSD and 0.71 for current PTSD
- Modified to include open ended questions and association to WTC about any content related symptoms

Measures of psychopathology (depression and panic)

- **Depression:** modified, validated, version of the Structured Clinical Interview for DSM-IV major depression episode
- Information collected about recency of all symptoms

- **Peri-event panic attack:** modified version of the Diagnostic Interview Schedule
- At least four symptoms in the hours immediately after the September 11th attacks

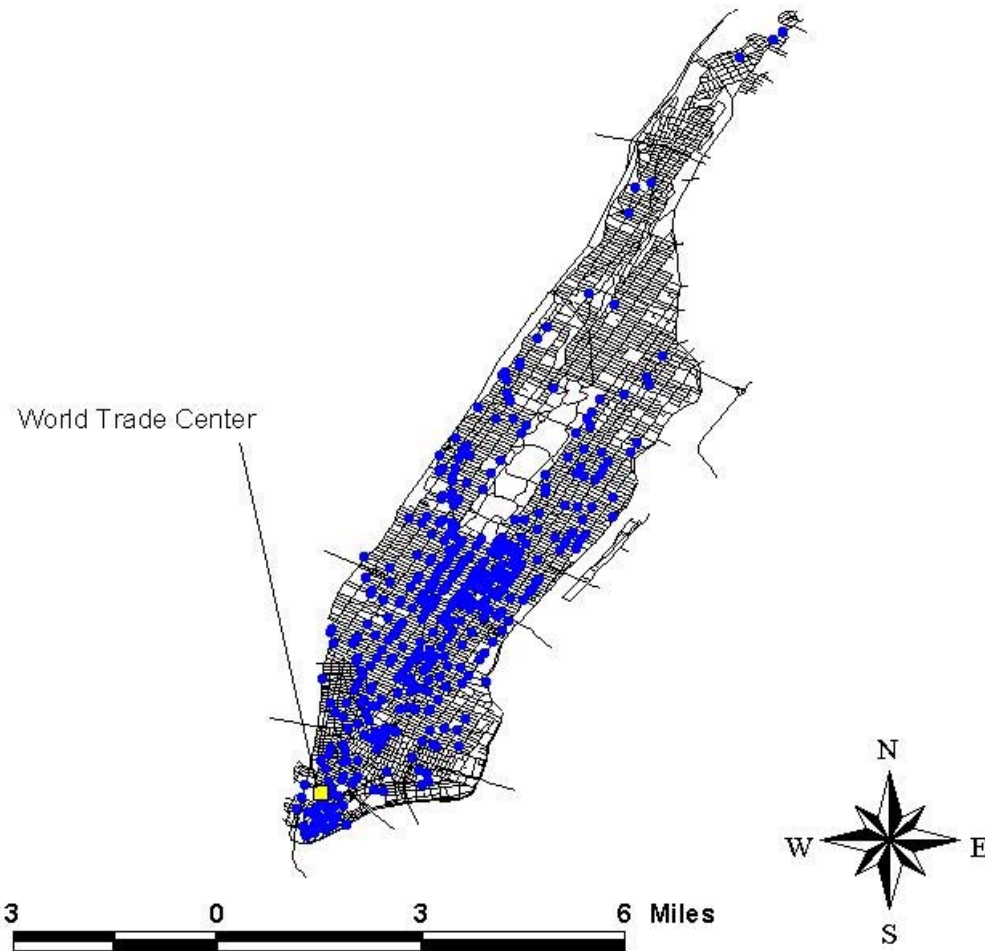
Sample demographics (n=988)

	n	Weighted %	Census 2000 %	Chi-square p-value
Age				
18-24	70	9.5	10.4	0.69
25-34	294	31.2	27.3	
35-44	193	20.0	19.9	
45-45	187	18.0	16.3	
55-64	122	12.2	11.3	
65+		9.1	14.8	
Gender				
Female	519	52.0	52.8	0.88
Male	469	48.0	47.2	
Race/ethnicity				
Asian	67	7.3	12.8	0.42
African-American	49	5.3	6.5	
White	702	71.6	63.9	
Hispanic	114	14.3	14.4	
Other	17	1.5	2.5	

Homes of WTCD Survey Respondents



Location of WTCD Respondents



September 11th event experiences (n=988)

	n	Weighted %
Lived before September 11 th attacks		
Below Canal St	50	6.2
Canal St to 14 th St	184	20.1
15 th St to 59 th St	283	27.1
60 th St to 110 th St	471	47.6
Saw attacks in person	370	
Friend/relative killed	108	
Displaced from home	64	
Lost possessions	36	
Involved in rescue efforts	111	
Lost job	64	

Prevalence of substance use and changes in substance use before and after Sept 11th

Substance	Percent used before Sept 11 th	95 % CI	Percent used after Sept 11 th	95% CI	Percent increased use after Sept 11 th	95% CI
Any	64.4	61.0-67.8	70.5	67.3-73.8	28.8	25.7-32.0
Cigarettes	22.6	19.7-25.5	23.4	20.4-26.3	9.7	7.9-11.4
Alcohol	59.1	55.5-62.8	64.4	61.0-67.9	24.6	21.5-27.8
Marijuana	4.4	2.9-5.8	5.7	4.0-7.3	3.2	1.9-4.6

Increased substance use after September 11th

	Percent increased use after Sept 11 th	95% CI	Population estimate*
Any	28.8	25.7-32.0	266,000
Cigarettes	9.7	7.9-11.4	89,000
Alcohol	24.6	21.5-27.8	226,000
Marijuana	3.2	1.9-4.6	29,000

*Based on US Census Bureau estimates that there were 918,665 residents of NYC in 2000
Rounded to nearest 1,000

Mental health in NYC post-September 11th

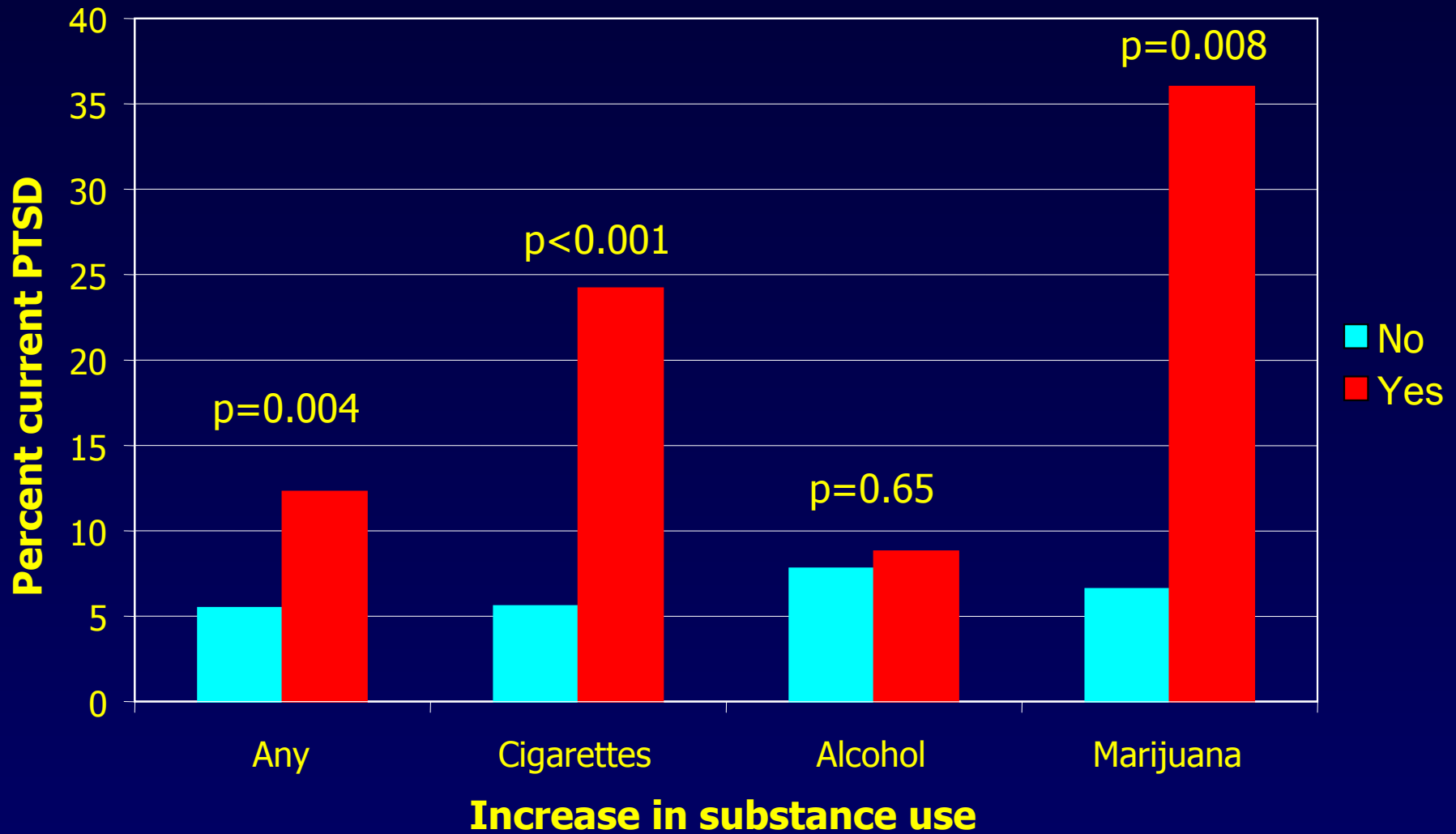
	n (total= 988)	Weighted %	95% Confidence Interval
PTSD			
Lifetime	187	17.7	15.1-20.3
Current	95	8.9	7.0-10.8
Related to Sep 11 th attacks	78	7.5	5.7-9.3
MDE			
Lifetime	247	24.8	21.8-27.8
Current	99	9.7	11.2-16.0
Current PTSD or depression	139	13.9	11.2-16.0

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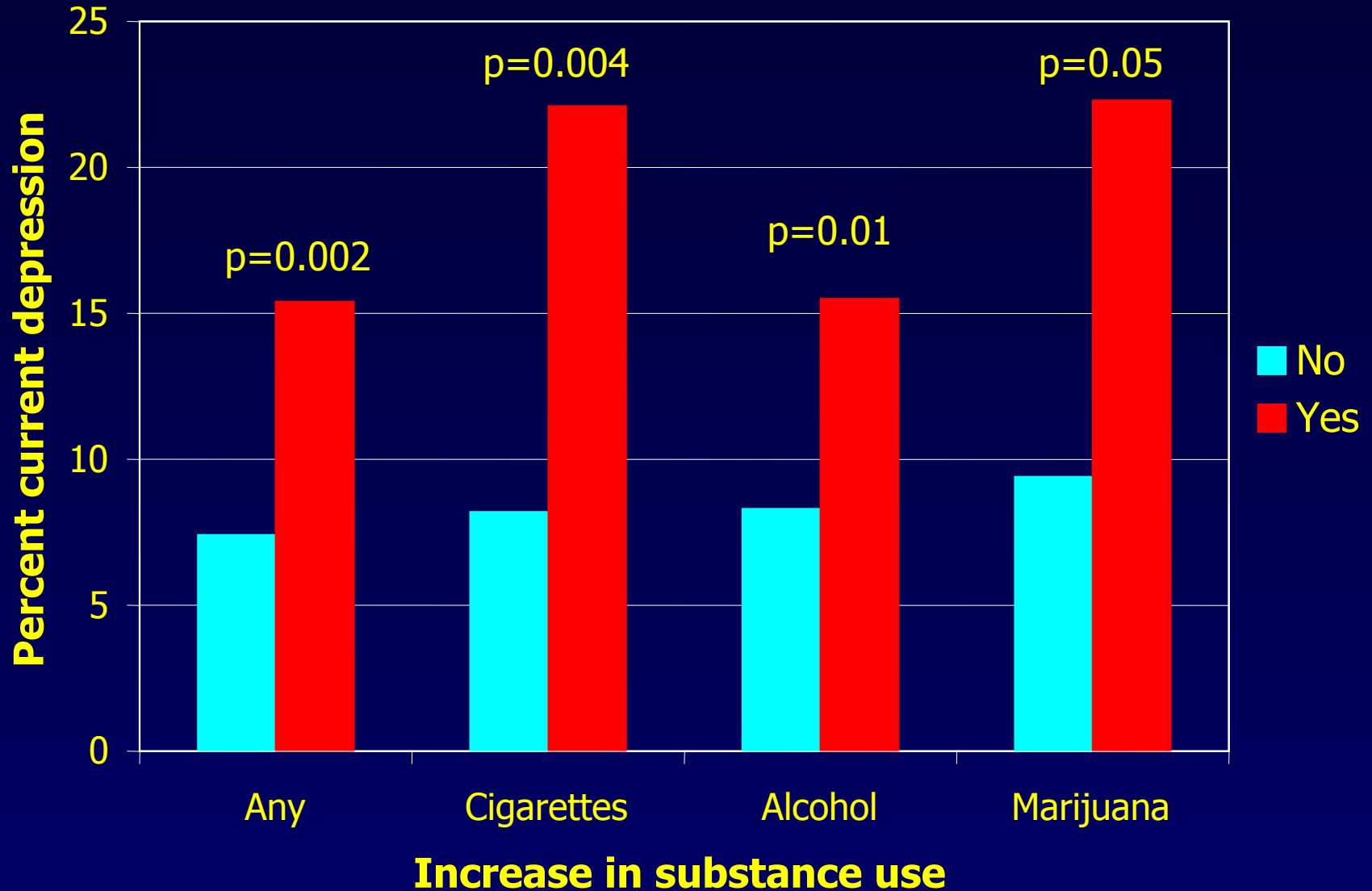
	n (total= 988)	Weighted %	95% Confidence Interval	Population estimate*
PTSD				
Lifetime	187	17.7	15.1-20.3	163,000
Current	95	8.9	7.0-10.8	82,000
Related to Sep 11 th attacks	78	7.5	5.7-9.3	69,000
MDE				
Lifetime	247	24.8	21.8-27.8	228,000
Current	99	9.7	11.2-16.0	89,000
Current PTSD or depression	139	13.9	11.2-16.0	128,000

*Based on US Census Bureau estimates that there were 918,665 residents of NYC in 2000
Rounded to nearest 1,000

Increase in substance use and PTSD



Increase in substance use and depression



Multivariable model predicting any increase in substance use

	OR	95 % CI
Age		
18-24	1.0	-
25-34	0.8	0.4-1.6
35-44	1.0	0.5-2.0
45-54	0.5	0.2-1.0
55-64	0.6	0.3-1.4
65+	0.3	0.1-0.9
Income		
\$100,000+	1.0	-
\$75,000-\$99,999	1.4	0.8-2.4
\$40,000-\$74,999	1.0	0.6-1.6
\$20,000-\$39,999	1.1	0.6-1.8
<\$20,000	0.4	0.2-0.8
Marital status		
Married	1.0	-
Divorced, separated	1.3	0.7-2.3
Never married	1.2	0.8-1.9
Unmarried couple	1.9	1.0-3.5

Multivariable model predicting any increase in substance use (continued)

	OR	95 % CI
Life stressors before Sept 11th		
0	1.0	-
1	1.5	1.0-2.3
2+	1.2	0.7-1.9
Fear of personal injury/death		
No	1.0	-
Yes	1.4	0.9-2.2
Peri-event panic attack		
No	1.0	-
Yes	1.9	1.1-3.2
Media exposure		
Low	1.0	-
Medium	1.1	0.7-1.7
High	1.5	1.0-2.4

Summary

- Substantial increase in substance use in the acute post-disaster period
- 28.8% of respondents reported an increase in any substance
- Population estimates suggest greater than 266,000 people increased use of some substance after the September 11th attacks

Summary

- Increase in use of substances co-occurring with increased prevalence of PTSD and depression
- Increase in alcohol use less consistently associated with psychopathology
- Variables associated with increase in substances were: age, income, marital status, location before September 11th, life stressors before September 11th, fear of personal injury/death, peri-event panic attack, lost job, media exposure

Increased substance use after disasters

- Persons who experience major trauma may use substances to relax and cope with stress
- Persons with anxiety disorders (e.g., PTSD) may suffer exacerbated withdrawal symptoms
- Persons with PTSD or depression may use drugs in an attempt to self-medicate
- Substance use could exacerbate symptomatology, interfering with resolution of traumatic experience

Conclusions

- Different factors may be associated with dependence/abuse than with increased use
- Increase in substance use post-disaster should guide clinicians to consider psychopathology and vice versa
- Longitudinal studies post-September 11th research needed to identify correlates that have prognostic significance and guide intervention planning

EXTRA SLIDES

PTSD Symptoms Specific to September 11th attacks and Criterion Groups

