

# *Why Addiction is a Disorder of Choice and Decision*

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# Talk Outline

- The claim that drug use in addicts is chronic and compulsive (meaning involuntary or not choice)
- How to define the voluntary/involuntary continuum so that we can test claims about addiction
- Relevant data
- Comments on why many still call addiction a chronic disease
- Implications of the results for treatment

# Papers relevant to talk

- Heyman, G. M. (2013). Addiction: An Emergent Consequence of Elementary Choice Principles. *Inquiry*, 56, 428-445.
- 
- Heyman, G. M. (2013). Addiction and choice: theory and new data. *Frontiers in Psychiatry*, 4:31. doi: 10.3389/fpsy.2013.00031.
- 
- Heyman, G. M. (2013). Quitting drugs: quantitative and qualitative features. *Annual Review of Clinical Psychology*, 9, 29-59.
- 
- Heyman, G. M. (2009) *Addiction: A disorder of choice*. Cambridge: Harvard University Press.

American experts: Alan Leshner & Nora Volkow, past and present directors of US National Institute on Drug Abuse (NIDA)

- “Addiction is a brain disease . . . For most people, it [addiction] is a chronic relapsing disorder . . . . addiction must be approached more like other chronic illnesses.”

“A metaphorical switch in the brain [is] thrown as a result of prolonged drug use. Initially, drug use is a voluntary behavior, but when that switch is thrown, the individual moves into a state of addiction, characterized by compulsive drug seeking and use.” *Leshner, Science, 1997.*

- “The key symptoms of addiction...are *compulsive* drug intake and intense drive to take the drug....” “at the expense of life-preserving activities.” *Volkow, 1992, 2000*

## Policy recommendations regarding insurance coverage, treatment and individual responsibility for addiction

- “. . . effects of drug dependence treatment are optimized when patients remain in continuing care and monitoring without limits or restrictions on the number of days or visits covered.”
  - (A. T. McLellan, Recent Deputy Director of Drug Control Policy, Obama Administration)
- “Ten percent of [the] population [are] unknowingly vulnerable to alcoholism when they drink. They can’t be held responsible for developing that illness.”
  - Dr. David Gastfriend, Recent Director of the Addiction Research Center at Massachusetts General
- “ I find it useful to conceptualize addiction as the cancer of behavior. How else could one fathom the mother who buys cocaine for herself instead of food for her children ...”
  - Dr. P. Martin *in New England Journal of Medicine*

However, the idioms that are specific to addiction do not support expert opinion

- “Kicking the habit”

- “Going cold turkey”

- Significance:

- Capture regularities in experience, suggesting quitting is common and possibly unassisted
- No such idioms for diseases addiction is said to be similar to

# How to empirically test claims about addiction

- Chronic
- The voluntary/involuntary continuum: Activities vary in the degree to which they are influenced by their consequences

# Examples and difficult cases

## ■ Contrasts

- Kicking a ball vs. patellar reflex
- Rouge vs. blush
- Wink vs. blink

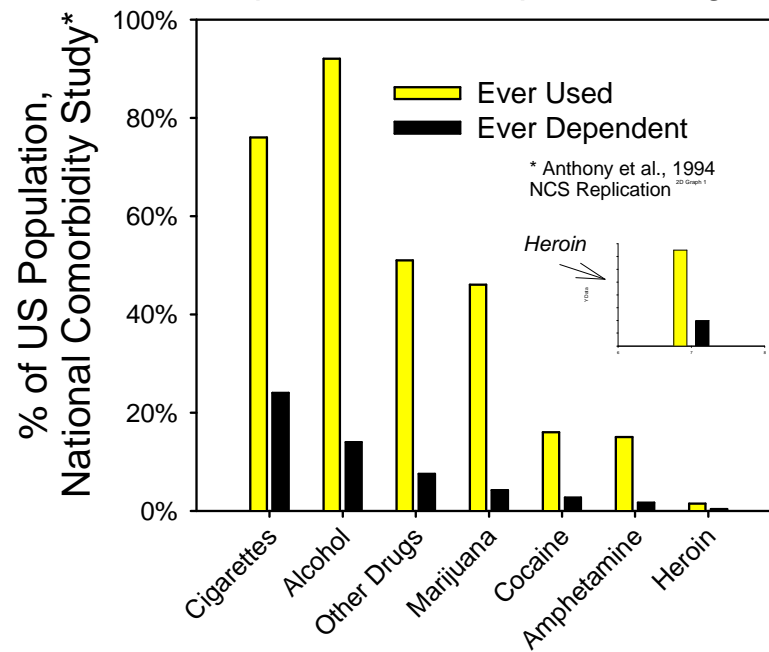
## ■ Difficult cases: OCD symptoms, “accidents” compelled crimes (e.g., kidnap victim forced to rob bank)



## How to identify addicts

- Use the American Psychiatric Association (DSM) behavioral criteria for “substance dependence” to distinguish addicts from drug users
  
- Rationale:
  - Official criteria for clinics, courts, & researchers
  - Reliable/research based
  - Divides drug users into meaningful categories
  
- Key feature: persistence of drug use despite aversive consequences
  - High levels of drug use (e.g., tolerance, withdrawal)
  - health & job risks
  - Relapse & takes more than initially intended

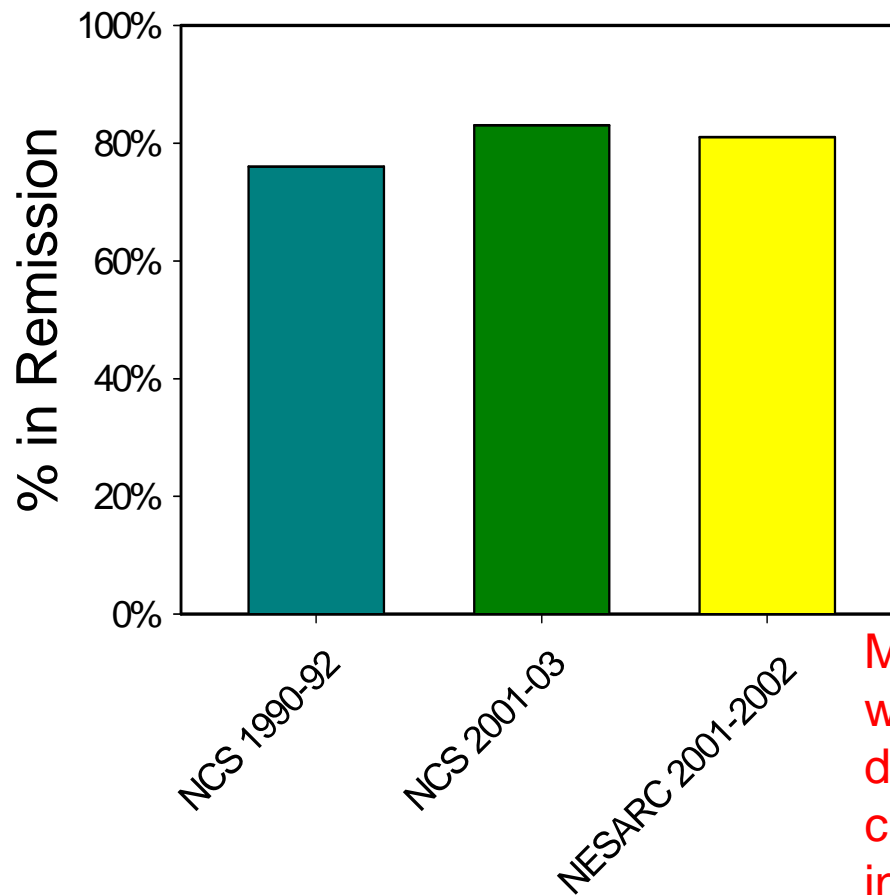
Lifetime Use and Lifetime Dependence for Specific Drugs



Overall prevalence of drug use and drug dependence

# Is addiction a chronic disorder, as so often claimed?

Remission in Representative Samples of Dependent (Addicted) Drug Users (N approx. 2700)



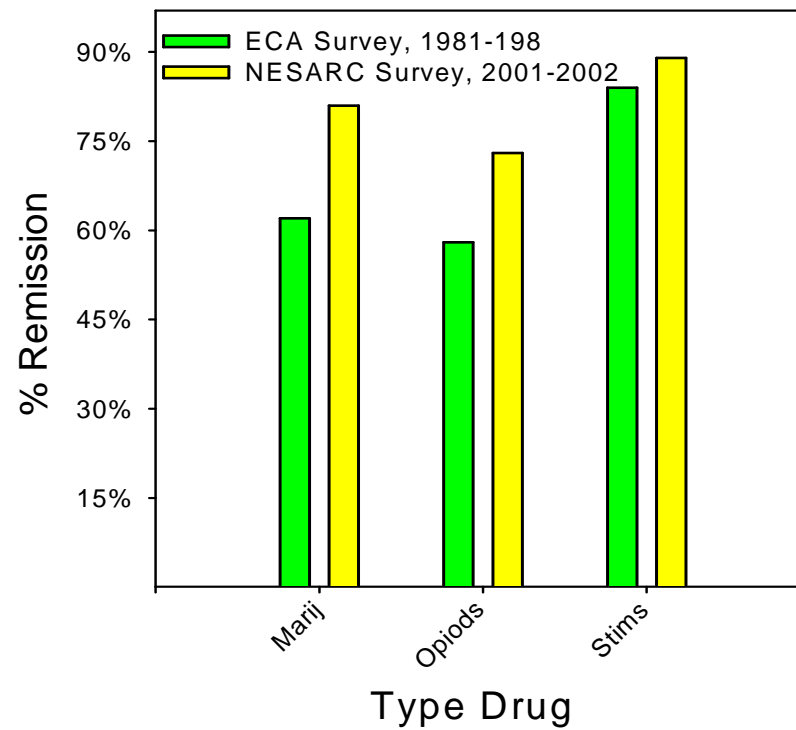
Most of those who met dependence criteria were not in treatment.

paraphrasing O'Brien and McLellan: "cure is an unrealistic hope, addiction requires lifelong treatment as does "arthritis, diabetes, asthma""

Textbook of Clinical Psychiatry: "for addiction patients recovery is a never-ending process, the term *cure* is avoided.

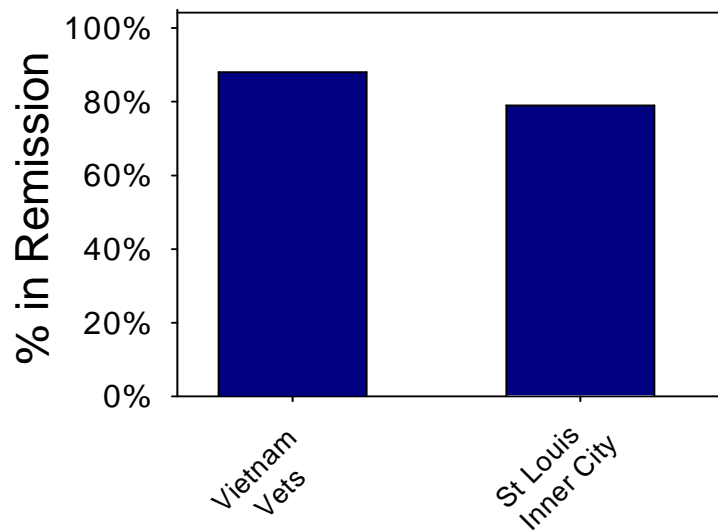
Did type  
of drug  
matter?

## High remission rates for different drugs

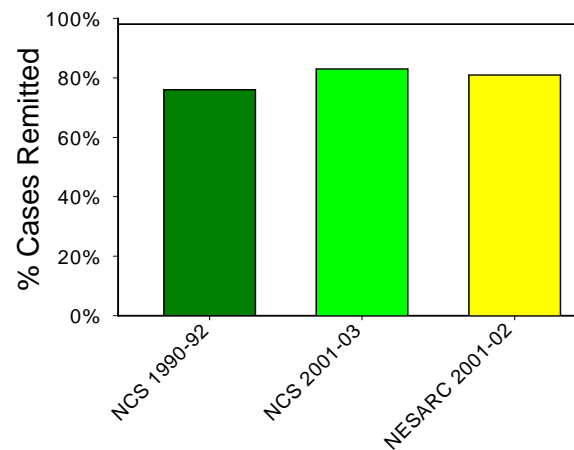


Does type of study matter?

Remission in studies that include repeated, face-to-face interviews, back-up validation methods, subjects selected independent of tx history

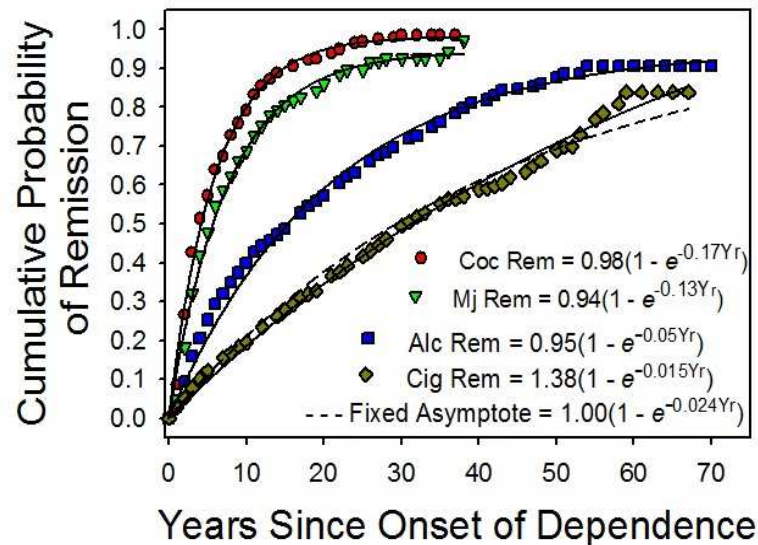


% of "Cases" Who No Longer Met Criteria for Drug Dependence



Remission varies as function of age, legal status, type drug

### Negative Exponential Model of Remission



Details of most recent epidemiological study (NESARC, 2001-2002)

The simplest possible model of quitting:

Assume that remission is relatively permanent and occurs at a relatively fixed rate.

Then cumulative remission probability should increase according to a negative exponential equation and approach asymptote of approximately 1.0 .

Yrs for 50% to remit:

Cocaine: 4

Marijuana: 6

Alcohol: 16

Cigarettes: 31

Lopez-Quintero et al, 2010;

Heyman, 2013

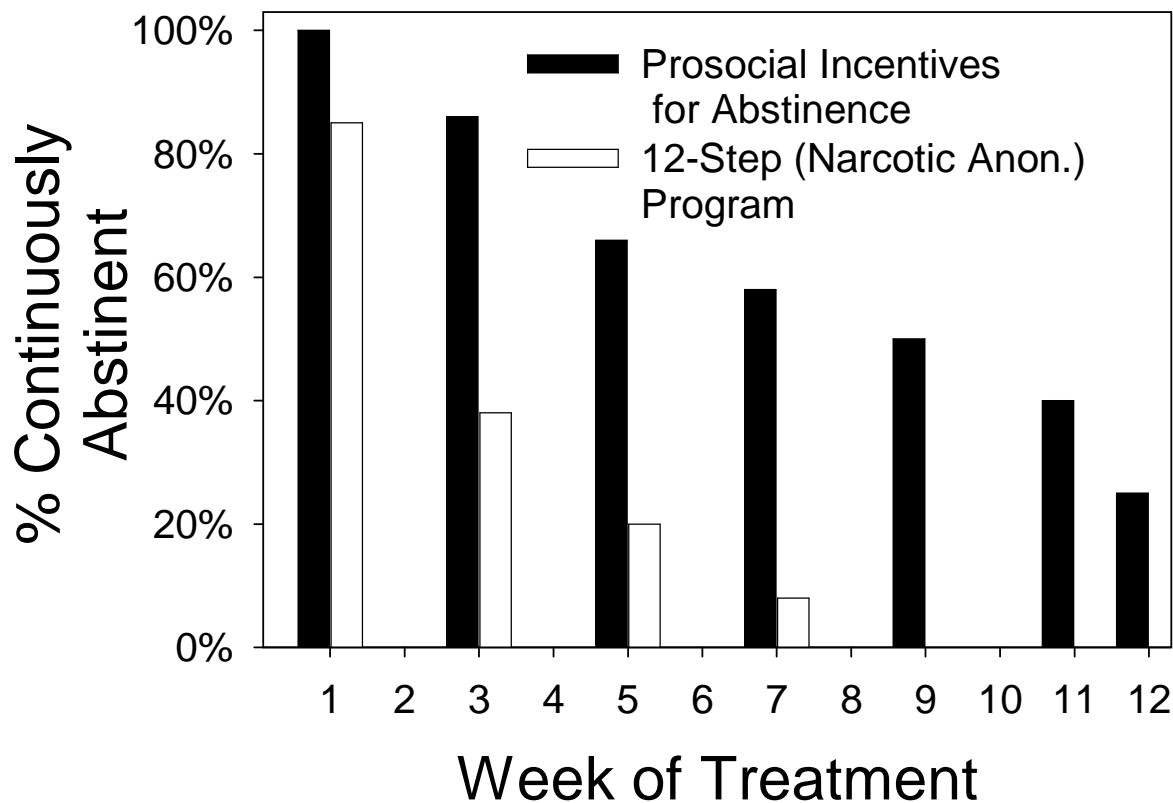
For discussion of validity , e.g., “missing addicts,” stability, and “real addicts don’t quit,” see Heyman (2013)

# Correlates of quitting: Did consequences of drug use influence quitting?

- That most remitters are not in treatment suggests that everyday events must play an important role
- Biographical reports provide information on everyday events correlated with quitting
  - “I wasn’t put on earth to be an addict”
  - “I wanted my parents to be proud of me again”
  - “I didn’t want to embarrass my children”
- Biographical reports stress ordinary concerns
  - Fear of arrest
  - Finances and occupational concerns
  - Family pressures
  - The many hassles that can be associated with illegal activity

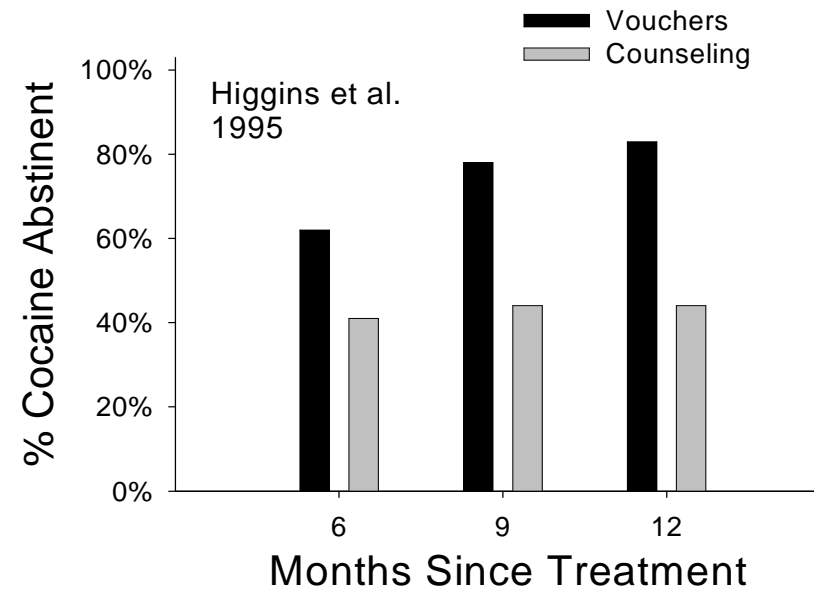
# Retail Vouchers Reduce Cocaine Use

Explicit test of  
whether  
consequences  
influence  
quitting

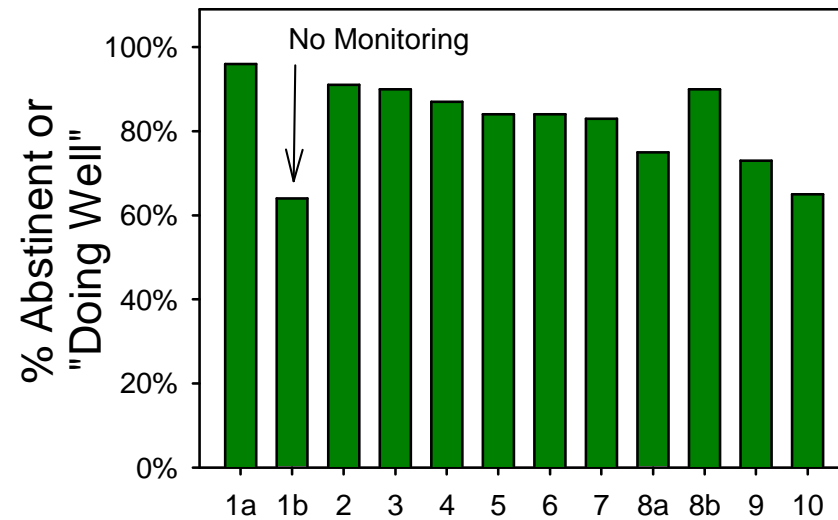




Evidence that consequences set in motion a positive feedback loop for sobriety



## Abstinence When Positive Drug Tests Can Result in Job Loss



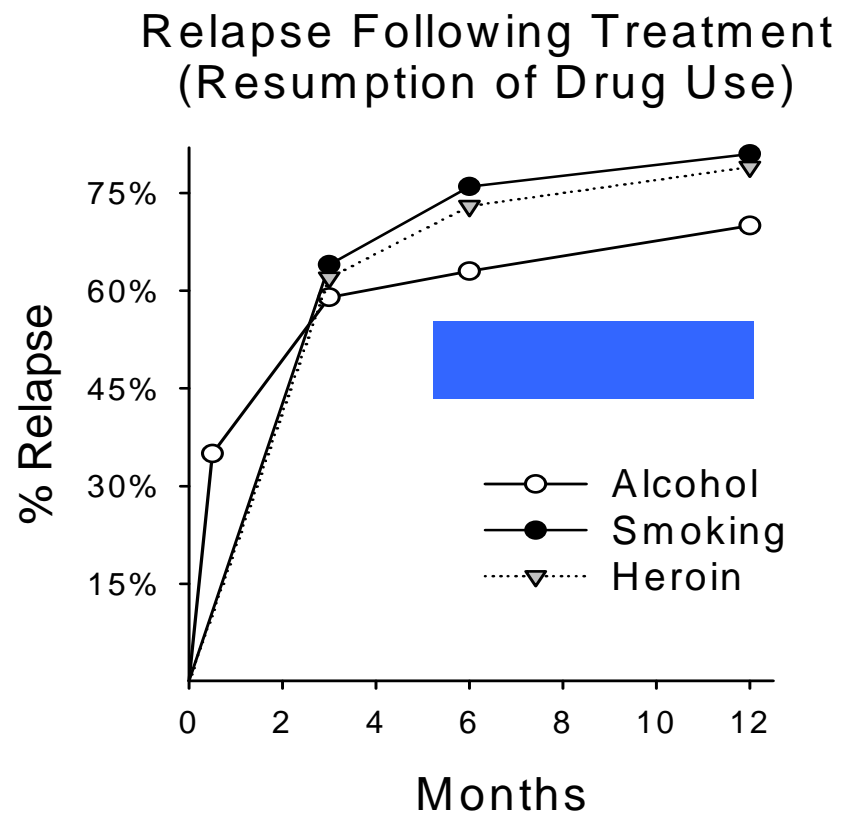
12 data sets from  
follow-up studies with  
doctors and pilots who  
had been suspended  
from work for drug use

# Methodological issues

- Missing addicts (e.g., higher mortality rates, lack of participation)?+
- Stability of remission?\*
- Do high remission rates persist when self-report is validated?\*

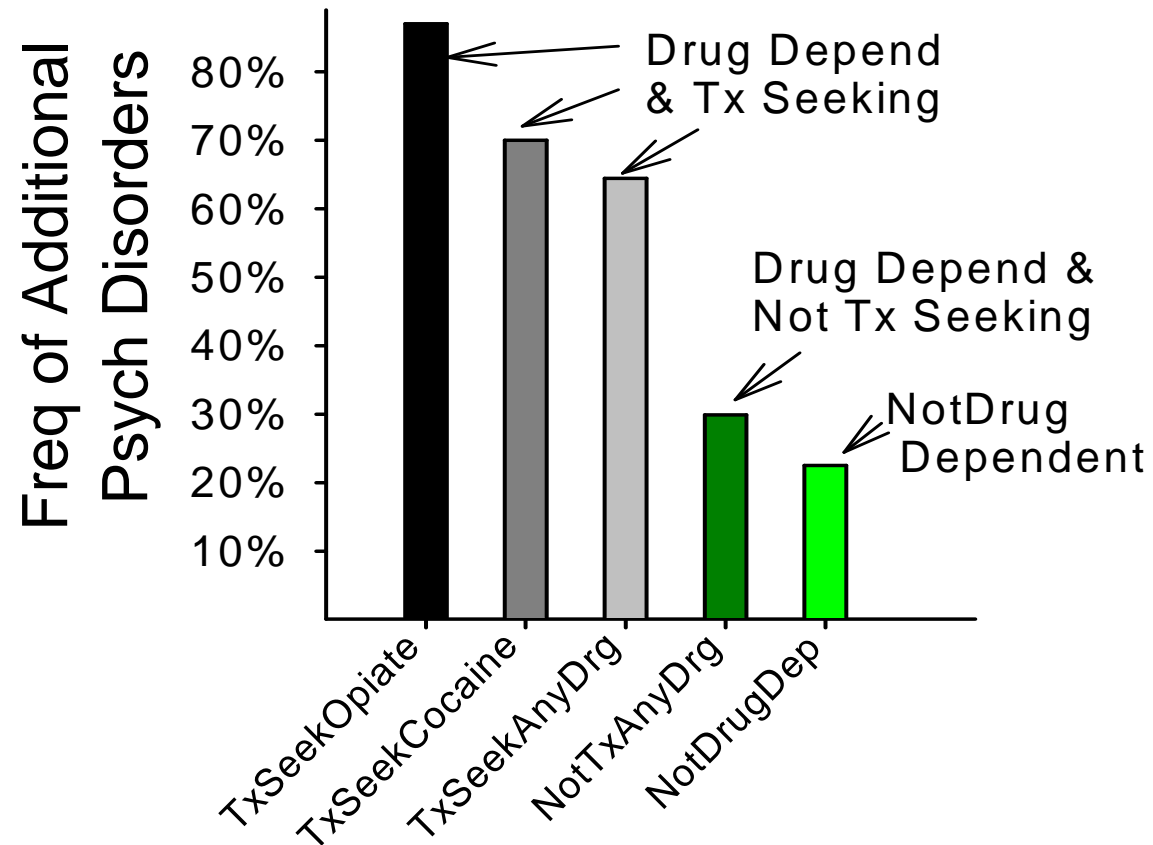
+ Discussed in detail in 2013 *Annual Review of Clinical Psychology* chapter

But why do we say that addiction is a chronic relapsing disease?



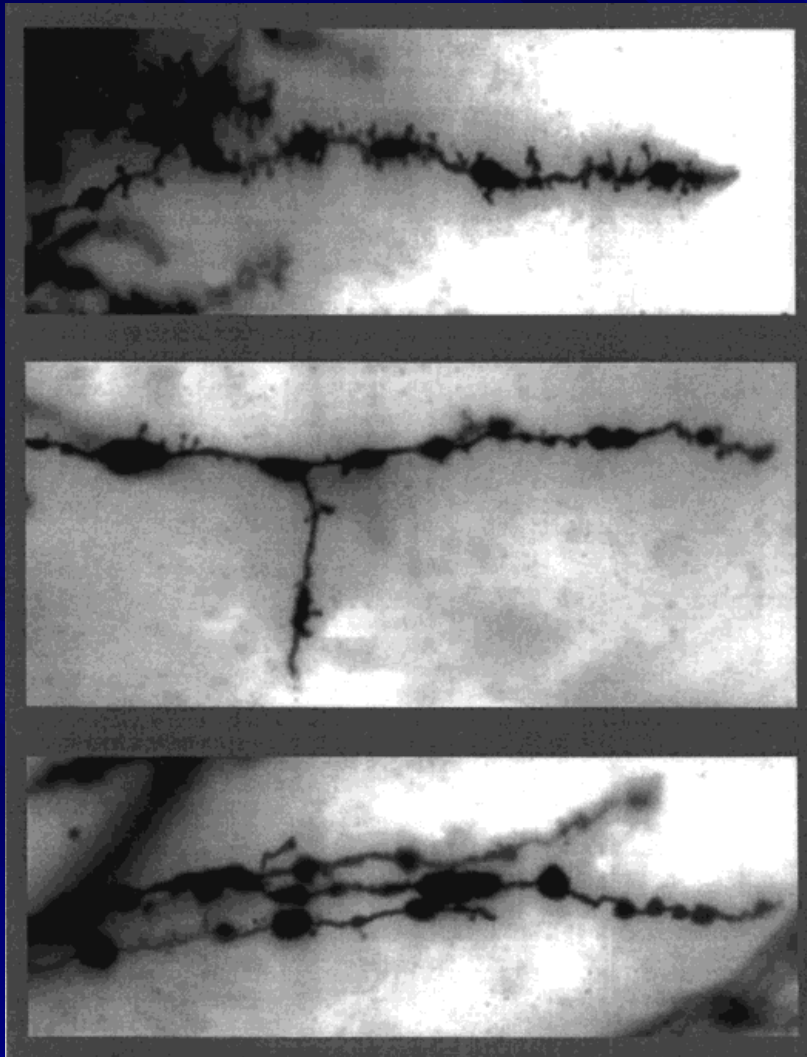
Berkson's  
bias

## Treatment Seeking is Correlated With Higher Comorbidity\*



\* Regier et al., 1990; Rounsaville et al., 1991

“But drugs change the brain...and that makes it a disease”



“Changes in nucleus accumbens and cortex produce a “recipe for addiction.”

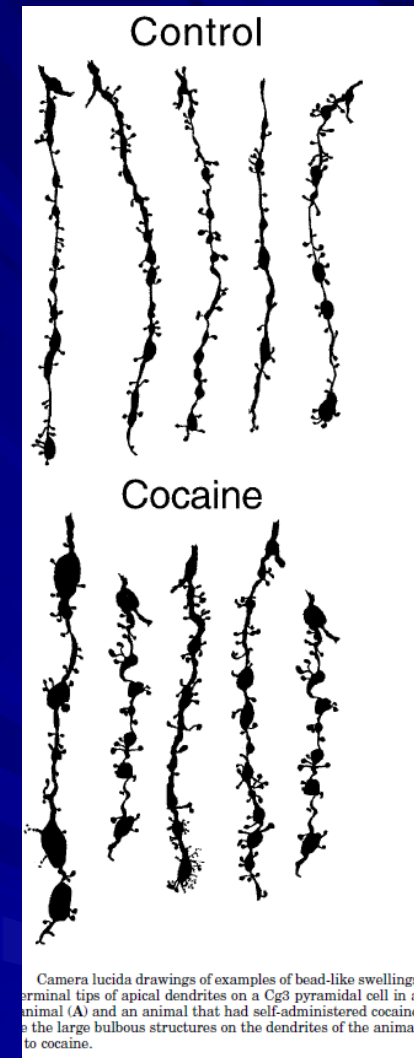
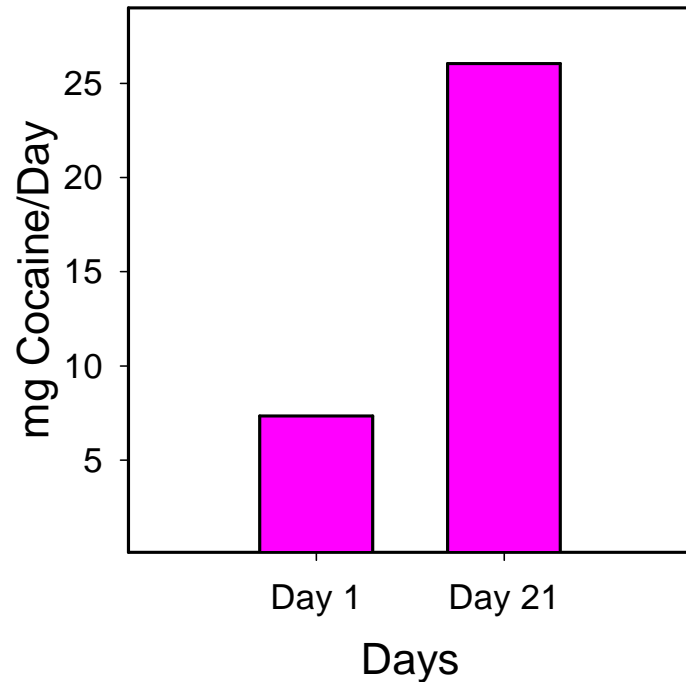
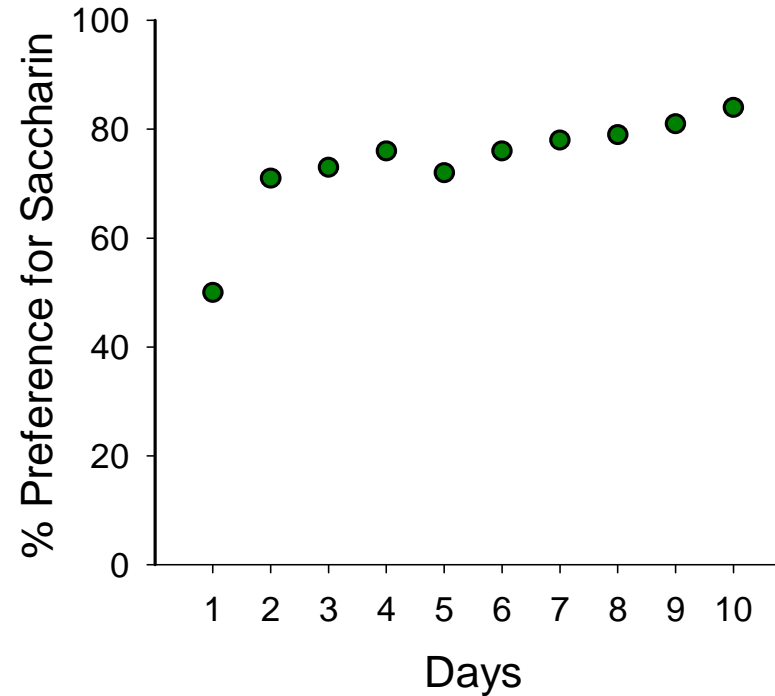


Fig. 5. Photographs of three examples of apparently anomalous apical dendrites on Cg3 pyramidal cells in rats that self-administered cocaine (see text). Robinson et al., 2001, *Synapse*...

Cocaine Intake Escalates  
When It Is Only Option

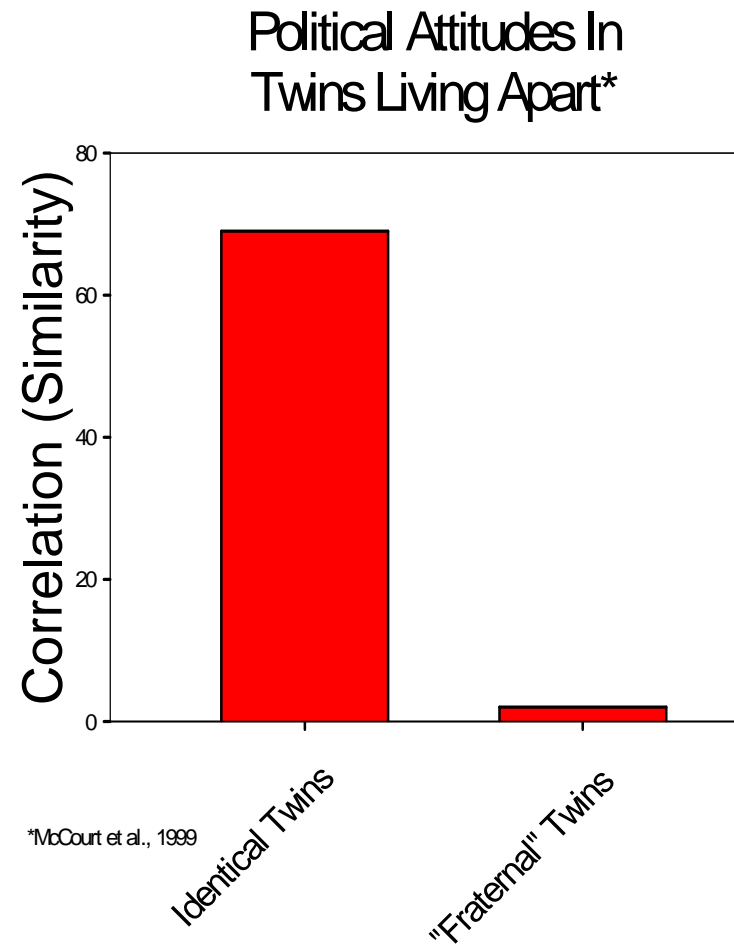


Given Access to Saccharin, Preference  
Shifts to Saccharin Following  
Escalated Cocaine Intake



Motor sensitization (3x as much cocaine as in  
Robinson study); saccharin linked to lower DA  
release)

“But there is a genetic predisposition for addiction, which makes it a disease”



But as this graph shows voluntary behavior has a genetic basis also



## Summary of the data on drug use in addicts: In accordance with the idioms that distinguish addiction from chronic illnesses:

- Most addicts stop using drugs at clinically significant levels and usually do so without professional assistance
  - But large differences as a function of type of drug
  - Differences are correlated with availability
- The primary environmental correlates of quitting are the factors that influence everyday decisions: familial concerns, economics, & values (and legal status of drug)
- Importantly, we cannot make a similar summary for the correlates of recovery from “chronic illnesses”
- Although addiction has a biological basis, it differs significantly from disorders we call diseases

## Comments on the conclusion

- That addiction entails voluntary drug use does not mean that it is easy to quit (not free will but consequences)
- Does not mean that the person can quit
  - What if there is no better alternative?
- Does not mean that drug use is any less of a problem
- But it offers solutions that we know work and suggests more far-ranging solutions

# Clinical implications

- Obvious ones that we have seen: provide immediate consequences for sobriety and drug use
- Less obvious, but possibly more useful and practical
  - Scientific evidence that most addicts quit should provide confidence and incentives for others to quit
  - logical implications of idea that addiction is a choice says that addicts can “recover” by helping others (see next slide)

# How to get from voluntary drug use in addicts to recovery by way of helping others

- Assume drug use in addicts is voluntary
- We always make the best choice (axiomatic)
- For heavy users, drug use is best choice when options are defined narrowly (the next moment).
- But an extended series of drug choices is a poor pattern of choices
- Helping others expands the frame of reference, takes time away from egocentric activities, and earns respect
- Thus, an efficient “cure” for addiction is for addicts to help others.
- AA discovered the same “cure” empirically (e.g., “sponsorship”).

## The proper questions & conclusions

- All psychological phenomena vary as a function of variation in genes and brain structure/function
- Thus, we can ask: do genes and drug-induced neural adaptations insulate drug use in addicts from the determinants of choice?
- The data say “no” : drug use in addicts remains voluntary
- Choice framework solutions have a proven track record: they work.