

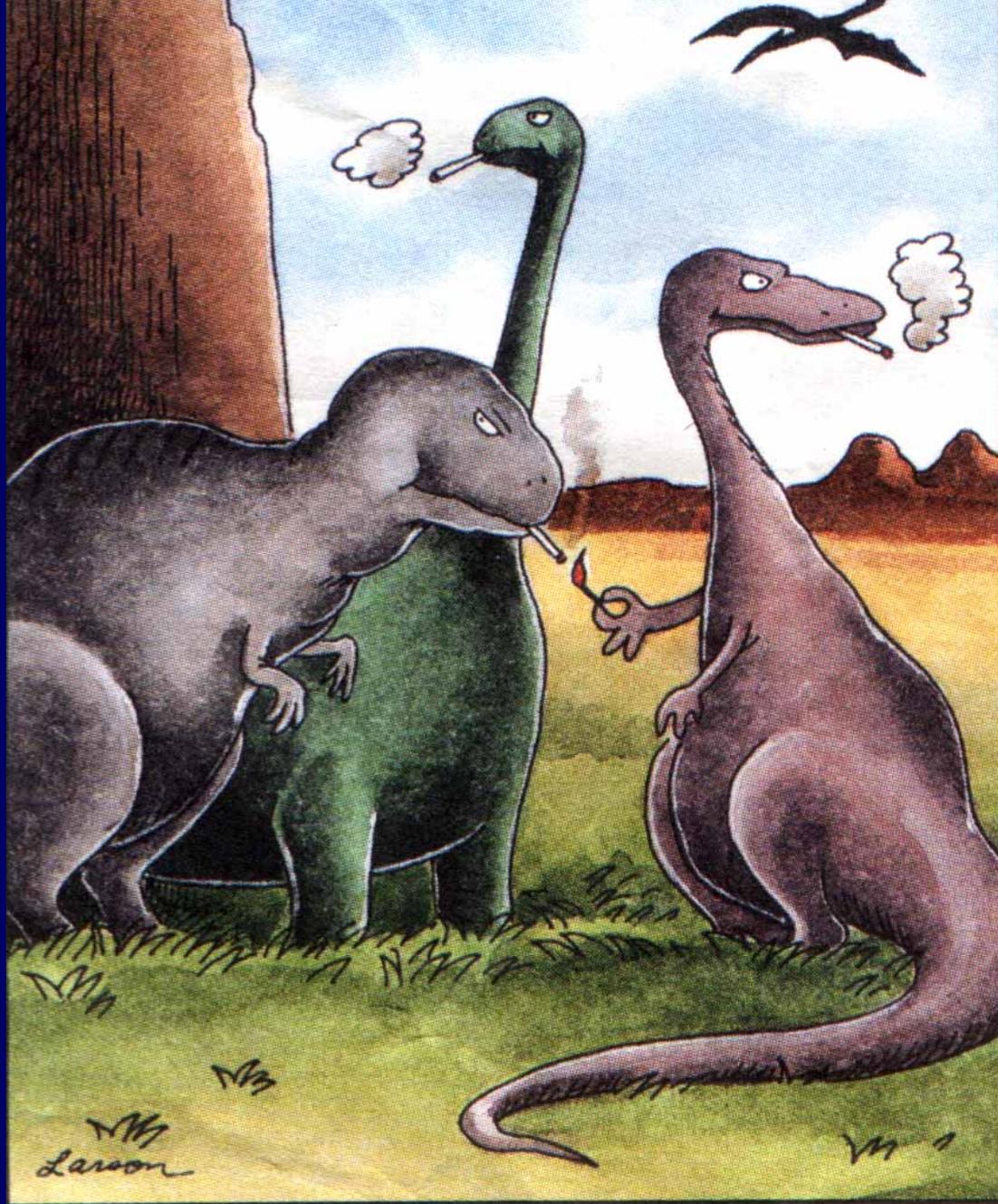
Tobacco Use and Mental Illness

Part II

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Tobacco Use and Mental Illness

- Treatment Trials in Smokers with Mental Illness
- Relationship between Mood and Tobacco Cessation
- Timing of Smoking Cessation in Mental Illness
- Effects of Smoking and Smoking Cessation on Psychotropic Medications



The real reason dinosaurs became extinct

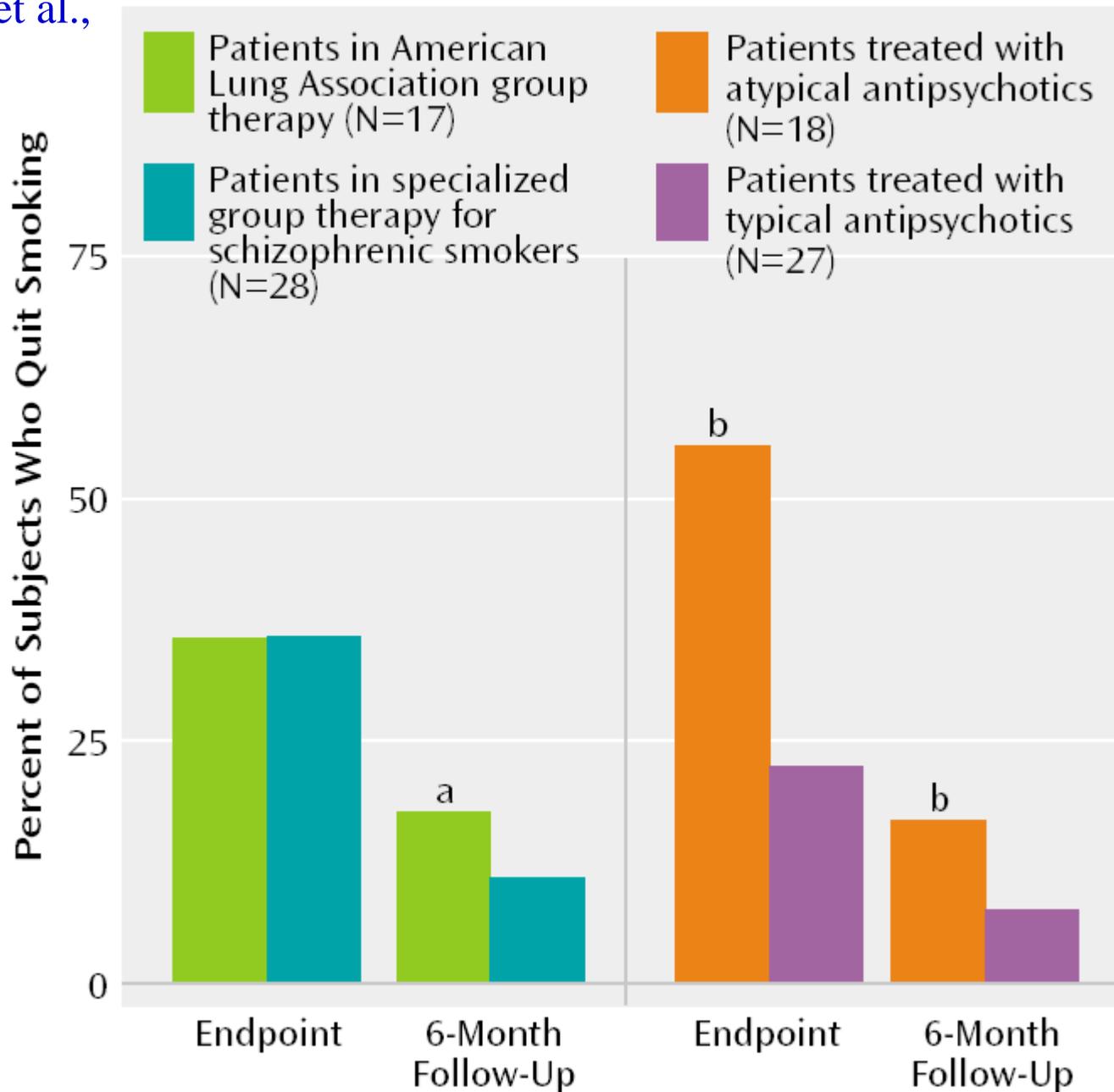
Treatment Trials in Smokers with Mental Illness

Smoking Cessation in Schizophrenia

(George et al., 2000)

- 45 schizophrenics on:
 - Typical antipsychotics (n=27) or
 - Atypical antipsychotics (n=18)
- Received transdermal nicotine (21 mg/d) randomly assigned to:
 - Group Therapy Program of American Lung Association
 - Specialized Group Therapy
 - Motivational enhancement
 - Skills training
 - Relapse prevention

George et al.,
2000



a. $p < .03$
b. $p < .02$

Quit rates verified by breath CO

Smoking Cessation in Schizophrenia

(Evins et al., 2004)

- 18 schizophrenics randomly assigned to:
 - Bupropion SR 150 mg/d
 - PlaceboFor 12 weeks
- All received 8 weeks of CBT Group Smoking Cessation Treatment
- 1/18 (6%; bupropion tx'ed) quit at 12 weeks

Smoking Cessation in Schizophrenia

(Evins et al., 2004)

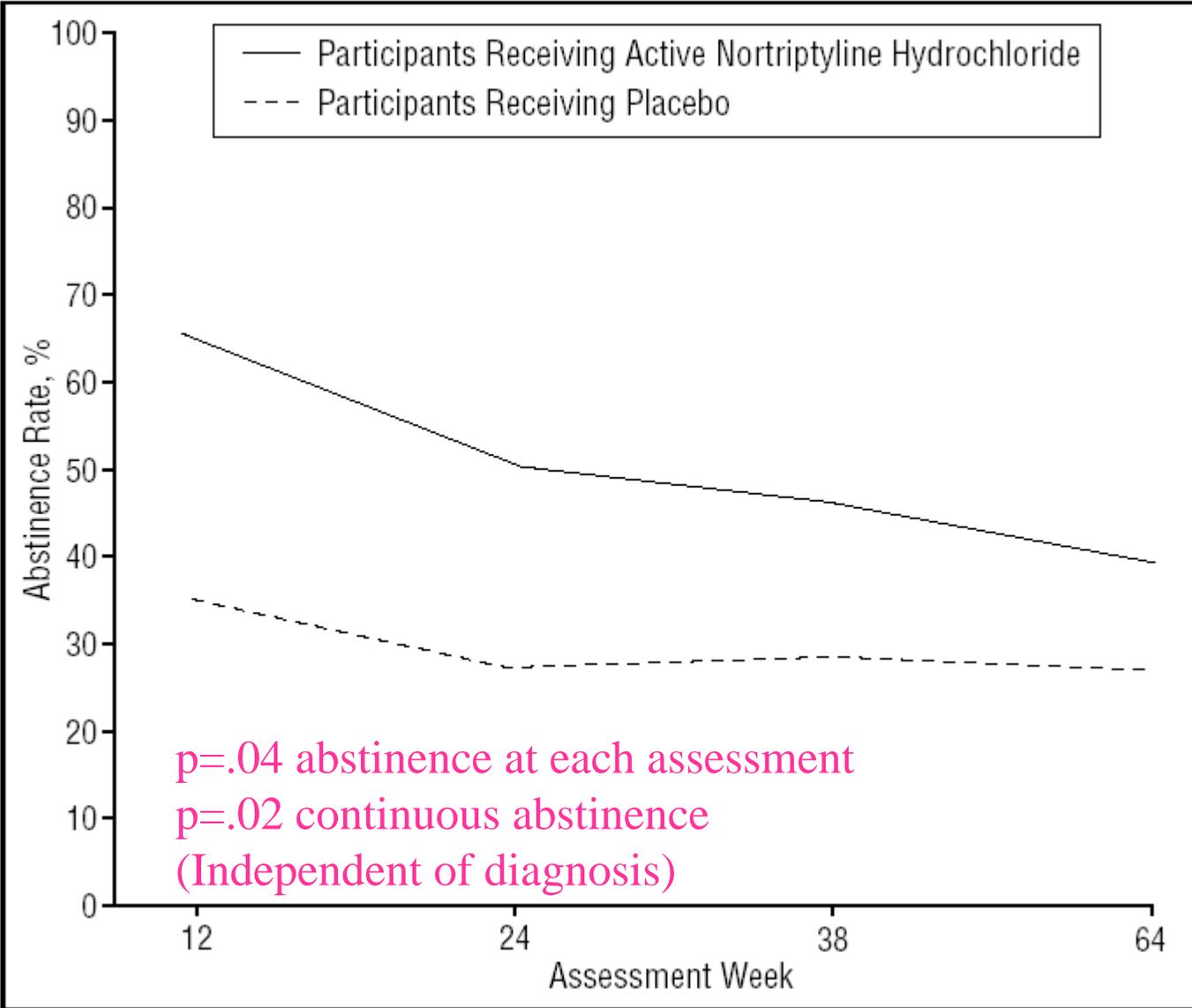
- 17/18 Subjects followed up at 2 years
- 4/18 (22%) quit at 2 years
 - 3 bupropion
 - 1 placebo
 - 3 tx'd with clozapine
 - 1 tx'd with haloperidol
- During Follow-up
 - 9 (50%) received bupropion
 - 2 (11%) received nicotine replacement

Interaction of Depression with Nortriptyline for Smoking Cessation

Hall *et al.*, 1998

- 199 smokers randomly assigned in 2 X 2 design to nortriptyline vs. placebo and CB therapy vs. Health Education
- Hx MDD dx'ed in 65 (32.7%); 50 (25.1%) recurrent
- Nortriptyline dose titrated upward over 4 weeks to achieve therapeutic serum levels (Modal dose=100 mg)
- Quit date=week 5
- Medication tapered over week 13

Interaction of Depression with Nortriptyline for Smoking Cessation



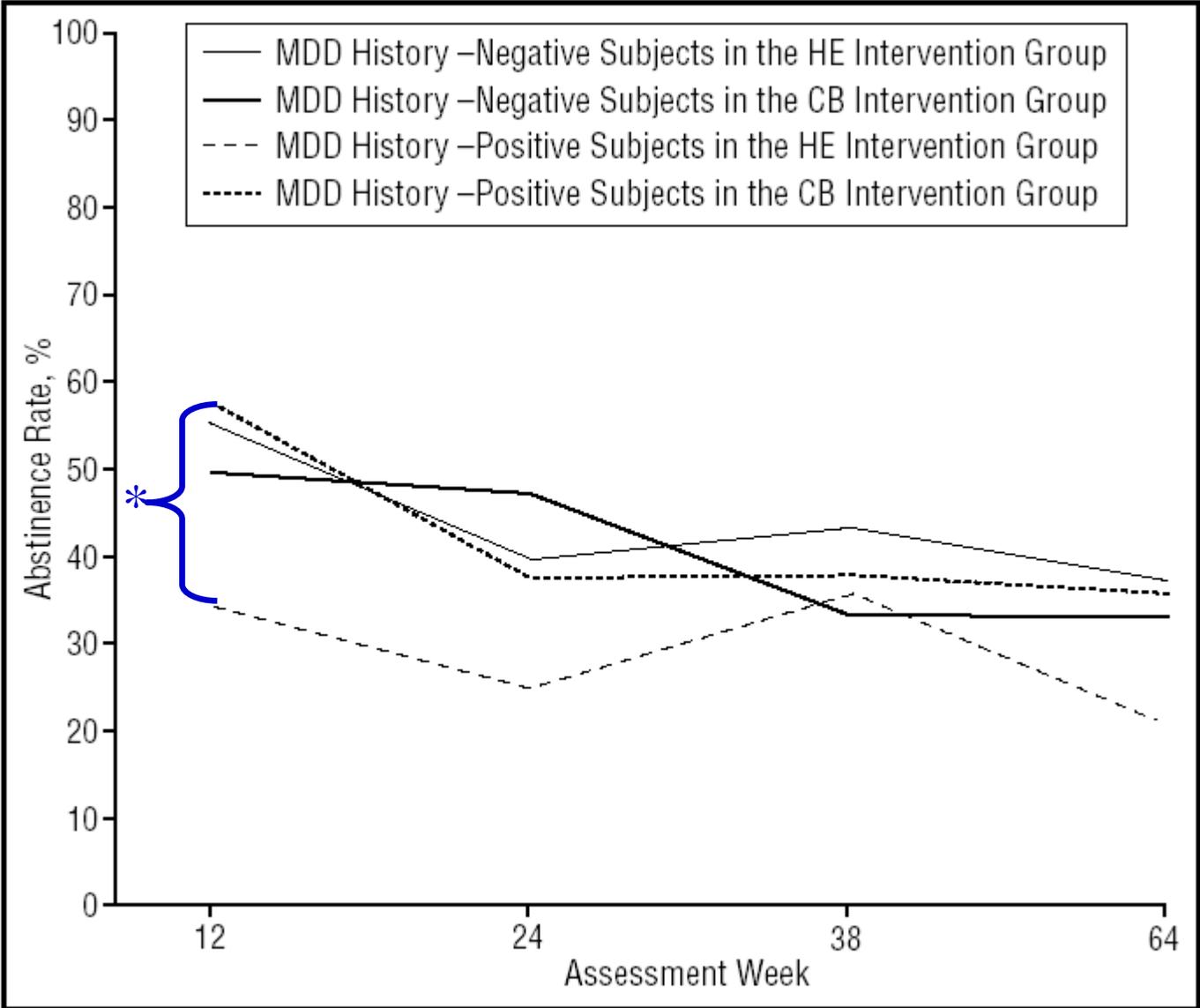
Interaction of Depression with Nortriptyline for Smoking Cessation

Week 6 Serum Levels Predict Success

STATUS	WK. 12	WK. 24	WK. 64
Smoking	132.2±101.5	151.6±120.8	166.1±116.7
Abstinent	209.8±116.3	218.9±108.3	219.6±117.8

Hall *et al.*, 1998

Interaction of Depression with Nortriptyline for Smoking Cessation



*p=.05

Hall *et al.*, 1998

Transdermal Nicotine in Smokers with Hx ETOH Dep

Hughes et al., 2003

- 115 Smokers with prior hx ETOH Dependence but no current dependence
- Median time of stopping ETOH=60 months
- Random assignment to:
 - Transdermal Nicotine
 - Placebo Patch

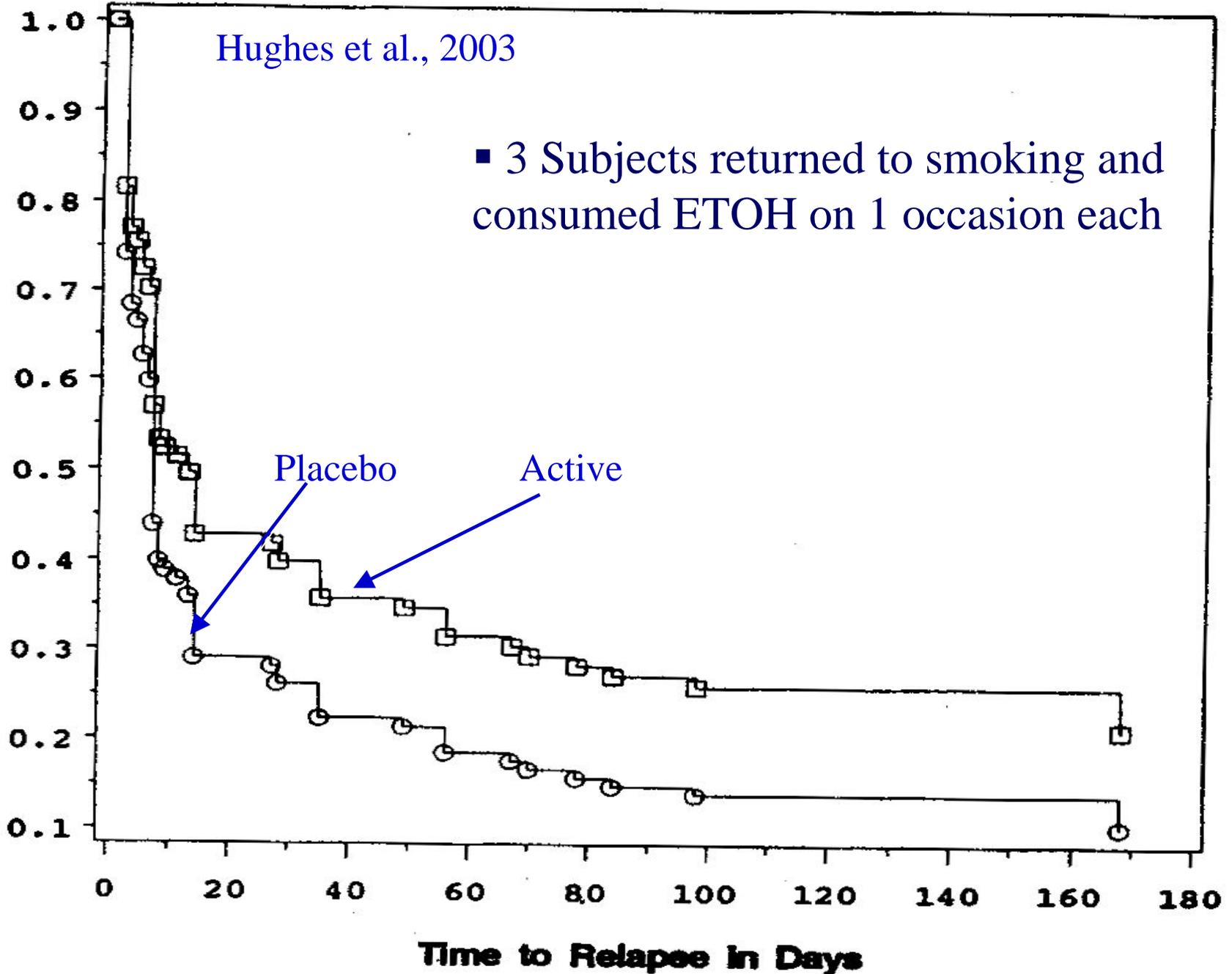
Hughes et al., 2003

■ 3 Subjects returned to smoking and consumed ETOH on 1 occasion each

Proportion Abstinent

Placebo

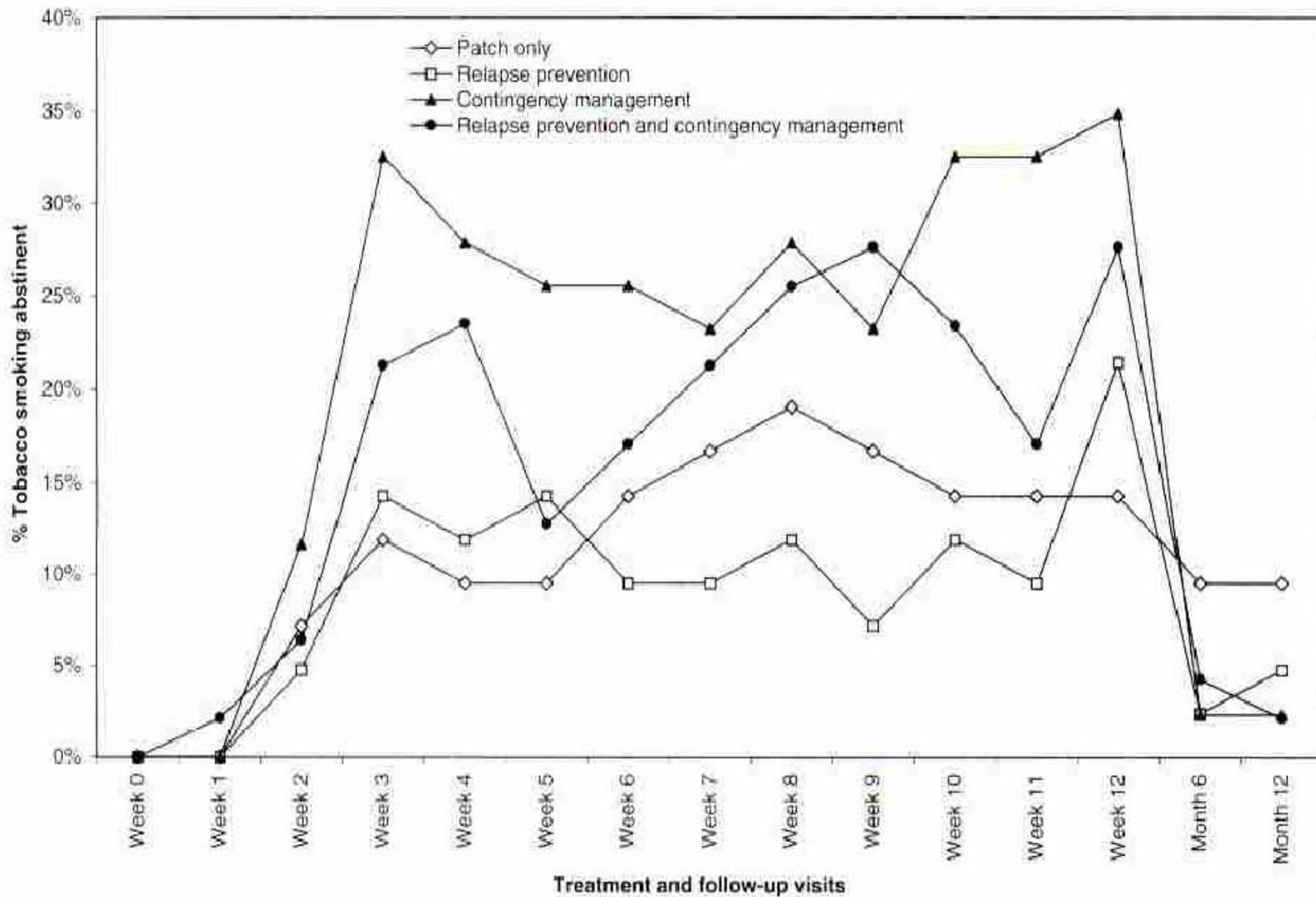
Active



Smoking Cessation for Methadone Patients

Shoptaw et al., 2002

- 175 smokers on methadone randomized to:
 - Transdermal nicotine (TN) only
 - TN + relapse prevention (RP)
 - TN + Contingency Management (CM)
 - CM=Monetary vouchers for breath CO<8 ppm
 - Maximum earnings=\$447.50
 - Mean earnings=\$198.31 (SD=163.77)
 - TN + RP + CM
- 12 week cessation trial



Smoking Cessation in Dual Diagnosis

Study Design

- N=115 Veterans in substance dependence treatment who voluntarily sought smoking cessation treatment
- Weekly psychoeducation and relapse prevention group
- Medications Determined by Clinician and Patient Choice:
 - None
 - Nicotine Replacement
 - Bupropion
 - Bupropion+Nicotine Replacement

Table 1. Patient characteristics (*N*=115)

Variable	<i>n</i>	<i>M</i> (<i>SD</i>) or percent
Current age	115	47.39 (7.53)
Age started smoking	113	15.81 (5.00)
No. prior quit attempts	97	3.69 (4.22)
No. cigarettes/day	113	26.27 (12.48)
Fagerström Test for Nicotine Dependence	103	6.22 (2.48)
Baseline breath carbon monoxide	101	20.37 (11.32)
No. female	7	6.1
Race and ethnicity		
African American	24	20.9
Asian American	2	1.7
Hispanic American	1	0.9
Native American	1	0.9
Caucasian	85	73.9
Other	2	1.7
Axis I diagnoses*		
Any alcohol diagnosis	108	93.9
Any drug diagnosis	82	71.3
Post-traumatic stress disorder	54	47.0
Major depression	59	51.3
Psychotic disorder	26	22.6
Bipolar disorder	28	24.3
Other anxiety disorder	16	13.9
None	29	25.2
Medical diagnoses		
Asthma	7	6.1
Reactive airways disease	18	15.7
Chronic obstructive pulmonary disease	16	13.9
Hypertension	19	16.5
Ischemic heart disease	8	7.0
Congestive heart failure	1	0.9
Diabetes mellitus	7	6.1

Smoking Cessation in Dual Diagnosis Results

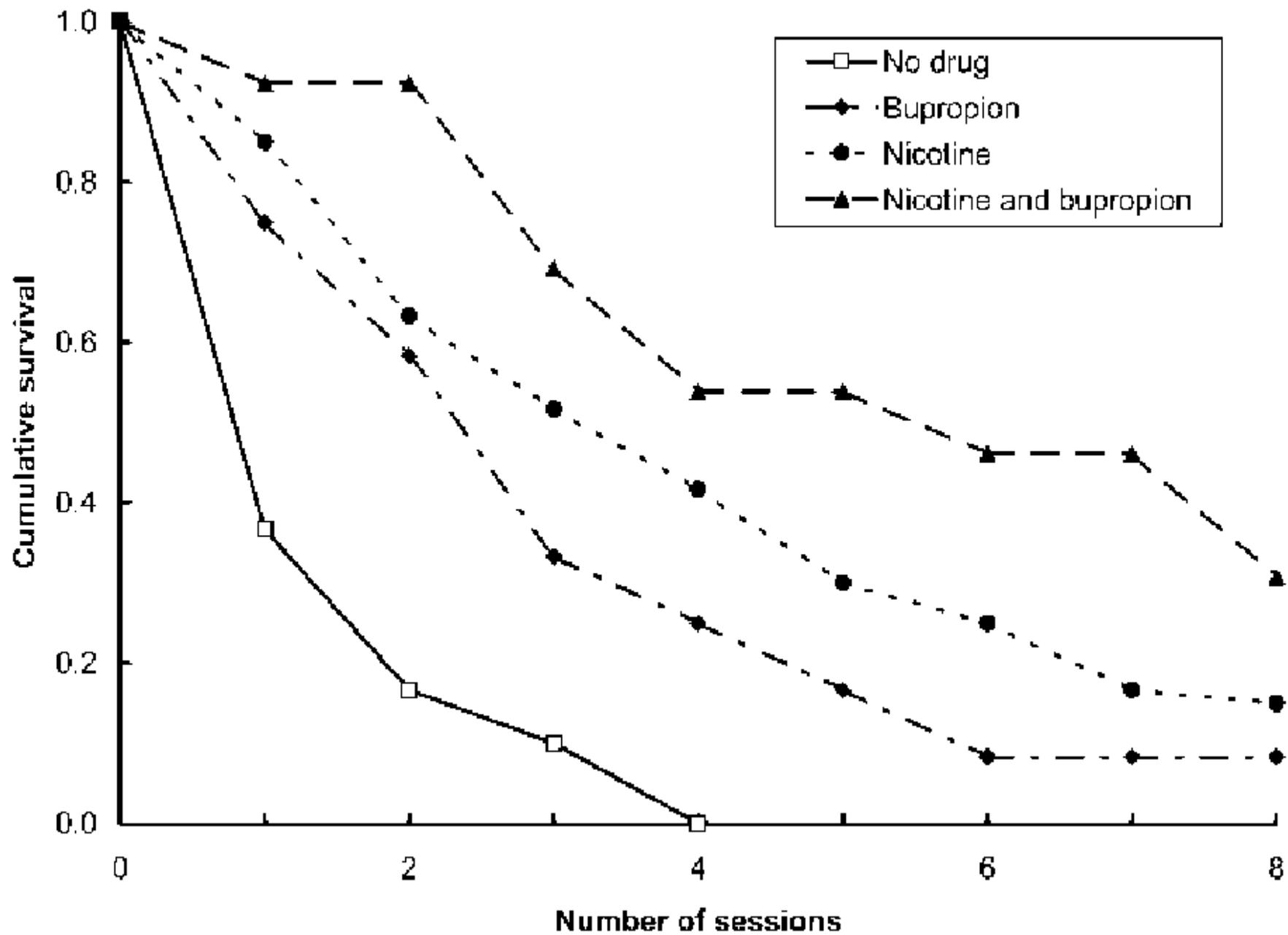
- n=47 (40.9%) completed 4 groups
- n=17 (14.8%) completed 8 groups
- n=27 (23.5%) breath CO<9ppm at session 4
- n=9 (7.8%) reported total smoking abstinence in week prior to session 4
- n=9 (7.8%) breath CO<9ppm at session 8

Smoking Cessation in Dual Diagnosis

Smoking Reduction

	Session 1		Session 4*		p
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	
# Cigs. Smoked	17.6	12.4	10.4	12.4	<.001
Breath CO (ppm)	20.4	11.3	16.0	13.0	<.001

*LOCF



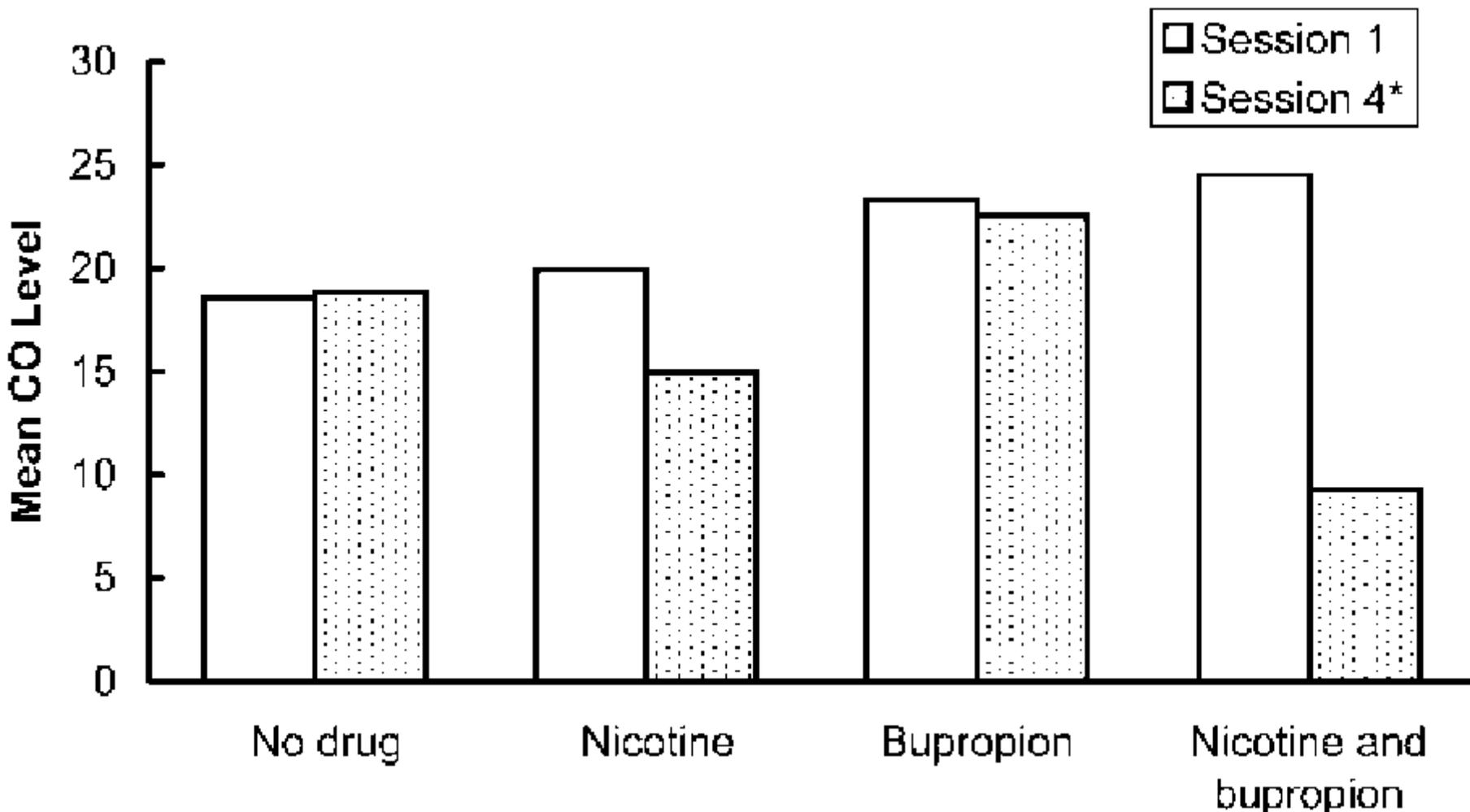


Table 2. Means of positive toxicology results

	Baseline		Smoking cessation treatment		Post-smoking cessation treatment	
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>
Drug type						
All drugs*	94	0.242 (0.321)	80	0.096 (0.227)	82	0.132 (0.219)
Cocaine**	92	0.072 (0.186)	77	0.011 (0.062)	81	0.030 (0.097)
Alcohol***	94	0.039 (0.126)	77	0.004 (0.024)	80	0.006 (0.023)
THC	92	0.097 (0.285)	75	0.055 (0.205)	80	0.029 (0.146)
Barbiturate	91	0.003 (0.026)	73	0.000 (0.000)	78	0.002 (0.019)
Opiate	92	0.041 (0.133)	76	0.019 (0.087)	81	0.035 (0.082)
Amphetamine	91	0.015 (0.110)	74	0.003 (0.029)	80	0.005 (0.041)
Benzodiazepine	92	0.060 (0.167)	76	0.049 (0.201)	81	0.045 (0.161)

Smoking Cessation in Dual Diagnosis

Conclusions

- Many DD Patients will attempt smoking cessation
- Most DD Patients can reduce smoking
- Few DD Patients will quit with weekly group therapy
- Smoking cessation treatment does not increase other substance use in DD patients

Smoking Cessation in Dual Diagnosis

Future Directions

- More intensive behavioral treatments are needed
- The combination of Nicotine + Bupropion shows promise in this population

Relationship between Mood and Tobacco Cessation

Nicotine Withdrawal Sx and Psychiatric Disorders

Breslau et al., 1992

- 239 smokers in an HMO who had tried unsuccessfully to quit
- Information on nicotine withdrawal sx and psychiatric diagnosis obtained via structured interview

Nicotine Withdrawal Sx and Psychiatric Disorders

	<u>n</u>	No. of W/D Sx	
		<u>Mean</u>	<u>SD</u>
Major Depression	59	5.17	2.10
Anxiety Disorder	110	4.84	2.11
ETOH Abuse/Dep	69	4.86	2.11
Drug Abuse/Dep	58	4.47	2.48
No Disorder	73	3.60	2.02

Smoking Cessation and Course of Major Depression

(Tsoh et al., 2000)

- 304 participants recruited from 2 trials of smoking cessation
- Incidence of major depression determined via the Inventory to Diagnose Depression
- 12 month incidence=14.1% (n=43)
 - 25/170 abstinent (14.7%)
 - 18/134 non-abstinent (13.4%)

Smoking Cessation and Course of Major Depression

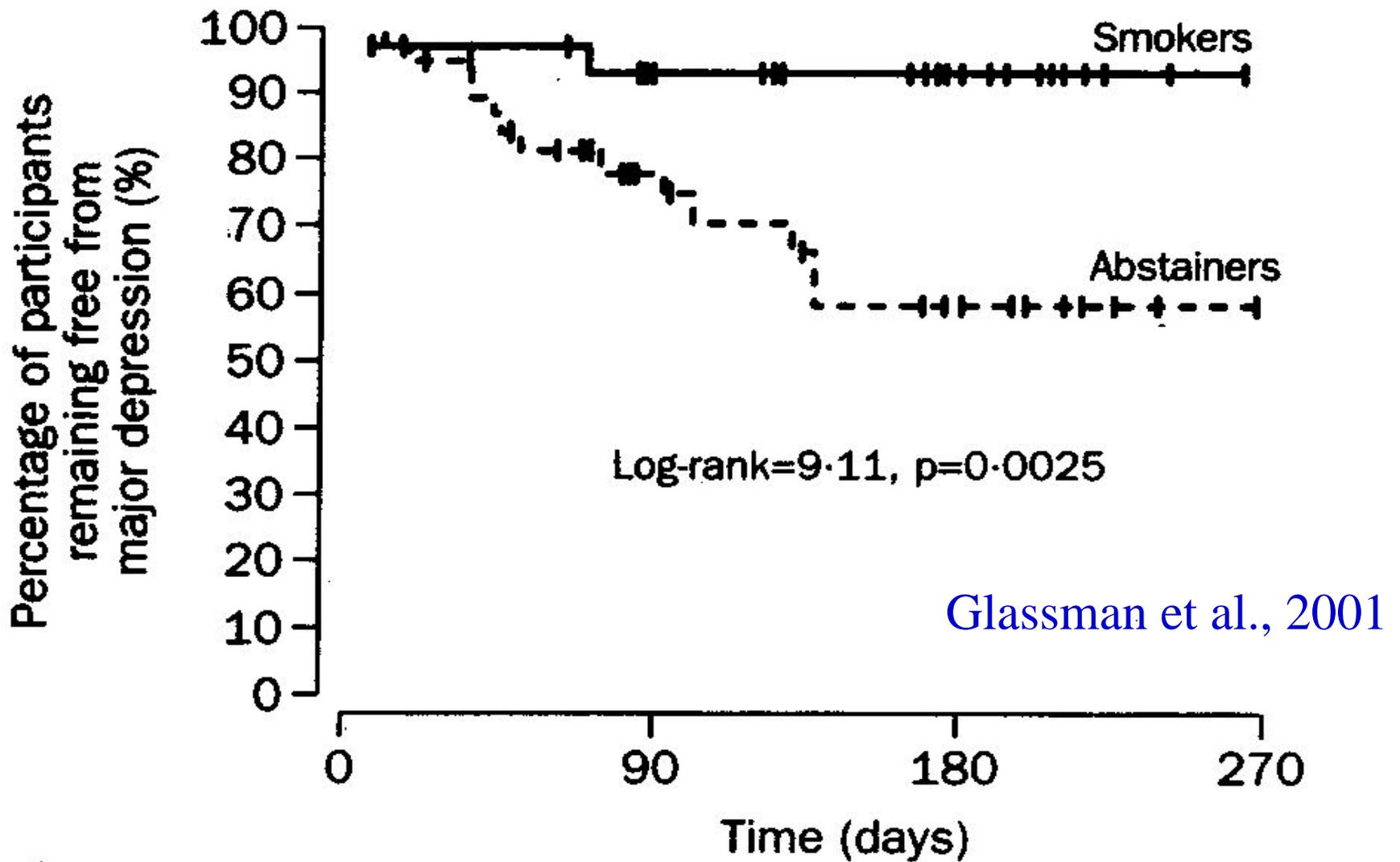
(Tsoh et al., 2000)

	<u>OR</u>	<u>95% CI</u>	<u>p</u>
Abstinence	1.27	0.62-2.61	0.51
Hx Depression	2.39	1.15-4.97	0.02
BDI Score	1.09	1.03-1.14	0.001
College Ed.	2.71	1.25-5.87	0.01
Age 1 st Smoked	0.88	0.78-0.98	0.02

Smoking Cessation and Course of Major Depression

(Glassman et al., 2001)

- 100 smokers with hx Major Depression advised to quit smoking
- Randomly assigned to:
 - Sertraline
 - PlaceboFor 9 weeks + 2 week taper
- 76 followed up at 6 months



Numbers at risk

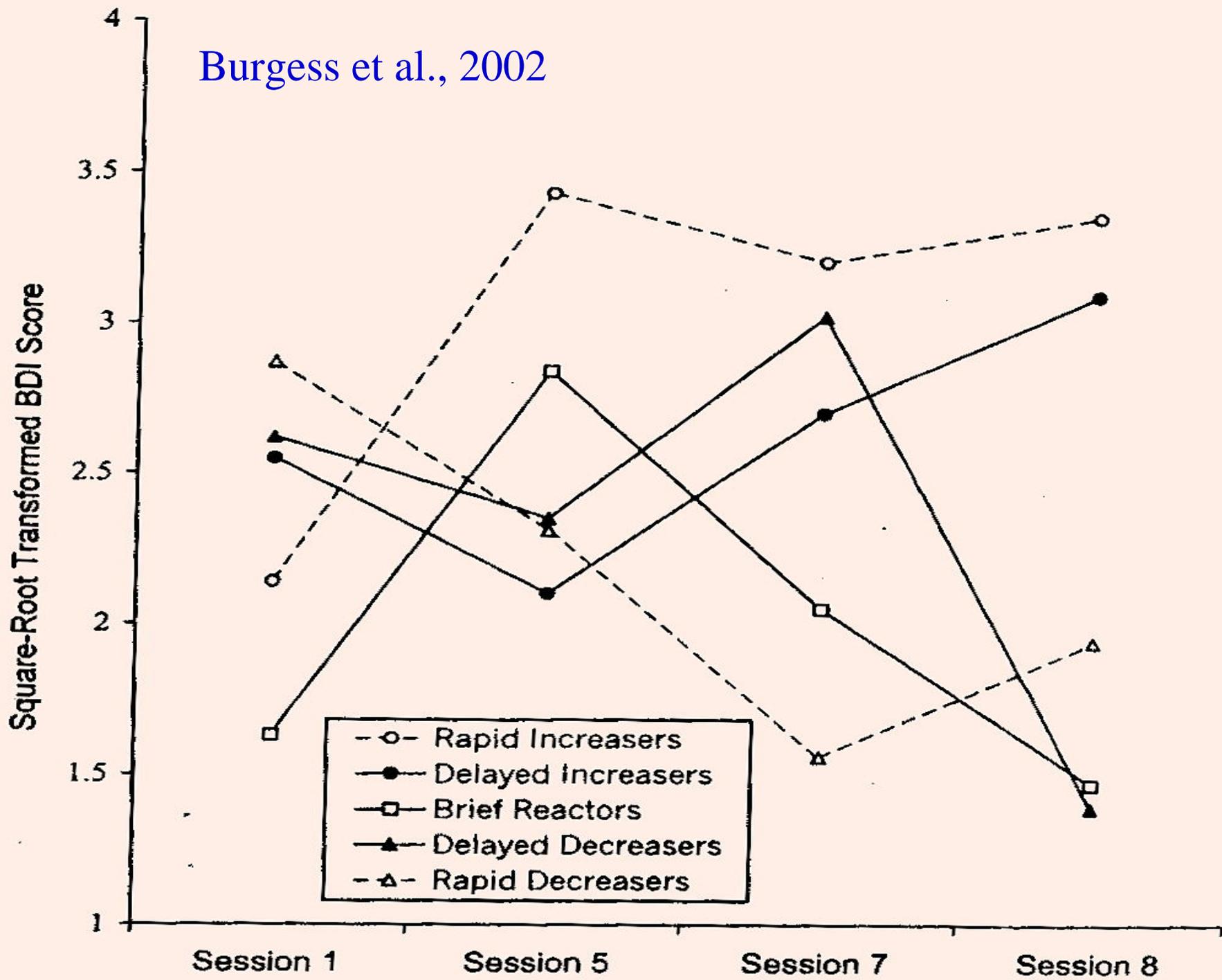
Smokers	34	30	18	0
Abstainers	42	21	10	0

Change in Depressive Sx after Smoking Cessation

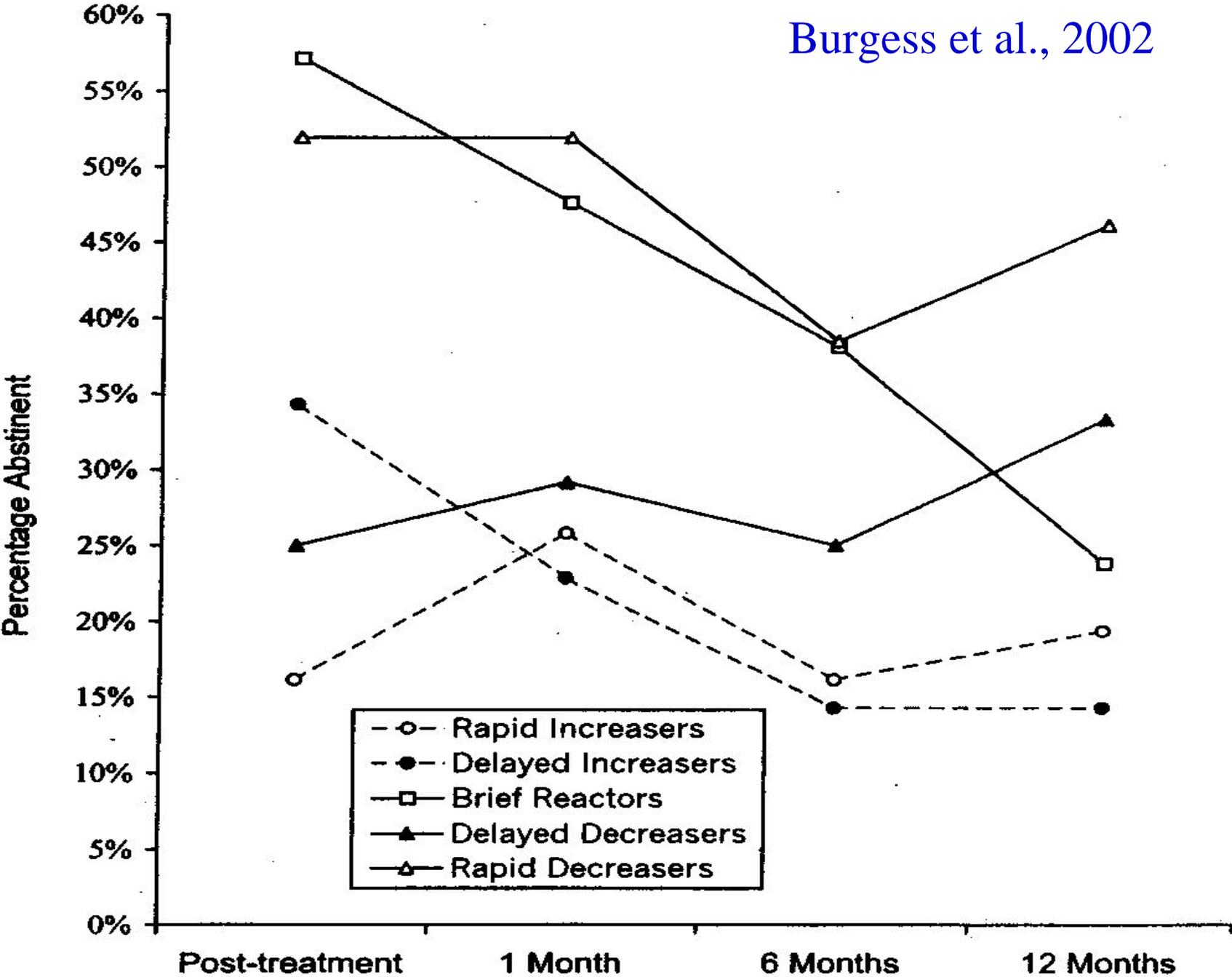
Burgess et al. 2002

- 163 smokers with hx major depression attempting smoking cessation
- Characterized over time on BDI scores
- 5 Patterns of change in depressive sx identified

Burgess et al., 2002



Burgess et al., 2002



Change in Depressive Sx after Smoking Cessation

Burgess et al. 2002

- Rapid increasers had an earlier age of depression onset
- Rapid increasers more likely than delayed increasers to have recurrent depression

Timing of Smoking Cessation in Mental Illness

Transtheoretical Model of Intentional Behavior Change

Prochaska & DiClemente

- Multidimensional Process of Change
 - From stable pattern of addiction
 - To sustained achievement of abstinence & recovery
- Five Stages
 - Precontemplation
 - Contemplation
 - Preparation
 - Action
 - Maintenance

Stages of Change in Smoking Cessation

- **Precontemplation**

- Not considering quitting in next 6 months

- **Contemplation**

- Considering a quit within next 6 months

- **Planning**

- Seriously considering and planning to quit in next 30 days

- **Action**

- Quit within last 6 months

- **Maintenance**

- Quit more than 6 months ago

Stages of Change in Smoking Cessation

- Contradictions in literature concerning stages of change and smoking cessation success in non-mentally ill smokers
- Movement through stages of change not linear or static
- Smokers from early stages of change can be recruited into cessation attempts
- No differential effectiveness for any specific interventions in a given stage of change

Stages of Change in Smoking Cessation

Luckstead et al., 2004

120 seriously mentally ill smokers

- Precontemplation

- n=71 (66%)

- Contemplation

- n=26 (24%)

- Planning

- n=11 (10%)

(n=12 unclassified)

Effects of Smoking and Smoking Cessation on Psychotropic Medications

Effects of Smoking on Psychotropic Medications

- Polycyclic aromatic hydrocarbons in cigarette smoke induce liver enzymes (particularly CYP 1A2)
- Not related to nicotine itself
- With smoking: medications metabolized by CYP 1A2 may require higher than usual doses
- With smoking cessation: dose requirements may substantially decrease

Effects of Smoking on Psychotropic Medications

Caffeine	Increase clearance by 56%
Chlorpromazine (and other phenothiazines)	Decrease serum concentrations by 24%
Clozapine	Decrease plasma concentrations by 28%

Effects of Smoking on Psychotropic Medications

Haloperidol	Decrease serum concentrations by 70%
Olanzapine	Increase clearance by 98%

Effects of Smoking on Psychotropic Medications

Fluvoxamine	Decrease plasma concentrations by 47%
Imipramine	Decrease serum concentrations
Propranolol	Increase clearance by 77%

Tobacco Use and Mental Illness:

Conclusions

- Treatment Trials demonstrate moderate success in smokers with a variety of mental disorders
- Mood and tobacco cessation are clearly related but nature of relationship may vary depending on individual and other factors
- We need to learn more about timing of smoking cessation in mental illness
- Smoking cessation increases blood levels of some psychotropic medications