

# **Asthma and Psychological Disorders**

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**Jonathan M. Feldman, Ph.D.  
Ferkauf Graduate School of Psychology**

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# How are psychosocial factors related to asthma?

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## Psychosocial Factors

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graph TD; A[Psychosocial Factors] --> B[Disorganization of self-care behavior]; A --> C[Stress-related asthma exacerbation]
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### Disorganization of self-care behavior

- Symptom perception
- Health care utilization
- Treatment adherence

### Stress-related asthma exacerbation

- Autonomic pathways
- Inflammatory pathways

# SUBJECTIVE VS OBJECTIVE

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Estimate of lung function

Peak flow

Predicts:



- **PRN medication use** (Apter et al., 1997; Main et al., 2003)
- **Health care utilization** (Dirks et al. 1977, 1980)
- **Restriction of activities** (Carranza et al., 2004)
- **Physician Decision-Making** (Dirks et al. 1978)

# PSYCHOPATHOLOGY AND ASTHMA

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Psychiatric symptoms associated with:

- Poorer medication adherence (Cluley & Cochrane, 2001)
- Greater health care utilization (Feldman et al., 2005)
- Greater report of asthma symptoms (Janson et al., 1994)
- NO differences on objective markers (ten Brinke et al., 2001, Feldman et al., 2005)

# STUDY OBJECTIVES\*

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- To examine the relationship between clinically diagnosed psychiatric disorders and both subjective and objective measures of asthma severity.
- To examine the rate of psychopathology among patients attending an inner-city asthma clinic

\* Feldman J.M., Siddique M.I., Morales E., Kaminski B., Lu S.E., & Lehrer, P.M. (2005). Psychiatric disorders and asthma outcomes among high-risk inner-city patients. *Psychosomatic Medicine*, 67, 989-996. This study was supported by the Rutgers Community Health Foundation (M. Siddique, P.I.).

# METHODS

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- Patients  $\geq 18$  yr-old attending a multidisciplinary, inner-city asthma clinic for an initial visit were screened using PHQ.
- PHQ is a one page validated psychiatric screening instrument designed for the primary care setting. (Spitzer et.al. 1999).
- 26-item self-administered questionnaire screen for 5 of the most common groups of disorders in primary care.
  - Depressive, Anxiety, Somatoform, Substance abuse, and Eating disorders

# METHODS

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- Sections from the Structured Clinical Interview for DSM-IV were selected for administration based on the psychological symptoms endorsed on the PHQ.
- Questions were also asked to obtain the following information:
  1. Asthma symptoms triggered by emotional factors
  2. Emotional illness exacerbated by asthma
  3. Emotional factors interfered with asthma self-management
  4. Emotional factors had no relationship with asthma

# Subjective vs. Objective Assessment of Asthma Severity

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Over-reporters: Symptom report  $>$  pulmonary function severity class

Accurate reporters: Symptom report = pulmonary function.

Under-reporters: Symptom report  $<$  pulmonary function class

# Goals for Asthma Control:

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- Quality of life was assessed according to the following NIH Goals for Asthma Control:
  1. No or minor symptoms of asthma
  2. No awakenings during the night from asthma
  3. No interference from asthma in school or work attendance or activities of daily living
  4. Full participation in physical activities
  5. No side-effects from asthma medications

# ASTHMA MORBIDITY

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Self-report:

- ER visit (past 6 months)
- Hospitalization
- frequency of short-acting  $\beta_2$ -agonist medication use during last month.

# DEMOGRAPHIC DATA OF THE STUDY POPULATION

	Psychiatric Diagnosis ( <i>n</i> = 55)	No Psychiatric Diagnosis ( <i>n</i> = 30)	<i>p</i> value
Age, yr	43.5 ± 11.1	35.8 ± 14.5	.008
Gender, % female	75	63	.28
Race/Ethnicity			.62
% Black/Non-Hispanic	33	43	
% White/Non-Hispanic	24	20	
% Hispanic	43	24	
% Other	0	13	

# Demographics (continued)

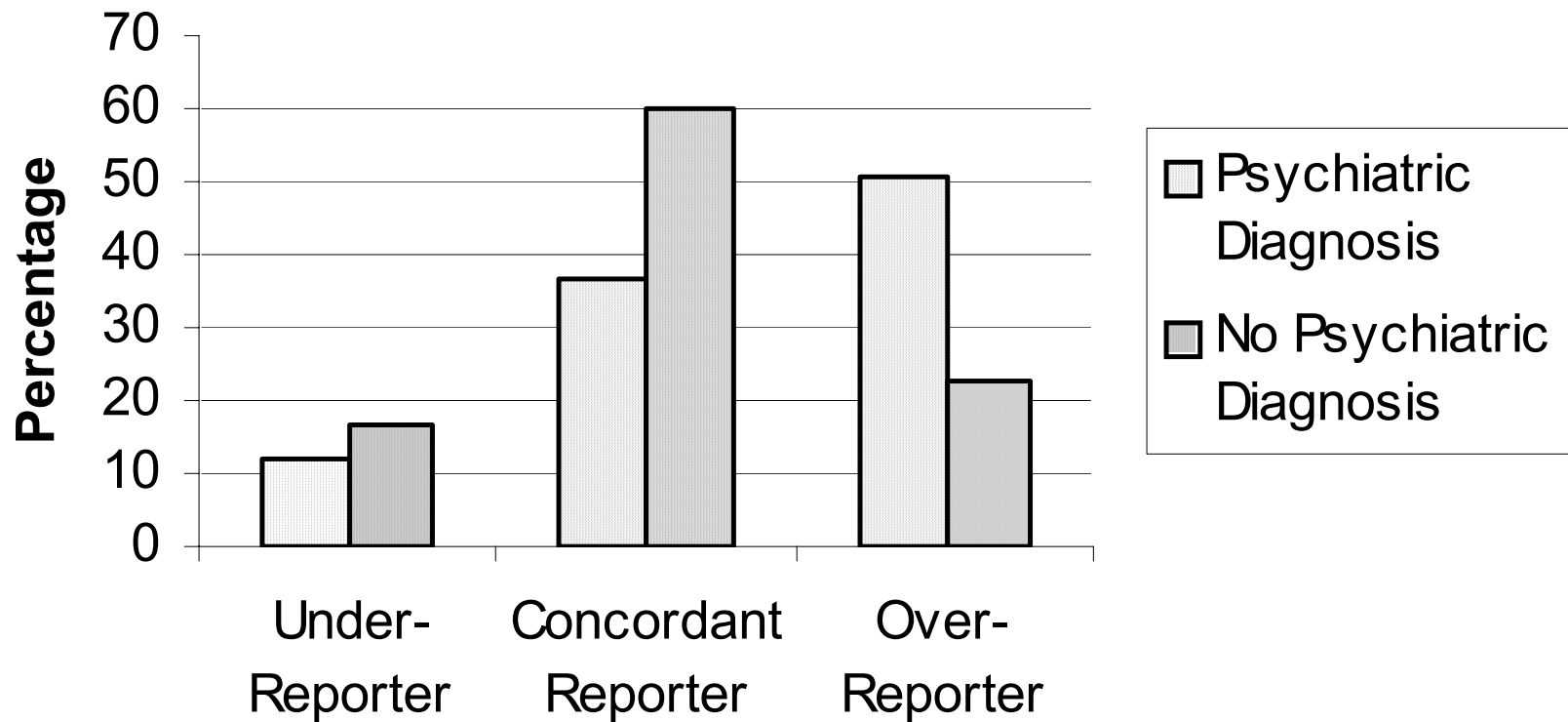
	Psychiatric Diagnosis (n=55)	No Psychiatric Diagnosis (n=30)	<i>p</i> value
% Spanish speaking	32	21	.34
% Married	26	10	.13
% Unemployed	43	27	.19
Educational Level	11.6 ± 3.5	12.2 ± 3.6	.52

# RESULTS

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	Percentage
Any psychiatric diagnosis	65
More than one diagnosis	48
Mood disorder	51
Anxiety disorder	45
Somatoform disorder	13
Psychotic disorder	6
Substance-Related disorder	8
Other disorder	8

# Concordance between symptom and pulmonary function class



$\chi^2(2)=6.25, p<.05$ ]; Patients with a psychiatric disorder were more likely than patients without a psychiatric disorder to be over-reporters than accurate reporters (OR=3.52, 95%CI, 1.23-10.10)

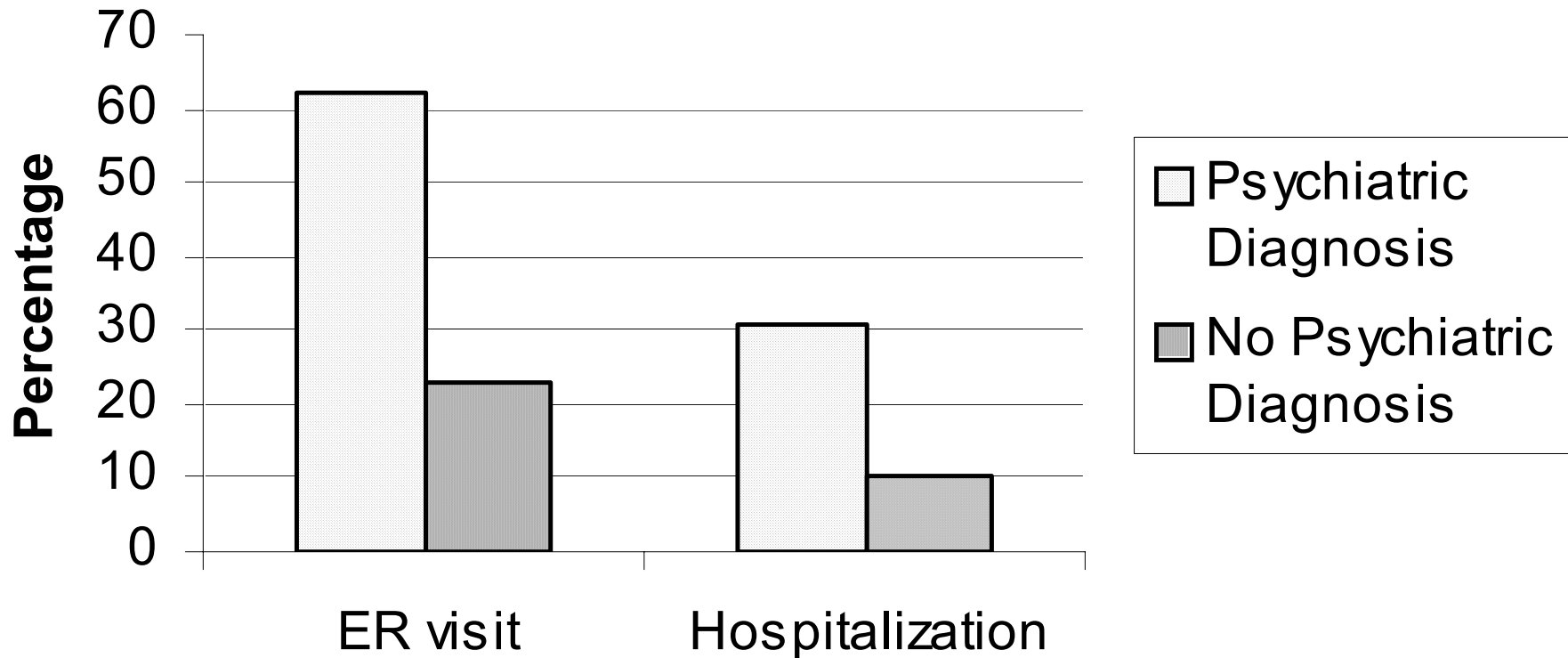
# ASTHMA MORBIDITY

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	Psychiatric Disease	No Psychiatric Disease	p
$\beta$ -agonist use - canisters per month	1.5 $\pm$ 0.9	0.9 $\pm$ 0.8	.003
QOL - # of goals achieved for asthma control	2.3 $\pm$ 1.3	3.6 $\pm$ 1.5	.0002

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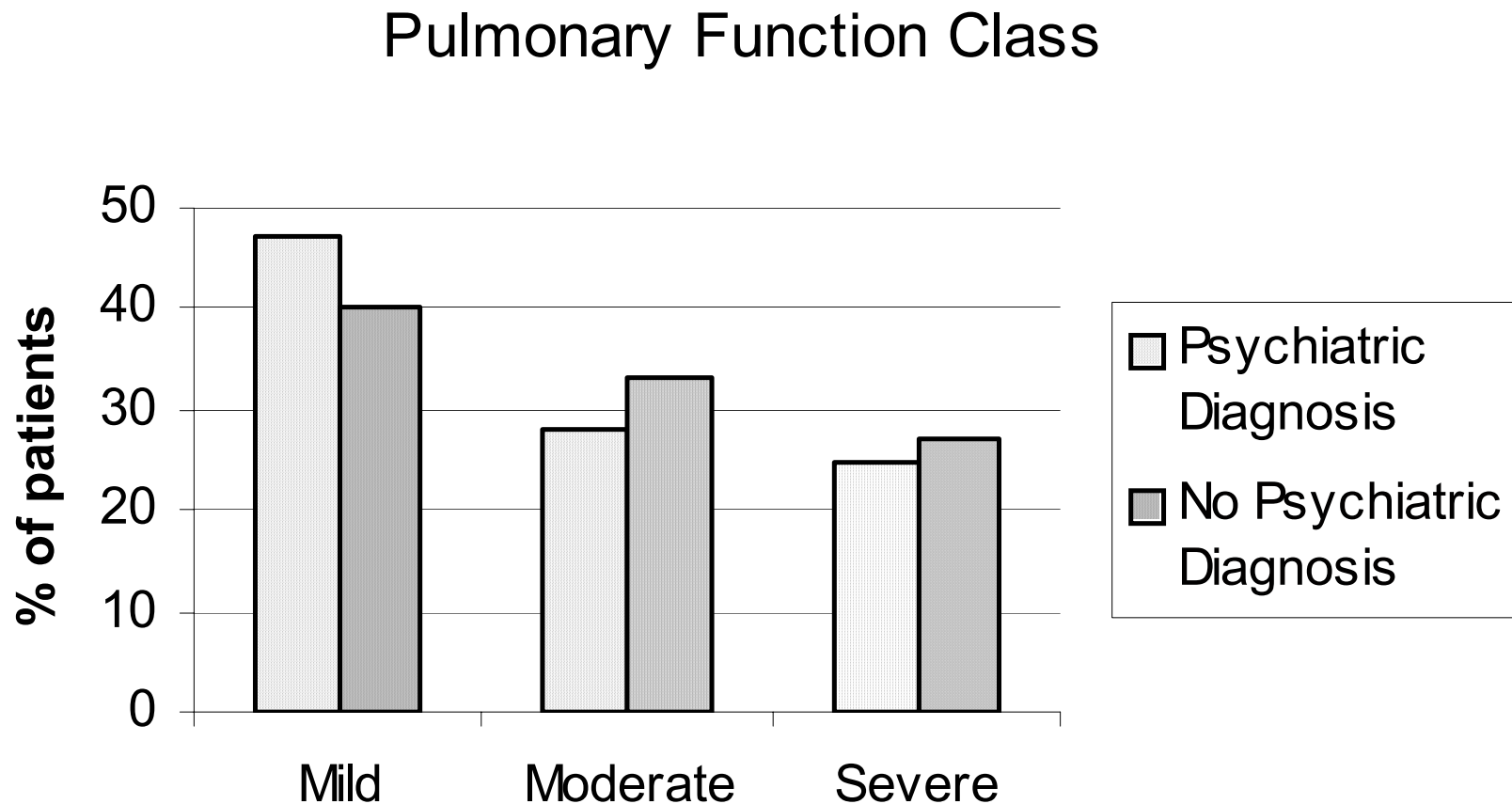
# Emergency Health Care Utilization for Asthma (past 6 months)



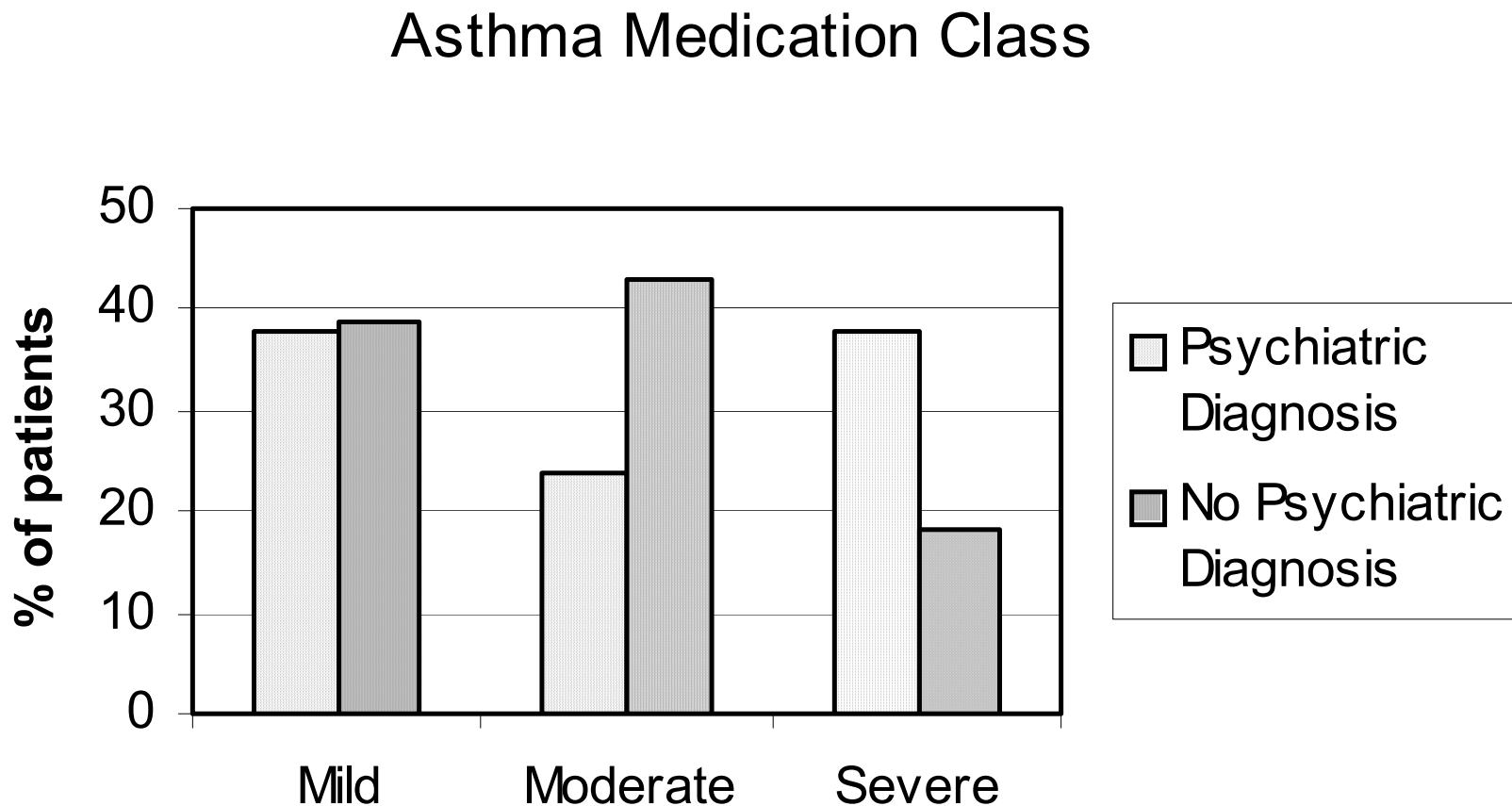
ER visits: OR = 4.89, 95% CI, 1.76 – 13.39

Hospitalization: OR = 3.83, 95% CI, 1.01 – 14.45

# Pulmonary Function Class



# Asthma Medication Class



# Relationship Between Emotions and Asthma Symptoms

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Patients with psychiatric disease:

68% endorsed a relationship between emotions and asthma symptoms.

45% reported that emotional factors trigger their asthma symptoms

44% reported that asthma exacerbates their psychological symptoms.

47% reported that their psychological symptoms interfere with a component of asthma self-management.

# CONCLUSIONS

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- Presence of a psychiatric disorder is associated with asthma control among inner-city patients
- Patients with a psychiatric disorder reported greater severity for asthma symptoms than the severity level indicated by their pulmonary function

# CONCLUSIONS

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- A very high rate (65%) of psychiatric disorders was found in the present study
- Important to compare subjective assessment of asthma with more objective markers
- Disorganization of self-care behavior

# Future Directions

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- poor control over asthma or simply perceive greater impairment?
- Does treatment of psychiatric disease lead to concomitant improvements in asthma control?

# Comorbidity between asthma, depression, and anxiety

Asthma:	Lifetime Depressive Disorder	Lifetime Anxiety Disorder
Puerto Ricans	<b>1.90** (1.02-3.54)</b>	1.33 (0.59-3.01)
Cubans	0.74 (0.35-1.56)	1.50 (0.83-2.72)
Mexicans	<b>2.95** (1.32-6.59)</b>	0.99 (0.44-2.19)

Ortega, A.N., Feldman, J.M., Canino, G., Steinman, K., Alegría, M. (in press). Co-occurrence of mental and physical illness in U.S. Latinos. *Social psychiatry and psychiatric epidemiology*. This work was supported by National Institute of Mental Health grants U01-MH062209-05, R01-MH069849 and R01-MH54827 and National Heart Lung and Blood Institute grant U01-HL072519.

# DSM-IV Definition of Panic Disorder\*

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Recurrent panic attacks and at least one month of one of the following three:

1. Persistent apprehension over the recurrence of panic
2. anxiety about the implications of these attacks
3. behavior change in response to the panic attack

\* American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV). Washington, DC, American Psychiatric Association, 1994

# Asthma or panic attack?

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- Shortness of breath
- Feelings of choking
- Chest tightness
- Rapid pulse
- Sweating
- Fear of losing control
- Fear of dying

# Separating apart asthma from PD

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Pattern of symptoms: wheezing, mucus production, coughing

Pattern of onset of symptoms

Situations where attacks occur:

asthma triggers?

panic triggers?

# Avoidance of situations

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- 90% of asthma-PD patients met criteria for panic disorder with agoraphobia  
(Feldman et al., 2005)
- Agoraphobia versus healthy avoidance of asthma triggers

# CONFUSION BETWEEN ASTHMA VS. PANIC ATTACK

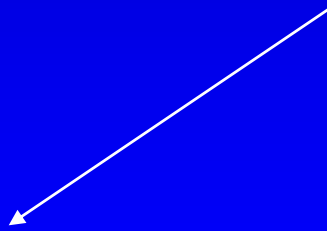
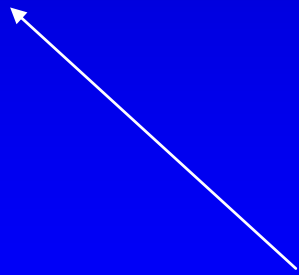
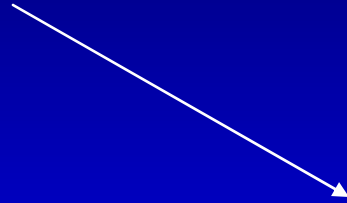
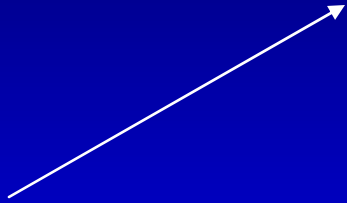
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Mistake panic as asthma

Catastrophic thoughts

Take quick-relief  
medication

Body sensations



# Problematic Drug Interactions:

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$\beta$ -adrenergic antagonists (propranolol)

Benzodiazepines → Respiratory Depression

Oral corticosteroids → emotional lability, anxiety  
in dose-dependent manner

Theophylline → mimic panic sensations due to  
stimulatory effects in CNS

# Treatment of Asthma + Panic Disorder

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Psychoeducation

Progressive Muscle Relaxation

Reduce anxiety and autonomic responsivity

Beneficial for asthma

- **Peak Flow Monitoring: objective measure of lung function**

# Treatment of Asthma + Panic Disorder

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- CBT for PD (with adaptations)

Cognitive restructuring: identify and correct catastrophic misinterpretations of bodily sensations

Exposure: produce anxious feelings

Internal bodily sensations (interoceptive)

External situations (shopping mall)

# CBT for PD Adaptations for Asthma

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Cognitive Restructuring: complicated by frightening and life-threatening nature of physical symptoms

Key: discriminate between asthma vs. panic symptoms in order to correctly address misinterpretation of bodily sensations

Exposure to interoceptive stimuli:

avoid voluntary hyperventilation and use imagery

Avoid production of chest tightness by holding a breath

Exercise: Use quick-relief medication before, if necessary

Exposure to situations: avoid asthma triggers

# Treatment Manual\*

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Close consultation with patient's physician

Learn patient's medication regimen

Complete medical exam prior to psychotherapy  
(rule out physical vs. psychological symptoms)

8 sixty minute sessions

\*This work was supported by Grant # R21MH58196 from the National Institute for Mental Health (P.I., Paul M. Lehrer).

# Differentiating asthma vs. panic

Trigger: stress from being late to work



*Guide:* What is the value of my peak flow reading?



Peak flow is at least 20% below  
my personal best



Action Plan:

Follow asthma medication decision tree

Peak flow is in normal range



Is there mucus or coughing?



Yes

No



Does attack reach its peak < 10 mins?



No

Yes

Use self-statement modification, I

# COLLABORATORS

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MDNJ – Robert Wood Johnson Medical School:

Paul Lehrer, Ph.D.

Muhammad Siddique, D.O.

UCLA – School of Public Health

Alexander N. Ortega, Ph.D.

Baruch College Graduate School of Psychology/Yeshiva University

Alina Eisenberg, B.A.

Giulia Occhipinti, B.A.

Albert Einstein College of Medicine

Yelena Serebrisky, M.D.

Steven Crain, M.D., Ph.D.