



Physician-Diagnosed Respiratory Conditions and Mental Health Symptoms in FDNY Rescue/Recovery Workers 7-9 Years Following the World Trade Center Disaster

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Background

- The traumatic events that took place on 9/11/2001, and during the 10-month rescue/recovery effort, took a physical and psychological toll on New York City Fire Department (FDNY) rescue workers
- FDNY has performed health evaluations every 12-18 months on its workforce since 1997
- Since 9/11/2001, these evaluations also include self-administered, computer-based, physical and mental health questionnaires



Background

- This study describes:
 - Current burden of post-9/11 respiratory conditions
 - Self-Reported Diagnoses
 - FDNY Physician Diagnoses
 - Current burden of post-9/11 mental health conditions
 - Probable PTSD
 - Probable Depression
 - Co-Morbidity
 - Between probable PTSD and depression
 - Between physical and mental health



Background

Time of first arrival to WTC site:

- **Group 1:** Morning of 9/11/2001
- **Group 2:** Afternoon of 9/11/2001
- **Group 3:** Day of 9/12/2001
- **Group 4:** Any day between 9/13/2001 - 9/24/2001



Methods – Population

- 10,943 firefighters and EMS workers in final analytic cohort
- Inclusion Criteria:
 - Study Period: 9/11/2007 – 9/10/2010
 - Arrived at the WTC site before September 25, 2001
 - Male firefighters and EMS workers
 - Spirometry within 90 days of physical health survey
 - Mental health survey within 90 days of physical health survey



Methods – Physical Health

- Pulmonary Function Test (PFT)
 - Quintiles of FEV1 %Predicted
- Self-Reported Respiratory Diagnoses
 - Based on self-administered questionnaire
- FDNY Physician Diagnoses
 - From the FDNY electronic medical record



FDNY Physician Diagnoses

- Sinusitis, Asthma, Chronic Bronchitis, COPD/Emphysema
 - Asthma, Chronic Bronchitis, and COPD/Emphysema were combined to create obstructive airway disease (OAD)
- Case definition for diagnoses:
 - Multiple visits in the same month were counted once
 - Patients must have had three visits with the same diagnosis since 9/11
 - One diagnosis had to be within the study period (9/11/2007-9/10/2010)



Results

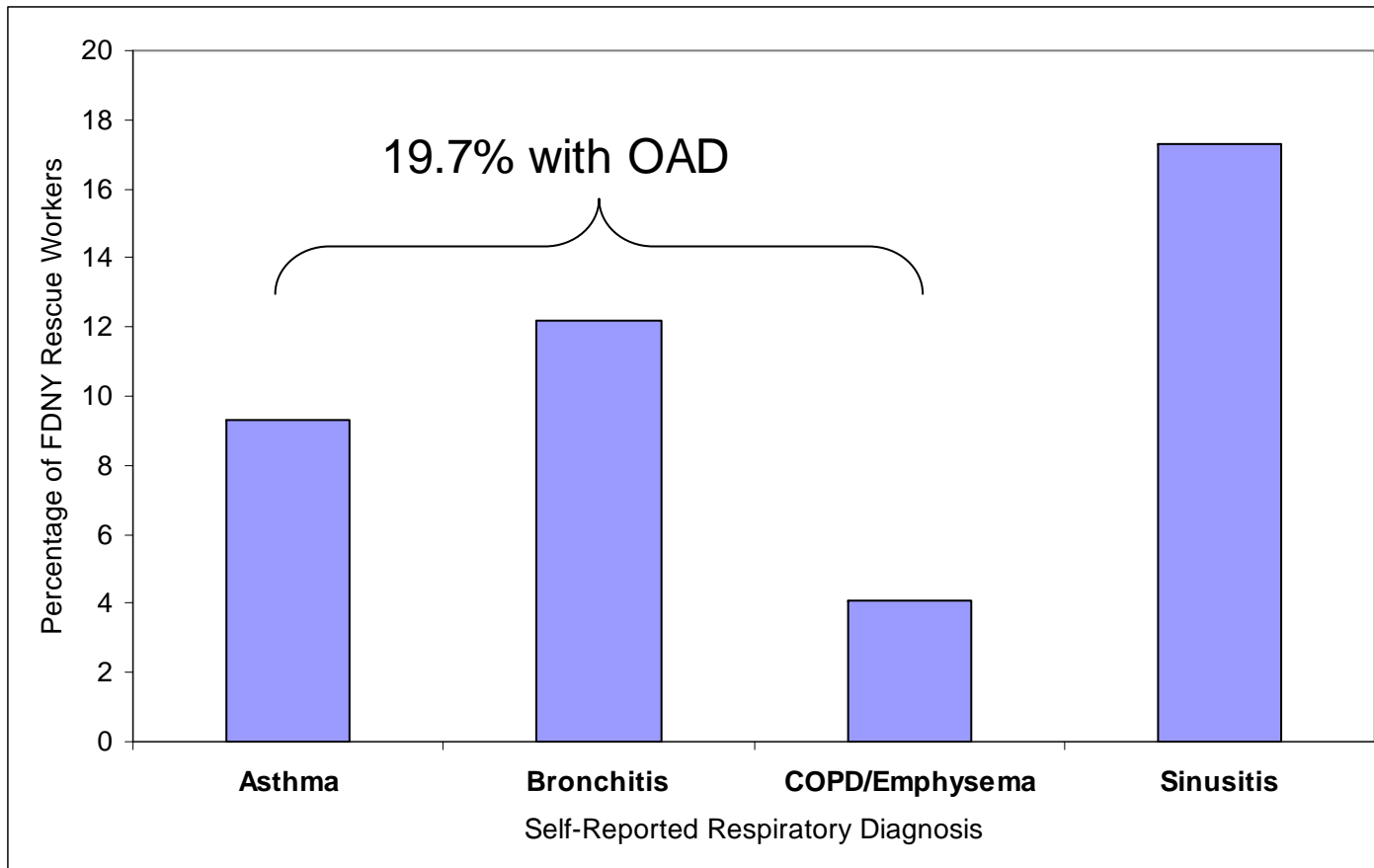
- 9,715 male firefighters
- 1,228 male EMS workers
- Median age on 9/11 = 40 years
- 75% arrived on 9/11



Results

Self-Reported Respiratory Diagnoses

Firefighters and EMS Workers

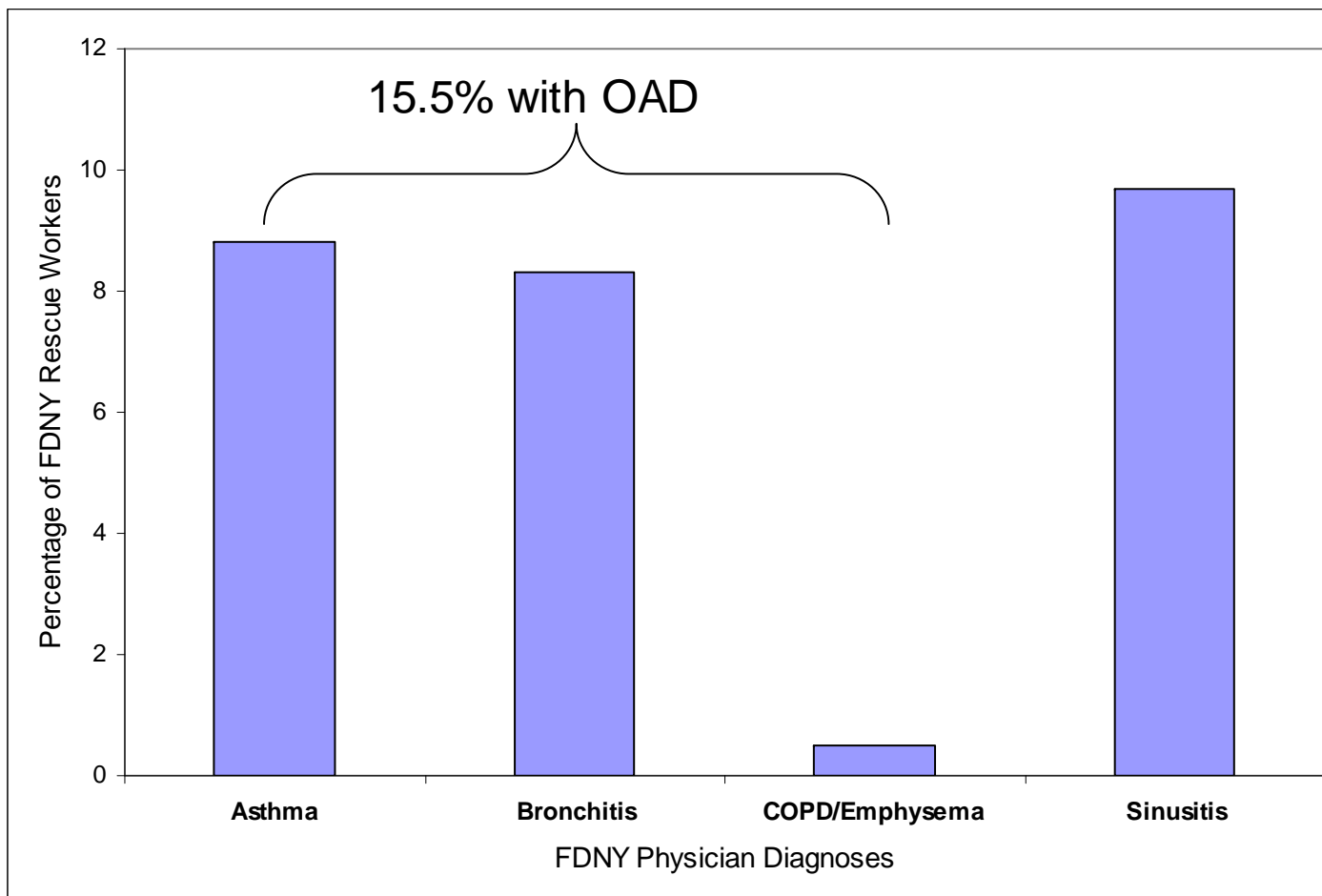




Results

FDNY Physician Diagnoses

Firefighters and EMS Workers

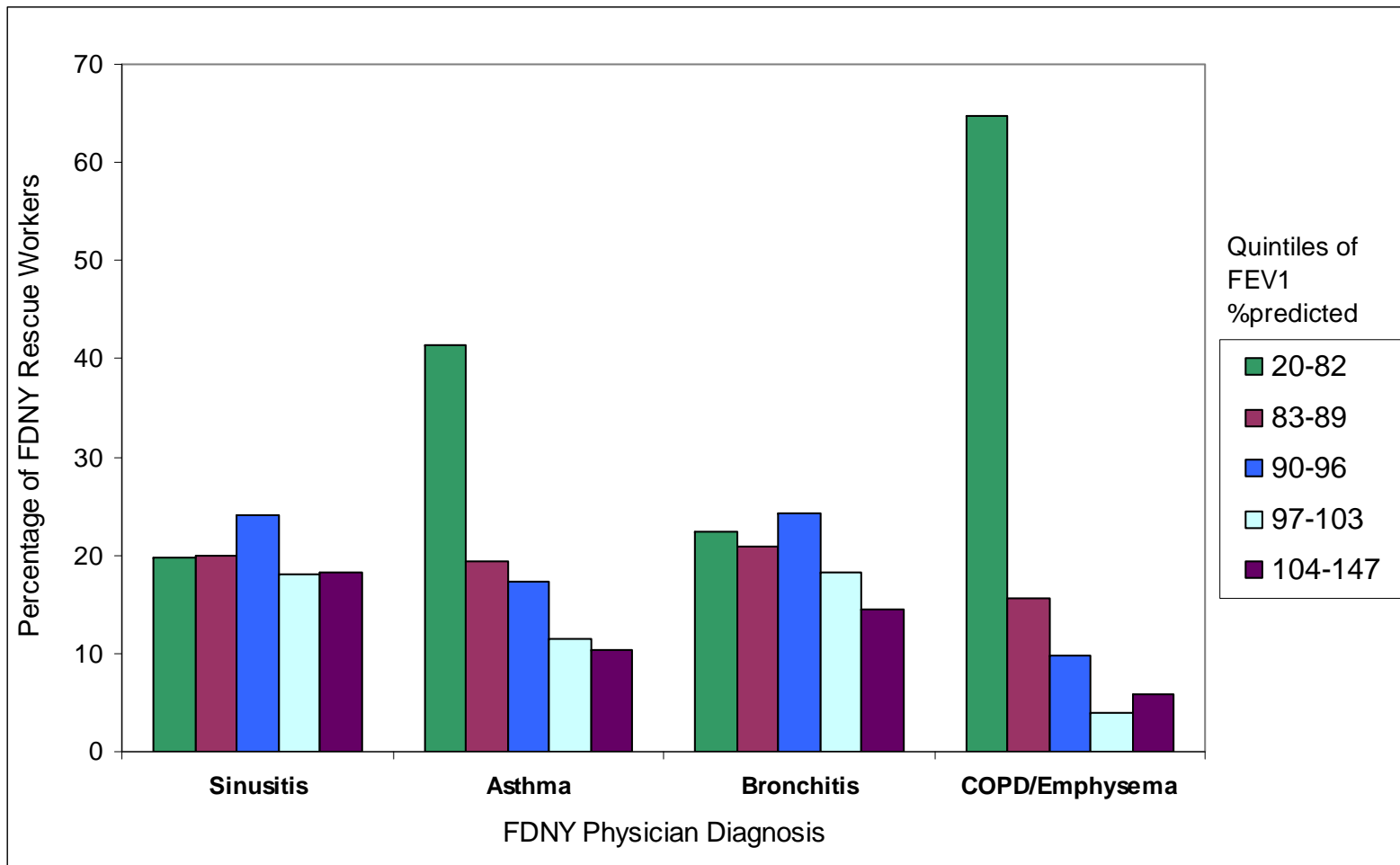




Results

FDNY Physician Diagnoses

Based on Quintiles of FEV1 %Predicted in Firefighters Only





Methods – Mental Health

- Probable PTSD was defined by the PTSD Checklist (PCL)-Civilian Version
- Probable depression was defined using the Centers for Epidemiologic Studies Depression Scale (CES-D)



Results

Mental Health

- 10,867 (99.3%) took the mental health questionnaire during our study period
- 752 (6.9%) with probable PTSD
- 2,106 (19.4%) with probable depression
- 715 (6.6%) with probable PTSD and probable depression



Results

Mental Health

- Those who arrived in the morning of 9/11 were **3 times more likely** to report probable PTSD than those who arrived after day 3
- Those who arrived in the morning of 9/11 were **2 times more likely** to report probable depression than those who arrived after day 3



Results

Comorbidity between Physical and Mental Health



19.7% with self-reported OAD

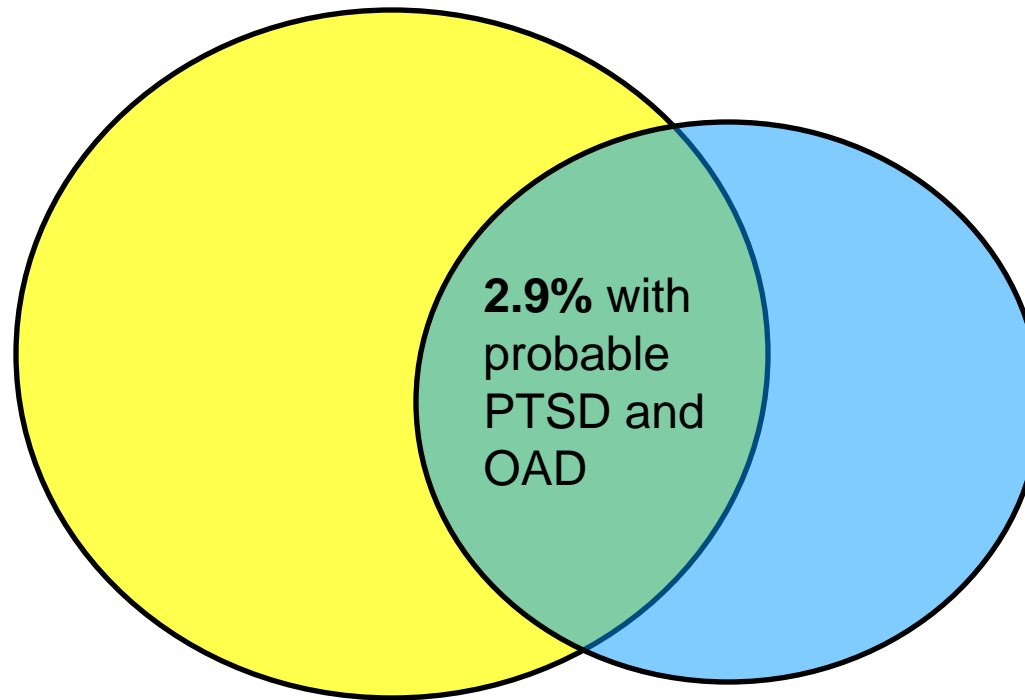


6.9% with probable PTSD



Results

Comorbidity between Physical and Mental Health



19.7% with self-reported OAD

6.9% with probable PTSD

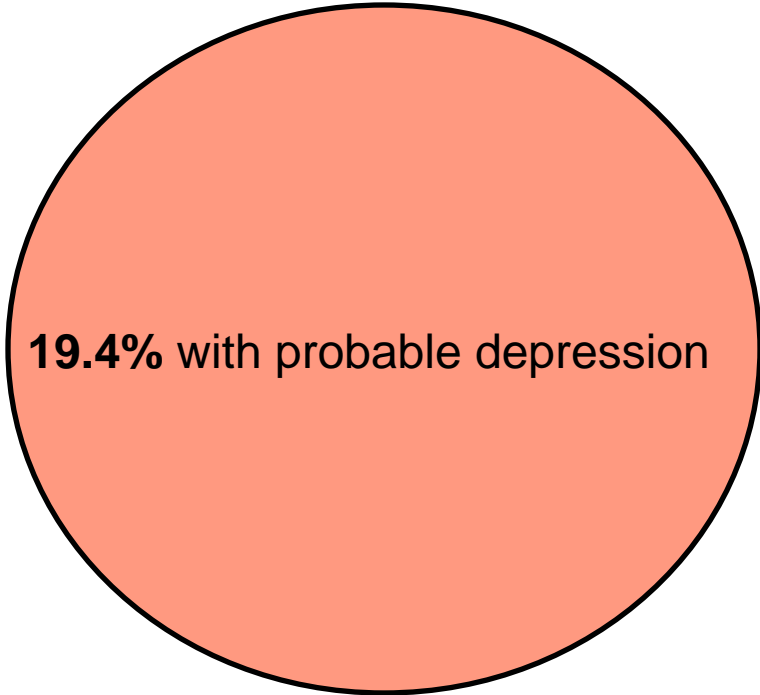


Results

Comorbidity between Physical and Mental Health



19.7% with self-reported OAD

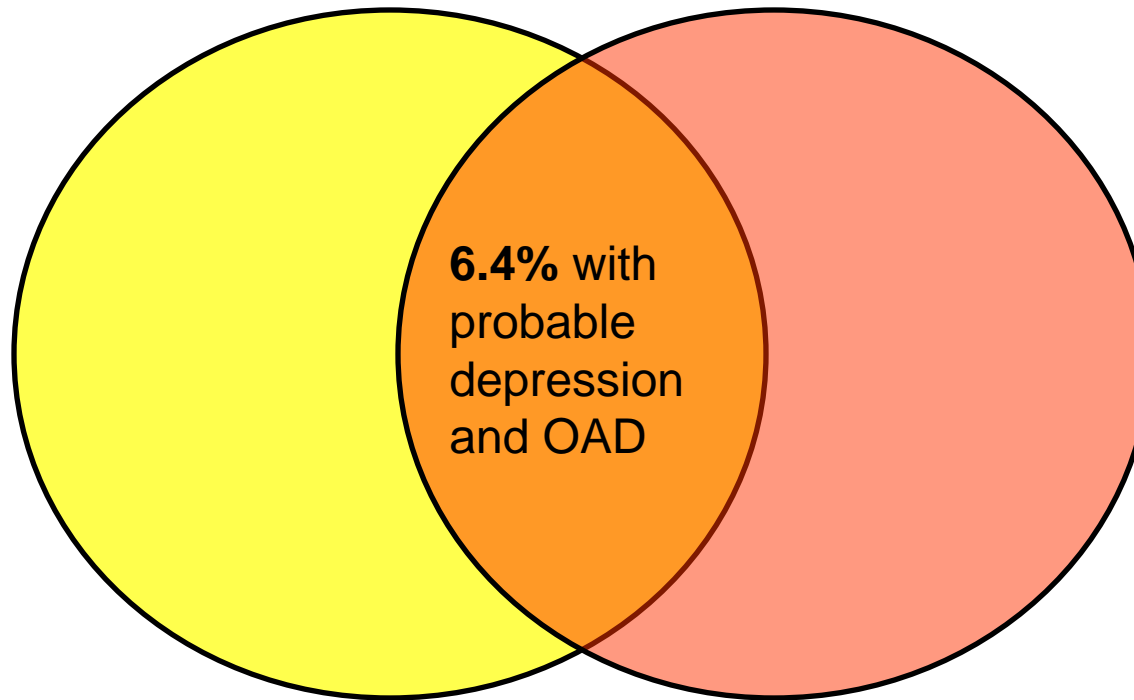


19.4% with probable depression



Results

Comorbidity between Physical and Mental Health



19.7% with self-reported OAD

19.4% with probable depression



Limitations

- No treatment analysis so cannot look at treatment effects
- All questionnaires are given at the same time so we cannot see the temporal association between physical and mental health outcomes



Conclusion

- First study to describe the elevated prevalence of respiratory diagnoses by an assessment of medical records
- Co-morbidity
 - 95% of those with probable PTSD also screened positive for probable depression
 - Co-morbidity between self-reported respiratory diagnoses and both probable PTSD and depression



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