Sensitivity of Symptom-Based Screening for COVID-19 in Active Duty Service Members

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INTRODUCTION

- The COVID-19 pandemic has been a threat to military medical readiness.
- Novel variants have been associated with differing disease severities and symptoms.
- Symptom-based screening tools focusing on fever, cough, and dyspnea have been widely utilized throughout the COVID-19 pandemic.
- However, the sensitivities of these screening tools in young, healthy patients have not been well characterized across the different waves of the pandemic.

HYPOTHESIS

- We sought to test the hypothesis that COVID-19 symptom-based screening would have low sensitivity within a young, healthy military population and sensitivity would vary by wave.

METHODS

Cross-Sectional Study Design

Collected Data

- Date of positive COVID-19 test.
- Symptoms reported on a standardized questionnaire.
- Vaccination status.

Data Analysis

- Categorical variables were compared across populations using Chi-Square or Fisher's Exact test for nominal variables.
- Population distributions were compared using the Kruskall-Wallis test.

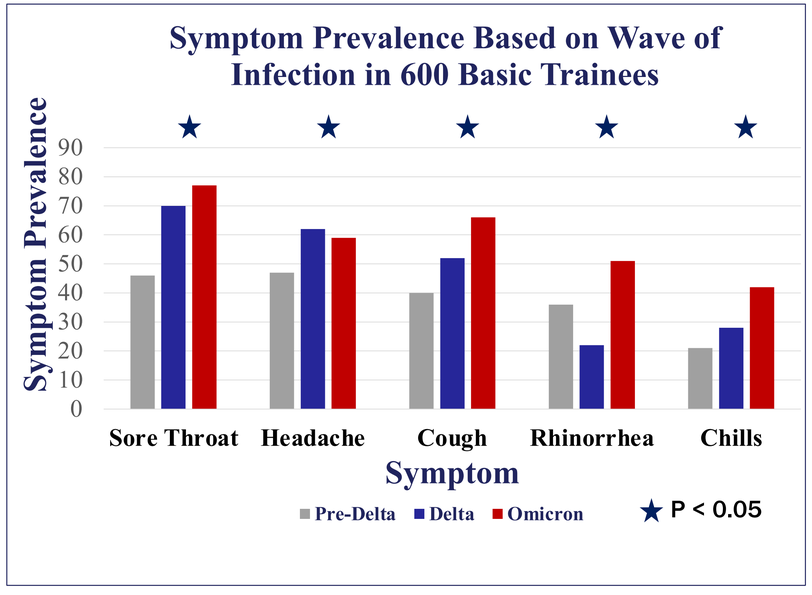
Study Population

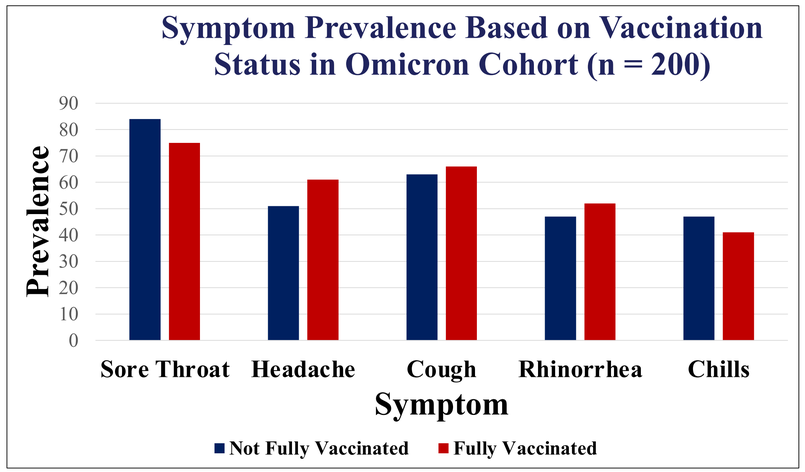
Convenience sample of 600 symptomatic basic trainees who tested positive for COVID-19

Pre-Delta Cohort	Delta Cohort	Omicron Cohort
200 service members who tested positive in February to April 2021	200 service members who tested positive in June to August 2021	200 service members who tested positive in January 2022

RESULTS

	Pre-Delta (n = 200)	Delta (n = 200)	Omicron (n = 200)	P-Value
Median Number of Symptoms, n (IQR)	3 (1 – 4)	3 (2 – 4)	5 (3 – 6)	<0.05





Predominant Variant	Sensitivity for Fever, Cough, and Dyspnea Screener
Pre-Delta (n = 200)	54
Delta (n = 200)	65
Omicron (n = 200)	78
Overall (n = 600)	64

DISCUSSION

- In a convenience sample of symptomatic basic trainees with COVID-19, screening for cough, fever, and dyspnea had varying sensitivity in identifying symptomatic cases of COVID-19.
- New virus variants were associated with increased symptom prevalence.
- Vaccination was associated with higher symptom burden, though this was likely due to higher virulence of new virus variants.
- As screening strategies evolve with the pandemic, changing symptom prevalence should be considered.