

Acute COVID-19 Symptoms Burden in Younger and Older Adults: A US Nationwide Study

Manuela Di Fusco,¹ Laura Lupton,² Mary M. Moran,¹ Joseph C. Cappelleri,¹ Laura Puzniak,¹ Alon Yehoshua,¹ Santiago MC Lopez,¹ Xiaowu Sun²

¹Pfizer Inc, New York, NY; ²CVS Health, Woonsocket, RI

AIMS

- Acute COVID-19 is characterized by a plethora of symptoms^{1,2}. These analyses evaluated symptoms patterns during acute SARS-CoV-2 infection, and differences based on age.

METHODS

- A prospective longitudinal survey study recruited symptomatic, SARS-CoV-2 positive adults aged ≥18 years tested at a national CVS Health retail pharmacy between 03/02/2023 and 05/18/2023 in the United States (NCT05160636).
- Twelve acute symptoms based on CDC criteria were collected via an online survey at testing day, week 1, week 2 and week 4 post-infection.
- Patients were grouped by pre-defined age categories: older adults (≥50 years), younger adults (<50 years).
- Between-group differences in unadjusted results were tested by using chi-square tests or Fisher's exact tests (for sparse data). A mixed-effect logistic model was used to adjust for relevant covariates including time (categorical: Testing, Week 1, Week 2, and Week 4), age ≥50, sex, vaccination status, comorbidities, race/ethnicity, US region, and work in healthcare, and interaction terms of age ≥50 by time and vaccination status by time, with unstructured correlation matrix for repeated measurements.

RESULTS

- The analyses included 643 study participants: 277 (43.1%) older adults and 366 (56.9%) younger adults.
- Respectively, their mean age was 62.3 and 34.5 years, 65.7% and 73.8% were female, 38.3% and 16.1% reported ≥1 comorbid condition (Table 1).

RESULTS cont'd

- Younger adults had a lower proportion of participants that were vaccinated (39.3% vs 62.1%) and used antivirals (14% vs 35.1%) (p<0.05).
- All participants self-reported ≥1 symptom at the time of testing, week 1 and week 2 post-infection.
- Older and younger adults had similar (p>0.05) time trends and mean number of symptoms across all time points (Figure 1 and Figure 2).
- In both groups, the most common symptoms were respiratory (i.e., congestion, cough, sore throat) followed by systemic (i.e., headache, fatigue) (Figure 3).
- The frequency of systemic, respiratory and gastrointestinal symptoms was generally similar (p>0.05) between groups across time points, although a significantly higher proportion of younger adults reported systemic symptoms at week 4 (27.1% vs 37.4%, p=0.018) (Figure 3).
- Overall, the unadjusted and adjusted results were similar.

Table 1. Baseline characteristics

	Older adults (N=277)	Younger adults (N=366)	P-value ³
Age, years, mean (SD)	62.3 (8.0)	34.5 (8.1)	<0.001
Female, n (%)	182 (65.7%)	270 (73.8%)	0.004
Race / Ethnicity, n (%)			<0.001
White or Caucasian	192 (69.3%)	182 (49.7%)	
Black or African American	24 (8.7%)	33 (9.0%)	
Hispanic	33 (11.9%)	66 (18.0%)	
Asian	12 (4.3%)	51 (13.9%)	
Other	16 (5.8%)	34 (9.3%)	
US Geographic Region, n (%)			0.034
Northeast	47 (17.0%)	41 (11.2%)	
South	119 (43.0%)	141 (38.5%)	
Midwest	56 (20.2%)	85 (23.2%)	
West	55 (19.9%)	99 (27.0%)	
Prior SARS-CoV-2 positive test, n (%)	112 (41.8%)	156 (46.2%)	0.283
Vaccinated with BNT162b2 ¹ , n (%)	172 (62.1%)	144 (39.3%)	<0.001
Time since last BNT162b2 vaccine dose, days, mean (SD)	301 (201)	382 (222)	<0.001
COVID-19 Antiviral use, n (%)	97 (35.1%)	51 (14.0%)	<0.001
≥1 comorbid condition ² , n (%)	106 (38.3%)	59 (16.1%)	<0.001

1. BA.4/5 bivalent BNT162b2 mRNA vaccine
2. Comorbid conditions include asthma or chronic lung disease, cirrhosis of the liver, immunocompromised conditions or weakened immune system, diabetes, heart conditions or hypertension, overweight or obesity
3. P-value refers to the difference across the two groups.

RESULTS cont'd

Figure 1. Mean number of acute COVID-19 symptoms by age

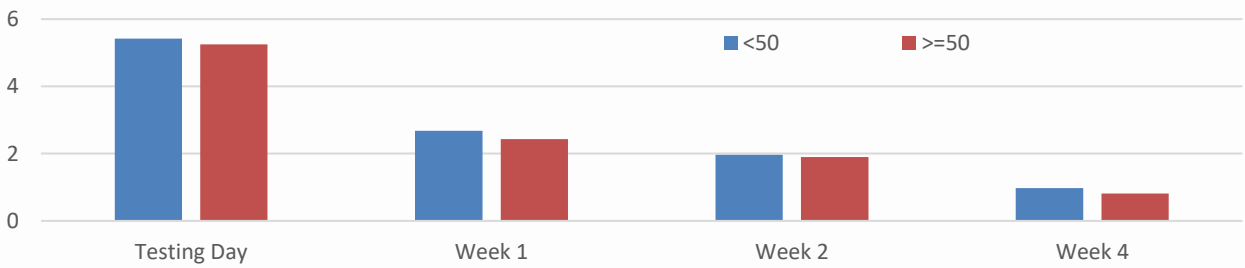


Figure 2. Distribution of number of acute COVID-19 symptoms by age, over time

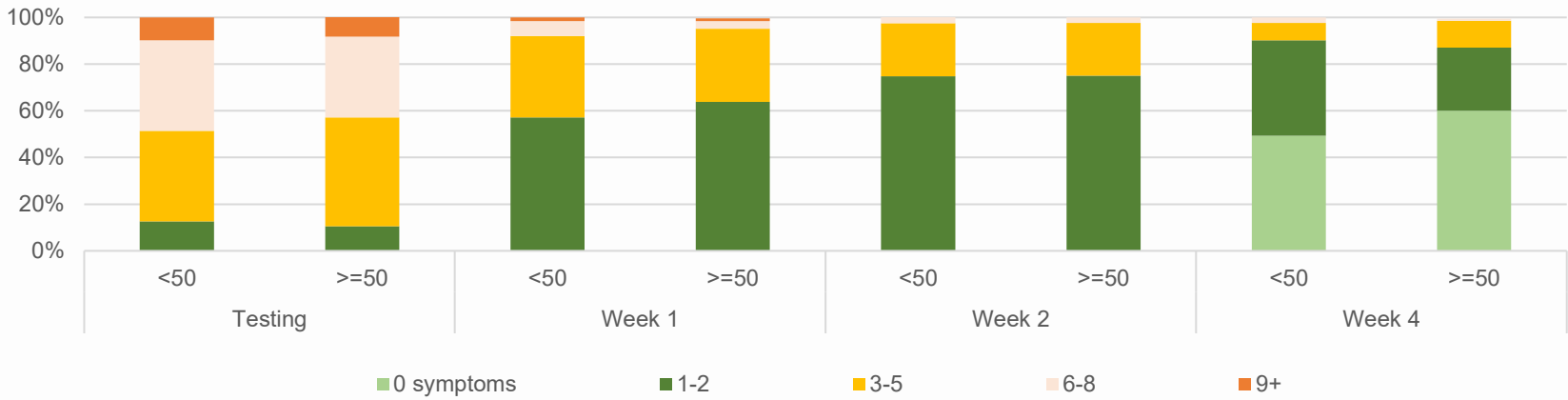
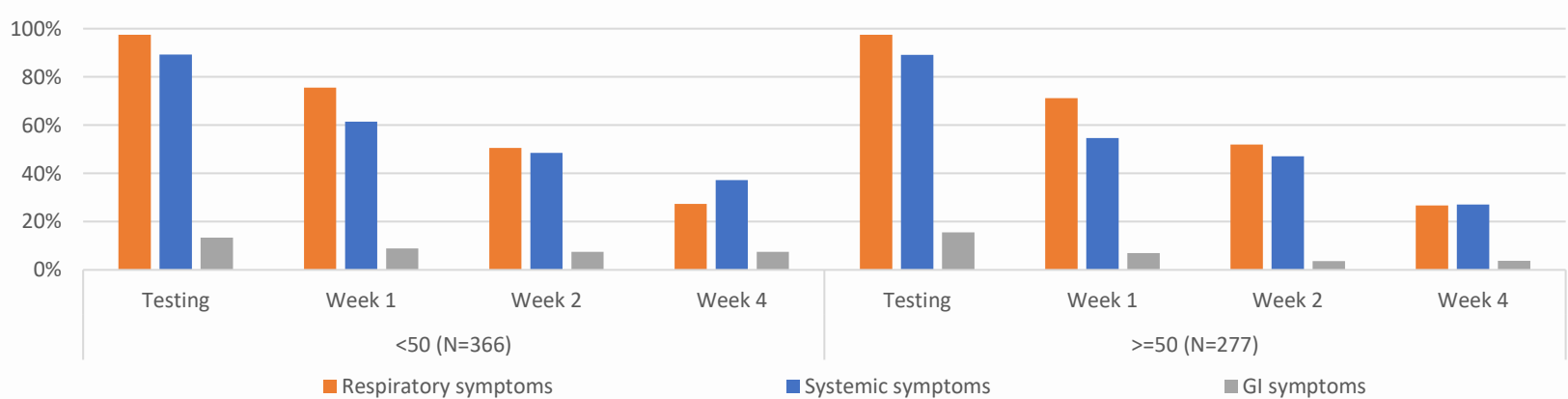


Figure 3. Frequency of ≥1 systemic, respiratory and gastrointestinal symptoms by age, over time



CONCLUSIONS

- Both younger and older adults were found to experience a substantial burden of acute COVID-19 symptoms, with 50% in the younger age group and 40% in the older age group still experiencing ≥1 acute symptoms four weeks post-infection.
- The similarity in symptom frequency and higher proportion of systemic symptoms at Week 4 in the younger age groups highlights the burden of SARS-CoV-2 infection regardless of age.
- Limitations included self-reported data, limited sample size, and lack of pre-COVID-19 symptom history.

References

- CDC (2025) [Symptoms of COVID-19 | COVID-19 | CDC](#)
- Mayo Clinic (2024). [Coronavirus disease 2019 \(COVID-19\) - Symptoms and causes - Mayo Clinic](#)

Disclosures

M.D.F., M.M.M, J.C.C., L.P., A.Y., and S.M.C.L. are employees of Pfizer and may hold stock or stock options of Pfizer.

L.L. and X.S. are employees of CVS Health and hold stock of CVS Health.

This study was sponsored by Pfizer Inc

For more information please contact:

Manuela Di Fusco, Pfizer Inc.;
New York, NY, 10001 USA.
Phone: 718-288-1620
Manuela.DiFusco@pfizer.com
; www.pfizer.com

