

Capturing psychosocial stressors during the COVID-19 pandemic in a population-based cohort: Canadian Cohort Obstructive Lung Disease (CanCOLD) Study

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Introduction

Globally, >200 million reported cases of COVID-19 (WHO, 2023). Psychiatrically, COVID-19 associated presentations have included mood, psychotic, cognitive, stress-related and sleep disorders. Neurotropism of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has been established, but living under pandemic conditions (social isolation & unprecedented changes in lifestyle) have also contributed to COVID-19's impacts. Risk factors for psychiatric manifestations include *chronic illness*, female sex, loneliness and fear of COVID-19.

According to WHO (2022), chronic obstructive pulmonary disease (COPD) is the 3rd leading cause of death globally, causing >3 million deaths in 2019. In non-pandemic times, COPD patients experience greater levels of comorbid anxiety and depression; associated with worse health outcomes, reduced health-related quality of life, increased health care utilization and increased mortality. Yet current practice focuses almost entirely on respiratory symptom management. Significant knowledge gaps regarding effective psychiatric treatment in this population persist. With the pandemic, respiratory vulnerabilities render COPD patients more susceptible to severe illness, and so we expect to see more psychiatric consequences in this population.

Objectives

- 1) Determine the prevalence and severity of loneliness, hopelessness and fear of catching COVID-19 during peak pandemic.
- 2) Assess whether pre-existing depression and/or anxiety can predict increased loneliness, hopelessness and fear of catching COVID-19 during peak pandemic.
- 3) Assess whether peak pandemic loneliness, hopelessness and fear of catching COVID-19 predict worse "post peak-pandemic" anxiety, depression and other relevant health outcomes.

Secondary objective

1) Determine whether increased loneliness, hopelessness and fear of catching COVID-19 during peak pandemic is predicted by worse pre-pandemic relevant health outcomes.

Methods

This research is part of the **Canadian Cohort Obstructive Lung Disease (CanCOLD)** study. A random-sampling **multi-center cohort** (9 sites)

- 1600 subjects (M&F)
- \geq 40 years old
- Sex- and age-matched at risk (smokers) and healthy controls, mild & moderate COPD
- Extensively characterized in-person visits (demographic, physiologic, biologic, pulmonary, imaging and questionnaire-based measures) & regular telephone interviews
- COVID-19 questionnaire administered monthly Embed \rightarrow descriptive &
- exploratory study on psychological stressors during the pandemic

Relevant health outcomes:

Self-report health-related quality of life, sleep quality, subjective symptom rating scales



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Results

In this preliminary analysis of n= 698 (Jan 2021-Nov 2022)

Age, in years (at COVID-19 questionnaire)	73.9 ± 9.0
Male sex, n (%)	388 (55.6)
Cigarette smoking pack-years	15.8 ± 21.0
COPD status, n (%)	
Non-COPD	356 (51.6)
COPD mild	199 (27.7)
COPD severe	143 (20.7)
HADS anxiety score ≥8, n (%)	67 (9.6)
HADS anxiety score	3.8 ± 2.9
HADS depression score ≥ 8 , n (%)	49 (7.0)
HADS depression score	2.6 ± 2.7
Number of individuals living in the household , n (%)	
1	620 (89.0)
2	47 (6.7)
3+	30 (4.3)
Ever COVID-19 positive, n (%)	13 (1.9)
Ever COVID-19 vaccinated, n (%)	689 (98.7)
Table 1 Participant demographic data Data presente	$\frac{1}{2} \frac{687}{7}$

Iddle I. Panicipani demographic data. Data presented as mean± 3D unless otherwise specified.

Descriptive statistics for preliminary sample (n=698)

Loneliness

- Overall, 42% of the cohort described severe loneliness
- Mean score for entire cohort 5.2 ± 2.0 (out of 9)
- vaccination status

Hopelessness

- Overall, 25% of the cohort described severe hopelessness • Mean score for entire cohort 4.6 ± 1.6 (out of 10) • Increased in **females** $(4.7 \pm 1.7 \text{ vs.} 4.4 \pm 1.5 \text{ in males}; p=0.009)$ • No difference by age, COPD severity, household status, history of COVID infection, vaccination status

- Overall, 6.2% of the cohort described severe fear of catching COVID-19
- Mean score for entire cohort 7.4 \pm 2.6 (out of 15)
- $5.3 \pm 1.8; p=0.015)$
- No difference by age, or by household status

Mental health outcomes: . COVID-19 questionnaire (cross-sectionally and

- prospectively) UCLA 3-item Ioneliness scale
- Brief H-Neg hopelessness scale
- 3 factor Fear of catching COVID-19 scale
- 2. Depression/Anxiety previously collected at study visits (Hospital Anxiety and Depression Scale)

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• Increased in **females** $(5.4 \pm 2.0 \text{ vs} 5.1 \pm 1.9 \text{ in males}; p=0.013)$ • No difference by age, COPD severity, household status, history of COVID infection,

Fear of catching COVID-19

• Increased in **females** (7.7 \pm 2.6 vs. 7.2 \pm 2.6 in males; p=0.014), in those with **more** severe COPD (8.0 \pm 2.9 vs. 7.2 \pm 2.5; p=0.022), in those never infected with COVID infection (7.4 \pm 2.6 vs. 5.9 \pm 3.0; p=0.035), and in **those vaccinated** (7.4 \pm 2.6 vs.

Zero-order correlations for preliminary sample (n=698)

Primary outcomes:

• Pre-pandemic depression (r=0.1, (r=0.14 vs. 0.07 in males; p<0.05)

- 0.11 in females; p<0.05)
- Pre-pandemic **depression** (r=0.14, p<0.001); stronger association in **males** (r=0.21 vs. 0.08 in females; p<0.05)

stronger association in **females** (r=0.20vs. 0.13 in males; p<0.05)

Preliminary conclusions & next steps

- on individuals with COPD.

We would like to thank all researchers, staff and subjects that are part of the CanCOLD study as well as our sponsors.

Loneliness

p=0.015); stronger association in **females**

Hopelessness • Pre-pandemic **anxiety** (r=0.16, p<0.001);stronger association in **males** (r=0.20 vs.

Fear of catching COVID-19 • Pre-pandemic anxiety (r=0.17, p<0.001); Secondary outcomes (*r* ≥ 0.1; p>0.05): Loneliness

Sleep

Subjective symptom rating scales

Hopelessness

- Pack-yr smoking history
- Sleep
- Subjective symptom rating scales

Fear of catching COVID-19

- Lung function
- Sleep
- Subjective symptom rating scales
- # individuals living in the household

• During the COVID-19 pandemic, in a population-based cohort reflecting COPD patients at large, there were elevated rates of severe loneliness and hopelessness.

• Pre-pandemic anxiety was associated with increased hopelessness and fear of catching COVID-19, while pre-pandemic depression was associated with increased loneliness and hopelessness. There were significant associations between worse self-reported healthoutcomes pre-pandemic and pandemic-related psychosocial stressors

• In progress cross-sectional subgroup analyses

• In progress longitudinal analyses: COVID-19 questionnaire administered prospectively at 4^{th} study visit \rightarrow "Post-pandemic" outcomes

• Addition of exploratory analyses/hypothesis-generating investigations \rightarrow psychological factors that could be driving physical and mental-health perceptions

Clinical implications

• Provide novel information on mental health consequences of the COVID-19 pandemic

• Provide guidance on how best to support patients presenting with mental health concerns in various healthcare/non-psychiatric settings.

• May help guide mental healthcare for other chronic diseases.

• May help fill knowledge gaps to plan interventions better targeted to unique needs of this population & those for other chronic disease.

• May help identify gaps in existing mental health supports for medical populations.

Acknowledgments





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