COVID-19 Symptoms, Vaccination, and Long COVID between Cancer Survivors and the U.S. General Population

M-01-924

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BACKGROUND

The COVID-19 pandemic has affected people at various levels in the U.S. and worldwide. The disease can have lasting symptoms that may vary across different populations. Cancer survivors often face many health challenges and may be more vulnerable to SARS-CoV-2 and/or long COVID. In addition, they have unique health care and service needs.

Specific Aim: This study examined differences in COVID-19 symptoms, vaccination status, and long COVID between cancer survivors and the general population in the U.S.

METHODS

We conducted a secondary data analysis of the 2022 National Health Interview Survey (NHIS) data that used multi-stage probability sampling. Adults aged ≥18 years with a cancer history were cancer survivors, and the general population included those without a cancer history.

Long COVID was defined as having any symptoms lasting ≥3 months that were absent prior to having SARS-CoV-2 or COVID-19.

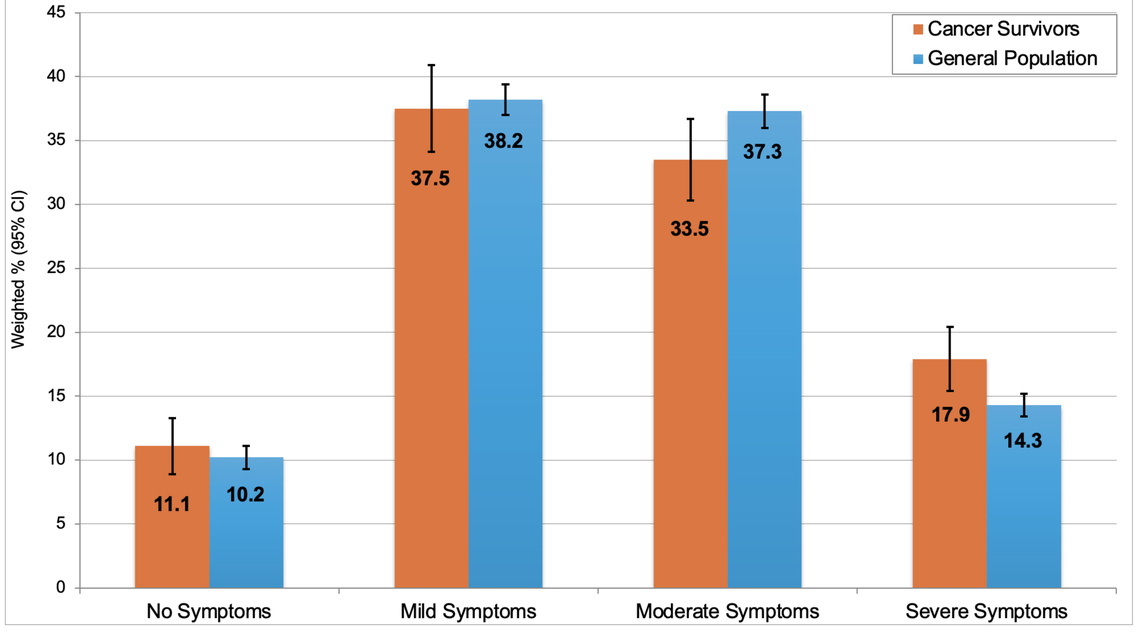
Participants were asked to describe their levels of **symptom severity** based on a 4-point Likert scale: no, mild, moderate, and severe. Furthermore, they were also asked whether they received **≥1 dose of the COVID-19 vaccine** since 2020.

Weighted proportions (95% CI) were compared using Rao-Scott Chi-squared tests. Weighted logistic regression was used to assess differences in long COVID between cancer survivors and the general population, controlling for demographic and socioeconomic characteristics and COVID-19 vaccination status.

Adjusted odds ratios (AOR) and 95% CIs were computed. All analyses accounted for complex survey design and survey weights.

In this national sample of U.S. adults, severe COVID-19 symptoms and receipt of ≥1 dose of COVID-19 vaccinations were more prevalent in cancer survivors than the general population. The odds of long COVID were **similar** between cancer survivors and the general population.

Figure. Weighted Percentages of COVID-19 Symptom Severity between Cancer Survivors and the US General Population in 2022



RESULTS

The unweighted sample was 8,936, representing a weighted of 89,331,130 adults in the U.S. The mean age was 44 years. Overall, 7.6% (95% CI: 7.0-8.2%) were cancer survivors and 63.4% identified as White, followed by 19.2% as Hispanic, 9.6% as Black, 4.8% as Asian, and 3.0% as Other.

A greater percentage of cancer survivors received ≥1 dose of COVID-19 vaccine than the general population (88.6% [95% CI: 87.3-89.9%] vs. 78.6% [95% CI: 77.8-79.5%], p <0.001).

Overall, 19.7% (95% CI: 18.7-20.7%) experienced long COVID. The weighted percentage of long COVID was significantly higher in cancer survivors than in the general population (23.6% [95% CI: 20.3-27.0%] vs. 19.4% [95% CI: 18.3-20.4%], p = 0.009). **After adjusting for demographic and socioeconomic factors and vaccination status, the odds of long COVID between the two populations were not statistically significant (AOR 1.05, 95% CI: 0.85-1.31, p = 0.635).**

CONCLUSIONS

In this U.S. national adult sample, a higher proportion of cancer survivors experienced severe COVID-19 symptoms than the general population, with no significant differences in experiencing long COVID.

Strategies are needed to address COVID-19 symptom severity in cancer survivors while ensuring equitable COVID-19 care access. Future research should also consider other factors beyond cancer history when assessing long COVID.

ACKNOWLEDGEMENT

This study was supported in part by the NIH/NIA (T32AG000243) and Susan G. Komen (TREND21675016). The contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH/NIA.