ABSTRACT

Background: There are no data on the impact of COVID-19 and associated public health measures, including sheltering at home, travel restrictions, and changes in health care provision, on the mental health of older veterans. This information is necessary for government and philanthropic agencies to tailor mental health supports, services, and resources for veterans in the peri- and post-pandemic periods. The objective of this study was to compare mental health symptoms between Canadian Armed Forces (CAFs) veterans and the general Canadian older adult population in the early months of the COVID-19 pandemic.

Materials and Methods: This was a secondary analysis of a cross-sectional study of older adults in the national Canadian COVID-19 Coping Study. Individuals aged 55 years and older were eligible. A convenience sample of older adults was recruited through a web-based survey administered between May 01, 2020 and June 30, 2020. Canadian Armed Force military service history status (yes/no) was ascertained. The eight-item Center for Epidemiological Studies Depression Scale, the five-item Beck Anxiety Inventory, and the three-item Loneliness Scale were used to measure mental health symptoms. Multivariable logistic regression compared the odds of screening positive for depression, anxiety, and loneliness between veteran and non-veteran respondents.

Results: Of 1,541 respondents who answered the final question (87% survey completeness rate), 210 were veterans. Forty percent of veterans met criteria for at least one of the mental health diagnoses compared to 46% of non-veterans (P = 0.12). The odds of reporting elevated symptoms of depression, anxiety, and loneliness were similar for veteran and non-veteran respondents after adjusting for confounders.

Conclusion: Veterans’ report of mental health symptoms was similar to the general population Spring 2020 of the COVID-19 pandemic. Although veterans’ military training may better prepare them to adapt in the face of a pandemic, additional research is needed to understand the longitudinal impacts on physical and mental health.

INTRODUCTION

Veterans’ wellbeing may be disproportionately at risk during the COVID-19 pandemic. Reasons for concern include a higher proportion of underlying mental health problems, the increased risk of severe infection for those experiencing traumatic stress, and fractured or inaccessible federal, provincial, and private health services. However, there are no data on the impact of COVID-19 and associated public health measures, including sheltering at home, travel restrictions, and changes in healthcare provision, on the mental health of veterans. This information is necessary for government and philanthropic agencies to tailor mental health supports, services, and resources for veterans in the peri- and post-pandemic periods. The objective of this study was to compare mental health symptoms between Canadian Armed Forces (CAF) veterans and the general Canadian older adult population in the early months of the COVID-19 pandemic.

METHODS

Study Design, and Population

This was a cross-sectional study of older adults based on a secondary analysis of the national Canadian COVID-19 Coping Study. The survey was designed at the University of Michigan.
and modified for the Canadian context. This study received research ethics board approval through the Women’s College Hospital Research Ethics Board (REB # 2020-0045-E). Data Collection: a web-based survey was administered through Qualtrics between May 1, 2020 and June 30, 2020. A convenience sample was recruited through social media platforms, targeted emailing of organizations serving older adults, and snowball sampling methods. Individuals aged 55 years and older were eligible to complete the survey.

Veteran Status
Veteran status (yes/no) was measured with a single question: Have you ever had any Canadian military service (e.g., Reserves, Army, Navy, and Air Force).

Mental Health Symptoms
The eight-item Center for Epidemiological Studies Depression Scale (CES-D), the five-item Beck Anxiety Inventory (BAI), and the three-item Loneliness Scale were used. We used scores ≥3 on the CES-D for elevated depressive symptoms, scores ≥10 on the BAI for anxiety, and ≥6 on the Loneliness Scale for the presence of loneliness.3–5 The eight-item CES-D has been used in the U.S. Health and Retirement Study and has high internal consistency and reliability.6,7 A score of ≥3 was determined to be similar to the cut point of ≥16 on the full CES-D8 and has been used in prior research with older adults.8 The five-item BAI has been used in other studies of older adults with good internal consistency.4 A score of ≥10 on the five-item BAI corresponded the highest quartile of the distribution in our sample, which is a similar justification of cut-off scores used by Gould et al.3 A score of ≥6 was considered lonely, similar to other epidemiological survey-based studies of older adults.9,10

Statistical Analysis
Psychometric properties of each mental health symptom scale were assessed using the Cronbach coefficient alpha. Multivariable logistic regression compared the odds of screening positive for depression, anxiety, and loneliness between veterans and non-veterans.

RESULTS
Of 1,782 who consented, 1,541 answered the final question (87% survey completeness rate) and 210 were veterans. Veterans were less likely to be female, have a graduate education, be employed, and have excellent self-reported health than non-veteran respondents and more likely to report more than one chronic health condition (Table I). Forty percent of veterans met criteria for a diagnosis of at least one of the mental health symptoms compared to 46% of non-veterans (P = .12). The odds of reporting elevated symptoms of depression, anxiety, and loneliness were similar for veteran and non-veteran respondents after adjusting for confounders (Table II).

| TABLE I. Sociodemographic Characteristics and Self-Reported Health of Canadian Veterans and Non-Veteran Respondents |
|--------------------------------------------------|------------------|------------------|------------------|------------------|
| Characteristics                                      | Veterans (n = 210) | Non-veterans (n = 1,331) | P-value |
| Average age years (SD)                                 | 71.5 (9.9)        | 68.9 (7.5)        | .0001         |
| Female (%)                                         | 28.7             | 73.6             | <.0001         |
| White (%)                                           | 95.7             | 95.9             | .92            |
| Language                                           |                 |                  | .39            |
| English                                            | 93.3             | 91.6             |                |
| French                                             | 6.7              | 8.4              |                |
| Geography                                          |                 |                  | .0001          |
| Atlantic Canada                                    | 17.2             | 7.8              |                |
| Quebec                                             | 10.8             | 11.1             |                |
| Ontario                                            | 37.0             | 54.5             |                |
| Centra/Western Canada                              | 9.9              | 10.3             |                |
| Canada                                             |                  |                  |                |
| British Columbia, Nunavut, Yukon                   | 25.1             | 16.4             |                |
| Current relationship status (n, %)                  |                 |                  | .07            |
| Single                                             | 25.8             | 32.1             |                |
| Married or in a relationship                        | 74.2             | 67.9             |                |
| Education (n, %)                                    |                 |                  |                |
| High school/less than high school                  | 23.3             | 14.8             | .0005          |
| Some university                                    | 4.8              | 5.5              |                |
| Trade or college diploma/certificate                | 28.6             | 21.0             |                |
| Bachelor degree                                    | 19.1             | 26.5             |                |
| Graduate degree                                    | 24.3             | 32.4             |                |
| Pre-COVID employment status (n, %)                  |                 |                  |                |
| Employed                                           | 13.8             | 21.6             | .02            |
| Retired                                            | 83.8             | 77.2             |                |
| Unemployed                                         | 2.4              | 1.2              |                |
| Living alone (n, %)                                 | 22.1             | 28.0             | .08            |
| Self-reported health (n, %)                         |                 |                  |                |
| Excellent                                          | 12.9             | 20.3             | .005           |
| Very good                                          | 36.4             | 41.8             |                |
| Good                                               | 35.9             | 27.6             |                |
| Fair                                               | 12.4             | 9.3              |                |
| Poor                                               | 2.4              | 1.1              |                |
| Number of chronic conditions                       |                 |                  | .0003          |
| 0                                                  | 19.1             | 28.3             |                |
| 1                                                  | 31.9             | 34.2             |                |
| 2                                                  | 21.0             | 21.6             |                |
| 3                                                  | 20.5             | 9.4              |                |
| 4                                                  | 5.7              | 4.5              |                |
| 5+                                                 | 1.8              | 2.0              |                |

Missing data: sex n = 7; race n = 2; geography n = 36; education n = 2; employment status n = 5; living alone n = 14; self-reported health n = 15. Abbreviation: SD, standard deviation.

DISCUSSION
During the first wave of the pandemic in the Spring of 2020, veterans who responded to our survey were more likely to be retired, older, and managing more chronic health conditions...
This study did not receive funding.

This study did not receive funding.

than non-veteran respondents; however, veterans’ report of mental health symptoms was similar to the general population. Veterans may be better prepared to adapt in the face of a pandemic given previous military training for and experiences with large-scale emergency events. Although this study is the first to describe mental health symptoms among military veterans during the COVID-19 pandemic, it is cross-sectional and relies on a convenience sample which may not be representative of all veterans or Canadians. In addition, short self-report instruments were used to assess the presence and absence of mental health symptoms rather than diagnostic interviews which may under or over report these diagnoses. An imprecise measure of veteran status was used in the survey. Military service history and definitions of “veteran” status differ across countries which may limit the generalizability of these findings to other jurisdictions. Future surveys may consider collecting more in-depth information on military service, such as length of service or deployment experiences. It remains unknown whether previous military training will prove advantageous in the long term as lockdown measures to prevent the spread of COVID-19 continue. There is a need to understand the longitudinal impacts of the COVID-19 pandemic on veterans and their families to ensure resources are accessible, appropriate, and available. This is especially true for those with multiple underlying chronic physical and mental health conditions, who face additional challenges given prolonged restrictions in health care access. Research and outreach are needed to identify and support those veterans with compromised health during the pandemic.

**FUNDING**

This study did not receive funding.

**REFERENCES**

1. Mcfarlane A, Jetly R, Castro CA, Greenberg N, Vermetten E: Impact of COVID-19 on mental health care for Veterans: improvise, adapt and overcome. J Mil Veteran Fam Health 2020; 6(52): 17–20. Pre-publication(epub).
2. Harris S: Canadian veterans face new challenges during the COVID-19 pandemic. HuffPost, 2020. Available at https://www.huffingtonpost.ca/entry/remembrance-day-covid-veterans_ca_5faab9eac5b6600956eb2527; accessed November 20, 2020.
3. Gould CE, Rideaux T, Spira AP, Beaudreau SA: Depression and anxiety symptoms in male veterans and non-veterans: the Health and Retirement Study. Int J Geriatr Psychiatry 2015; 30(6): 623–30.
4. Gould CE, O’Hara R, Goldstein MK, Beaudreau SA: Multimorbidity is associated with anxiety in older adults in the Health and Retirement Study. Int J Geriatr Psychiatry 2016; 31(10): 1105–15.
5. Hughes ME, Waite LJ, Hawkley LC, Cacioppo JT: A short scale for measuring loneliness in large surveys: results from two population-based studies. Res Aging 2004; 26(6): 655–72.
6. Hann D, Winter K, Jacobsen P: Measurement of depressive symptoms in cancer patients: evaluation of the Center for Epidemiological Studies Depression Scale (CES-D). J Psychosom Res 1999; 46(5): 437–43.
7. Steffick D: Documentation of affective functioning measures in the Health and Retirement Study (HRS/AHEAD Documentation Report No. DR-005). Ann Arbor, University of Michigan Survey Research Center, 2000. Available at http://www.umich.edu/~hrswww/docs/userg/index.html; accessed May 5, 2020.
8. Kobayashi LC, Steptoe A: Social isolation, loneliness, and health behaviors at older ages: longitudinal cohort study. Ann Behav Med 2018; 52(7): 582–93.
9. Steptoe A, Shankar A, Demakakos P, Wardle J: Social isolation, loneliness, and all-cause mortality in older men and women. Proc Natl Acad Sci USA 2013; 110(15): 5797–801.
10. Perissinotto CM, Stijacic Cenzer I, Covinsky KE: Loneliness in older persons: a predictor of functional decline and death. Arch Intern Med 2012; 172(14): 1078–83.