Well-Being of Canadian Veterans during the COVID-19 Pandemic: Cross-Sectional Results from the COVID-19 Veteran Well-Being Study

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Abstract

Background

The impacts of the COVID-19 pandemic have disproportionately affected different population groups. Veterans are more likely to have pre-existing mental health conditions compared to the general Canadian population, experience compounded stressors resulting from disruptions to familial, social, and occupational domains, and were faced with changes in healthcare delivery (e.g., telehealth). The objectives of this study are to assess (a) the mental health impact of COVID-19 and related life changes on the mental health of Veterans and (b) perceptions of and satisfaction with changes in healthcare treatments and delivery during the pandemic.

Methods

A total of 1139 Canadian Veterans were recruited to participate in an online survey. Participants completed questions pertaining to their mental health and well-being, lifestyle changes, and concerns relating to the COVID-19 pandemic, as well as experiences and satisfaction with healthcare treatments during the pandemic.

Results

Results showed that 55.9% of respondents reported worse mental health functioning compared to before the pandemic. Frequency of probable posttraumatic stress disorder, major depressive disorder, generalized anxiety disorder, alcohol use disorder, and suicidal ideation were 34.2%, 35.3%, 26.8%, 13.0%, and 22.0%, respectively. Between 39.0% and 53.0% of respondents attributed their symptoms as either directly related to or exacerbated by the pandemic. Approximately 18% of respondents reported using telehealth for mental health services during the pandemic, and among those, 73.0% indicated a choice to use telehealth even after the pandemic.

Conclusions

This study found that most Veterans experienced worsening mental health as a result of the COVID-19 pandemic. The use of telehealth services was widely endorsed by mental health treatment-seeking Veterans who transitioned to virtual care during the pandemic. Our findings have important clinical and program administrator implications, emphasizing the need to reach out to support veterans, especially those with pre-existing mental health conditions and to enhance and maintain virtual care even post pandemic.

Introduction

Existing research has highlighted the negative impact of the COVID-19 pandemic on the general health and well-being of Canadians [1]. The pandemic and its associated lifestyle changes, such as stay-at-home orders, service restrictions, and resource limitations can be particularly challenging and distressing for at-risk populations such as Veterans [2, 3]. For Canadian Armed Forces (CAF) Veterans, who experience psychiatric conditions including major depressive disorder (MDD), posttraumatic stress disorder (PTSD), generalized anxiety disorder (GAD), and alcohol use disorder (AUD) at higher rates than the Canadian general population, challenges associated with the pandemic may further amplify these existing vulnerabilities [4]. Public safety guidelines may lead to reduced access to essential services and supports, and significantly reduce social interactions, which is a particular concern for Veterans who may already have limitations related to social engagement [5, 6]. Veterans may experience uncertainties related to work stability and financial security due to COVID-19-related workplace changes. Finally, for the proportion of Veterans currently affected by psychiatric conditions such as PTSD, it remains poorly understood whether physical comorbidities might increase the risk of COVID-19 infection, and/or exacerbate the severity of the infection [6, 7].

The pandemic also largely transformed the delivery of healthcare services. Across Canada, physical and mental healthcare transitioned from in-person formats to telehealth (e.g., care delivered via telephone or videoconferencing). For mental healthcare, telehealth can be as effective as in-person therapy [8]; however, it can also pose challenges for implementation and adherence to essential components of psychotherapy, such as elements designed to reduce avoidant behaviours. Traditional forms of psychotherapy, including trauma-focused psychotherapy often used with Veteran populations, may require adaptations to accommodate telehealth delivery modalities. Clinicians also need to assess safety and practical considerations in virtual delivery of trauma-focused therapy. Taken together, these dramatic changes in healthcare delivery may affect Veteran satisfaction with service utilization and impact Veterans' overall well-being. With recent national data suggesting that 40% of the Canadian general population report worse mental health during the pandemic and 20% report increased alcohol use [9], research is needed to better understand the impact of the pandemic on the well-being of Veterans [10].

The overarching aim of the current study was to evaluate the overall self-reported well-being of Canadian Veterans during the COVID-19 pandemic. We used baseline data from a longitudinal survey of Veteran well-being during the pandemic to better understand: 1) the impact of the pandemic on general well-being, including MDD, PTSD, GAD, and AUD symptom severity; and 2) Veterans' perspectives on the acceptability and utility of changes in healthcare delivery.

Methods

Data collection

A national longitudinal online survey was distributed across Canada in English and French. Participants were recruited using professional networks, social media advertisements, participant recruitment websites, press releases, Veteran community and advocacy groups, and word of mouth. Recruitment

efforts also targeted hard-to-reach regions to ensure sampling included all provinces and territories. The survey was open to all CAF Veterans over the age of 18 residing in Canada during the baseline data collection period (July 7, 2020 to February 1, 2021). Data was collected using a survey-hosting platform, Research Electronic Data Capture (REDCap), where participants were given the option to complete a short- (20 minutes) or long-form (30 minutes) survey. In this paper, we examine the baseline data associated with this larger initiative.

Measures

PTSD. The PTSD Checklist for the DSM-5 (PCL-5)[11] assessed past month probable PTSD and PTSD symptom severity based on DSM-5 symptom clusters. Respondents rated their distress from each of the 20 items from 0 (*not at all*) to 4 (*extremely*). Responses were summed to provide a total score, where higher scores indicated greater PTSD symptom severity. Scores of 33 or higher were indicative of probable PTSD.[12] The reliability and validity of the PCL-5 are well-established within treatment-seeking military populations [12, 13]. Internal consistency in the current study was high (Cronbach's $\alpha = 0.98$).

MDD. Probable MDD was measured using the self-administered Patient Health Questionnaire-9 (PHQ-9) [14, 15]. Participants were asked if they had been bothered by nine symptoms of depression during the past two weeks with responses ranging from 0 (*not at all*) to 3 (*nearly every day*) [16]. Probable MDD was indicated if a participant had a total score of 10 or more on the PHQ-9. Thoughts of suicide or self-harm were measured using the suicide item of the PHQ-9, whereby suicidal ideation/self-harm was indicated by a response of "several days or greater" during the past two weeks[17–20]. Internal consistency in the current sample was high ($\alpha = 0.94$).

GAD. Probable GAD was assessed using the General Anxiety Scale (GAD-7) [16]. Participants were asked how bothered they had been by seven anxiety symptoms over the past two weeks with responses ranging from 0 (*not at all*) to 2 (*more than half the days*).[16] GAD was indicated if participants had a total score of 10 or more[21]. Internal consistency in the current sample was high ($\alpha = 0.95$).

AUD. Probable AUD was measured using the AUDIT [22]. Participants were asked ten questions about their current alcohol use. Responses ranged from 0 (*never*) to 4 (*4 or more times a week*) for drinking frequency; 0 (*none*) to 5 (*10 or more*) for drinking quantity; 0 (*never*) to 4 (*daily or almost daily*) for drinking consequences; and 0 (*no*), 2 (*yes, but not in the past year*), or 4 (*yes, during the past year*) for concern of others and injury. Potential scores ranged from 0 to 41, with scores of 7 (for women) and 8 (for men) or above indicating probable AUD [22]. Internal consistency was good in the current sample ($\alpha = 0.82$).

To determine whether mental health symptoms were associated with the pandemic, an additional item was added to each of the PCL-5, PHQ-9, GAD-7, and AUDIT tools, asking whether the reported symptoms were directly related to the pandemic, made worse by the pandemic, or unrelated to the pandemic.

COVID-19-related factors. Select items from the CoRonavlrus Health and Impact Survey (CRISIS)[23, 24] were used to assess personal or family exposure and consequences (e.g., fallen ill, hospitalized) of

COVID-19, as well as relative difficulty of the household in meeting financial needs since the start of the pandemic from 0 (*much more difficult*) to 4 (*much easier*). A dichotomous “COVID-19 exposure” variable was created using 5 items from the CRISIS questionnaire where a positive COVID-19 exposure was indicated by any of: exposure to someone with suspected or confirmed COVID-19, family members with suspected or confirmed COVID-19, personal suspected or confirmed COVID-19, personal consequences as a result of COVID-19 (e.g., illness, hospitalization, quarantine), and family consequences as a result of COVID-19 (e.g., illness, passed away, quarantine). A negative COVID-19 exposure was indicated when participants did not endorse any of these circumstances. General mental health at the time of survey completion relative to the start of the pandemic was assessed with responses ranging from 0 (*significantly worse than before*) to 4 (*significantly better than before*). Additional items were used to assess pandemic-related changes in employment status or setting, salary, and concerns about employment stability.

Access to healthcare and telehealth. Participants were asked about difficulties accessing healthcare, whether access difficulties were related to mental or physical healthcare (or both), and the level of distress experienced in the past week due to difficulties accessing healthcare (from 0 = *not at all* to 4 = *extremely*). For those who experienced telehealth services, two items were used to assess telehealth satisfaction (e.g., “*I would recommend telehealth to a friend*”, and “*I would choose to use telehealth in the future if coming to the office is inconvenient*”) using a Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*).

Analytic Strategy

Missing data cut-off was established at 20% or less for the current sample, and treatment of missing data was addressed via pairwise deletion. An alpha level of 0.05 was used for statistical significance in all tests. Analyses were conducted using IBM SPSS Statistics, Version 27 [25]. Sociodemographic characteristics, employment characteristics, mental health functioning, mental health symptoms were assessed using descriptive statistics. Percentages of participants who would recommend telehealth to a friend, use telehealth in the future, and for mental health were calculated by combining “*agree*” and “*strongly agree*” responses. Associations of mental health symptoms (via PTSD, MDD, GAD, and AUDIT scores) with COVID-19 exposure (exposed vs. not exposed), and with gender (male vs. female) were explored using *t*-tests. The association between age and mental health symptoms was explored using bivariate Pearson correlations. Chi square analyses were used to examine the association of age with telehealth satisfaction variables. Eta value was interpreted for the strength of the association, and eta squared was used to determine the amount of variance accounted for.

Results

Sample Characteristics

A total of 1,139 CAF Veterans completed the baseline assessment (see Table 1). The mean age was 55.3 (*SD* = 13.1) years. Most respondents were men (75.9%; *n* = 865) and self-identified as white (92.1%; *n* =

1,049). Participants served an average of 20.2 years in the military ($SD = 11.2$). Most (76.6%; $n = 873$) were married, or in a common-law or long-term relationship. There was good representation among the Canadian provinces, with most participants living in or around a city (58.2%; $n = 663$). Relative to the distribution of a national sample of Veterans [26], participants were similarly dispersed across geographical regions, with small differences in percentage distribution ranging from 0% (equitable distribution) to a maximum of 4.80%. Over a third of Veterans were employed (37.4%; $n = 426$).

Table 1
Sociodemographic characteristics of Veteran respondents at baseline data
collection (between July 7, 2020 and February 1, 2021)

Variable	<i>n</i> or <i>M</i>	<i>%</i> or <i>SD</i>
Age (years)	55.3	13.1
Gender		
Men	865	75.9%
Women	247	21.7%
Other	6	0.5%
Prefer not to say	4	0.4%
Missing	17	1.5%
Marital status		
Married/in a relationship	873	76.6%
Single	244	21.4%
Prefer not to answer	8	0.7%
Missing	14	1.2%
Ethnicity		
White	1049	92.1%
Aboriginal	61	5.4%
Other non-white	42	3.7%
Prefer not to say	25	2.2%
Highest level of education		
Secondary or lower	316	27.7%
Post-secondary or higher	807	70.9%
Missing	16	1.4%
Annual income		
< \$40 000	98	8.6%
\$40 000 – \$59 999	195	17.1%
^a Categories are not mutually exclusive, therefore, total exceeds 100%.		
^b Family includes children, parents/in-laws, or other family.		

Variable	<i>n</i> or <i>M</i>	% or <i>SD</i>
\$60 000 – \$79 999	162	14.2%
\$80 000 – \$99 999	168	14.7%
\$100 000–119 999	137	12.0%
≥ \$120 000	221	19.4%
Don't know	11	1.0%
Prefer not to say	124	10.9%
Missing	23	2.0%
Province/territory		
Alberta	113	9.9%
British Columbia	129	11.3%
Canadian Territories (<i>Nunavut, Northwest Territories, Yukon</i>)	5	0.5%
Manitoba	40	3.5%
New Brunswick	72	6.3%
Newfoundland	34	3.0%
Nova Scotia	100	8.8%
Ontario	358	31.4%
Prince Edward Island	12	1.1%
Quebec	144	12.6%
Saskatchewan	13	1.1%
Missing	119	10.4%
Area of residence		
Large city	206	18.1%
Suburbs of a large city	193	16.9%
Small city	264	23.2%
Town/village	261	22.9%
Rural area	195	17.1%
^a Categories are not mutually exclusive, therefore, total exceeds 100%.		
^b Family includes children, parents/in-laws, or other family.		

Variable	<i>n</i> or <i>M</i>	% or <i>SD</i>
Missing	20	1.8%
Living arrangements ^a		
Live alone	189	16.6%
Live with spouse/partner	879	77.2%
Live with family ^b	433	38.0%
Live with friends/roommates/other	26	2.3%
Length of military service (years)	20.2	11.2
^a Categories are not mutually exclusive, therefore, total exceeds 100%.		
^b Family includes children, parents/in-laws, or other family.		

Employment

Our results showed that many Veterans who were working during the COVID-19 pandemic reported concerns with regards to employment stability (43.9% of those employed during the pandemic; $n = 187$). Almost half of employed Veterans (45.8%; $n = 195$) transitioned to telework; of these, over two-thirds acknowledged increased stress since beginning telework (69.2%; $n = 135$). Many participants (20.2%; $n = 230$) reported a change in employment status, including reduced hours (19.0%; $n = 216$), reduced income (14.2%; $n = 162$), and layoffs (5.1%; $n = 58$).

Health functioning

Most Veterans (55.9%; $n = 637$) reported worse mental health functioning compared to before the pandemic (see Fig. 1).

Figure 2 depicts the proportion of Veterans who met screening criteria for probable PTSD, MDD, GAD, AUD, and SI. Among Veterans who reported mental health symptoms, 39.0% ($n = 277$), 48.2% ($n = 343$), and 53.0% ($n = 351$) attributed their PTSD, MDD, and GAD symptoms, respectively, as either directly related to or exacerbated by the pandemic.

Mean differences on scores reflecting mental health symptoms were higher on PTSD, MDD, and GAD symptomatology for those who were exposed to COVID-19 compared to those who were not. Scores on the AUD did not differ across COVID exposure groups (see Table 2).

Table 2
Mean PCL-5, PHQ-9, GAD-7, and AUDIT scores, by COVID-19 exposure status

Variable	df	COVID Exposure	No COVID Exposure	t-statistic
		<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>
PCL-5	616	36.8 (24.0)	29.2 (23.7)	2.95**
PHQ-9	628	12.6 (7.1)	9.6 (8.1)	3.81***
GAD-7	630	10.0 (6.7)	7.1 (6.7)	4.04***
AUDIT	428	5.5 (5.3)	5.5 (5.0)	-0.04
<i>Note.</i> AUDIT = Alcohol Use Disorders Identification Test; df = degrees of freedom; GAD-7 = Generalized Anxiety Disorder Scale; M = mean; PCL-5 = Post-traumatic Stress Disorder Checklist for DSM-5; PHQ-9 = Patient Health Questionnaire; SD, standard deviation.				
**p < .01.				
***p < .001.				

The associations between gender and mental health symptoms are presented in Table 3. Female gender was associated with more severe PTSD, MDD, and GAD symptoms, and less severe AUD symptoms. Younger age was associated with greater symptoms of PTSD [$r(783) = -.39, p < .001$], MDD [$r(795) = -.39, p < .001$], GAD [$r(797) = -.42, p < .001$], and AUD [$r(566) = -.15, p < .001$].

Table 3
Mean PCL-5, PHQ-9, GAD-7, and AUDIT scores, by gender

Variable	df	Males	Females	t-statistic
		<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>
PCL-5	782	30.1 (23.8)	35.0 (23.7)	-2.08*
PHQ-9	795	9.9 (8.0)	12.1 (7.4)	-3.30**
GAD-7	797	7.5 (6.7)	9.3 (6.6)	-3.28**
AUDIT	563	6.0 (5.3)	4.7 (4.6)	2.50*
<i>Note.</i> AUDIT = Alcohol Use Disorders Identification Test; df = degrees of freedom; GAD-7 = Generalized Anxiety Disorder Scale; M = mean; PCL-5 = Post-traumatic Stress Disorder Checklist for DSM-5; PHQ-9 = Patient Health Questionnaire; SD, standard deviation.				
*p < .05.				
**p < .01.				

Access to Care

Approximately half of the Veterans surveyed (47.8%; $n = 544$) reported difficulty accessing healthcare, with challenges accessing primary, dental, and specialty care being the most reported. Veterans also reported difficulties accessing care for physical health (20.0%; $n = 228$), mental health (4.8%; $n = 55$), and a combination of both physical and mental health (22.7%; $n = 258$). Most of those who had difficulties accessing mental healthcare (74.4%; $n = 233$) and physical healthcare (65.2%; $n = 317$) reported moderate to extreme emotional distress related to these challenges.

At the time of data collection, 17.9% ($n = 204$) of Veterans were using telehealth services to access mental healthcare. Among these individuals, 72.5% ($n = 148$) indicated that they would recommend telehealth to a friend, and 73.0% ($n = 149$) indicated that, even upon return to face-to-face healthcare service delivery, they would choose to continue receiving mental healthcare via telehealth services if in-person is inconvenient. No significant associations between age and: 1) the likelihood of recommending telehealth to a friend ($\eta = 0.18$; $\eta^2 = 0.03$), or 2) choice for telehealth services post-pandemic ($\eta = 0.15$; $\eta^2 = 0.02$) were observed.

Discussion

Our findings provide a snapshot of the impact of the COVID-19 pandemic on Veteran mental well-being and changes to healthcare service use. Results show that more than half of the Veterans surveyed (55.9%) felt that their mental health had worsened during the COVID-19 pandemic. This is somewhat higher than a recent survey of the Canadian general population, which showed that 50% of Canadians surveyed felt that their mental health had deteriorated over the course of the pandemic [9]. Self-reported symptoms of mental health conditions were also significantly higher when compared to the 2013 Canadian Life After Service Survey on Canadian Veterans [4, 27]. Our reported rates of probable PTSD and probable MDD (34% and 36%, respectively) may be attributable to the negative impact of social isolation on the already-vulnerable population of Veterans with high prevalence of mental health conditions. Indeed, fewer than half of the Veterans surveyed attributed their mental health symptoms to the pandemic, which may be indicative of pre-existing service-related mental health conditions, such as PTSD. Being female, being of younger age, and being exposed to COVID-19 were all associated with a higher likelihood of meeting the criteria for probable PTSD, MDD, and GAD. This finding can help inform targeted health policy and program planning around access to telehealth services by identifying at-risk groups.

In this study, nearly a quarter of Veterans endorsed experiencing suicidal ideation. This is significantly higher than the 5.2–6.6% reported among Regular and Reserve Forces Veterans in the 2013 Canadian Life After Service Survey[27], the 11.9% reported among Veterans Affairs Canada clients[28], and the 16.8% reported in a sample of treatment-seeking Canadian Veterans [20]. Suicidal ideation is a key marker of the causal pathway between mental health concerns and suicide attempts/completed suicide; thus, our results have important public health implications for suicide prevention and intervention strategies. These findings also reinforce the need to ensure that increased access to treatment and general support is available to Veterans, especially during a pandemic.

One of the most promising findings in this survey was the general acceptability of telehealth. Of the Veterans who used telehealth during the pandemic, most indicated that they would prefer to continue receiving their psychiatric care via telehealth even after the pandemic ends. Interestingly, this finding was not significantly influenced by age. While this may be related to the self-selecting nature of participation in the current online study, this may also be due to reduction of barriers for accessing services. For many Veterans, accessing healthcare from their home may reduce the stress and anxiety of travel for care. Telehealth may also provide an opportunity to seek mental health treatment without the added stigma of attending a mental health facility [29]. Evidence of the acceptability of telehealth for mental health treatment-seeking Veterans in our sample has important clinical and program development implications; namely, efforts should be made to ensure that telehealth continues to be available to Veterans who prefer it post-pandemic, as long as it is clinically recommended. However, given that approximately half the sample reported difficulty accessing healthcare during the pandemic, infrastructure improvements must be made to ensure timely and equitable access.

Despite these findings, telehealth might have some unintended negative consequences, including reinforcing avoidance behaviours commonly seen in individuals with PTSD [30, 31]. While some evidence-based treatments such as pharmacotherapy can easily be adapted to virtual care settings, some forms of psychotherapy, such as cognitive behavioural psychotherapy (CBT) or behavioural activation can be more challenging for clinicians to adapt to virtual platforms. Although internet-delivered CBT is widely available, its efficacy for treating military-related PTSD is still in its infancy[32] and, prior to the COVID-19 pandemic, had yet to be widely implemented in Veteran populations. Telehealth may have equity issues, as it requires reliable internet access. As well, clinicians need to carefully weigh the safety of virtual delivery of intensive treatments with the need for continuity of care for symptom management.

The results from the survey should be considered in the context of several limitations. Findings are based on a sample of self-selected Veterans and may not be representative of all Canadian Veterans. Relative to demographic characteristics from a national sample[26], the current study showed comparable distribution of Veterans sampled across provinces. However, our sample contained more participants who self-identified as female (22.2% compared to 12.3% national), and more Veterans under the ages of 69, relative to the national sample.

It is also possible that Veterans who were more symptomatic were more likely to complete the survey. In addition, the higher proportion of respondents who self-identify as females may also relate to the higher overall self-reported symptoms of mental health. Finally, the use of online data collection required an internet connection, access to recruitment materials, and familiarity with the use of technology. Specific Veteran groups who do not have ready access to the internet, a computer, or smart phone/devices, or who are less familiar with the use of digital devices may be underrepresented [33]. The data presented in this study is also cross-sectional in nature, which limits the conclusions that can be drawn from the study. Future studies will incorporate longitudinal data to test time trends and mediation hypotheses, including the associations between social isolation and psychological outcomes, to better elucidate potential causal relationships.

Further efforts to examine the relationship between domains of support and experiences of social isolation may identify risk factors and barriers to care, and better prepare Veteran-serving organizations for future emergency responses. Mapping findings against regional restrictions in place at the time of the survey will help delineate the impact of the pandemic and its associated infection prevention and control strategies on Veteran well-being. Additional work aimed at identifying and understanding areas of concern from the Veteran perspective (e.g., accessing essential goods) will also help Veteran-serving organizations tailor efforts to meet the unique and dynamic needs of Canadian Veterans during times of exceptional challenges.

Conclusions

Our study found that many Veterans experienced worsening mental health and/or symptom exacerbation as a result of the COVID-19 pandemic. These results have important clinical implications, emphasizing the need to reach out and support veterans during the pandemic, especially those with pre-existing mental health conditions. The use of virtual care services (telehealth) was widely endorsed by mental health treatment-seeking Veterans who transitioned to virtual care during the pandemic. Our findings also have important implications for program administrators, to maintain and enhance virtual care even post pandemic.

Declarations

Ethics approval and consent to participate:

All experimental protocols were approved by the Research Ethics Board at Western University's Office of Human Research Ethics and the Lawson Health Research Institute. Study methodologies and protocols were carried out in accordance with relevant guidelines and regulations. Informed consent was obtained from all participants of the current study.

Consent for publication:

Not applicable.

Availability of data and materials:

The datasets from the current study are not publicly available due being part of a longitudinal research project. Data is available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Figures

Figure 1

Change in mental health functioning compared to before the pandemic (n = 1,139).

Figure 2

Self-reported frequency of probable PTSD (PCL-5 score ≥ 33), MDD (PHQ-9 ≥ 10), GAD (GAD-7 ≥ 10), AUD (AUDIT ≥ 8 for males, ≥ 7 for females), and SI (PHQ-9 item 9 "several days a week" or higher) (n = 1,139).