Health-related Quality of Life of Canadian Forces Veterans After Transition to Civilian Life

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ABSTRACT

OBJECTIVES: Describe health-related quality of life (HRQoL) of former Canadian Forces (CF) men and women in uniform (Veterans) after transition to civilian life, and compare to age- and sex-adjusted Canadian norms.

METHODS: The 2010 Survey on Transition to Civilian Life was a national computer-assisted telephone survey of CF Regular Force personnel who released during 1998-2007. HRQoL was assessed using the SF-12 Physical (PCS) and Mental (MCS) Component Summary scores. Descriptive analysis of HRQoL was conducted for socio-demographic, health, disability and determinants of health characteristics.

RESULTS: Mean age was 46 years (range 20-67). Compared to age- and sex-adjusted Canadian averages, PCS (47.3) was low and MCS was similar (52.0). PCS and MCS were variably below average for middle age groups and lowest for non-commissioned ranks, widowed/divorced/separated, 10-19 years of service, physical and mental health conditions, disability, dissatisfaction with finances, seeking work/not working, low social support and difficulty adjusting to civilian life. Among Veterans Affairs Canada clients, 83% had below-average physical PCS, 49% had below-average MCS, and mean PCS (38.2) was significantly lower than mean MCS (48.3).

CONCLUSIONS: HRQoL varied across a range of biopsychosocial factors, suggesting possible protective factors and vulnerable subgroups that may benefit from targeted interventions. These findings will be of interest to agencies supporting Veterans in transition to civilian life and to researchers developing hypotheses to better understand well-being in Canadian Veterans.

KEY WORDS: Veterans; veterans health; SF-12; health-related quality of life; mental health; chronic disease

La traduction du résumé se trouve à la fin de l'article.

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Military personnel transitioning from military service to civilian life undergo a complex, multifaceted process with variable institutional, health, psychological, work, family, and community dimensions.¹⁻⁴ For most, transition is relatively smooth; for some, transition is characterized by decreased well-being, including compromised physical and mental health, social problems, role disability, disadvantages in determinants of health and decreased quality of life.⁵ While there is no clear consensus on how to define successful transition, optimum self-perceived well-being is an important public policy objective.⁶⁻⁸ The terms "well-being" and "quality of life" are often used interchangeably, and there is little consensus on definitions.⁹

The well-being of serving and former Canadian Forces (CF) personnel is of interest to Veterans Affairs Canada (VAC), the Department of National Defence (DND), the CF, and to Veterans administrations internationally.¹⁰⁻¹² There are no publications quantitatively describing the well-being of Canadian Veterans after transition to civilian life. More is known about Veterans participating in VAC programs, but in 2010 only 10% of the 590,000 living Veterans with service in other than the Second World War and the Korean War were VAC clients.^{3,13}

The 2010 Survey on Transition to Civilian Life (STCL) provided an opportunity to study health-related quality of life (HRQoL) in former CF Regular Force personnel who released from service during 1998-2007.⁵ They enrolled during the 1960s to 2000s and had

varied experience in training (19% released as recruits or cadets), domestic disaster response, international peacekeeping and the recent increased operational tempo experienced by the CF since the first Persian Gulf War in 1990-91.⁵ The survey was conducted before Canada's Afghanistan combat role ceased in 2011, and at a time when CF, DND and VAC were introducing major initiatives to improve disease prevention, health promotion, health care, and disability management for serving and released personnel.^{14,15}

The objectives of this study were to describe the HRQoL of recently released CF personnel (Veterans) in relation to socio-demographics, health, disability and determinants of health, to identify possible protective and risk factors for HRQoL, and to compare HRQoL to

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Table 1. STCL SF-12 Scores and 95% Confidence Intervals Compared to Canadian SF-36 Norms by Age and Sex

Sex and Age Group (years)	PCS				MCS			
	STCL SF-12		Canadian SF-36		STCL SF-12		Canadian SF-36	
	Mean	CI	Mean	CI	Mean	CI	Mean	CI
Men								
20-29	54.3	(53.5-55.0)	53.7	(53.4-54.9)	53.5*	(52.5-54.6)	49.3	(48.2-50.3)
30-39	50.3*	(49.4-51.1)	52.8	(51.8-53.7)	51.3	(50.2-52.7)	52.8	(51.9-53.8)
40-49	44.7*	(44.0-45.4)	53.4	(52.7-54.1)	50.3	(49.6-51.0)	51.4	(50.4-52.3)
50-59	44.9*	(44.1-45.7)	50.1	(49.3-50.8)	53.0	(52.4-53.7)	53.3	(52.7-54.0)
60-69	48.2	(47.0-49.3)	49.6	(48.5-49.7)	56.5*	(55.7-57.3)	55.0	(54.5-55.5)
Women								
20-29	51.8	(49.4-54.2)	53.0	(52.3-53.6)	52.2*	(49.1-55.3)	47.6	(46.5-48.7)
30-39	49.5	(47.1-52.0)	52.3	(51.3-53.2)	52.7	(50.5-54.8)	49.6	(48.5-50.7)
40-49	42.4*	(40.2-44.5)	50.7	(50.0-51.4)	46.9*	(44.9-49.0)	50.4	(49.7-51.2)
50-59	42.4*	(39.8-45.1)	49.3	(48.8-49.8)	52.4	(50.3-54.6)	52.1	(52.6-52.6)
60-69	48.9	(43.6-54.3)	47.6	(47.2-48.1)	54.0	(50.8-57.2)	52.9	(52.5-53.3)

* Significant difference between the study population and Canadian means comparing 95% confidence intervals.
STCL=Survey on Transition to Civilian Life.

Canadian normative data. This will provide evidence to support agencies assisting CF personnel with transition to civilian life, and identify factors that might predict Veterans' well-being and quality of life as a basis for further studies.

METHODS

This was a descriptive analysis of data from a national cross-sectional computer-assisted telephone interview survey and data linkage study of former CF Regular Force personnel conducted by Statistics Canada.^{5,16} The survey sampled 4,721 of 32,015 former CF Regular Force personnel who: released from service during January 1998 to December 2007; were not living in institutions, the northern Territories or outside Canada owing to small numbers and difficulties contacting Veterans in those locations; and had not re-enrolled in the CF. The sample was derived by Statistics Canada in November 2009 using DND's human resources database. Contact information was obtained by Statistics Canada through linkage with the T1 Family Tax File and VAC, DND and Public Works and Government Services Canada administrative data. A stratified design was used to oversample VAC clients. Statistics Canada's Policy Committee provided approval for the study. Statistics Canada interviewers experienced with population health surveys administered the computerized questionnaires by telephone.¹⁷ They asked respondents for permission to share their responses and linked administrative data with VAC and DND, and Statistics Canada released anonymized data based on recorded consents.

The 30-35 minute questionnaire included self-reported indicators based on a conceptual framework considering health, disability and determinants of health, using questions largely consistent with national Canadian population health surveys.¹⁶ Military characteristics, VAC client status, sex and age were obtained by linkage to DND and VAC administrative databases. Deployment 30 days or longer outside Canada – including combat, peace-keeping, humanitarian aid, or non-routine deployments to sea, but excluding training – was self-reported owing to administrative database limitations.

HRQoL was measured using Version 1.0 of QualityMetric's SF-12 Health Survey. This instrument family has been widely used to assess self-perceived HRQoL and relationships between HRQoL outcomes, health and determinants of health in civilian and Veteran populations.^{12,18-26} The instrument is designed to be self-administered, but telephone, computer-assisted and interviewer-administered methods are also acceptable.²⁷ Comparisons of data collected using

various methods have demonstrated comparable results.²⁸⁻³¹ The differences fall short of clinical relevance and these methods are generally considered reasonably equivalent.^{28,32}

Physical and Mental Component Summary scores (PCS, MCS) were computed using QualityMetric's software to measure physical and mental HRQoL. The software computes summary scores for individuals based on normative data for the 1998 US non-institutionalized general population. The PCS and MCS are transformed and standardized to a mean of 50 and a standard deviation of 10, with scores above and below 50 indicating better or poorer than average HRQoL, respectively. Lower SF-12 scores indicate lower HRQoL in a non-linear manner: 98% of the reference population has better HRQoL than those with scores of 30 or less, and 84% has better HRQoL than those with scores of 40 or less. Respondent sampling weightings were incorporated in the calculation of mean scores, population estimates and 95% confidence intervals (CI) using Stata. Statistically significant differences in HRQoL between the study population and Canadian norms were estimated by comparing confidence intervals around the age- and sex-adjusted mean SF-36 scores.

Canadian norms for the SF-36 (50.5 for PCS and 51.7 for MCS) were slightly higher than in the 1998 US general population.²⁵⁻²⁷ Previous work by Ware et al. demonstrated a high degree of correspondence between scores obtained from the SF-36 and the SF-12.²⁷ Adjusting for age and sex in the STCL population, the Canadian general population norm PCS was 51.9 and MCS was 52.0. CI were estimated to be 51.7-52.1 for PCS and 51.8-52.2 for MCS, using the CI distribution of the Canadian norms.²⁶

RESULTS

Of the 4,721 former CF Regular Force personnel sampled, 3,355 responded (response rate 71%, 84% for VAC clients and 59% for non-clients). Of these, 3,154 (94%) agreed to share their data with VAC and DND. The SF-12 sample size was 3,151 owing to incomplete data for three respondents. Mean age was 46 years (range 20-67), 12% were women, and one third were VAC clients. Compared to age- and sex-adjusted Canadian general population norms (Table 1), they had below-average PCS (47.3) and average MCS (52.0). Below-average PCS was more common (48.6% of the study population) than below-average MCS (32.6%). PCS was below Canadian norms for both men and women in the middle age groups and lower than MCS in most age groups.

Table 2. Mean SF-12 Scores for Socio-demographic and Military Characteristics and Determinants of Health

Characteristic	Weighted Population Estimate	Mean PCS (95% CI)	Mean MCS (95% CI)
Overall	100%	47.3 (47.0-47.6)	52.0 (51.6-52.3)
Client status			
VAC clients	33.6%	38.2 (37.6-38.8)*	48.3 (47.7-48.9)*
Non-clients	66.4%	52.0 (51.6-52.4)†	53.9 (53.4-54.3)†
Sex			
Men	88.2%	47.6 (47.2-47.9)	52.2 (51.8-52.6)
Women	11.8%	45.3 (44.0-46.5)*	50.4 (49.2-51.5)*
Age group in years			
20-29	15.8%	54.0 (53.3-54.7)†	53.4 (52.4-54.4)†
30-39	18.4%	50.2 (49.4-51.0)†	51.4 (50.4-52.4)
40-49	33.8%	44.4 (43.7-45.0)*	49.8 (49.2-50.5)*
50-59	24.1%	44.7 (43.8-45.3)*	52.9 (52.3-53.6)
60-69	7.9%	48.3 (47.1-49.3)	56.3 (55.6-57.1)†
Marital status			
Married/common-law	75.5%	46.9 (46.5-47.3)	52.6 (52.2-53.0)
Widowed/divorced/separated	9.2%	44.5 (43.1-45.8)*	46.5 (44.8-48.2)*
Single/never married	15.3%	51.1 (50.1-52.0)†	52.1 (51.1-53.1)
Education			
Less than high school	6.8%	44.9 (43.4-46.4)*	50.9 (49.4-52.3)
High school	40.6%	46.4 (45.8-47.0)	52.1 (51.5-52.7)
Post-secondary	52.6%	48.3 (47.9-48.8)†	52.0 (51.5-52.5)
Household income below LIM‡	5.4%	46.6 (44.7-48.5)	48.7 (46.8-50.7)*
Satisfaction with finances			
Satisfied/very satisfied with finances	73.1%	48.5 (48.1-48.9)†	54.2 (53.9-54.6)†
Dissatisfied/very dissatisfied with finances	15.2%	42.9 (41.7-44.1)*	43.2 (41.9-44.4)*
Main activity in the 12 months before the survey			
Working	75.4%	49.0 (48.6-49.3)†	53.0 (52.6-53.4)†
Attending school	3.7%	50.6 (48.7-52.6)†	51.7 (49.3-54.1)
Seeking work/not working§	19.4%	40.4 (39.4-41.5)*	48.0 (47.1-49.0)*
Adjustment to civilian life			
Very/moderately easy	61.7%	50.0 (49.7-50.4)†	55.4 (55.1-55.8)†
Very/moderately difficult	25.3%	41.4 (40.5-42.3)*	43.7 (42.8-44.6)*
Low social support	31.8%	44.0 (43.2-44.7)*	46.1 (45.3-46.9)*
Sense of community belonging			
Very/somewhat strong	58.9%	48.6 (48.2-49.1)†	54.3 (53.9-54.7)†
Very/somewhat weak	40.6%	45.5 (44.8-46.1)*	48.5 (47.9-49.2)*
Mastery			
High¶	30.4%	50.6 (50.1-51.2)†	56.5 (56.1-56.9)†
Low**	2.1%	31.8 (29.3-34.3)*	30.7 (28.6-32.7)*
Environment (Service Branch)			
Air Force	48.8%	47.2 (46.5-47.8)	52.4 (51.8-53.1)
Army	31.0%	47.0 (46.5-47.6)	51.3 (50.7-51.8)
Navy	15.7%	47.5 (46.5-48.4)	52.7 (51.8-53.6)
Military rank			
Senior Officer	8.0%	50.6 (49.6-51.6)†	55.4 (54.6-56.2)†
Junior Officer/Cadet	12.4%	51.8 (50.9-52.8)†	53.0 (52.0-54.1)
Senior NCM††	28.2%	44.7 (44.0-45.4)*	52.7 (52.1-53.3)
Junior NCM	30.1%	43.7 (42.9-44.4)*	49.1 (48.3-49.8)*
Private/Recruit	21.2%	52.2 (51.4-52.9)†	53.1 (52.3-53.9)
Years of service			
<10	34.1%	52.0 (51.5-52.5)†	52.5 (51.8-53.2)
10-19	13.2%	42.6 (41.4-43.8)*	47.4 (46.2-48.6)*
≥20	52.8%	45.5 (45.0-46.0)*	52.8 (52.3-53.2)
30+ day deployments outside Canada			
Yes	59.8%	45.3 (44.8-45.7)*	51.2 (50.7-51.6)
No	40.2%	50.5 (49.9-51.0)†	53.2 (51.6-53.8)
Release type			
Involuntary	4.6%	51.4 (49.9-53.0)†	50.9 (48.8-53.1)
Medical	24.4%	37.1 (36.3-37.9)*	45.9 (45.1-46.8)*
Voluntary	56.9%	51.1 (50.7-51.5)†	53.9 (53.5-54.4)†
Service complete/retirement	14.0%	48.5 (47.6-49.3)	54.8 (54.0-55.5)†

* Possible risk factor: less than overall STCL mean and 95% confidence intervals do not overlap.

† Possible protective factor: greater than overall STCL mean and 95% confidence intervals do not overlap.

‡ LIM=Low Income Measure, used by Statistics Canada to describe low household income.

§ Not working included: retired and not looking for work, looked for work, cared or nurtured a family member, or was disabled or on disability.

|| Sum of 19 five-point social support variables ≤74.

¶ Sum of 7 five-point mastery indicators ≥23.

** Sum of 7 five-point mastery indicators ≤7.

†† NCM=Non-commissioned member.

Determinants of health: Socio-demographic and military characteristics

Compared to the study population means, PCS and/or MCS scores were higher for youngest and oldest age groups, single/never married, the employed and those satisfied with finances, higher education, strong sense of community belonging, officers and privates, and release types other than medical (possible protective factors). Mean PCS and MCS were lower for female sex, middle age groups,

relationship loss, low income, unemployment, low social support, weak sense of community belonging and low mastery, junior and senior non-commissioned rank, 10-19 years of service, and administrative release for medical reasons (possible protective factors) (Table 2). PCS was lower than average in those who had deployed outside Canada for 30+ days and higher for those who had not deployed, however on bivariate analysis, there were more officers and younger individuals among the non-deployed which con-

Figure 1. SF-12 PCS scores by VAC client status

* Clients are Veterans receiving benefits and services from VAC.

tributed to the relatively higher mean PCS of those who did not deploy.

Participation in VAC programs

Both VAC clients and non-clients had wide ranges of HRQoL (Figures 1 and 2). Compared to Canadian norms, non-clients had average PCS (52.0) and slightly above-average MCS (53.9), whereas VAC clients had significantly below-average PCS (38.2) and MCS (48.3). Of those with below-average PCS, over half (57.3%) were participating in VAC programs, as were half (50.3%) with below-normal MCS. Of those participating in VAC programs, most (82.8%) had below-average PCS, and nearly half (49.0%) had below-average MCS. Among those not participating in VAC programs, nearly a third (31.3%) had below-average PCS and nearly a quarter (24.3%) had below-average MCS.

Health and disability

PCS was generally lower than MCS for health and disability indicators (Table 3). PCS was lowest for those with poor perceived health and needing help with at least one task of independent daily living. MCS was lowest for those with poor perceived mental health and 12-month suicidal ideation. Co-morbidity differed between those with physical and mental health conditions. Few with physical health conditions had mental health conditions (28%) while most of those with mental health conditions had physical health conditions (95%).

DISCUSSION

This is the first examination of HRQoL for a population of Canadian military Veterans living in the general population within 12 years of transition to civilian life. Many former CF Regular Force personnel who released during 1998-2007 had PCS and MCS scores above the Canadian norm. Mean PCS was below the Canadian norm while MCS was average. Above- and below-average PCS and low MCS were found for indicators of health, disability and determinants of health, suggesting possible protective and risk factors among multiple biopsychosocial dimensions.

Figure 2. SF-12 MCS scores by VAC client status

HRQoL and socio-demographic and military characteristics

SF-12 scores have been associated with various indicators of social determinants of health by others.^{24,33-36} In this study, HRQoL was above the population average for youngest and oldest age groups, single/never married, the employed and those satisfied with finances, higher education, strong sense of community belonging, officers and privates, and types of release from service other than for medical reasons. HRQoL was below the study population average for women, being widowed/separated/divorced, lower income, dissatisfaction with finances, unemployment, low social support, weak sense of community belonging, low mastery, junior and senior non-commissioned members, and those with 10-19 years of service. A large study of SF-36 findings for female Veterans receiving US Veterans Affairs care found that while gender had a clinically insignificant effect on HRQoL after adjusting for socio-demographic variables, there were socio-demographic subgroups of women who appeared to be vulnerable to low HRQoL.³⁵ VAC clients more often had low HRQoL than non-clients, which is expected given that 98% of VAC CF clients have entitlement for disability related to physical or mental health conditions. Similar results are reported in studies of Veterans receiving health care at US Veterans Health Administration facilities, where SF-36 scores: were significantly lower than those of the general US population and lower than those of civilians and other Veterans; were correlated with socio-demographics and morbidities; and varied regionally and between rural and urban communities.^{14,20,33,34,36-38}

Relative impact of physical and mental health on quality of life

Physical health appeared to have a greater overall impact than mental health on HRQoL in CF Regular Force Veterans released in 1998-2007. PCS was considerably lower than MCS, and significantly lower than the Canadian general population norm. In the Canadian general population, PCS assessed by interview was lower than MCS but not to the same degree.^{25,26} The tendency for MCS scores obtained by telephone interview to be slightly lower than by other methods, possibly owing to interviewees' reluctance to report men-

Table 3. Mean SF-12 Scores for Indicators of Health and Disability

Indicator	Percent of Population	Mean PCS (95% CI)	Mean MCS (95% CI)
Overall	100%	47.3 (47.0-47.6)	52.0 (51.6-52.3)
Health, General			
Perceived health			
Very good/excellent	55.8%	53.2 (52.9-53.5)†	55.1 (54.8-55.5)†
Fair/poor	17.5%	32.9 (32.0-33.8)*	42.1 (41.1-43.1)*
Perceived mental health			
Very good/excellent	66.5%	50.2 (49.8-50.6)†	56.1 (55.8-56.4)†
Fair/poor	14.2%	37.9 (36.7-39.0)*	35.5 (34.4-36.5)*
Life stress most days			
Not at all/very much	36.8%	49.9 (49.4-50.4)†	56.6 (56.2-56.9)†
Extreme/quite a bit	21.2%	43.3 (42.4-44.3)*	42.9 (41.9-43.9)*
Satisfaction with life in general			
Satisfied/very satisfied	84.9%	48.9 (48.6-49.2)†	54.2 (53.9-54.5)†
Dissatisfied/very dissatisfied	7.0%	36.0 (34.0-37.9)*	34.6 (33.0-36.2)*
Health, Chronic Conditions			
Hearing problem	27.8%	42.1 (41.4-40.9)*	49.6 (48.9-50.3)*
Musculoskeletal condition‡	48.7%	41.4 (40.9-42.0)*	50.1 (49.6-50.7)*
Obesity	28.3%	44.6 (43.8-45.3)*	50.6 (49.9-51.4)*
Other chronic physical health condition§	31.0%	41.1 (40.3-42.0)*	49.0 (48.2-49.8)*
Chronic pain/discomfort	64.3%	42.9 (42.4-43.4)*	50.4 (49.9-50.9)*
Mental health condition¶	23.6%	40.1 (39.9-41.0)*	41.2 (40.3-42.1)*
12-month suicidal ideation	5.8%	40.2 (38.1-42.2)*	33.5 (31.9-35.2)*
Co-morbid PHC and MHC**	19.8%	38.0 (37.2-38.8)*	40.7 (39.8-41.6)*
Co-morbid MSC††, pain/discomfort, and MHC	15.8%	35.8 (35.0-36.7)*	40.2 (39.2-41.3)*
Disability			
Participation and activity limitation‡‡	56.1%	41.1 (40.6-41.6)*	49.6 (49.0-50.1)*
Needs help with at least 1 task§§	17.1%	32.2 (31.4-33.1)*	42.6 (41.6-43.7)*

* Possible risk factor: less than overall STCL mean and 95% confidence intervals do not overlap.

† Possible protective factor: greater than overall STCL mean and 95% confidence intervals do not overlap.

‡ Arthritis or back problems excluding fibromyalgia.

§ Asthma, chronic obstructive pulmonary disease, diabetes, heart disease, stroke effects, bowel disorder, intestinal or stomach ulcers, cancer.

|| Always and recurrent.

¶ Anxiety disorders, mood disorders, anxiety or depression, post-traumatic stress disorder.

** PHC = physical health condition (hearing problem, arthritis, back problem, diabetes, cancer, bowel disorder, asthma, COPD, intestinal or stomach ulcers, obesity, heart disease, effects of stroke; MHC = mental health condition (anxiety disorders, mood disorders, anxiety or depression, post-traumatic stress disorder).

†† MSC = musculoskeletal condition (back problem or arthritis).

‡‡ Sometimes/often has difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing similar activities; or felt that a long-term (>6 months) physical or mental condition reduced their activities at home, school, work, transportation or leisure.

§§ Because of any physical condition or mental condition or health problem, needs the help of another person with preparing meals, getting to appointments and running errands, everyday housework, personal care, mobility inside the house, or looking after personal finances.

tal health issues by telephone,^{30,31} does not explain all the mean PCS-MCS differences in this study. In the initial report from this survey,⁵ it was found that diagnosed physical health conditions were more than twice as prevalent as mental health conditions; almost half of Veterans had a musculoskeletal condition; and nearly two thirds had chronic pain or discomfort. Arthritis, back problems and participation and activity limitation were more prevalent than in the general Canadian population after adjusting for age and sex. In this study, PCS was lower than MCS for those with chronic physical health conditions, and MCS was near average for Canadians. The much higher co-morbidity of physical conditions in those with mental health conditions than the other way around¹⁴ could in part explain why both PCS and MCS were low (40.1 and 41.2, respectively) in those with mental health conditions whereas MCS was generally much higher in those with physical health conditions. These findings are comparable with other studies. In a recent health survey of serving CF Regular Force personnel, 57% had a diagnosed chronic physical health condition – considerably more than the number with possible depression (7%), possible PTSD (8%) or diagnosed anxiety disorders (4% women, <2% men).³⁹ Physical health conditions account for the great majority of Canadian Veteran disability pensions and awards³ and play a role in decreased HRQoL in elderly Canadian Veterans with PTSD.¹⁸ In studies of US Veterans, chronic physical conditions were more commonly associated with lower PCS and MCS, and as in this study the effect on PCS was greater than on MCS.^{22,40}

In this study, PCS declined with age, while MCS was below average only for age 40-49 years. Unlike for mental health conditions, the prevalence of physical health conditions increased with age. The finding that MCS was similar and PCS was lower than Canadian norms is consistent with previous research which demonstrated a remarkable stability of the MCS even in the face of advanced age and significant co-morbidity.^{25,32,41,42} This has led some researchers to suggest that there may be a process of adaptation to physical difficulties in advanced age or disability, leaving mental health relatively high and stable even when physical health is poor.⁴¹

The survey did not assess undiagnosed physical and mental health symptom burden, however SF-12 scores assess HRQoL affected by both diagnosed and undiagnosed states. The tendency to not seek help for mental health symptoms or to delay seeking help was common prior to recent initiatives by DND/CF^{12,43} and was also likely to have occurred in these Veterans since 35% did not seek help for 12-month suicidal ideation,⁴⁴ possibly contributing to the differential in PCS and MCS scores seen in this study.

Strengths

Veterans and their socio-demographic and military characteristics were objectively identified using DND administrative data. The SF-12 measures self-perceived HRQoL, an important public policy objective.^{6-8,27} The Short Form Health Survey has been widely used as a measure of self-perceived HRQoL for several decades, and there

are Canadian norms.²⁵ The response rate was good and the sample was representative of CF Regular Force personnel who released during 1998-2007 and were living in the general Canadian population. The SF-12 remains one of the most widely used measures of HRQoL in the world today.²⁷ The SF-12 does not measure disorder severity and measures HRQoL subjectively, and so is best complemented with other measures to provide a complete picture of well-being, health and disability, as was done in this study. The lower response rate for non-clients was due largely to lack of contact information, but sampling weights provided by Statistics Canada accounted for age and sex differences between responders and non-responders. Owing to the high consent-to-share rate (94%), small differences that might exist between those who agreed to share and those who did not were thought to be insignificant.

Limitations

Conclusions cannot be drawn from this cross-sectional study about causal relationships between military service or government programs and Veteran HRQoL. Descriptive analysis cannot account for confounding. The findings do not reflect the impact of a wide variety of new initiatives in health promotion, health care and the management of disability that were put in place by the CF, DND and VAC after many of the study population had served and released.^{14,15} Indicators of health and disability and many of the indicators of determinants of health were determined by self-report. STCL was representative of Regular Force Veterans who released during 1997-2008, but was not necessarily representative of all Canadian Veterans. Subjective perception of HRQoL, well-being and the severity of physical and mental health disorders are not always correlated and HRQoL measures do not necessarily measure qualities of well-being not directly related to health status.^{8,9} The SF-12 captures past-month HRQoL which does not correspond to the time frames of many indicators.

Further research

These descriptive findings inform hypotheses for further multivariate analysis underway to better understand relationships between HRQoL and health conditions, disability and determinants of health in Veterans. Unlike the case with this study, a national US general population survey found little or no difference in self-reported HRQoL between Veterans and non-Veterans after controlling for demographic and lifestyle factors,²³ so a measure of HRQoL should be considered in further studies. Further surveys of Canadian Veterans should consider stratifying for women and should consider assessing symptom burden as well as diagnosed conditions. Longitudinal surveys are required to understand Veterans' well-being and functioning over the life courses of individuals.

Utility of the findings in assisting veterans with transition to civilian life

This study suggests that a wide variety of biopsychosocial factors impact HRQoL and therefore well-being in Veterans, implying need for collaboration and coordination among public and private sector agencies that specialize in various determinants of health when Veterans require assistance. The findings will be of interest to agencies that assist transitioning CF personnel by suggesting both protective factors and vulnerable subgroups of Veterans who may

benefit from targeted interventions. These findings have provided useful information to support considerable ongoing investments by DND and CF over the past two decades to significantly enhance health care, prevention and promotion for serving personnel,¹⁵ by VAC in developing new programs to assist Veterans with service-related health conditions and disability over the same period,¹⁴ and efforts to coordinate services. The finding that some Veterans who were not VAC clients had low HRQoL supports efforts to ensure that programs reach eligible Veterans.

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RÉSUMÉ

OBJECTIFS : Décrire la qualité de vie liée à la santé (QVLS) des hommes et des femmes en uniforme ayant été membres des Forces canadiennes (« anciens combattants ») après leur transition à la vie civile, et la comparer aux normes canadiennes ajustées selon l'âge et le sexe.

MÉTHODE : L'Enquête sur la transition à la vie civile de 2010 était une enquête téléphonique nationale assistée par ordinateur menée auprès du personnel de la force régulière des Forces canadiennes ayant été libéré entre 1998 et 2007. Nous avons évalué la QVLS à l'aide des cotes sommaires physiques (CSP) et mentales (CSM) du questionnaire SF-12. Nous avons procédé à l'analyse descriptive de la QVLS selon les caractéristiques sociodémographiques, de la santé, de l'invalidité et des déterminants de la santé.

RÉSULTATS : L'âge moyen des répondants était de 46 ans (20-67 ans). Comparativement aux moyennes canadiennes ajustées selon l'âge et le sexe, la CSP (47,3) était inférieure et la CSM était semblable (52,0). Les CSP et CSM étaient variablement inférieures à la moyenne dans les groupes d'âge moyen; elles étaient les plus faibles pour le grade des sous-officiers, les personnes veuves, divorcées ou séparées, les personnes ayant entre 10 et 19 ans d'ancienneté, les personnes ayant des troubles médicaux physiques et mentaux, les personnes handicapées, les personnes insatisfaites sur le plan financier, les personnes cherchant du travail ou sans travail, les personnes ayant peu de soutien social et celles ayant du mal à s'ajuster à la vie civile. Parmi la clientèle du ministère des Anciens Combattants du Canada, 83 % avaient une CSP inférieure à la moyenne, 49 % avaient une CSM inférieure à la moyenne, et la CSP moyenne (38,2) était significativement inférieure à la CSM moyenne (48,3).

CONCLUSION : La QVLS varie en fonction d'un éventail de facteurs biopsychosociaux, ce qui suggère l'existence de facteurs de protection et de sous-groupes vulnérables qui pourraient bénéficier d'interventions ciblées. Ces constatations intéresseront les organismes d'appui aux anciens combattants en transition vers la vie civile et les chercheurs qui élaborent des hypothèses pour mieux comprendre le bien-être des anciens combattants canadiens.

MOTS CLÉS : ancien combattant; santé anciens combattants; SF-12; qualité de vie liée à la santé; santé mentale; maladie chronique