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Mental Health Findings in the 2010 Survey on Transition to Civilian Life

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Mental Health Findings in the 2010 Survey on Transition to Civilian Life

Contents

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Mental Health Findings in the *Survey on Transition to Civilian Life*

Executive Summary

The 2010 *Survey on Transition to Civilian Life* (STCL) was a survey of the health, disability and determinants of health of former Canadian Forces (CF) Regular Force personnel who released from service in 1998-2007, 2-12 years after leaving service. They were surveyed in 2010 at a time when significant advancements in services for serving personnel and Veterans with mental health problems that were still being put into place by VAC, DND and CF. Most had released from service prior to the New Veterans Charter programs in 2006, and prior to additional significant advancements in services for serving personnel and Veterans with mental health problems that were established later. Initial findings from STCL are available in other reports. This report is a more in-depth descriptive analysis of the mental health of these recently released Veterans.

- First comprehensive, biopsychosocial study of both VAC client and non-client Veterans[1] in Canada.
- Computer-assisted telephone survey of a statistically large and nationally representative sample, conducted by Statistics Canada.
- Included Veterans who at the time of the survey had not re-enrolled in the CF, and were not living in the Territories, institutions or outside Canada.

Overall Findings

- 2-12 years after release from service, 66% of the study population were non-clients and 34% were VAC clients.
- 24% had a mental health condition, and 82% had a physical health condition[2].
- 20% had depression or anxiety, 11% had PTSD, 10% had an anxiety disorder, and 3% had a mood disorder.
- Anxiety disorders were twice as prevalent in the STCL population (10%) than the general Canadian population (5%, age- and sex-adjusted to the STCL population).
- Mental health conditions were third most common group of health conditions after musculoskeletal conditions and hearing problems; all other physical health conditions combined were more common than mental health conditions.
- 21% had comorbid physical[3] and mental health conditions (meaning at least one of each).
- These Veterans had high rates of attributing their physical and mental health conditions to their prior military service: 78-97% for the four mental health conditions.

What were the sociodemographic and military characteristics of those with mental health conditions?

- Most (64%) who had mental health conditions were VAC clients at the time of the survey in 2010, 2-12 years after leaving service.

[1] "Veteran" in this document means any CF member who released any time after enrollment, since that population includes former CF personnel who may be eligible for VAC programs, benefits and services.
[2] Chronic physical health conditions: chronic pain always, chronic pain recurring, hearing problems, MSK (back, arthritis), CVD (heart, stroke, high blood pressure), respiratory (asthma, COPD), diabetes, cancer, gastrointestinal (bowel, ulcer) and obesity. Mental health conditions: mood disorder, depression or anxiety, PTSD, anxiety disorder.
[3] Excluded obesity in this count.

- A third with mental health conditions (36%) were not VAC clients, suggesting unmet need for VAC mental health services.
- The prevalence of mental health conditions was higher in those aged 40-49, widowed/separated/divorced, with 10-19 years of service, junior Non-Commissioned Members rank, medically released and women.
- The prevalences of both physical and mental health conditions seemed to be elevated in the 40-49 year age group beyond what might be expected.
- Nearly half (44%) with mental health conditions had not been medically released.
- Nearly half with mental health conditions (48%) had released at non-commissioned ranks of corporal or the naval equivalent.

What was the well-being and quality of life of those with mental health conditions?

- Those with mental health conditions had several indicators of good health-related well-being: 61% were satisfied or very satisfied with life, 57% had no or a bit of stress in life, a quarter (24%) had very good or excellent perceived health, and a fifth (21%) had very good or excellent perceived mental health.
- Indicators of poor health-related well-being were common in those with mental health conditions: 45% had fair or poor perceived health, 50% had fair or poor perceived mental health, 23% were dissatisfied or very dissatisfied with life, 43% had extreme or quite a bit of stress in life, and 69% had below average mental health-related quality of life (SF-12 MCS).
- 26% of those with mental health conditions had lower mental health-related quality of life than 98% of the general population (SF-12 MCS ≤ 30).
- Physical health significantly impacted well-being in those with mental health conditions: 72% had below average physical health-related quality of life (SF-12 PCS).

How many were suicidal?

- "Suicidality" includes thinking about suicide (suicidal ideation), suicide attempts and completed suicide.
- The Canadian Forces Cancer and Mortality Study showed that although Canadian Veterans had a lower all-cause risk of death than age- and gender-matched general population, male Veterans were 1.5 times more likely to die by suicide.
- In STCL, about 1 in 20 (5.8%) had 12-month suicidal ideation: 1 in 10 VAC clients and about 1 in 25 non-clients.
    - 12-month suicidal ideation was almost 10 times more prevalent in those with mental health conditions (19%) than in those without (2%).
    - To lesser degrees, 12-month suicidal ideation was also more prevalent in those with physical health conditions than without, and occurred in those with none of the chronic physical and mental health conditions included in STCL.
    - 12-month suicidal ideation was more prevalent in those with increasingly worse physical and mental health-related quality of life.
    - For many, mental health appeared to play a stronger role than physical health but the contribution of physical health to suicidality cannot be ignored.

What was the importance of physical health conditions?

- Physical health conditions were more prevalent than mental health conditions.
- Most who had a mental health condition also had a chronic physical health condition (comorbidity).
    - 24% had at least one mental health condition.

        - 95% of those had a chronic physical health condition.
    - 82% had at least one physical health condition.
        - 28% of those had a mental health condition.
- Chronic physical health conditions were more prevalent with age, but mental health conditions were not.
- Pain is a symptom of a physical health condition and can have a psychological dimension.
    - Chronic pain or discomfort was the most common condition in this population, present in 64%.
    - While chronic pain or discomfort was commonly present whether mental health conditions were present (85%) or absent (58%), twice as many with chronic pain or discomfort did *not* have a diagnosed mental health condition (44%) as did (20%).
    - In persons with mental health conditions, it is important to ensure that the physical cause of chronic pain is adequately recognized, diagnosed and treated.
    - In persons with chronic pain who do not have a diagnosed mental health condition, it is important to consider the possibility that mental health problems could develop or are unrecognized.
- These findings reinforce the need for access to appropriate recognition and diagnosis of symptoms so that both physical and psychiatric possibilities in the differential diagnosis of undifferentiated symptoms like fatigue, depressed mood or difficulty thinking can be considered.
- The findings also reinforce the need for capacity to optimally treat both physical and psychological conditions.

What was the disability and functional status of those with mental health conditions?

- Of those with mental health conditions:
    - 85% had participation and activity limitations.
    - 43% needed help with at least one task of independent daily living.
    - 72% had below average health-related quality of life owing to physical health conditions.
- The prevalence of those whose main activity was being disabled or on some form of disability coverage (1 in 5) was ten times greater in those with a mental health condition than in those who did not have a mental health condition (1 in 50).

What were the determinants of health needs of those with mental health conditions?

- VAC clients had higher prevalences of problems with determinants of health than non-clients, and those with mental health problems had higher prevalences than those without. This is to be expected, because problems with determinants of health are more common in persons with health problems, and Veterans come to VAC when they have health problems and related disability.
- More of those with mental health conditions experienced disadvantages in some determinants of health than those who did not have mental health conditions, e.g.:
    - Weak sense of community belonging.
    - Low social support.
    - Not working.
- Twice as many non-clients with mental health conditions (15%) had low household income than VAC clients with mental health conditions (7%), which was not much different from the overall population rate (5%).
- Non-clients with mental health conditions also had lower prevalences of having insurance for prescription drugs and eyeglasses, and having a regular medical doctor

than VAC clients with mental health conditions.
- These findings suggest unmet need for support services in some non-clients with mental health conditions.

How did those with mental health conditions experience adjustment to civilian life?

- Of VAC clients, two-thirds (66%) who had a mental health condition had a difficult adjustment to civilian life compared to less than a quarter (22%) of those who did not, which is not surprising because Veterans come to VAC with difficulties transitioning to civilian life.
- Of non-clients, more than a third (39%) who had a mental health condition had a difficult adjustment to civilian life compared to less than a sixth (16%) of those who did not, which suggests unmet need and program reach issues.

Are there vulnerable subgroups?

- Based on this descriptive analysis alone, these are some potential markers of vulnerable subgroups, meaning characteristics associated with higher prevalences of mental health conditions than in the overall study population (24%):
    - VAC clients, which is expected because Veterans come to VAC with health problems.
    - Medically released Veterans.
    - Middle-aged (40-49 years old).
    - Lower rank (corporal/sergeant).
    - Incomplete years of service (10-19 years).
    - Disability.
    - Presence of a physical health condition.
    - Presence of both a physical health condition and chronic pain or discomfort.
    - Relationship loss or breakdown (widowed, separated or divorced).
    - Low social support.
    - Women.
    - Dissatisfaction with financial situation.
- These findings reinforce the importance of a biopsychosocial approach to Veterans' mental healthcare that considers physical health, psychological issues and social issues.
- Further analysis is required to clarify the significance of these descriptive findings, and understand why some people with these and other characteristics slide into pathways with mental health problems while others do not.

Were there differences between women and men?

- The ability of this survey to detect differences between women and men was limited because sample sizes for women were low, but some statistically significant differences between women and men were observed.
    - More women (33%) than men (22%) had mental health conditions.
    - Women more often had depression or anxiety (31% compared to 19% for men) and mood disorders (7% compared to 3%), but the proportions were similar for anxiety disorder (11% compared to 10%) and PTSD (9% compared to 11%).
    - Women did not have physical health disorders more often than men (64% compared to 67%).
    - More women than men had below-average health-related quality of life on both the SF-12 physical component score (52% vs. 43%) and mental component score (33%

vs. 27%).
- Note these differences were not adjusted for age and other confounders.

How complex are the needs of those with mental health conditions?

- Comorbidity of physical and mental health conditions is a marker of case complexity, challenging the recognition, diagnosis and treatment of both types of conditions.
    - 95% of those with a mental health condition also had a physical health condition.
    - A third (67%) had the triple comorbidity of a musculoskeletal condition, chronic pain or discomfort and a mental health condition, a particularly challenging situation.
    - More than half had low social support and a weak sense of community belonging.

A decade of continuing advances in health care and rehabilitation for Veterans with mental health problems and their families

Most of the Veterans in this study released from service before the new programs were introduced in 2006, and while many new and enhanced mental health services were being established by DND, the CF and VAC. Today's Veterans and their families have access to a broad range of mental health services and supports across many determinants of health that did not exist before, and were not available to many of the Veterans in this study.

- VAC, DND and CF recognized in the 1990s that CF personnel with mental health problems experienced significant service gaps during transition to civilian life, including:
    - Rapid increase in the number of VAC clients needing mental health assessment and treatment.
    - Lack of availability and access to mental health professionals skilled in treating military personnel with mental health conditions.
    - Lack of a designated mental health service pathway for CF personnel transitioning to civilian life.
- This recognition led to many advances for CF personnel, CF Veterans and their families:
    - Introduction of the term “operational stress injury” by DND, CF, VAC and the Royal Canadian Mounted Police which though not a medical term has been useful in describing and destigmatizing mental health conditions arising through operational stress.
    - In 2001, VAC/DND established the Operational Stress Injury Social Support program and over the next several years expanded peer support across Canada.
    - In 2001, VAC established the Veterans Affairs Assistance Service to provide 1-800 telephone access to qualified counselors for Veterans and their families.
    - In 2002, DND, CF and VAC harmonized a major overhaul of mental health programs and services that continues today.
    - Beginning in 2002, VAC opened 10 OSI clinics across Canada and obtained Veteran access to the seven DND/CF Operational Trauma and Social Supports Centres.
    - With the coming into force of the New Veterans Charter in 2006 (*Canadian Forces Members and Veterans Re-establishment and Compensation Act*), eligible Veterans with mental health problems and their families have access to the new rehabilitation program, financial supports, health care benefits and disability awards that promote independence and well-being.
    - VAC implemented a Mental Health Strategy in 2006 to guide the development and evolution of services to clients with mental health problems, promoting mental health and well-being, symptom reduction, recovery and community integration and enhanced quality of life for Veterans, other clients and their families.
    - VAC implemented specialized treatment programs for co-existing post-traumatic

stress disorder and addiction.
  - VAC introduced Clinical Care Managers to provide collaborative case management for Veterans with mental health problems.
  - VAC enhanced mental health services and supports for Veterans living away from major centers by adding tele-mental health capacity in the OSI clinics.
  - VAC introduced the Veteran and Family Community Covenant, adopted this year in Conception Bay South, Newfoundland.
  - VAC established key collaborations and partnerships with other federal agencies, professional associations, national mental health agencies, Canadian universities, the Canadian Institute for Military and Veteran Health Research, and international agencies.
  - VAC led research that continues to shed light into many aspects of the mental health of Veterans.
  - VAC developed and implemented an evidence-based pathways framework for suicide prevention in Veterans.
  - VAC conducts initiatives in knowledge exchange to pass along best practices in mental health care and rehabilitation for Veterans, including OSI Clinic knowledge exchange meetings for health practitioners, a series of papers on mental health for the medical journal *Canadian Family Physician*, and presentations of mental health studies at professional meetings, for VAC staff and/or Veterans.
  - VAC works with Veterans and their families to identify and better understand their mental health needs.

Interpretation Guidance

- STCL was a point-in-time, cross-sectional survey, therefore no conclusion can be drawn from this study alone about (a) whether military service played a role in the mental health conditions reported by respondents, and (b) the effect of VAC programs, services and benefits. Many services were established after most of these Veterans released.
- Use caution about generalizing findings to all Veterans because the survey included only former Regular Force personnel who released during 1998-2007 and were surveyed in 2010.
- The survey might not be representative of all members of the respondents' originating age and era cohorts because (1) the survey did not include those who at the time of the survey had re-enrolled in the CF and those living in institutions, the Territories or out of the country; and (2) the response rate for non-clients (66% of the population) was 59%, largely because they were difficult to locate.
- In tables where 95% confidence intervals for estimates are not shown, they are available. Do not conclude that differences exist without statistical testing.
- Proportions were not adjusted for age, sex and other confounders, so caution is advised in making direct comparisons between subgroups.
- This is a descriptive study, so be cautious about drawing conclusions about associations. Inferential statistical methodology (e.g. regression modeling) is required to account for confounding between variables, and descriptive analysis cannot do that.

Mental Health Findings in the Survey on Transition to Civilian Life

Introduction

Research by Veterans Affairs Canada (VAC) and others in the 1990s demonstrated clear need for enhanced mental health services for serving and former Canadian Forces personnel. Working together, the Department of National Defence (DND), Canadian Forces (CF) and VAC significantly enhanced mental health services for serving personnel and Veterans, both internationally in CF theatres of operations and across Canada on bases and in civilian communities. Most of the new mental health and rehabilitation programs and services were put into place after 2006 when the *Canadian Forces Members and Veterans Re-establishment and Compensation Act* was put into force, and enhanced mental health services for Veterans and their families are continuing to unfold. For example, since 2007 the number of OSI clinics has doubled.

Research in the 1980s and 1990s demonstrated clear need to better understand and enhance mental health care for serving personnel and Veterans.

Working together, the Department of National Defence (DND), Canadian Forces (CF) and VAC significantly enhanced mental health services for serving personnel and Veterans.

Since most prior research was done only in the VAC client population, and only 11% of the 594,500 Canadian Veterans living today who served after the Korean War are VAC clients, little was known about the mental health of the majority of Veterans living in the Canadian general population (Pedlar and Thompson 2011, VanTil et al 2011). The 2003 Canadian Community Health Survey of the general population included Veteran identifier questions; however preliminary analysis of the data did not include mental health indicators and the survey used a self-reported Veteran identification process (Thompson et al 2008). The 2010 *Survey on Transition to Civilian Life* (STCL) was the first comprehensive, biopsychosocial study of both client and non-client Veterans in Canada that linked Department of National Defence (DND) databases with VAC and Statistics Canada databases to objectively identify former CF Regular Force personnel (MacLean et al 2010). This study was conducted of Veterans who mostly released prior to the 2006 New Veterans Charter programs.

Until the 2010 *Survey on Transition to Civilian Life*, very little was known about health, disability and determinants of health of Veterans living in the general Canadian population.

Ongoing research continues to support the need to better understand mental health in Veterans. STCL found that 24% or an estimated 7,500 former CF Regular Force personnel who released from service during 1998-2007 had a mental health condition diagnosed by a health professional (Thompson et al 2011a). Mental health problems were also present in STCL Veterans who were not clients of VAC (Thompson et al 2011b).

At the time of the Survey on Transition to Civilian Life in 2010, 24% of former CF Regular Force personnel who released from service during 1998-2007 had a mental health condition diagnosed by a health professional.

In 2011, the Canadian Forces Cancer and Mortality Study (Statistics Canada 2011) found that male Veterans were 1.5 (95% C.I. 1.4-4.6) times more likely than men in the general population to have died by suicide. Although the suicide risk was not significantly higher in female Veterans overall (1.3; 0.9-1.9), the risk in women aged 40-44 was higher than the general population (2.7; 1.4-4.6). Analysis of the STCL suicide ideation and attempt findings found that suicidality was common among VAC clients, as would be expected because suicidality is more common among people with health and disability problems, and Veterans with those problems seek assistance from VAC (Thompson et al 2011a). Additional analysis of the STCL data identified a number of

potential risk and protective factors for 12-month suicidal ideation for released Canadian Regular Force CF Veterans (Thompson et al 2011c). Although not all who suicide have mental health conditions, suicide is strongly associated with mental health conditions, particularly depression (Thompson et al 2010).

This analysis of the STCL mental health findings was conducted at the request of VAC staff working on transformation to better understand the mental health needs of modern Veterans.

Method

This was a descriptive study of data from the 2010 Survey on Transition to Civilian Life (STCL). STCL was a computer-assisted telephone survey conducted by Statistics Canada. STCL methodology and initial analysis are described elsewhere (MacLean et al 2010, Thompson et al 2011).

The survey sampled 3,354 CF Regular Force personnel who released from service during 1998-2007 and were not serving in the CF, living in institutions, the northern Territories or out of Canada. The survey used a stratified random sampling design with three subgroups to allow for oversampling VAC clients. The groups were: Veterans receiving New Veterans Charter benefits, programs and services through VAC (NVC clients), Veterans receiving disability benefits (DP clients) and Veterans not receiving VAC benefits, programs and services (non-clients). STCL had a response rate of 71% (84% for VAC clients, 59% for non-clients). Of respondents, 94% (3,154) agreed to share their findings with VAC and DND. Respondents were asked about four types of mental health conditions that had been diagnosed by a health professional (Table 1).

Table 1. Mental health condition questions used in the survey. These questions were preceded by "*Remember, we're interested in conditions diagnosed by a health professional*."

STCL Survey Questions	Comments
"*Do you have a mood disorder such as mania, dysthymia or bipolar disorder?*" Interviewers were prompted by the computer to "*include manic depression*".	The question as asked in CCHS 2007-08 was "*Remember, we're interested in conditions diagnosed by a health professional. Do you have a mood disorder such as depression, bipolar disorder, mania, or dysthymia?*" The slight difference makes comparison uncertain.
"*Do you have depression or anxiety?*"	No comparator in national Canadian health surveys.
"*Do you have post-traumatic stress disorder (PTSD)?*"	No comparator in national Canadian health surveys. Only asked previously in CCHS for regions, not nationally. Canadian PTSD rates were obtained in a nationally representative survey conducted 8 years earlier in 2002 (Van Ameringen et al 2008): For adults aged 18 and over, the prevalence of PTSD in Canada was estimated to be 9.2% lifetime and 2.4% 1-month.
"*Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?*"	Comparator: CCHS 2007-08.

Weighted population estimates were calculated using individual sampling weights provided by Statistics Canada (MacLean et al 2010, Thompson et al 2011). Ninety-five percent confidence intervals were calculated using Stata. Weighted estimates for samples less than 30 are identified in the tables. In calculating mean summary scores and 95% confidence intervals for the SF-12 findings, respondent sampling weightings provided by Statistics Canada were applied to individuals' scores.

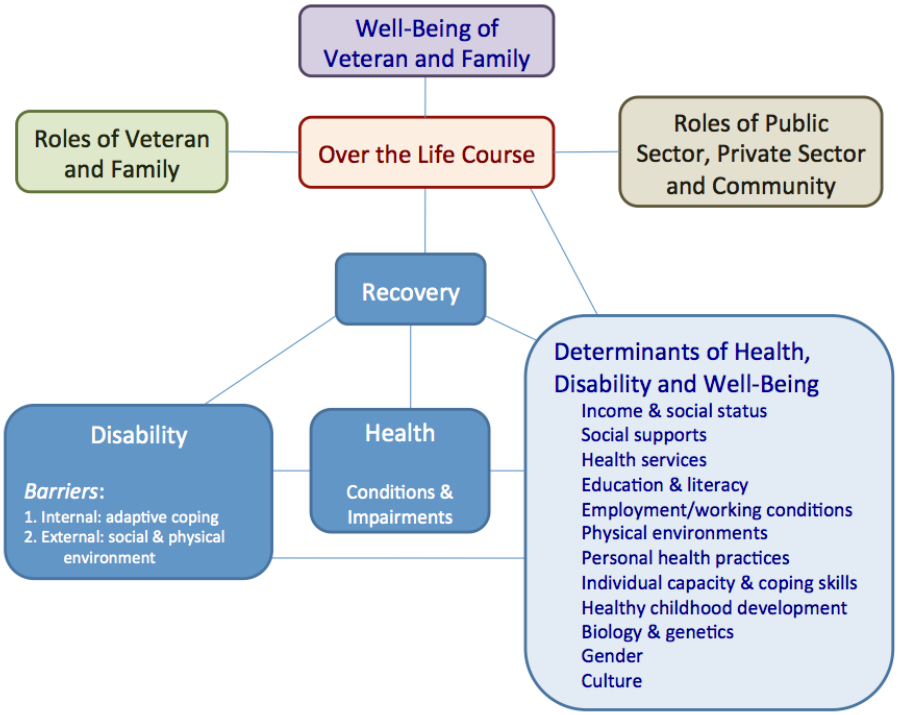
The research questions for this additional analysis were developed in consensus discussions with the VAC Mental Health Directorate. Figure 1 shows the conceptual framework that guided this analysis. The Research Directorate uses this framework in its applied research in support of VAC's business meeting the needs of Veterans.

Research Questions:

For CF Regular Force personnel who released during 1998-2007 and reported mental health conditions at the time of the survey, 2-12 years after release:

1. What were their sociodemographic and military characteristics?
2. What was their well-being and quality of life?
3. How many were suicidal?
4. What was the importance of physical health conditions?
5. What was their disability and functional status?
6. What were their determinants of health needs?
7. How did they experience adjustment to civilian life?
8. Are there vulnerable subgroups?
9. Are there differences between women and men?
10. How complex are their needs?

Figure 1. Veterans' well-being conceptual framework.



Summary of Mental Health Findings from the Initial STCL Report

Initial analysis of the 2010 *Survey on Transition to Civilian Life* (STCL) found that 34% of CF Regular Force Veterans who released from service during 1998-2007 were participating in VAC programs ("VAC clients") (Tables 2, 3). About a quarter (24%, 95% CI 22-25%) of former CF Regular Force personnel who released from service during 1998-2007 had a mental health condition.

About one in four (24%) former CF Regular Force personnel who released from service during 1998-2007 had a diagnosed mental health condition 2-12 years after leaving service.

- Depression or anxiety was most common (20%), followed by post-traumatic stress disorder (11%), anxiety disorder (10%) and mood disorders (3%) (Table 4).
- Most (64%) who had mental health conditions were VAC clients at the time of the survey in 2010, 2-12 years after leaving service.
- The only condition for which a contemporaneous national comparator was found was anxiety disorders, which were twice as prevalent in the STCL population (10%) than the general Canadian population (5% age- and sex-adjusted).

Table 2. VAC clients and non-clients among Regular Force personnel who released during 1998-2007.

Population Estimates				
NVC Clients	**DP Clients**	**VAC Clients (Total)**	**Non-Clients**	**Total**
8%	26%	34%	66%	100%

Table 3. VAC clients and non-clients with and without mental health conditions.

Indicator	**Population Estimates**					
	VAC Clients Overall		**Non-Clients**		**Whole Study Population**	
	Column*	**Row***	**Column***	**Row***	**Column***	**Row***
With mental health conditions	45%	*64%*	13%	*36%*	**24%**	*100%*
Without mental health conditions	55%	*24%*	87%	*76%*	**76%**	*100%*
Total	**100%**	*34%*	**100%**	*66%*	**100%**	*100%*

*Follow the numbers that add up to 100%

Table 4. The four mental health conditions.

Indicator	NVC Clients	DP Clients	VAC Clients Overall	Non-Clients	Total
Anxiety disorder	29.7% (26.3-33.4%)	18.0% (15.9-20.3%)	20.7% (18.9-22.7%)	4.6% (3.6-5.91%)	10.0% (9.06-11.1%)
Comparator[A]	4.7% (4.0-5.4%)	4.6% (3.9-5.3%)	4.6% (3.9-5.3%)	4.6% (3.9-5.3%)	4.6% (3.9-5.3%)
Depression or anxiety	51.2% (47.3-55.1%)	34.8% (32.1-37.6%)	38.6% (36.3-40.9%)	11.0% (9.45-12.9%)	20.3% (19.0-21.7%)
Mood disorders (mania, dysthymia or bipolar disorder)*	9.2% (7.1-11.6%)	5.6% (4.4-7.0%)	6.4% (5.4-7.7%)	x	3.2% (2.7-3.9%)
PTSD	42.5% (38.7-46.4%)	24.5% (22.0-27.1%)	28.7% (26.6-30.9%)	x	11.0% (10.1-11.9%)

A – Canadian Community Health Survey 2007-2008, adjusted for age and sex.
X –Sample size less than 30.
*This question did not include the word “depression” as it does in Canadian Community Health Surveys, however interviewers were instructed to accept depression.

The STCL study population had a lower rate of very good or excellent perceived mental health than the general Canadian population, a difference that was statistically significant after controlling for age and sex differences in the two populations (Thompson et al 2011).

Mental health conditions and suicidal ideation were much more common among those who were participating in VAC programs, as would be expected because Veterans approach VAC for help with chronic health problems and associated disability, and suicidality is more common in populations with physical and mental health problems (Thompson et al 2011c).

Among the health conditions asked about in STCL, mental health conditions placed fifth behind pain or discomfort, musculoskeletal disorders (arthritis and/or back problems), obesity and hearing problems (Table 5). Chronic pain is a symptom of physical health conditions, most commonly musculoskeletal disorders.

Table 5. Prevalence of physical and mental health conditions in the study population.

Health Condition	Prevalence
Pain or Discomfort	56%
Arthritis and/or Back problems	43%
Obesity	28%
Hearing problems	28%
Mental health conditions	**24%**
Have high blood pressure	18%
Bowel disorder	7%
Asthma	6%
Diabetes	6%
Heart disease	4%
Chronic Obstructive Pulmonary Disease	3%
Have cancer	1%
Stroke effects	1%

There was a significant degree of physical health comorbidity in clients with mental health conditions (Table 6).

Table 6. Comorbidity of physical and mental health conditions.

Indicator	Proportion of Population Group				
	NVC Clients	DP Clients	VAC Clients	Non-Clients	Total
No chronic health condition	4.7% (3.3-6.6%)	5.8% (4.6-7.4%)	5.6% (4.5, 6.8)	43.3% (40.7-46.0%)	30.6% (28.8-32.5%)
At least one chronic physical health condition**	90.7% (88.2-92.7%)	91.6% (89.8-93.1%)	91.4% (89.9, 92.6)	53.6% (50.9-56.3%)	66.3% (64.4-68.2%)
At least one mental health condition	59.9% (56.0-63.6%)	40.2% (37.4-43.1%)	44.8% (42.4, 47.1)	12.8% (11.1-14.7%)	23.6% (22.1-25.0%)
Comorbidity: two or more conditions, but either all physical or all mental health conditions, and not both	27.0% (23.8, 30.6)	39.2% (36.4, 42.1)	36.4% (34.1, 38.7)	20.8% (18.8, 23.0)	26.0% (24.5, 27.7)
Comorbidity: Two or more conditions, and at least one physical and one mental health condition	55.2% (51.4-59.0%)	37.6% (34.8-40.4%)	41.7% (39.4, 44.0)	9.8% (8.31-11.5%)	20.5% (19.2-21.9%)

**Physical health conditions did not include obesity: rates higher when obesity included.

Self-Attribution to Military Service

STCL found that the Veterans had a high rate of attributing their mental health conditions to military service (Table 7).

They very commonly attributed their mental health conditions to their prior military service.

Table 7. Self-reported attribution of chronic health conditions to military service.

Chronic Health Condition	Attribution to Service
Post-traumatic stress disorder (PTSD)	**97%**
Hearing problems	90%
Pain or discomfort always present	88%
Arthritis	83%
Back problems not fibromyalgia/arthritis	79%
Anxiety disorder	**81%**
Mood disorder	**79%**
Depression or anxiety	**78%**
Bowel disorder	56%
Asthma	37%
Have high blood pressure	37%
Heart disease	37%
Diabetes	29%
Effects of a stroke	X
Have cancer	X

X – Estimate unreliable, sample size less than 30.

New Mental Health Findings from Further Analysis

The previous section summarizes key findings about mental health conditions from the initial STCL report. The following sections provide more depth in response to the additional questions developed for this more in-depth report.

1. Sociodemographic and military service characteristics of those with mental health conditions

The prevalence of mental health conditions was higher (Table 8) in those aged 40-49, widowed/separated/divorced, with 10-19 years of service, junior Non-Commissioned Members rank, medically released and women.

Table 9 compares the sociodemographic and military characteristics of those with and those without mental health conditions. Nearly half with mental health conditions (48%) had released at non-commissioned ranks of corporal or the naval equivalent. Although the majority with mental health conditions were VAC clients by the time of the survey, over a third (36%) were not, suggesting unmet need for VAC services.

In another report, MacLean et al (2011) found that two-thirds (66%) of the STCL study population were not VAC clients as of March 2009 and of those, over one-third (36%) had contact with VAC at some point, and 21% had also applied for benefits.

- Nearly half with mental health conditions (44%) had not been medically released.
- Over a third (36%) with mental health conditions were not VAC clients, suggesting unmet need for VAC services.

Table 8. Prevalence of mental health conditions by sociodemographic and military service characteristics.

Characteristic	Proportion of Population	Prevalence* of Mental Health Conditions
Whole STCL Population	100%	24%
Client status:		
VAC Clients	34%	45%*
Non-clients	66%	13%
Gender:		
Men	88%	22%
Women	12%	33%
Age at survey:		
20-29	16%	14%
30-39	18%	21%
40-49	34%	32%
50-59	24%	24%
60-69	8%	10%
Marital status:		
Married/Common law	76%	23%
Widowed/Separated/Divorced	9%	41%
Single/Never Married	15%	23%
Length of Service:		
< 2 yrs	18%	11%
2-9 yrs	17%	23%
10-19 yrs	13%	45%
≥ 20 yrs	53%	22%
Rank:		
Senior Officers	8%	10%
Junior Officers	8%	13%
Cadets	5%	12%**
Senior NCM	28%	24%
Junior NCM	30%	37%
Privates	7%	18%
Recruits	15%	15%
Release Type:		
Involuntary	5%	25%
Medical	24%	54%
Voluntary	57%	13%
Retirement Age	7%	9%**
Service Complete	7%	19%

*Example: 45% of VAC clients had mental health conditions.
**Sample size < 30 respondents.

Table 9. Sociodemographic and military service characteristics in those with and without mental health conditions.

Indicator	Weighted Population Estimates*	
	With Mental Health Conditions	Without Mental Health Conditions
Client status:		
VAC Clients	64%*	24%*
Non-clients	36%	76%
Gender:		
Men	84%	90%
Women	16%	10%
Age at survey:		
20-29	9%	18%
30-39	16%	19%
40-49	46%	30%
50-59	25%	24%
60-69	3%	9%
Marital status:		
Married/Common law	73%	76%
Widowed/Separated/Divorced	16%	7%
Single/Never Married	11%	17%
Length of Service:		
< 2 yrs	8%	20%
2-9 yrs	16%	17%
10-19 yrs	25%	9%
≥ 20 yrs	50%	54%
Rank:		
Officers	4%	10%
Junior Officers	4%	9%
Cadets	2%**	5%
Senior NCM	28%	28%
Junior NCM	48%	25%
Privates	5%	7%
Recruits	9%	16%
Release Type:		
Involuntary	5%	5%
Medical	56%	15%
Voluntary	31%	65%
Retirement Age	3%**	8%
Service Complete	6%	7%

*Example: Of those with mental health conditions, 64% were VAC clients, whereas of those without mental health conditions, only 24% were VAC clients.
**Sample size less than 30.

2. Well-Being and Quality of Life

There is no generally accepted definition for the phrase "*health-related well-being*" but most definitions suggest that it means having optimum physical and mental health, minimal disability, ability to adapt to health problems and transitions, being able to participate in life, and having sufficient determinants of health. The terms "*well-being*" and "*quality of life*" are sometimes used interchangeably, but there are technical differences and the semantics can get complicated.

Achieving good health-related well-being and quality of life requires:

- Optimizing recognition, diagnosis and treatment of health disorders, if any (health care).
- Reducing barriers that limit ability in work, play, and family and community life (management of disability).
- Ensuring sufficient determinants of health.
- Doing all of above over the life course, and intergenerationally.

These biopsychosocial principles theoretically underlie VAC's mental health strategy and the VAC Rehabilitation Program, so it is important to measure well-being and quality of life.

STCL included a number of well-being indicators. Several were individual questions, such as self-perceived health and mental health. Version 1 of the SF-12 (Short-Form Health Survey) was embedded in the STCL questionnaire.

Not unexpectedly, low well-being was more common among those who had mental health conditions than among those who did not (Appendix Tables 1 and 2). On the other hand, many with mental health disorders had good well-being (Table 10), so there was a wide range of well-being in these Veterans. Furthermore, it appears that the majority with mental health conditions either had minor conditions or had adapted and were coping with their mental health conditions, since a majority were satisfied with life, had none/little life stress, and were not suicidal.

Low health-related well-being and quality of life was more prevalent in those with mental health conditions than in those without.

On the other hand, many with mental health conditions had good health-related well-being and quality of life.

Mental conditions can worsen episodically, and can be sensitive to changes in physical health and social circumstances. STCL was a cross-sectional survey, a snapshot in time, so it does not provide information on changes in well-being related to mental health over time.

Table 10. Indicators of good and poor well-being in those with mental health conditions.

Good well-being:

- 81% did not have 12-month suicidal ideation.
- 61% were satisfied or very satisfied with life.
- 57% had none or a bit of stress in life.
- 31% had above average mental SF-12 health-related quality of life.
- 28% had above average physical SF-12 health-related quality of life.
- 24% had very good or excellent perceived health.
- 21% had very good or excellent perceived mental health.

Poor well-being:

- 45% had fair or poor perceived health.

- 50% had fair or poor perceived mental health.
- 23% were dissatisfied or very dissatisfied with life.
- 43% had extreme or quite a bit of stress in life.
- 72% had below average SF-12 health-related quality of life (PCS) related to physical health conditions.
- 69% had below average SF-12 health-related quality of life (MCS) related to mental health conditions.
- 19% had 12-month suicidal ideation.

SF-12 Scores. The QualityMetrics SF-12 Short Form Health Survey measures health-related quality of life (HRQoL) related to physical health conditions (PCS) and mental health conditions (MCS). Scores are normalized to the 1998 U.S. general population such that the U.S. 1998 general population mean is 50. Canadian SF-36 norms are slightly higher than U.S. norms (PCS 51.9 and MCS 52.0, Hopman et al 2000), and SF-36 and SF-12 scores are comparable. Lower scores mean poorer health-related quality of life (well-being). The relationship between SF-12 score and quality of life is not linear: a score of 30 means that 98% of the population is better off in terms of functional health and well-being even though the score drops only 20 points from the population mean of 50 where 50% had better well-being. A score of 40 means 84% had better well-being.

The SF-12 data suggest that physical health conditions had a greater impact on HRQoL than mental health conditions (Table 11). Compared to the Canadian general population, these Veterans had below average QoL related to physical health than the general population (PCS 47%), but average mental health-related QoL (MCS 52%). While 49% had PCS scores below the average for the Canadian general population, only 33% had below average MCS scores.

Physical health conditions had a greater overall impact on health-related quality of life than mental health conditions.

On average, health-related quality of life related to mental health was better than HRQoL related to physical health conditions.

Mean PCS was even lower for those with mental health conditions. It is not surprising that PCS was so low, because so many with mental health conditions also had chronic physical health conditions (95%). These findings reinforce the importance of dealing effectively with physical health conditions and related disability in Veterans with mental health conditions.

Table 11. Health-related quality of life (SF-12 scores).

In those with mental health conditions:
- 95% also had physical health conditions,
- So it is not surprising that HRQoL related to physical health was as low as HRQoL related to mental health.

Quality of life related to physical health conditions (PCS):

Whole STCL population:
- PCS 47.3 (47.0-47.6), below Canadian average (51.9).
- 49% had PCS below the Canadian general population average.

Those with mental health conditions:
- PCS 40.2 (38.1-42.2).
- 75% had PCS below the Canadian average (51.9).

Quality of life related to mental health conditions (MCS):

Whole STCL population:
- MCS 52.0 (51.6-52.3), same as Canadian average (52.0).
- 33% had MCS below the Canadian general population average.

Those with mental health conditions:
- MCS 41.2 (40.3-42.1).
- 73% had MCS below Canadian average (52.0).

3. Suicidality

"Suicidality" includes suicidal thoughts, feelings, and behaviours, including attempts and completed suicide. The Canadian Forces Cancer and Mortality Study (Statistics Canada 2011) showed that although personnel were not at increased risk of suicide, male Veterans were 1.5 times more likely to suicide than men in the general population, and although the overall suicide rate for women Veterans was not elevated, one age group of women (ages 40-44) were 2.7 times more likely to die by suicide than women in the general population based on a very small number of suicides in women (Statistics Canada 2011). The numbers of women Veterans who died by suicide were too small to produce reliable estimates for other age groups, so considerable caution is advised in interpreting the statistics for women.

Suicidal ideation and attempt data from the Survey on Transition to Civilian Life (Table 12) were analyzed in detail in another report (Thompson et al 2010), and further study of the findings is in progress. Although most people with suicidal ideation do not suicide, 12-month suicidal ideation is an important marker of potential suicide risk. About 1 in 20 (5.8%) had 12-month suicidal ideation:

- 4% of the non-clients
- 1 in 10 (10%) of the VAC clients:
  - ~1 in 6 of the NVC clients (16%), and
  - ~1 in 11 of the DP clients (9%).

Recent (12-month) suicidal ideation was common in VAC clients, as expected for a subpopulation with physical and mental health problems.

One in ten VAC clients had recent suicidal thoughts.

Suicidal ideation was almost 10 times more prevalent in those with mental health conditions (18%) than in those without (2%) (Table 12), but was also more prevalent in those with physical health conditions than without, and also occurred in those with none of the chronic physical and mental health conditions included in STCL (Thompson et al 2011c). So, while special attention to assessing suicidality is warranted for Veterans with chronic physical and mental health conditions, absence of chronic health conditions does not mean absence of suicide risk. VAC has developed an evidence-informed suicide prevention pathways framework for guiding suicide prevention in Canadian Veterans and VAC clients (Thompson et al 2010).

Table 12. Suicidal ideation and attempts.

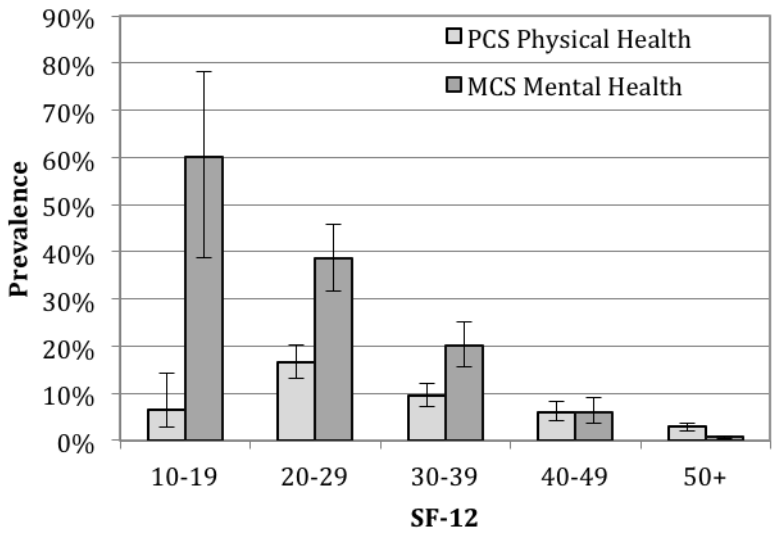
Indicator	Weighted Population Estimates*					
	VAC Clients With Mental Health Conditions	VAC Clients Without Mental Health Conditions	Non-clients With Mental Health Conditions	Non-clients Without Mental Health Conditions	Total With Mental Health Conditions	Total Without Mental Health Conditions
12-month suicidal ideation	21%*	2%	15%	2%	19%	2%
12-month suicide attempts	2%	0.2%	4%	0.5	3%	0.4
Lifetime suicidal ideation	52%	10%	47%	7%	50%	8%
Lifetime suicide attempts	18%	0%	18%	1%	18%	2%

*e.g., Prevalence of 12-month suicidal ideation in VAC clients with mental health conditions was 21%.

Fifteen percent (15%) of non-clients with mental health conditions had 12-month suicidal ideation, and 4% had 12-month suicide attempts. These findings could have important implications for VAC outreach strategies.

Quality of Life and Suicidality. Figure 2 suggests that health-related quality of life (well-being) might play a role in suicidality: 12-month suicidal ideation was more prevalent in those with low physical and mental health-related quality of life. Mental health appeared to play a stronger role than physical health, but the contribution of physical health cannot be ignored, and it is possible that physical health might play an independent role in suicidality. This possibility is being investigated in further analysis of the STCL data.

Figure 2. Prevalence of 12-month suicidal ideation by degree of health-related quality of life.



4. Importance of physical health conditions in mental health

Comorbidity of physical health conditions in those with mental health conditions

The presence of a chronic physical health condition was very common in those with mental health conditions, but not the other way around (see also Tables 13 and 14):

- 24% had at least one mental health condition.
  - 95% of those had a chronic physical health condition.
- 82% had at least one physical health condition.
  - 28% of those had a mental health condition.

Comorbidity of chronic physical health conditions and mental health conditions was much more common in those with mental health conditions (95%) than in those with physical health conditions (28%).

This finding has important implications in the management of both mental and physical health conditions.

A wide variety of chronic physical health conditions were present, as one would expect for any

middle-aged population. Musculoskeletal disorders, chronic pain or discomfort and hearing problems were most common. These conditions are not common causes of death, but cause considerable problems with well-being and functioning during life. Physical health conditions like cardiovascular and respiratory diseases and cancer are common causes of death, and are less common in these age groups (mean age 46 years, range 20-60) than later in life.

Table 13. Comorbidity of physical* (PHC) and mental (MHC) health conditions.**

13a – Estimated number of Veterans.

		PHC		
		Yes	No	
MHC	Yes	7154	387	7541
	No	18825	5649	24474
		25979	6036	32015

13b – Percent of study population.

		PHC		
		Yes	No	
MHC	Yes	22%	1%	24%***
	No	59%	18%	77%
		81%	18%	100.0%

13c – Column proportions.

		PHC	
		Yes	No
MHC	Yes	28%	6%
	No	73%	94%
		100.0%	100.0%

13d – Row proportions.

		PHC		
		Yes	No	
MHC	Yes	95%	5%	100.0%
	No	77%	23%	100.0%

*Physical health conditions: chronic pain always, chronic pain recurring, hearing problems, MSK (back, arthritis), CVD (heart, stroke, high blood pressure), respiratory (asthma, COPD), diabetes, cancer, gastrointestinal (bowel, ulcer) and obesity.
**Mental health conditions: mood disorder, depression or anxiety, PTSD, anxiety disorder.
***Differences due to rounding.

Table 14. Chronic physical health conditions in those with and without mental health conditions.

Indicator	Weighted Population Estimates	
	With Mental Health Conditions	Without Mental Health Conditions
Physical, All	87.2%	59.9%
Hearing Problems	41.7%	23.5%
Arthritis	38.9%	18.7%
Back problems	62.2%	33.2%
Asthma	10.4%	4.4%
COPD	5.9%	2.3%
Diabetes	7.3%	4.9%
Cancer	1.2%*	1.2%*
Bowel disorders	16.3%	4.0%
Obesity	35.5%	26.1%

*Sample size less than 30.

These findings reinforce the need to ensure access to appropriate recognition and diagnosis of symptoms so that both physical and psychiatric possibilities in the differential diagnosis of undifferentiated symptoms can be considered. They also reinforce the need for capacity to optimally treat both physical and psychological conditions together. Mental and physical health conditions intersect in complex ways:

These findings reinforce the need to ensure access to appropriate recognition and diagnosis of physical health conditions when mental health problems are being addressed.

- Normal, healthy people can develop transient psychological symptoms when stressed physically or mentally. Such symptoms often resolve with reassurance, simple rest and good food.
- Persisting undifferentiated symptoms can be explained by physical or mental health diagnoses. The differential diagnosis of symptoms is very broad.
    - So-called psychological symptoms can be explained solely by an undiagnosed physical health condition.
    - Undifferentiated physical symptoms can be explained by psychiatric diagnoses.
    - Psychological symptoms can arise secondary to a physical health condition, for example the development of reactive depression after a person is initially diagnosed with a chronic health condition.
- The diagnosis and treatment of psychiatric disorders can be complicated by the presence of unrelated physical health conditions; for example, a patient with long-standing major depression who later suffers severe physical trauma in a motor vehicle crash.
- The diagnosis and treatment of physical health disorders can be complicated by the presence of unrelated psychiatric conditions; for example, a patient with post-traumatic stress disorder who later develops cancer.
- Physical health conditions can arise from or be exacerbated by a psychiatric condition;

for example, diabetic complications in a patient with bipolar disorder who has difficulty following their diabetes treatment regimen. In another example, it is hypothesized that the neurohormonal stress of persistent, incompletely treated psychiatric states can lead to certain physical disorders in susceptible people.

Importance of Age

Chronic physical health conditions accumulate with age in young and middle-aged adults, but common mental health conditions do not. Figure 3 shows population estimates by age for the STCL Veteran study population for physical and mental health conditions. For comparison, Figure 4 shows Canadian Community Health Survey (2008) population estimates by age for Canadians living in the general population for several chronic health conditions.

Chronic physical health conditions are more prevalent with age, but mental health conditions are not.

Note that the prevalences of both physical and mental health conditions seemed to be elevated in the 40-49 year age group beyond what might be expected. There are a number of possibilities: for example personnel who released in the mid-career age group might have been at a higher risk of health problems than younger or older veterans.

Figure 3. Proportion of STCL population with chronic physical and mental health conditions by age at survey.

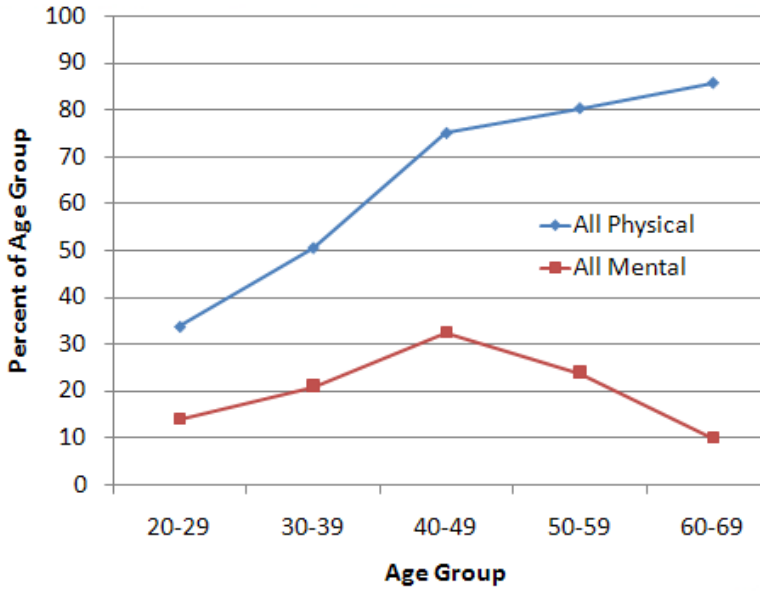
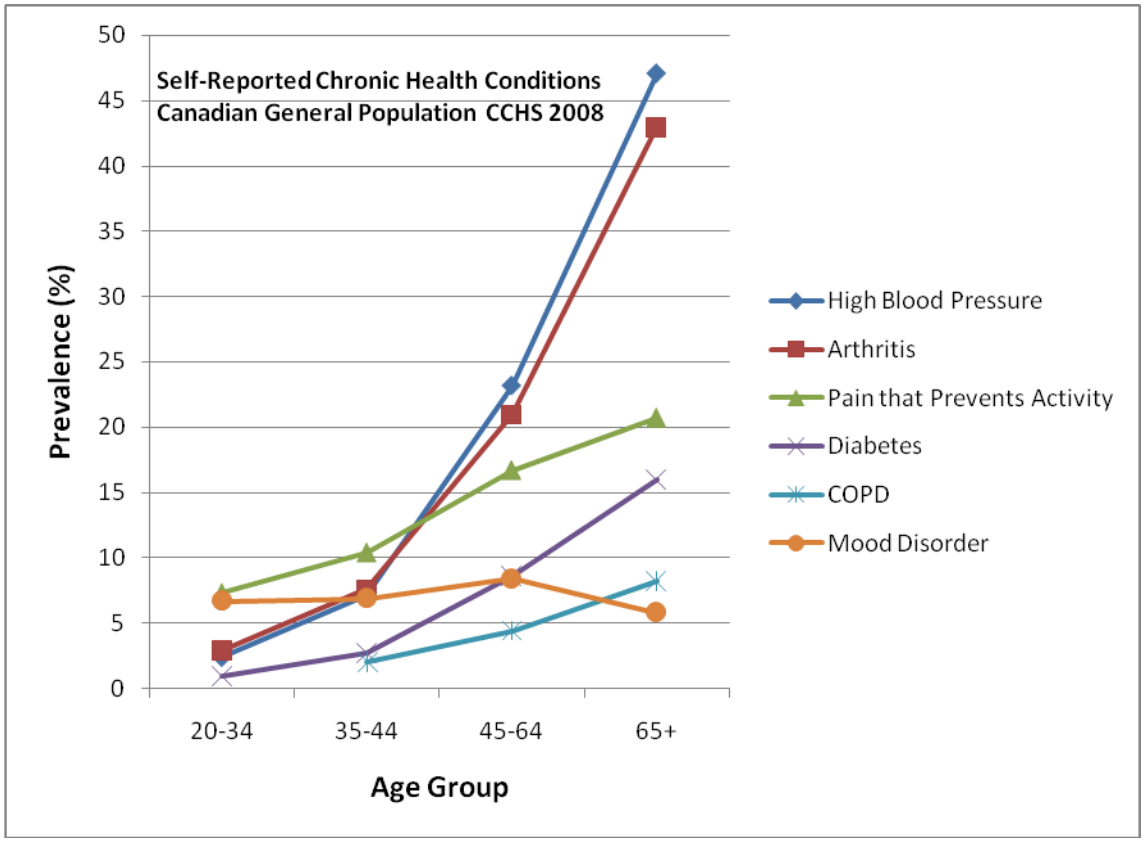


Figure 4. Proportion of the general Canadian population with chronic health conditions by age (Source: CANSIM online database for CCHS 2008).



Chronic Pain or Discomfort

Chronic pain is a symptom of a physical health problem and can in some cases have a mental health dimension. Chronic pain is common in the general Canadian population, and was common in the Veterans studied: two-thirds (64%) had chronic pain or discomfort (Table 15a). Twice as many with chronic pain and discomfort did not have a mental health condition as did (44% versus 20%).

Chronic pain was common in those both with and without mental health conditions, and was more common in those with mental health conditions (85% versus 58%; Table 15b).

Of those with comorbid chronic musculoskeletal disorder (back problems or arthritis) and chronic pain or discomfort, nearly twice as many did not have a mental health condition (64%) as did (36%).

Pain is a symptom of a physical health condition, but can have a mental health dimension in some people.

- Almost two-thirds (64%) of the Veterans studied had chronic pain/discomfort.
- Twice as many with chronic pain and discomfort did not have a mental health condition as did (44% versus 20%).
- Chronic pain was common in those both with and without mental health conditions, and was more common in those with mental health conditions (85% versus 58%).
- Chronic musculoskeletal conditions were common, and more common in those with mental health conditions.

These findings have several implications:

- In persons with mental health conditions, it is important to ensure that the physical cause of chronic pain is adequately recognized, diagnosed and treated.
- In persons with chronic pain who do not have a diagnosed mental health condition, it is important to consider the possibility that mental health problems could develop or are unrecognized.

It is important to:
- Ensure that the physical cause of chronic pain is adequately recognized, diagnosed and treated.
- Consider the possibility that mental health problems could develop or are unrecognized when a person has chronic pain.

Table 15a. Prevalences of chronic pain/discomfort and mental health conditions in the Veterans studied.

		Chronic Pain/Discomfort Constant and/or Recurring		
		Yes	No	
Mental Health Condition	Yes	20%	4%	24%
	No	44%	32%	76%
		64%	36%	100%

*e.g., of the total population, 20% had a mental health condition and chronic pain or discomfort.

Table 15b. Chronic pain and discomfort in those with and without mental health conditions.

	Weighted Population Estimates		
	With Mental Health Conditions	**Without Mental Health Conditions**	**Whole STCL Study Population**
Pain/discomfort always	65%*	33%	41%
Pain/discomfort reoccurring	74%	51%	56%
Pain/discomfort always and/or reoccurring	85%	58%	64%

*e.g., in those with mental health conditions, 65% had pain or discomfort always.

5. Disability

Table 16 shows that a significant proportion of those with mental health conditions had disability. Health conditions and their associated impairments are not disability. Disability occurs when people with health impairments encounter barriers, both internally (adaptive coping) and externally (social and physical barriers). STCL did not assess barriers encountered by Veterans with mental health conditions. This analysis did not assess how well the Veterans with mental health conditions were managing

Of those with mental health conditions:
- 85% had participation and activity limitations.
- 43% needed help with at least one task of independent daily living.
- 72% had below average health-related quality of life owing to physical health conditions.

disability. People with chronic health conditions are sometimes on the edge of not being able to cope and become more disabled if their mental or physical health worsens, or their life circumstances change.

Table 16. Disability and functional status in those with and without mental health conditions.

Indicator	Weighted Population Estimates	
	With Mental Health Conditions	Without Mental Health Conditions
Participation and activity limitation: Sometimes or often Never	 85% 15%	 47% 53%
Daily living tasks: Needs help with at least one task Does not need help	 43% 57%	 9% 91%
Physical health-related quality of life (SF-12 PCS): Below average Above average	 72% 23%	 35% 65%
Mental health-related quality of life (SF-12 MCS): Below average Above average	 69% 31%	 15% 85%
Main activity being disabled or on disability: 12 months after release 12 months prior to survey	 21% 20%	 2% 2%

6. Determinants of Health Needs

Table 17 demonstrates that more of those with mental health conditions experienced disadvantages in some determinants of health than those who did not have mental health conditions. On the positive side, relatively fewer were looking for work or had household income below the Low Income Measure, and most had health insurance and a regular medical doctor.

Table 17. Determinants of health in VAC clients and non-clients with and without mental health conditions.

Indicator	Weighted Population Estimates					
	VAC Clients With MHCs	VAC Clients Without MHCs	Non-clients With MHCs	Non-clients Without MHCs	Total With MHCs	Total Without MHCs
Adjustment to civilian life:						
Very/moderately easy	22%	63%	44%	74%	30%	72%
Neither difficult nor easy	12%	15%	18%	12%	14%	13%
Very/moderately difficult	66%	22%	39%	14%	56%	16%
Heavy drinking	25%	23%	30%	26%	27%	25%
Sense of community belonging:						
Very/somewhat strong	39%	63%	45%	65%	41%	64%
Very/somewhat weak	61%	37%	55%	35%	59%	36%
Social support:						
Not low	39%	68%	50%	77%	43%	75%
Low	61%	32%	50%	23%	57%	25%
Household income below LIM	7%	5%	15%*	5%	10%	5%
Main activity 12 months after release:						
Worked in the Reserve Force	2%*	4%	3%*	4%	3%*	4%
Worked at job/ran business	32%	50%	46%	61%	37%	58%
Retired not looking for work	9%	14%	9%*	10%	9%	11%
Attended school or training	19%	15%	14%*	14%	18%	14%
Looked for work	6%	7%	13%*	7%	9%	7%
Cared/nurtured family	2%*	2%	2%*	2%*	2%*	2%
Disabled or on disability	27%	7%	9%*	1%*	21%	2%
Main activity 12 months prior to survey:						
Worked in the Reserve Force	0.5%*	1%*	0.5%*	1%*	0.5%*	1%*
Worked at job/ran business	53%	71%	77%	81%	62%	79%
Retired not looking for work	10%	14%	6%*	8%	9%	9%
Attended school or training	3%	3%	5%*	4%	4%	4%
Looked for work	2%*	3%*	2%*	2%*	2%*	3%
Cared/nurtured family	2%*	2%*	2%*	2%*	2%*	2%
Disabled or on disability	27%	6%	7%*	1%*	20%	2%
Health system:						
Prescription drug insurance	97%	97%	87%	90%	94%	92%
Dental insurance	92%	92%	81%	85%	88%	87%
Eye glasses insurance	92%	91%	76%	82%	86%	84%
Regular medical doctor	91%	88%	82%	78%	87%	80%

*Sample size < 30

Income. Income is both a key determinant and outcome of health. Table 18 shows two of the income measures from STCL: LIM (Low Income Measure), which is a threshold established by Statistics Canada for household income; and satisfaction with finances.

Income below the Low Income Measure was:

- Less common in the STCL population overall (6%) than the general Canadian population.
- At a similar rate in VAC clients with mental health conditions (7%).
- Twice as common in *non-clients* with mental health conditions (15%).

Among those with mental health conditions, non-clients had higher rates of below-LIM household income (15% compared to 7% for VAC clients), but had rates of dissatisfaction with finances comparable to both VAC clients and all STCL Veterans who had mental health conditions. In the initial reports (MacLean et al 2011, Thompson et al 2011a), it was noted that both workers and non-workers had below-LIM rates lower than the general Canadian population, but some subgroups with higher below-LIM prevalences, and that below-LIM should be assessed together with satisfaction with finances. Although younger Veterans were more common in the non-client than the client group, and therefore might be expected to have lower household income, the fact that more non-clients with low income had mental health conditions than VAC clients is an important finding. One explanation, not yet tested, might be that VAC clients with mental health conditions are more likely to have income supports than non-clients with mental health conditions, suggesting the possibility of an unmet income gap for non-clients with mental health conditions.

Table 18. Income indicators.

Indicator	Proportion of Population Group			
	VAC Clients with Mental Health Conditions	Non-Clients with Mental Health Conditions	All STCL Veterans with Mental Health Conditions	Whole Study Population
Below Low Income Measure	7%	15%	10%	6%
Dissatisfied or very dissatisfied with finances	30%	31%	31%	15%

7. Adjustment to Civilian Life

More than half (56%) with mental health conditions had a difficult adjustment to civilian life, compared to about a sixth (16%) of those who did not have mental health conditions.

A third (39%) of non-clients with mental health conditions had difficult adjustment to civilian life.

Overall, 25% of the study population reported difficult adjustment to civilian life. More than half (56%) of those with mental health conditions at the time of the survey 2-12 years after release had difficult adjustment, compared to only about a sixth (16%) of those without mental health conditions (Table 19).

More VAC clients experienced difficult adjustment than non-clients, which is not surprising given that Veterans seek assistance from VAC with re-establishment issues. However more than a third (39%) of non-clients with mental health conditions also had a difficult adjustment to civilian life, suggesting the possibility of unmet need, which is of interest to VAC staff working on outreach.

STCL was a cross-sectional survey, providing a snapshot at a point in time 2-12 years after these Regular Force personnel released from service. It is therefore not clear to what degree mental health conditions contributed to or arose from having difficult adjustment to civilian life. In

some cases,;for example, having a difficult adjustment to civilian life owing to a physical health condition with related disability, or difficulty finding employment or family problems after leaving service might have subsequently led to mental health conditions in some cases. Further analysis of the adjustment to civilian life findings in STCL is under way to better understand the transition experiences of these Veterans.

Table 19. Adjustment to civilian life in VAC clients and non-clients with and without mental health conditions.

Indicator	Weighted Population Estimates					
	VAC Clients With MHCs	VAC Clients Without MHCs	Non-clients With MHCs	Non-clients Without MHCs	Total With MHCs	Total Without MHCs
Adjustment to civilian life:						
Very/moderately easy	22%	63%	44%	74%	30%	72%
Neither difficult nor easy	12%	15%	18%	12%	14%	13%
Very/moderately difficult	66%	22%	39%	14%	56%	16%

8. Vulnerable Subgroups

No subgroups were invulnerable to mental health conditions. Mental health problems occurred in all subgroups of Veterans (Appendix Tables 1 and 2), and programs and services must accommodate the possibility that any individual is at some risk of developing a mental health problem. However, mental health conditions were more prevalent in some subgroups. It is important to identify vulnerable individuals and subgroups at both the individual and population levels:

Veterans in all subgroups had mental health conditions, so programs and services must accommodate this possibility for individuals.

Mental health conditions were more prevalent in certain subgroups, allowing targeting of resources.

- To identify individuals who are more likely to develop or have ongoing mental health problems.
- To identify individuals who are not doing well and need additional help.
- To minimize the impact of mental health problems on Veterans, families and communities.
- To redirect resources to subgroups of individuals more likely to develop mental health problems or require intense resources.

Table 20 lists potential vulnerability markers by inspection of Appendix Table 1 where the proportion of those who had a mental health condition was significantly greater than the STCL population average prevalence of 24%. Although confidence intervals have not yet been calculated for each of the characteristics, an assumption was made about statistical significance. We know from calculating confidence intervals (CIs) for other STCL findings that the 95% CIs around STCL population estimates tend to be less than about ± 2-3%, depending on sample size and prevalence magnitude. A very conservative cutoff of ± 5% was used, which risks missing some markers where there was a small but potentially real difference, but identifies markers likely to be statistically significant.

Table 20. Potential markers of vulnerable subgroups using Appendix Table 1.

Marker of Potential Vulnerability	Prevalence of mental health conditions*
Whole STCL study population	*24%*
Sense of low mastery	88%
Disabled or on disability 12 months prior to survey	77%
Disabled or on disability first 12 months after release	75%
Needs help with at least one activity of independent living	60%
Had difficult adjustment to civilian life	52%
Medically released	54%
Served 10-19 years	45%
Widowed/separated/divorced	41%
Experiencing low social support	40%
Junior non-commissioned member (corporal or Naval equivalent)	37%
Presence of both a musculoskeletal condition and chronic pain/discomfort	36%
Household income below Low Income Measure	36%
Released in 2004	35%
Weak sense of community belonging	34%
Aged 30-39 years at release	33%
Aged 40-49 at the time of the survey	32%
Women	33%
Enrolled 1980s	32%
Has a chronic physical health condition	31%

*Denominator: all those with that marker. For example, 88% of those with low mastery had one or more mental health conditions, much higher than the overall prevalence of 24%.

This descriptive analysis is limited in its ability to identify vulnerable subgroups because it only suggests the possibility of associations by a simple statistical comparison without accounting for chance, bias and confounding. Descriptive analysis enables hypotheses to be developed and tested using more sophisticated statistical analysis. Further analysis is progressing, but can take years to complete.

This descriptive analysis is limited in its ability to identify vulnerable subgroups.

Further analysis is ongoing with more sophisticated statistical methods to account for chance, bias and confounding.

Nevertheless descriptive analysis can be useful for raising awareness about subgroups of Veterans in whom mental health conditions seem to be more prevalent. By inspection of Table 20, a practical short list of subgroups with larger prevalences of mental health conditions emerged that will be of interest to VAC planners and front line staff (Table 21).

Table 21. STCL subgroups with greater prevalences of mental health conditions.

- VAC clients.
- Medically released Veterans.
- Middle-aged (40-49 years old).
- Lower rank (corporal/sergeant).
- Incomplete years of service (10-19 years).
- Disability.
- Presence of a physical health condition.
- Presence of both a physical health condition and chronic pain or discomfort.
- Relationship loss or breakdown (widowed, separated or divorced).
- Low social support.
- Women.
- Dissatisfaction with financial situation.

Biopsychosocial Approach

This analysis emphasizes the need for a biopsychosocial approach to mental health problems in Veterans. It is important to attend to the three-legged stool of physical health conditions, psychological issues and social issues, not just one or the other.

These findings reinforce the importance of a biopsychosocial approach to Veterans' mental healthcare that considers physical health conditions, psychological issues and social issues.

Pathways not Risk Factors

Risk factors are characteristics of a person or group of people that are thought to predict a health outcome, but it is important to be cautious about using risk factors for several reasons:

1. Many so-called risk factors are simply characteristics that are merely statistically associated with the health outcome, but do not predict that outcome.
2. It is not difficult to find statistical associations between common mental health conditions and a wide variety of potential risk factors (see Table 20), but much more difficult to determine which characteristics lead to the health conditions.

STCL was a single cross-sectional study, a point in time snapshot. Longitudinal studies are necessary to properly understand which factors predict vulnerable individuals and subgroups. Pathway analysis using longitudinal research studies is beginning to shed light on why some people with apparent risk factors do not go on to get mental health conditions and others do.

STCL was a point in time study so conclusions cannot be drawn regarding causality, for example effects of service and VAC programs on mental health and related disability. Longitudinal studies are required for such questions.

Pathways analysis is proving to be more useful in suicide prevention than attending to risk factors (Thompson et al 2010). For example, depression is most commonly associated with suicidality, but many people with depression do not enter suicidal pathways, and of those who do, most do not progress down the pathway to attempt or complete suicide. Furthermore some people without a diagnosed psychiatric condition can enter suicidal pathways. Understanding pathways is more fruitful than simply considering risk factors, but until research provides better understanding of pathways to mental health conditions, then attending to risk factors as potential markers of vulnerability is a necessary approach to optimizing resources and mitigating mental health problems.

9. Differences between Women and Men

There appear to be important differences between men and women Veterans, but because there are so few women in the serving and Veteran populations it is difficult to fully understand those differences.

Only 12% of the STCL study population was women, in keeping with the low proportion of women in the Canadian Forces and general Veteran population. The sample design for STCL was not stratified to increase the sample size for women because stratification was done to favour VAC clients as a first priority. This means that sample sizes for women were low for many sociodemographic characteristics and indicators of health, disability and determinants of health. Nevertheless, some statistically significant differences between women and men were observed.

- More women (33%) than men (22%) had mental health conditions.
- Women more often had depression or anxiety (31% compared to 19% for men) and mood disorders (7% compared to 3%), but the proportions were similar for anxiety disorder (11% compared to 10%) and PTSD (9% compared to 11%).
- Women did not have physical health disorders more often than men (64% compared to 67%).
- More women than men had below-average health-related quality of life on both the SF-12 physical component score (52% vs. 43%) and mental component score (33% vs. 27%). The sex differences in mean physical and mental component scores were statistically significant (Thompson et al 2011).

Note that these comparisons were not adjusted for age and other potential confounders. Further analysis is required to determine which subgroups of women more vulnerable to mental health conditions.

10. Complexity of Needs

There was a wide range of complexity of needs in these Veterans, ranging from those who were doing well with usual family, community and work supports to those who had much higher needs including case management, interdisciplinary clinical and rehabilitation care and assistance with various determinants of health.

There are several markers of a high degree of case complexity in many (but not all) Veterans with mental health conditions, particularly those who were VAC clients:

- Comorbidity of physical and mental health conditions.
- Low health-related quality of life.
- Problems with social support and sense of community belonging.
- Prevalence of suicidal ideation.

Table 22 indicates there is a high degree of case complexity in those who had mental health conditions. A majority (87%) also had at least one physical health condition. More than half (67%) had the triple comorbidity of a musculoskeletal condition, chronic pain or discomfort, and a mental health condition, a particularly challenging situation. About half had well-being and functioning lower than 84% of the general population. More than half had low social support and a weak or very weak sense of community belonging.

Table 22. Indicators of case complexity.

Indicator	Proportion of Population Group*			
	VAC Clients with Mental Health Conditions	Non-Clients with Mental Health Conditions	All STCL Veterans with Mental Health Conditions	Whole Study Population, with and without Mental Health Conditions
Comorbid physical and mental health conditions**	93%*	76%	87%	21%*
All three of comorbid musculoskeletal disorders, pain/discomfort and mental health conditions	79%	45%	67%	16%
SF-12 physical health-related quality of life lower than 84% of the general population (PCS ≤ 40).	66%	25%	51%	25%
SF-12 mental health-related quality of life lower than 84% of the general population (MCS ≤ 40).	56%	35%	48%	15%
Low social support	61%	50%	57%	33%
Very or somewhat weak sense of community belonging	61%	55%	59%	41%
12-month suicidal ideation	21%	15%	19%	6%
Population estimate (number of Veterans)	***4,820***	***2,722***	***7,541***	***32,015***

*Example: 93% of VAC clients with mental health conditions also had comorbid physical and mental health conditions, as did 21% of the whole STCL population overall.
**Physical health conditions did not include obesity. Rates higher when those were included.

Advancements in Mental Health Services for Veterans and Their Families – A Decade of Continued Progress

The 2010 *Survey on Transition to Civilian Life* included CF Regular Force Veterans who released in 1998-2007 and were surveyed in 2010. While the study sheds light into their mental health status at the time, most of them had transitioned to civilian life prior to enactment of the New Veterans Charter in 2006 (*Canadian Forces Members and Veterans Re-establishment and Compensation Act*) when the NVC programs were established. With the new Act, eligible Veterans then had access to a new range of programs to support them in transition toward independence and well-being in civilian life, including the new rehabilitation program, financial supports, health care benefits and disability awards. Many new and enhanced services became available after 2007 for serving personnel and Veterans with mental health problems. Since 2007, for example, VAC has doubled the number of OSI clinics and added Clinical Care Managers. This section provides information on the advancements in mental health services that are still being put in place for Veterans and their families from a VAC perspective. DND and the CF have also been putting into place major enhancements in mental health care for serving personnel over this period of time, but they are not detailed here.

In the mid-1990s, VAC, DND and the CF became aware of significant service gaps experienced by CF personnel with mental health problems during transition to civilian life. Major challenges

included a rapid increase in the number of VAC clients needing mental health assessment and treatment services, lack of availability and access to mental health professionals skilled in treating military personnel with mental health conditions and lack of a designated mental health service pathway for CF personnel transitioning to civilian life. The non-medical term “operational stress injury” (OSI) was introduced by DND, the Royal Canadian Mounted Police and VAC to describe and help in destigmatizing persistent mental health conditions related to operational service.

Beginning in 2002, VAC, DND and CF began harmonizing a major overhaul of mental health programs and services for serving and released personnel and their families that continues today. VAC opened ten Operational Stress Injury Clinics across Canada. The Operational Stress Injury Social Support program (OSISS) was established by VAC and DND in 2001 and expanded in later years as Peer Support Coordinators and Family Peer Support Coordinators were hired and trained to provide peer support across Canada. VAC’s Operational Stress Injury National Network manages the 10 OSICs and co-manages OSISS in collaboration with DND.

The National Centre for Operational Stress Injuries was created in 2005 to ensure the development, delivery and coordination of clinical mental health services. Together with all the NVC programs created under the new Act in 2006, VAC implemented a Mental Health Strategy in 2006 to guide subsequent development and evolution of services to clients with mental health problems. The strategy was designed to promote mental health and well-being, symptom reduction, recovery and community integration and enhanced quality of life for Veterans, other clients and their families by:

- Providing access to mental health services and supports;
- Building capacity in specialized mental health service providers;
- Exercising leadership in the mental health field; and,
- Developing partnerships with other organizations promoting mental health and well-being.

VAC worked in partnership with mental health service providers across the country to implement specialized treatment programs for treatment of co-existing post-traumatic stress disorder and addiction. VAC established the Veterans Affairs Assistance Service to provide 1-800 telephone access to qualified counselors for Veterans and their families. VAC introduced Clinical Care Managers to assist case management for Veterans with mental health problems.

VAC enhanced mental health services and supports for Veterans living away from major centers by adding tele-mental health capacity in the OSI clinics (audio and video technology to connect clinicians and clients). VAC introduced in Canada the innovative Veteran and Family Community Covenant, adopted this year in Conception Bay South, Newfoundland. A residential inpatient program was opened at Ste Anne’s Hospital in 2010. Most recently, VAC is currently deploying a national monitoring and reporting system to improve the mental health treatment outcomes of Veterans seen in the OSI clinics.

VAC has established and nurtures key collaborations and partnerships with:

- Other federal departments such as Correctional Services Canada, Human Resources and Skills Development Canada, Royal Canadian Mounted Police and the Mental Health Commission of Canada.
- Professional associations such as Canadian Psychological Association, the Canadian Psychiatric Association and the College of Family Physicians of Canada.

- National mental health organizations such as Canadian Mental Health Association, Centre for Addictions and Mental Health.
- Mental health researchers in Canadian universities, and the Canadian Institute for Military and Veteran Health Research.
- International bodies including the U.S. Veterans Health Administration, the Australian Centre for Posttraumatic Mental Health, and the International Society for Traumatic Stress.

VAC is leading innovative research in Veterans' mental health. VAC is collaborating with a university on workplace reintegration for Veterans with mental health problems. VAC's population health research studies, like this report from the 2010 *Survey on Transition to Civilian Life,* continue to shed light into many aspects of the mental health of CF Veterans, providing evidence necessary to design and test programs and policies. VAC developed and implemented an evidence-based pathways framework for suicide prevention in Veterans. VAC continues to conduct research studies in Veterans' mental health, collaborating with researchers at Canadian universities through the Canadian Institute for Military and Veteran Health Research.

VAC has led a number of initiatives in knowledge exchange to pass along best practices in mental health care and rehabilitation for Veterans. OSI Clinic mental health professionals hold knowledge exchange meetings for health practitioners. VAC clinicians wrote a series of papers on mental health for the medical journal *Canadian Family Physician*, available to all family physicians and general practitioners in Canada. VAC researchers present the results of mental health studies at the annual Military and Veteran Health Research Forum hosted by the Institute, and other professional meetings.

VAC works closely with Veterans and their families to identify and better understand the mental health needs of Veterans and their families. As a result, today's Veterans and their families have access to a broad range of mental health services and supports across many determinants of health that did not exist before. All the new programs and services put in place in recent years by VAC, DND and CF will continue to bear fruit as more Veterans take advantage of them.

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Appendix 1. Prevalences of mental health conditions for characteristics of the study population.

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
STCL Study Population Totals		23.6	76.4	100.0%
Client Status	*NVC Clients*	*59.9*	*40.1*	*100.0%*
	DP Clients	*40.2*	*59.8*	*100.0%*
	All VAC Clients	44.8	55.2	100.0%
	Non-Clients	12.8	87.2	100.0%
Age groups by age at release from service	≤ 19 Years	10.1*	89.9	100.0%
	20-29	15.4	84.6	100.0%
	30-39	33.2	66.8	100.0%
	40-49	28.8	71.2	100.0%
	50-59	13.5	86.5	100.0%
	60-69	23.0*	77.0*	100.0%
Age groups by age at survey	≤ 19 Years	0.0*	0.0*	100.0%
	20-29	13.9	86.1	100.0%
	30-39	21.0	79.0	100.0%
	40-49	32.4	67.6	100.0%
	50-59	23.9	76.1	100.0%
	60-69	10.0	90.0	100.0%
Gender	Male	22.3	77.7	100.0%
	Female	32.9	67.1	100.0%
Enrollment Era	1960s	9.4	90.6	100.0%
	1970s	22.5	77.5	100.0%
	1980s	32.4	67.6	100.0%
	1990s	27.0	73.0	100.0%
	2000s	14.5	85.5	100.0%
Release Year	1998	16.1	83.9	100.0%
	1999	24.2	75.8	100.0%
	2000	17.1	82.9	100.0%
	2001	21.6	78.4	100.0%
	2002	23.0	77.0	100.0%
	2003	26.5	73.5	100.0%
	2004	34.8	65.2	100.0%
	2005	25.4	74.6	100.0%
	2006	24.6	75.4	100.0%
	2007	21.5	78.5	100.0%
Marital status time of survey	Married/Commonlaw	22.7	77.3	100.0%
	Widowed/Separated/Divorced	41.4	58.6	100.0%
	Single/Never married	23.3	76.7	100.0%
Length of Service	< 2 years	11.1	88.9	100.0%
	2 to 9 years	23.3	76.7	100.0%
	10 to 19 years	45.3	54.7	100.0%
	≥ 20 years	22.3	77.7	100.0%

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
STCL Study Population Totals		23.6	76.4	100.0%
Release Type[B]	Involuntary	24.9	75.1	100.0%
	Medical	53.9	46.1	100.0%
	Voluntary	12.8	87.2	100.0%
	Retirement Age	8.6*	91.4	100.0%
	Service Complete	19.4	80.6	100.0%
Rank[B]	Officers	10.1	89.9	100.0%
	Junior Officers	12.7	87.3	100.0%
	Cadets	11.9*	88.1	100.0%
	Senior NCM	23.5	76.5	100.0%
	Junior NCM	37.3	62.7	100.0%
	Privates	17.8	82.2	100.0%
	Recruits	14.6	85.4	100.0%
Education at time of survey	Less than high school	29.3	70.7	100.0%
	High school	24.1	75.9	100.0%
	Post-secondary	22.4	77.6	100.0%
Perceived Health	Very good or excellent	10.2	89.8	100.0%
	Good	27.3	72.7	100.0%
	Fair or poor	60.4	39.6	100.0%
Perceived mental health	Very good or excellent	7.4	92.6	100.0%
	Good	35.5	64.5	100.0%
	Fair or poor	83.2	16.8	100.0%
Satisfaction with Life	Satisfied or very satisfied	16.9	83.1	100.0%
	Neither satisfied nor dissatisfied	47.6	52.4	100.0%
	Dissatisfied or very dissatisfied	75.8	24.2	100.0%
Stress in your life	Not at all or not very stressful	10.3	89.7	100.0%
	A bit stressful	22.8	77.2	100.0%
	Extremely or quite a bit stressful	47.8	52.2	100.0%
	Total	10.2	89.8	100.0%
SF-12 Quality of Life PCS (Physical)	SF-12 0-9	0.0*	0.0*	100.0%
	SF-12 10-19	44.4	55.6	100.0%
	SF-12 20-29	56.0	44.0	100.0%
	SF-12 30-39	42.5	57.5	100.0%
	SF-12 40-49	26.5	73.5	100.0%
	SF-12 50+	11.8	88.2	100.0%
SF-12 Quality of Life MCS (Mental)	SF-12 0-9	0.0*	0.0*	100.0%
	SF-12 10-19	92.1	7.9*	100.0%
	SF-12 20-29	86.9	13.1*	100.0%

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
STCL Study Population Totals		23.6	76.4	100.0%
	SF-12 30-39	67.1	32.9	100.0%
	SF-12 40-49	39.2	60.8	100.0%
	SF-12 50+	10.1	89.9	100.0%
Chronic Health Conditions	***No Conditions***	0.0*	100.0	100.0%
	Physical, All	31.0	69.0	100.0%
	Hearing Problems	35.3	64.7	100.0%
	Arthritis	39.0	61.0	100.0%
	Back problems	36.6	63.4	100.0%
	Pain/discomfort always	37.6	62.4	100.0%
	Pain/discomfort reoccur	31.0	69.0	100.0%
	Asthma	42.3	57.7	100.0%
	COPD	47.1	52.9	100.0%
	Diabetes	31.3	68.7	100.0%
	Cancer	23.7*	76.3*	100.0%
	Bowel disorders	55.8	44.2	100.0%
	Obesity	29.5	70.5	100.0%
	Mental, All	100.0	0.0	100.0%
	Mood disorders	100.0	0.0	100.0%
	Depression or Anxiety	100.0	0.0	100.0%
	PTSD	100.0	0.0	100.0%
	Anxiety Disorder	100.0	0.0	100.0%
Comorbidity	Physical & Mental Health	100.0	0.0	100.0%
	Triad: MSD & Pain or Discomfort & Mental Health	100.0	0.0	100.0%
Disability: Participation and Activity Limitation	Needs help at least one task	59.9	40.1	100.0%
	Does not need help	16.1	83.9	100.0%
Suicidality	12-month suicidal ideation	75.8	24.2	100.0%
Social Support	Low	40.4	59.6	100.0%
	Not low	15.0	85.0	100.0%
Mastery	Low	88.1	11.9*	100.0%
	Middle	27.4	72.6	100.0%
	High	9.9	90.1	100.0%
Heavy drinker	≥ 5 drinks one occasion, ≥ 12 times a year	25.1	74.9	100.0%
Sense of Community Belonging	Very or somewhat strong	16.5	83.5	100.0%
	Very or somewhat weak	33.9	66.1	100.0%
Adjustment to Civilian Life	Very or moderately easy	11.4	88.6	100.0%
	Neither difficult nor easy	25.1	74.9	100.0%
	Very or moderately difficult	52.4	47.6	100.0%
Income	Below Low Income Measure	35.5	64.5	100.0%
Main activity 12 months after release	Worked in the Reserve Force	17.4*	82.6	100.0%

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
STCL Study Population Totals		23.6	76.4	100.0%
	Worked at job/ran business	16.4	83.6	100.0%
	Retired not looking for work	20.9	79.1	100.0%
	Attended school or training	27.5	72.5	100.0%
	Looked for work	27.0	73.0	100.0%
	Cared/nurtured family	25.7*	74.3	100.0%
	Disabled or on disability	74.9	25.1	100.0%
	Other	26.7*	73.3	100.0%
Main activity 12 months before survey	Worked in the Reserve Force	15.2*	84.8*	100.0%
	Worked at job/ran business	19.4	80.6	100.0%
	Retired not looking for work	22.3	77.7	100.0%
	Attended school or training	24.6	75.4	100.0%
	Looked for work	20.4*	79.6	100.0%
	Cared/nurtured family	24.9*	75.1	100.0%
	Disabled or on disability	76.7	23.3	100.0%
	Other	25.1*	74.9	100.0%
Health System	Prescription Drug Insurance	24.0	76.0	100.0%
	Dental Insurance	23.7	76.3	100.0%
	Eye Glasses Insurance	23.7	76.3	100.0%
	Regular Medical Doctor	25.1	74.9	100.0%

Notes: A – Excluded unknown category.
B – See Thompson et al 2011.
* Unreliable population estimate, sample size < 30.

Appendix 2. Mental health condition frequency distributions within variables.

For example, 36.1% of those with mental health conditions were non-clients, whereas 75.7% of those who did not have mental health conditions were non-clients. Similarly, 62.2% of those with mental health conditions had back problems, compared to 33.2% of those who did not have mental health conditions.

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
Client Status	*NVC Clients*	*19.8*	*4.1*	*7.8*
	DP Clients	*44.1*	*20.2*	*25.8*
	All VAC Clients	63.9	24.3	33.6
	Non-Clients	36.1	75.7	66.4
	Total	*100.0%*	*100.0%*	*100.0%*
Age groups by age at release from service	≤ 19 Years	1.7*	4.6	3.9
	20-29	16.2	27.4	24.8
	30-39	30.7	19.1	21.8
	40-49	43.2	32.9	35.3
	50-59	8.0	15.7	13.9
	60-69	0.3*	0.3*	0.3*
	Total	*100.0%*	*100.0%*	*100.0%*
Age groups by age at survey	≤ 19 Years	0.0*	0.0*	0.0*
	20-29	9.3	17.8	15.8
	30-39	16.4	19.0	18.4
	40-49	46.4	29.8	33.7
	50-59	24.5	24.1	24.2
	60-69	3.4	9.3	7.9
	Total	*100.0%*	*100.0%*	*100.0%*
Gender	Male	83.5	89.6	88.2
	Female	16.5	10.4	11.8
	Total	*100.0%*	*100.0%*	*100.0%*
Enrollment Era	1960s	3.0	9.0	7.6
	1970s	23.2	24.6	24.3
	1980s	43.5	27.9	31.6
	1990s	16.8	14.0	14.6
	2000s	13.5	24.5	21.9
	Total	*100.0%*	*100.0%*	*100.0%*
Release Year	1998	6.4	10.2	9.3
	1999	9.0	8.7	8.7
	2000	6.6	9.9	9.1
	2001	7.3	8.2	8.0
	2002	8.9	9.2	9.1
	2003	10.4	8.9	9.2
	2004	14.4	8.3	9.7
	2005	11.4	10.3	10.6
	2006	13.5	12.8	13.0
	2007	12.1	13.7	13.3

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
	Total	*100.0%*	*100.0%*	*100.0%*
Marital status time of survey	Married/Commonlaw	72.7	76.4	75.6
	Widowed/Separated/Divorced	16.0	7.1	9.2
	Single/Never married	11.3	16.5	15.3
	Total	*100.0%*	*100.0%*	*100.0%*
Length of Service	< 2 years	8.3	20.4	17.5
	2 to 9 years	16.3	16.6	16.5
	10 to 19 years	25.3	9.4	13.2
	≥ 20 years	50.1	53.6	52.8
	Total	*100.0%*	*100.0%*	*100.0%*
Release Type[B]	Involuntary	4.8	4.5	4.6
	Medical	55.9	14.7	24.4
	Voluntary	30.9	65.0	57.0
	Retirement Age	2.6*	8.4	7.0
	Service Complete	5.8	7.4	7.0
	Total	*100.0%*	*100.0%*	*100.0%*
Rank[B]	Officers	3.5	9.5	8.0
	Junior Officers	4.3	9.0	7.9
	Cadets	2.3*	5.2	4.5
	Senior NCM	28.2	28.2	28.2
	Junior NCM	47.8	24.7	30.1
	Privates	4.9	6.9	6.5
	Recruits	9.1	16.4	14.7
	Total	*100.0%*	*100.0%*	*100.0%*
Education at time of survey	Less than high school	8.4	6.2	6.8
	High school	41.6	40.4	40.7
	Post-secondary	50.0	53.4	52.6
	Total	*100.0%*	*100.0%*	*100.0%*
Perceived Health	Very good or excellent	24.1	65.5	55.8
	Good	30.9	25.4	26.7
	Fair or poor	45.0	9.1	17.5
	Total	*100.0%*	*100.0%*	*100.0%*
Perceived mental health	Very good or excellent	20.9	80.6	66.5
	Good	29.1	16.3	19.3
	Fair or poor	50.1	3.1	14.2
	Total	*100.0%*	*100.0%*	*100.0%*
Satisfaction with Life	Satisfied or very satisfied	61.0	92.2	84.9
	Neither satisfied nor dissatisfied	16.5	5.6	8.2
	Dissatisfied or very dissatisfied	22.5	2.2	7.0
	Total	*100.0%*	*100.0%*	*100.0%*
Stress in your life	Not at all or not very stressful	16.0	43.1	36.8
	A bit stressful	40.8	42.4	42.0

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
	Extremely or quite a bit stressful	43.2	14.5	21.2
	Total	*100.0%*	*100.0%*	*100.0%*
SF-12 Quality of Life PCS (Physical)	SF-12 0-9	0.0*	0.0*	0.0*
	SF-12 10-19	2.9	1.1	1.6
	SF-12 20-29	22.6	5.5	9.5
	SF-12 30-39	25.6	10.7	14.2
	SF-12 40-49	20.7	17.6	18.3
	SF-12 50+	28.1	65.0	56.3
	Total	*100.0%*	*100.0%*	*100.0%*
SF-12 Quality of Life MCS (Mental)	SF-12 0-9	0.0*	0.0*	0.0*
	SF-12 10-19	3.1	0.1*	0.8
	SF-12 20-29	20.3	0.9*	5.5
	SF-12 30-39	24.5	3.7	8.6
	SF-12 40-49	20.9	10.0	12.6
	SF-12 50+	31.1	85.2	72.5
	Total	*100.0%*	*100.0%*	*100.0%*
Chronic Health Conditions	***No Conditions***	0.0*	40.1	30.6
	Physical, All	87.2	59.9	66.3
	Hearing Problems	41.7	23.5	27.8
	Arthritis	38.9	18.7	23.4
	Back problems	62.2	33.2	40.1
	Pain/discomfort always	65.1	33.4	40.9
	Pain/discomfort reoccur	73.9	50.5	56.0
	Asthma	10.4	4.4	5.8
	COPD	5.9	2.3	3.2
	Diabetes	7.3	4.9	5.5
	Cancer	1.2*	1.2*	1.2
	Bowel disorders	16.3	4.0	6.9
	Obesity	35.5	26.1	28.3
	Mental, All	100.0	0.0	23.6
	Mood disorders*	13.7	0.0	3.2
	Depression or Anxiety	86.2	0.0	20.3
	PTSD	47.3	0.0	11.0
	Anxiety Disorder	42.8	0.0	10.0
Comorbidity	Physical & Mental Health	87.2	0.0	20.5
	Triad: MSD & Pain or Discomfort & Mental Health	67.1	0.0	15.8
Disability: Participation and Activity Limitation	Needs help at least one task	43.4	8.9	17.1
	Does not need help	56.6	91.1	82.9
	Total	*100.0%*	*100.0%*	*100.0%*
Suicidality	12-month suicidal ideation	18.8	1.8	5.8
Social Support	Low	56.7	25.4	32.7
	Not low	43.3	74.6	67.3

Variable	Category	Mental Health Conditions (% of STCL Population)		
		Yes	No	Total
	Total	*100.0%*	*100.0%*	*100.0%*
Mastery	Low	7.8	0.3*	2.1
	Middle	79.3	64.0	67.5
	High	12.9	35.7	30.4
	Total	*100.0%*	*100.0%*	*100.0%*
Heavy drinker	≥ 5 drinks one occasion, ≥ 12 times a year	27.2	25.1	25.6
Sense of Community Belonging	Very or somewhat strong	41.1	64.4	58.9
	Very or somewhat weak	58.9	35.6	41.1
Adjustment to Civilian Life	Very or moderately easy	29.9	71.6	61.8
	Neither difficult nor easy	13.7	12.6	12.9
	Very or moderately difficult	56.4	15.8	25.3
	Total	*100.0%*	*100.0%*	*100.0%*
Income	Below Low Income Measure	9.8	5.2	6.3
Main activity 12 months after release	Worked in the Reserve Force	2.7*	3.9	3.7
	Worked at job/ran business	36.8	57.9	52.9
	Retired not looking for work	9.1	10.6	10.3
	Attended school or training	17.5	14.2	14.9
	Looked for work	8.8	7.4	7.7
	Cared/nurtured family	1.8*	1.6	1.7
	Disabled or on disability	20.6	2.1	6.5
	Other	2.7*	2.2	2.3
	Total	*100.0%*	*100.0%*	*100.0%*
Main activity 12 months before survey	Worked in the Reserve Force	0.5*	0.8*	0.7*
	Worked at job/ran business	61.6	78.7	74.7
	Retired not looking for work	8.6	9.2	9.1
	Attended school or training	3.9	3.7	3.7
	Looked for work	2.0*	2.5	2.4
	Cared/nurtured family	2.0*	1.8	1.9
	Disabled or on disability	19.9	1.9	6.1
	Other	1.5*	1.4	1.5
	Total	*100.0%*	*100.0%*	*100.0%*
Health System	Prescription Drug Insurance	93.7	91.5	92.0
	Dental Insurance	88.1	86.6	87.0
	Eye Glasses Insurance	85.8	84.0	84.4
	Regular Medical Doctor	87.4	80.4	82.0

Notes: A – Excluded unknown category.
B – See Thompson et al 2011.
* Unreliable population estimate, sample size < 30.