



# Canadian Armed Forces Veterans: Mental Health Findings from the 2013 Life After Service Survey

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# Canadian Armed Forces Veterans: Mental Health Findings from the 2013 Life After Service Survey

## Contents

<b>Executive Summary .....</b>	<b>6</b>
ES1. Overview of Findings .....	6
ES2. Extent of Mental Health Problems.....	8
ES3. Determinants and Impacts of Mental Health Conditions .....	9
ES4. Implications.....	11
ES4. Interpretation Guidance .....	16
ES5. Next Steps .....	16
<b>Sommaire.....</b>	<b>17</b>
S1. Aperçu des conclusions À FAIRE.....	17
S2. Étendue des problèmes de santé mentale .....	19
S3. Déterminants et incidences des problèmes de santé mentale .....	21
S4. Répercussions .....	23
S4. Pistes d'interprétation.....	30
S5. Prochaines étapes.....	30
<b>1. Introduction .....</b>	<b>31</b>
<b>2. Methods .....</b>	<b>32</b>
2.1 Conceptual Framework.....	32
2.2 Definitions of Veteran and VAC Client .....	33
2.3 Survey Methodology .....	33
2.4 Statistical Methods.....	34
<b>3 Extent of Mental Health Problems .....</b>	<b>35</b>
3.1 Prevalence of Mental Health Problems – Single Measures.....	36
3.1.1 Diagnosed Mental Health Conditions (MHC) .....	36
3.1.2 K10 Measure of Psychological Distress (K10) .....	36
3.1.3 Self-Rated Mental Health (SRMH) .....	37
3.1.4 SF-12 Mental Component Summary (MCS) .....	37
3.1.5 Severity of Mental Health Problems .....	38
3.1.6 Summary of Single Measures for Mental Health Problems.....	38
3.1.6.1 Low Prevalence of Mental Health Problems in Class A/B Reservists.....	39
3.1.6.2 Reserve Class C are more like Regular Force Veterans.....	40
3.1.7 Comparison with the Canadian General Population .....	41
3.2 Prevalence of Mental Health Problems – Combinations of Measures .....	45
3.2.1 Diagnosed Mental Health Conditions versus K10 Psychological Distress .....	45
3.2.1.1 K10 and PTSD.....	46

3.2.2 Self-Rated Mental Health Associations .....	47
3.2.2.1 Association between Diagnosed Conditions and Self-Rated Mental Health .....	47
3.2.2.2 Association with Between K10 and SRMH.....	47
3.2.2.3. Interpretation of SRMH .....	48
3.2.3 SF-12 Diagnosed Mental Health Conditions versus Mental Component Summary (MCS) .....	49
3.2.4 Diagnosed PTSD versus PC-PTSD Screener .....	50
3.2.5 Summary for Combinations of Measures for Mental Health Problems .....	51
<b>4. Determinants and Impacts of Mental Health Conditions .....</b>	<b>51</b>
4.1 Socioeconomic Characteristics .....	52
4.1.2 Age .....	53
4.1.3 Gender: Mental Health in Men and Women.....	54
4.1.4 Marital Status .....	55
4.1.5 Education.....	55
4.1.6 Employment.....	56
4.1.7 Income .....	57
4.1.8 Family Structure .....	58
4.2 Military Characteristics.....	59
4.2.1 Year of Enrolment .....	59
4.2.3 Release Type.....	60
4.2.4 Length of Service .....	61
4.2.5 Rank at Release.....	61
4.2.6 Element (Service Branch) .....	62
4.3 Health Risks: Drinking and Smoking.....	62
4.4 Comorbidity of Mental and Physical Health Conditions .....	63
4.4.1 Comorbidity of Diagnosed Mental Health Conditions.....	64
4.4.2 Comorbidity of Physical and Mental Health Problems .....	64
4.4.2.1 Associations with Specific Types of Diagnosed Physical Conditions.....	65
4.4.2.2 Associations of Physical Health Comorbidity with K10 and SRMH.....	66
4.5 Self-Reported Attribution to Military Service.....	67
4.5.1 Chronic Health Conditions.....	67
4.5.2 PTSD Attribution to Service.....	68
4.6 Health-Related Quality of Life (HRQoL) .....	68
4.7 Disability .....	69
4.7.1 Health-Related Restriction of Activity in Major Life Domains .....	70
4.7.2 Needing Help with Activities of Daily Living .....	70
4.7.3 Activity Limitation Owing to Pain/Discomfort.....	71
4.7.4 Degree of Interference of K10 Psychological Distress Feelings with Life or Activities.....	71
4.8 Stress, Coping and Satisfaction.....	72
4.9 Social Support .....	73
4.10 Suicidality .....	75
4.11 Associations between K10, SRMH and Four Potential Adverse Impacts .....	78
4.11.1 Associations with Four Potential Impacts .....	78
4.11 Service Utilization .....	79
4.11.1 Health Care.....	79

4.11.1.1 Extended Health Insurance.....	79
4.11.1.2 Regular Medical Doctor .....	79
4.11.1.3 Contacts with Health Professionals.....	80
4.11.1.4 Home Care .....	80
4.11.1.5 Perceived Unmet Health Care Need.....	80
4.11.2 Veterans Using VAC Services.....	83
4.11.2.1 VAC Service Use by Program.....	83
4.11.2.2 Disability Benefits do not reflect the Health Status of VAC Clients.....	85
4.11.2.3 Transition Interviews: Hints about Mental Health Problems across Transition...85	
4.12 Adjustment to Civilian Life.....	88
<b>5. Discussion .....</b>	<b>89</b>
6.1 Strengths .....	89
6.2 Limitations .....	89
<b>6. References.....</b>	<b>90</b>
<b>7. Appendices.....</b>	<b>99</b>
Appendix 1. Definitions of survey measures. ....	99
Appendix Figure 1. Prevalence of having mental health conditions by sociodemographic and military characteristics. ....	103
Appendix Table 1. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by sociodemographic and military characteristics.....	105
Appendix Figure 2. Prevalence of having mental health conditions, by health indicators. ....	106
Appendix Table 2. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by health indicators. ....	108
Appendix Figure 3. Prevalence of having mental health conditions, by stress, coping and satisfaction indicators. ....	109
Appendix Table 3. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by stress, coping and satisfaction indicators.....	110
Appendix Figure 4. Prevalence of having mental health conditions, by other impacts and determinants of mental health.....	111
Appendix Table 4. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by other impact and determinant indicators. ....	113

# Mental Health Findings from the 2013 Life After Service Survey

## Executive Summary

This document reports analysis of the mental health findings from the 2013 Life After Service Survey of Canadian Armed Forces Veterans. The goal was to produce a comprehensive reference document to inform policies, programs, services and research intended to support the mental health and well-being of CAF Veterans after leaving service. The objectives were to describe need in terms of the prevalence and severity of mental health problems, identify characteristics of subgroups with and without mental health problems, describe service utilization by Veterans with mental health problems and identify possible implications of the findings for policies, programs and services. This first phase of the mental health analysis lays the foundation for part two: more precise estimates of the extent of mental health problems and multivariable modelling to identify factors that identify potentially vulnerable subgroups and potentially protective factors in CAF Veterans.

The 2013 survey (LASS 2013) extended the LASS 2010 survey by including Primary Reserve Force Veterans for the first time, and by including Regular Force Veterans who had released from 1998 to 2012. LASS 2010 surveyed Regular Force Veterans who released from 1998-2007. Like LASS 2010, LASS 2013 was a computer-assisted telephone interview survey, conducted by Statistics Canada for Veterans Affairs Canada (VAC) and the Department of National Defence (DND) in February-March 2013. The survey sampled former Primary Reserve Force personnel with Class A/B and C service<sup>1</sup> who released from service 01 January 2003 to 31 August 2012 and Regular Force personnel who released 01 January 1998 to 31 August 2012:

1. *Reserve Force Class A/B.* Veteran who was a Primary Reserve Force member with any Class B temporary full-time service in addition to Class A service<sup>1</sup>.
2. *Reserve Force Reserve Class C:* Veteran who was a Primary Reserve Force member with any Reserve Class C service in addition to Class A and possibly Class B service. Since 2002, Reserve Class C service was only authorized for those deployed on operations, domestically or internationally.
3. *Regular Force.* Veteran who was a member of the Regular Force. Some in this category also had service in the Reserve Force.

## ES1. Overview of Findings

*Most Were Doing Well.* Most CAF Veterans who released from service since 1998 had good mental health. The majority had very good to excellent self-rated mental health, did not have significant psychological distress, did not have diagnosed mental health conditions, and were not experiencing significant life stress.

*Some had Mental Health Problems.* The findings support ongoing enhancements of mental health services for CAF Veterans. Mental health conditions were much more prevalent in Regular Force and deployed Reserve Veterans than in the Canadian general population matched for age and sex. Non-deployed Reserve Veterans were like other young adult Canadians. The prevalence of diagnosed mental conditions was 24% in Regular Force Veterans, 17% in deployed (Class C) Reserve Veterans, and 9% in non-deployed (Class A/B)

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<sup>1</sup> Ex-service CAF personnel with Class A-only service were not surveyed. Class A-only Reserve Force personnel are members of the Primary Reserve Force without Class A/B or Reserve Class C service.

Reserve Veterans. The survey also included three measures of current mental health: 16% of Regular Force Veterans had fair/poor self-rated mental health, 13% had moderate or severe psychological distress, and 17% had markedly diminished mental health-related quality of life using the SF-12 mental component summary (MCS).

*Impacts and Determinants of Mental Health Problems.* These findings support VAC's approach to supporting good mental well-being by providing access to services across a variety of determinants of health. Mental health problems in these Veterans were associated with multiple biopsychosocial factors including socioeconomic characteristics, military characteristics, measures of stress, coping and satisfaction, physical health status and comorbidity, and disability. Most Veterans with diagnosed mental health conditions had co-occurring chronic physical conditions.

*Characteristics of Subgroups with Higher Prevalence of Mental Health Problems.* The findings identified characteristics of subgroups more likely to have mental health problems. The likelihood of having a diagnosed mental health condition was highest in middle-aged versus younger and older Veterans; women; the widowed, separated and divorced; education other than post-secondary degree; unemployed and not working/not looking; those with lower income; and those who felt they had a difficult adjustment to civilian life. In Regular Force Veterans, the odds of having diagnosed mental health conditions were significantly elevated and highest in junior followed by senior non-commissioned members, 10-19 years of service (interrupted careers), and involuntary followed by medical release. About half of Veterans with diagnosed mental conditions had two or more mental conditions. Disability measured as activity limitations was more prevalent in Veterans with diagnosed mental health conditions than in those without. Mental health conditions were associated with low mastery, weak sense of community belonging, life stress, work stress, dissatisfaction and low social support.

*Suicide Prevention.* The findings support suicide prevention activities and identify subgroups more likely to be on suicidal pathways. Suicidal ideation was most prevalent in those with diagnosed mental health conditions and so was particularly prevalent among VAC clients. Suicidal ideation was also prevalent in those aged 40-49; women; education other than university degree; unemployed and unable to work; low income; medical release; junior NCMs including privates; physical and mental health conditions particularly those with both and with higher degrees of comorbidity; disability; not satisfied with life; home care and unmet needs for either type of health care. Suicidal ideation was more prevalent in VAC clients, consistent with the higher prevalence of health conditions in Veterans participating in VAC programs.

*Transition to Civilian Life.* The findings support provision of services for Veterans with mental health problems in transition to civilian life. Difficult adjustment to civilian life was much more prevalent in those with mental health conditions at the time of the survey than in those without (Regular Force 62% vs. 26%, Reserve Class C 59% vs. 17%). Of those with difficult adjustment, more than half (59%) of Regular Force Veterans had mental health conditions, as did nearly half (43%) of Reserve Class C Veterans. There is a gap in research on mental health influences at the time of transition.

*Veterans Participating in VAC Programs.* VAC staff serve Veterans with the most complex health problems. The majority (71%) of Regular Force Veterans with mental health conditions were participating in VAC programs, as were about half (49%) of Reserve Class C Veterans with mental health conditions. The majority with comorbid mental and physical health conditions, a measure of case complexity, were participating in VAC programs.



## ES2. Extent of Mental Health Problems

*Measures of Mental Health Problems.* In this report, the phrase "mental health problem" is broadly inclusive of (1) any of the three diagnosed mental health conditions asked about in this survey, (2) other diagnosed psychological conditions not asked about in the survey, and (3) symptoms but no diagnoses. Five brief measures of mental health problems were used to capture dimensions of mental health: self-reported health conditions diagnosed by a health professional lasting 6 months or more, the Kessler K10 measure of psychological distress, a question on self-rated mental health, the SF-12 mental component summary (MCS) and the PC-PTSD (Primary Care – Posttraumatic Stress Disorder) screener. The latter four measures captured past month or current mental health status. Of the four stages in the CAF continuum of mental health -- healthy, reacting, injured and ill – these five indicators measure the latter three stages<sup>2</sup>.

*Most are Doing Well.* The majority of Veterans in all three groups had good mental health. Most did not have any of the common diagnosed mental conditions: 76% of Regular Force, 83% of Reserve Class C (deployed) and 91% of Reserve Class A/B (non-deployed) Veterans. The majority had very good/excellent self-rated mental health: 62% of Regular Force, 67% of Reserve Class C and 74% of Reserve Class A/B Veterans.

*Prevalence of Diagnosed Conditions.* The prevalence of diagnosed conditions (mood disorders, anxiety disorders or PTSD) was 24% in Regular Force, 17% in Reserve Class C (deployed) Reserve Force and 9% in Reserve Class A/B (non-deployed) Reserve Force Veterans. Regular Force and Reserve Class C Veterans had much higher prevalences of mood disorders, anxiety disorder and particularly PTSD than age-gender matched general Canadian population, and the prevalences were higher than reported for serving CAF personnel. Reserve Class A/B Veterans had much lower prevalences of mental health problems and so were much like similarly aged Canadians (39% had released as recruits). Prevalences of mental health problems were so low that further analysis was limited to Regular Force and Class C Reservists.

*Prevalence of Current Mental Health Problems.* Prevalences of each of the measures of current mental health status were lower than the prevalences of diagnosed conditions using cutoffs reflecting severe mental health states: 16% of Regular Force Veterans had fair/poor self-rated mental health, 13% had moderate or severe psychological distress using the K10 measure, and 17% had markedly diminished mental health-related quality of life using the SF-12 mental component summary (MCS). Using broader cutoffs to include less severe recent mental health status, the prevalence of good/fair/poor self-rated health was 39%, of mild, moderate and severe mental disorders using the K10 was 21%, and of below-norm mental health-related quality of life (SF-12 MCS < 50) was 33%.

*Prevalence of Combinations of Diagnosed Mental Conditions and Current Mental Health Problems.* Prior civilian and military population studies have established that there is a burden of impactful mental health problems larger than captured by mental health diagnoses alone. Measures of current or past month mental health problems did not fully overlap with diagnosed mental conditions. Those who did not report one of the diagnosed conditions but had mental health problems by the other four measures might have had one of the diagnosed conditions but did not report it on the survey, or had other diagnosed mental health conditions, or had undiagnosed or subthreshold symptoms.

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<sup>2</sup> <http://www.forces.gc.ca/en/caf-community-health-services-r2mr-deployment/mental-health-continuum-model.page> viewed 20 January 2015.



Estimates of the prevalence of mental health problems using combinations of diagnosed conditions and other measures ranged 25-29% using cutoffs designed to capture more significant mental health states and 38-41% using cutoffs including Veterans with less severe mental health problems. For example, the proportion with diagnosed conditions or fair/poor SRMH (self-rated mental health) was 26%, while the proportion with diagnosed conditions and good/fair/poor SRMH was 41%.

*Severity of Mental Health Problems.* Mental health problems range in severity. Of those with diagnosed mental conditions:

- 30% had severe degrees of psychological distress using the K10 measure (7% of the population), while 34% had low K10 psychological distress scores meeting the "likely well" category (K10 score < 10).
- About half (55%) had very low mental health-related quality of life (MCS < 40) (13% of the population), while 45% had better HRQoL ( $\geq 40$ ).
- About half (55%) had fair/poor self-rated health (13% of the population), while 13% were in the excellent/very good category.

### **ES3. Determinants and Impacts of Mental Health Conditions**

Mental health problems in these Veterans were associated with a variety of biopsychosocial factors including socioeconomic characteristics; military characteristics; measures of stress, coping and satisfaction; physical health status and comorbidity; and disability. However LASS 2013, like all surveys of CAF serving personnel and Veterans, was a point in time snapshot (cross-sectional survey). So while it is possible to identify statistical associations between mental health problems and various factors, conclusions cannot be drawn about whether a causal relationship existed. Mental health problems can impact Veterans and families in a variety of ways, including ease of adjustment to civilian life, social relationships, employment, income, quality of life, disability, suicidality and resource utilization. However the same factors can also act as determinants of mental health, for example by contributing to the onset or chronicity of mental health problems.

*Socioeconomic Characteristics.* The likelihood of having a mental health condition was highest in middle aged versus younger and older Veterans; women; the widowed, separated and divorced; education other than post-secondary degree; unemployed and not working/not looking; and those with lower income.

*Military Characteristics.* In Regular Force Veterans, the odds of having diagnosed mental health conditions were significantly elevated and highest in junior followed by senior non-commissioned members, 10-19 years of service (interrupted careers), and involuntary followed by medical release. There did not appear to be an association with service branch.

*Drinking and Smoking.* The survey contained no data on substance use disorders and addiction, but two well-established health risks were assessed: alcohol drinking and smoking. Prevalence of mental health conditions was above average for daily smokers but not for heavy drinkers. The odds of having any of the three diagnosed mental health conditions was 2 times higher for daily smokers with mental health conditions compared to non-smokers but was not elevated for heavy drinkers with mental health conditions compared to those were not heavy drinkers. Heavy drinking is not a direct measure of addiction.

*Physical Health.* Comorbidity is the co-occurrence of two or more health problems in the same

person. Comorbidity and especially multimorbidity (3 or more conditions) is correlated with poorer quality of life, more disability, greater case complexity and greater use of health services. About half of Veterans with diagnosed mental conditions had two or more mental conditions: 55% of Regular Force and 47% of Reserve Class C. Most Veterans with mental conditions had co-occurring physical conditions: 90% in Regular Force, 92% in Reserve Class C and 63% in Reserve Class A/B Veterans. Conversely, 30% of Regular Force Veterans with physical conditions had mental conditions, as did 24% of Reserve Class C and 12% of Reserve Class A/B Veterans.

*Disability.* All four types of activity limitations measured in LASS 2013 were more prevalent in Veterans with diagnosed mental health conditions than in those without. The odds of having mental health conditions were considerably higher in those with activity limitations, ranging from 4 and 5 (Reserve Class C and Regular Force) times higher in those with activities limited by pain and discomfort; to 8 times higher for activity restriction in life domains; to 11 and 9 times higher for needing assistance with at least one ADL; and to 12 and 20 times higher for those with psychological distress that interfered with life. In interpreting these numbers it is important to recall that chronic physical health conditions co-occurred in the great majority of those with mental health conditions.

*Stress, Coping and Satisfaction.* All six measures of stress, coping and satisfaction were, not surprisingly, significantly correlated with the presence of diagnosed mental health conditions: higher odds of mental conditions in those with weak sense of community belonging, low mastery, dissatisfaction with life, high life stress, work stress past year in those at work in the past year, and dissatisfaction with main activity in the past year. Odds ratios for having mental disorders were highest for low mastery, dissatisfaction with life and having extreme/quite a bit of life stress.

*Social Support.* Veterans with diagnosed mental health conditions had lower mean perceived social support.

*Suicidal Ideation.* Past-year ideation was present in 5% (95% C.I. 4-7%) of Reserve Class C and 7% (6-8%) of Regular Force Veterans and was more prevalent in those participating in VAC programs. Suicidal ideation was most prevalent in those with diagnosed mental health conditions; and also prevalent in those aged 40-49; women; education other than university degree; unemployed and unable to work; low income; medical release; junior NCMs including privates; physical and mental health conditions particularly those with both and with higher degrees of comorbidity; disability; not satisfied with life; home care and unmet needs for either type of health care.

*Service Utilization.* Most Reserve Class C and Regular Force Veterans had extended health insurance (prescription drugs, dental care, eye glasses). Differences between those with and without mental health care conditions were slight. Most Reserve Class C and Regular Force Veterans had a regular medical doctor. Home care utilization was significantly more prevalent in those with mental health conditions than in those without. Mental health problems are common among Veterans using VAC services: 47% of Regular Force clients had one of the three diagnosed mental health conditions asked about in the survey<sup>3</sup> as did 50% of Reserve C clients.

*VAC Program Participation.* The majority (71%) of Regular Force Veterans with mental health conditions were participating in VAC programs, as were about half (49%) of Reserve Class C

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<sup>3</sup> Mood disorders, anxiety disorders or PTSD.

Veterans with mental health conditions. VAC staff work with Veterans who have the most complex health problems, measured as comorbidity of mental and physical health conditions. A significant proportion of clients in three key VAC programs had one of the three diagnosed mental conditions: 47% in the disability benefit program, 84% in the rehabilitation program and 60% in the Veterans Independence Program.

Much of the health status of VAC clients is not represented by administrative data: of those with any of the three diagnosed mental health conditions, about two thirds (65%) had VAC disability benefits for a psychiatric diagnosis while more than a third (35%) did not. About two-thirds of Regular Force Veterans with mental health problems identified in transition interviews prior to release had mental conditions in the survey; 63% of Regular Force personnel who released during 2006-12 had a transition interview, as did 12% of Reserve Class C Veterans.

*Adjustment to Civilian Life.* Of those with difficult adjustment, more than half (59%) of Regular Force Veterans had mental health conditions, as did nearly half (43%) of Reserve Class C Veterans. Difficult adjustment was much more prevalent in those with mental health conditions at the time of the survey than in those without (Regular Force 62% vs. 26%, Reserve Class C 59% vs. 17%).

## **ES4. Implications**

The table below summarizes implications in two areas: policy, programs and services on the one hand, and further research on the other. There are implications for both population health and individual care. The findings in this report inform further analysis of the LASS 2013 survey data to provide greater insight into the mental health and well-being of CAF Veterans and inform researchers planning new studies to close gaps in knowledge of mental health in Veterans.

### Implications of Mental Health Findings from LASS 2013.

Finding	Implications for Policy, Programs, Services	Implications for Research
Most Regular Force and Reserve Force Veterans were doing well in terms of employment, income, life satisfaction and mental health.	The majority of Veterans are well, countering the public misperception that most are not. Many with chronic health problems are living well.	Identify factors that promote good mental health in CAF Veterans.
The prevalence of mental health problems in Veterans was larger than in the general population.	Further supports the provision and enhancement of effective mental health care and rehabilitation services and social determinants of mental health.	Continued need for research into the determinants of mental health in military Veterans.
Reserve Class C (deployed) Veterans were more like Regular Force Veterans than non-deployed Reserve Veterans or the general population.	Deployed Reserve Veterans appear to require support services to the same extent as Regular Force Veterans.	The two groups could be combined for some analyses.
Reserve Class A/B Veterans on the whole were young and healthy with a relatively low burden of mental health problems. They had very low utilization of VAC services. More than a third (39%) released as recruits.	Class A/B Reservists generally require mental health supports to the same degree as similarly aged young adult Canadians in the general population.	Further studies could concentrate resources on deployed Reserve (Reserve Class C) and Regular Force Veterans.
Many with diagnosed conditions did not have significant current mental health problems (psychological distress, self-rated poor mental health or poor mental health-related quality of life).	Not all with diagnosed conditions require high levels of support services.	Use measures of current mental health status in conjunction with diagnosed conditions (mental illness) to measure population mental health problems.
Many with current mental health problems (psychological distress, self-rated poor mental health or poor mental health-related quality of life) did not have diagnosed conditions.	Some might have had unrecognized and undiagnosed conditions, others might have had subthreshold symptom states that nevertheless impact quality of life and could evolve into mental illness.	Further analysis using combinations of measures of mental health status will better clarify mental health service needs in CAF Veterans.
Since this was a cross-sectional study, fluctuations of mental health problem severity within individual life courses is unknown.	Difficult to target the provision of supports across the life course after service; importance of individualized services.	Longitudinal studies being planned will clarify the natural history of Veterans' mental health problems over their life courses.

<b>Finding</b>	<b>Implications for Policy, Programs, Services</b>	<b>Implications for Research</b>
Multiple socioeconomic characteristics and physical health conditions were associated with mental health problems in the Veterans in analyses.	Identifies CAF Veteran subgroups with higher rates of mental disorders. Supports programs and services that enhance Veterans' well-being by addressing multiple determinants of health, including both physical and mental health services and the social determinants (education, employment, income and social support).	Determine relative effectiveness of providing supports for socioeconomic determinants of health in managing mental health in Veterans. Multivariable analyses accounting for confounding would clarify the relative role of potential determinants and impacts of mental health problems in CAF Veterans.
Prevalences of mental health problems were higher in middle age groups than in younger or older Veterans.	Identifies age groups for targeting resources.	Longitudinal studies being planned will clarify changes in Veterans' mental health needs over their life courses.
Regular Force female Veterans were 1.6 times more likely than men to have one or more of the diagnosed mental conditions and more likely to have fair/poor self-rated mental health.	Identifies female Veterans as a group for targeted programming and attention in service delivery.	Samples sizes of women are low in military Veteran surveys, limiting conclusions that can be drawn about determinants of mental health in women Veterans.
Odds of having diagnosed mental conditions were highest in those with other than university degree education, not employed and low income.	Evidence for programs that enhance well-being through education, employment and income supports.	In studies of employment and income in CAF Veterans, consider mental health status and mental health-related activity limitations.
The odds of having mental health conditions were higher in non-commissioned members than officers.	There might be important differences in the types of supports required by NCMs as they transition to civilian life.	Better understand why mental health problems are more prevalent in CAF Veterans who released with non-commissioned ranks.
The odds of reporting a difficult adjustment to civilian life were ten times higher in Regular Force Veterans with diagnosed mental conditions at the time of the survey, and eight times higher in deployed Reserve Veterans.	Suggests the importance of promoting mental well-being in transition in promoting good mental health later in life.	Clarify the life course influences of mental health in CAF Veterans from transition to later in life.
There is a gap in research on mental health influences at the time of transition.	Evidence for transition supports is largely anecdotal.	Need for research in mental health during transition.

<b>Finding</b>	<b>Implications for Policy, Programs, Services</b>	<b>Implications for Research</b>
Of the three-quarters of Regular Force Veterans who were employed in the civilian workforce, one in six had a diagnosed mental condition, one four had below average mental health-related quality of life, one in twelve had moderate to severe psychological distress and one in ten had fair/poor self-rated mental health.	People with mental health problems engage in productive employment. Consider supports for employed Veterans with mental health problems who are having difficulty finding or retaining employment.	Assess workforce attachment in CAF Veterans with mental health problems.
Mental health problems were increasingly more prevalent in Veterans who were unemployed, not working and not looking for work, and unable to work.	While poor mental health is related to not having a work role, incentives and supports promoting mental health likely play a role in returning Veterans to employment.	Identify effective strategies for optimizing mental health around employment.
Diagnosed physical health conditions were very common in those with mental health conditions: 90% in Regular Force, 92% in deployed Reserve and 63% in non-deployed Reserve Veterans.	Mental health promotion requires attention to both physical and mental health in policies, programs and services. Points to the importance of primary and collaborative multidisciplinary care.	Consider physical health when studying the determinants, impacts and management of mental health problems in CAF Veterans.
The likelihood of having mental conditions was much higher in those with measures of high stress, difficulty coping, low perceived social support, and various measures of dissatisfaction.	This finding supports the importance of relieving stress, enhancing mastery and coping skills, and improving satisfaction through social support, counselling, rehabilitation and support for the social determinants of health.	Important confounders to consider in multivariable analyses. Further research needed to understand causality and identify effective means of addressing these factors to promote mental well-being.
The odds of having mental conditions were 8-11 times higher in those with activity restriction in major life domains and needing for assistance with activities of daily living than in those without these measures of disability.	Mandates attention to mental as well as physical health conditions in mitigating disability.	Consider mental health in studies of disability in military Veterans.
One in five Regular Force and Reserve Class C Veterans with diagnosed mental health conditions had past-year suicidal ideation.	Reinforces importance of providing effective mental health care.	Identify factors influencing suicide in CAF Veterans.



<b>Finding</b>	<b>Implications for Policy, Programs, Services</b>	<b>Implications for Research</b>
One in eight CAF Veterans participating in VAC programs had past-year suicidal ideation.	Not surprising since Veterans seek VAC assistance with chronic health problems but reinforces importance of engaging in effective suicide prevention activities.	Evaluate effectiveness of suicide prevention activities for Veterans with chronic health problems and disability.
Veterans had significant rates of attributing their mental health conditions to military service.	Assess program reach and provide effective communications about relationship of mental health problems to prior military service versus post-service factors.	Determine relationship between military service and post-service mental health.
Veterans participating in VAC programs have mental health conditions beyond those identified in VAC disability benefit administrative data.	Benefit administrative data does not give a full picture of mental health status of VAC clients.	Reinforces importance of conducting whole-population studies.
In VAC clients, there was an association between presence of a mental health problem in the transition interview prior to release and presence of a diagnosed mental health condition in the survey after release.	Survey findings can be used to inform screening for risk of poor transition outcomes.	Suggests potential role for transition interview findings in further research. Longitudinal research required to clarify the life course natural history of mental disorders in CAF Veterans.
Most Regular Force and Class C Reservists with diagnosed mental health conditions had regular medical doctors.	Importance of including family physicians and general practitioners in VAC services and informing them about Veterans' health issues.	Linkage to provincial databases would provide insights into health care provided in the provincial healthcare systems.
Most Regular Force and Class C Reservists with diagnosed mental health conditions had health insurance.	Those without insurance might require alternative supports.	Could be of value in assessing outcomes of VAC programs.



## **ES4. Interpretation Guidance**

The findings in this report describe the health and well-being of the three subgroups of CAF Veterans.

- This descriptive study had limited controls for chance and confounding, so be cautious about concluding that there are differences or similarities between groups when there is no adjustment for differences in age, gender and other characteristics and statistical test results are not reported.
- LASS 2013 was a point-in-time, cross-sectional survey, therefore causal conclusions cannot be drawn from this study alone, including the effects of military service or DND/CAF/VAC programs on Veterans' later life courses.
- Be cautious about drawing conclusions about the presence of "risk" and "protective" factors. Inferential statistical methodology such as regression modeling will be required to control for confounding, meaning the joint effects of characteristics and indicators on each other, and since this was a cross-sectional analysis then causality cannot be inferred.
- Findings cannot be generalized to all Veterans because the survey included only those who released in 1998-2012 (Regular Force) and 2003-2012 (Reserve Force).

## **ES5. Next Steps**

This descriptive analysis of the mental health findings in LASS 2013 yielded valuable insights into the extent, determinants and impacts of mental health in CAF Primary Reserve and Regular Force Veterans who released from service since 1998. Further analyses in progress will deepen understanding of the mental health and well-being of these Veterans to inform policy, programs and services to support CAF Veterans.

# Conclusions de santé mentale de l'Enquête sur la vie après le service de 2013

## Sommaire

Le présent document analyse les conclusions de santé mentale de l'Enquête sur la vie après le service (EVAS) de 2013 réalisée auprès des vétérans des Forces armées canadiennes (FAC). Le but était de produire un document de référence détaillé visant à contribuer aux politiques, aux programmes, aux services et aux recherches pour soutenir la santé mentale et le bien-être des vétérans des FAC après avoir quitté le service. Les objectifs étaient de décrire les besoins quant à la fréquence et la sévérité des problèmes de santé mentale, de relever les caractéristiques des sous-groupes avec ou sans problème de santé mentale, de décrire l'utilisation du service par les vétérans ayant des problèmes de santé mentale et d'établir les éventuelles répercussions des conclusions sur les politiques, les programmes et les services. La première phase de l'analyse en matière de santé mentale jette les bases de la deuxième partie : des estimations plus précises de l'étendue des problèmes de santé mentale et une modélisation multivariable visant à établir les sous-groupes potentiellement vulnérables et les éventuels facteurs de protection chez les vétérans des FAC.

La portée de l'enquête de 2013 (EVAS de 2013) était supérieure à l'EVAS de 2010 en incluant pour la première fois les vétérans de la Force de la première réserve ainsi que les vétérans de la Force régulière qui ont été libérés entre 1998 et 2012. L'EVAS de 2010 a été réalisée auprès des vétérans de la Force régulière qui avaient été libérés entre 1998 et 2007. À l'instar de l'EVAS de 2010, l'EVAS de 2013 était une enquête fondée sur des entretiens téléphoniques assistés par ordinateur menée par Statistique Canada pour le ministère des Anciens Combattants (ACC) et le ministère de la Défense nationale (MDN), en février et mars 2013. L'enquête a été menée auprès d'anciens membres de la Première réserve en service de classe A/B ou en service de classe C<sup>4</sup> qui ont été libérés entre le 1<sup>er</sup> janvier 2003 et le 31 août 2012 et de membres de la Force régulière qui ont été libérés entre le 1<sup>er</sup> janvier 1998 et le 31 août 2012 :

4. *Force de réserve, service de classe A/B* : Vétérans qui étaient membres de la Première réserve, qui avaient été en service de classe B (service temporaire à temps plein) en plus d'être en service de classe A<sup>1</sup>.
5. *Force de réserve, service de classe C* : Vétérans qui étaient membres de la Première réserve, qui avaient été en service de classe C en plus d'être en service de classe A et peut-être en service de classe B. Depuis 2002, le service de classe C n'est autorisé que pour ceux qui sont en déploiement opérationnel au pays ou à l'étranger.
6. *Force régulière* : Vétérans qui étaient membres de la Force régulière. Certains vétérans qui faisaient partie de cette catégorie avaient également servi dans la Force de réserve.

## S1. Aperçu des conclusions À FAIRE

*La plupart se portaient bien.* La plupart des vétérans des FAC qui avaient été libérés de leur service depuis 1998 avaient une bonne santé mentale. La majorité avait une santé mentale jugée de très bonne à excellente, ne souffraient pas de détresse psychologique importante, n'avaient pas de diagnostic de problème de santé mentale, et ne vivaient pas de stress

<sup>4</sup> Les anciens militaires des FAC en service de classe A seulement n'ont pas été sondés. Les militaires en service de classe A seulement de la Force de réserve font partie de la Force de la première réserve sans service en classe A/B ou en classe C de la Force de réserve.

important.

*Certains avaient des problèmes de santé mentale.* Les conclusions appuient des améliorations constantes aux services de santé mentale offerts aux vétérans des FAC. Les problèmes de santé mentale étaient beaucoup plus fréquents chez les vétérans de la Force régulière et les vétérans déployés de la Force de réserve que dans la population générale canadienne selon le même groupe d'âge et le sexe. Les vétérans de réserve non déployés étaient comme les autres jeunes adultes canadiens. La fréquence des diagnostics de santé mentale était de 24 % chez les vétérans de la Force régulière, de 17 % chez les vétérans de réserve (classe C) déployés, et de 9 % chez les vétérans de réserve (classe A et B) non déployés. L'enquête comprenait également trois mesures de la santé mentale actuelle : 16 % des vétérans de la Force régulière jugeaient leur santé mentale de passable à mauvaise, 13 % avaient une détresse psychologique modérée à grave, et 17 % avaient une qualité de vie significativement réduite en raison de leur santé mentale selon le formulaire abrégé de 12 questions (SF-12) menant au Sommaire de la composante mentale (SCM).

*Répercussions et déterminants des problèmes de santé mentale.* Ces conclusions appuient l'approche d'ACC à l'égard du bien-être mental en donnant accès à des services liés à différents déterminants de la santé. Les problèmes de santé mentale chez ces vétérans ont été associés à de multiples facteurs biopsychosociaux comme les caractéristiques socioéconomiques, les caractéristiques militaires, les facteurs de stress, la capacité d'adaptation et la satisfaction, l'état de santé physique et la comorbidité, et l'invalidité. La plupart des vétérans ayant un diagnostic de problème de santé mentale avaient un problème physique chronique concomitant.

*Caractéristiques des sous-groupes ayant une fréquence élevée de problèmes de santé mentale.* Les conclusions ont cerné les caractéristiques des sous-groupes plus susceptibles d'avoir des problèmes de santé mentale. Le risque d'avoir un diagnostic de problème de santé mentale était plus élevé chez les vétérans d'âge moyen que chez les plus jeunes et les plus vieux; chez les femmes; les veufs, les séparés et divorcés; ceux ayant des études autres qu'un diplôme d'études postsecondaire; les sans-emploi et les sans-travail ou ceux qui ne cherchaient pas; ceux qui avaient un faible revenu; et ceux qui avaient l'impression un ajustement difficile à la vie civile. Chez les vétérans de la Force régulière, le risque d'avoir un diagnostic de problème de santé mentale était considérablement plus élevé chez les militaires du rang subalterne suivis par les militaires du rang supérieur, qui ont servi pendant 10 à 19 ans (carrière interrompue), et qui ont été libérés involontairement pour raisons médicales. Environ la moitié des vétérans ayant un diagnostic de problème de santé mentale avaient au moins deux problèmes de santé mentale. L'invalidité évaluée comme une limitation d'activité était plus fréquente chez les vétérans ayant un diagnostic de problème de santé mentale que chez ceux n'en ayant pas. Les problèmes de santé mentale étaient associés à une faible maîtrise de la situation, à un faible sentiment d'appartenance à la collectivité, au stress de la vie personnelle, au stress professionnel, à la l'insatisfaction et au faible soutien social.

*Prévention du suicide.* Les conclusions appuient les activités de prévention du suicide et cernent les sous-groupes plus susceptibles d'être sur la voie du suicide. Les idées suicidaires étaient plus fréquentes chez ceux ayant un diagnostic de problème de santé mentale et surtout fréquentes chez les clients d'ACC. Les idées suicidaires étaient également fréquentes chez les vétérans ayant entre 40 et 49 ans; chez les femmes; ceux ayant un diplôme autre qu'universitaire; les sans-emploi et ceux incapables de travailler; ceux ayant un faible revenu; ceux ayant obtenu une libération pour raisons médicales; les militaires du rang subalterne, y compris les soldats; ceux ayant un problème physique ou de santé mentale, particulièrement

ceux ayant les deux et un degré plus élevé de comorbidité; les invalides; ceux qui n'étaient pas satisfaits de leur vie; ceux recevant des soins à domicile ou dont les besoins n'étaient pas satisfaits en matière de soins de santé. Les idées suicidaires étaient plus fréquentes chez les clients d'ACC, conformément à la fréquence plus élevée de problèmes de santé chez les vétérans qui participent aux programmes d'ACC.

*Transition vers la vie civile.* Les conclusions appuient la prestation de services aux vétérans ayant des problèmes de santé mentale en transition vers la vie civile. L'adaptation difficile à la vie civile était beaucoup plus fréquente chez ceux ayant un problème de santé mentale au moment de l'enquête que chez ceux n'en ayant pas (62 % par rapport à 26 % des vétérans de la Force régulière, et 59 % par rapport à 17 % des vétérans en service de classe C de la Force de réserve). Parmi les vétérans dont l'adaptation était difficile, plus de la moitié (59 %) des vétérans de la Force régulière avaient des problèmes de santé mentale, tout comme près de la moitié (43 %) des vétérans en service de classe C de la Force de réserve. Les recherches présentent une lacune quant aux facteurs d'influence sur la santé mentale au moment de la transition.

*Les participants aux programmes d'ACC.* Le personnel d'ACC s'occupe des vétérans ayant des problèmes de santé des plus complexes. La majorité (71 %) des vétérans de la Force régulière ayant un problème de santé mentale participaient aux programmes d'ACC, tout comme près de la moitié (49 %) des vétérans en service de classe C de la Force de réserve ayant un problème de santé mentale. La majorité ayant des problèmes de santé mentale et physique concomitants, une mesure de la complexité des cas, participait aux programmes d'ACC.

## **S2. Étendue des problèmes de santé mentale**

*Mesures des problèmes de santé mentale.* Dans le présent rapport, l'expression « problèmes de santé mentale » comprend 1) les trois problèmes de santé mentale ayant fait l'objet de l'enquête, 2) d'autres diagnostics de problème psychologique n'ayant pas fait l'objet de l'enquête, et 3) les symptômes sans diagnostic. Cinq mesures simples des problèmes de santé mentale ont été utilisées pour cerner les dimensions de la santé mentale : les problèmes de santé mentale signalés par le vétéran et diagnostiqués par un professionnel de la santé qui ont duré six mois ou plus, l'échelle de détresse psychologique de Kessler en 10 items (K10), une question sur l'auto-évaluation de la santé mentale, le formulaire abrégé de 12 questions (SF-12) menant au Sommaire de la composante mentale (SCM) et le test de dépistage du problème de stress post-traumatique (TSPT) des soins primaires. Les quatre dernières mesures ont révélé l'état de santé mentale actuel ou des derniers mois. Parmi les quatre stades du continuum de la santé mentale des FAC – en santé, en réaction, blessé et malade –, ces cinq indicateurs mesurent les trois derniers stades<sup>5</sup>.

*La plupart se portent bien.* La majorité des vétérans des trois groupes avaient une bonne santé mentale. La plupart n'avaient pas de diagnostic courant de problème mental : 76 % des vétérans de la Force régulière, 83 % des vétérans en service de classe C de la Force de réserve (vétérans déployés) et 91 % des vétérans en service de classe A/B de la Force de réserve (vétérans non déployés). La majorité jugeait leur santé mentale comme très bonne à excellente : 62 % des vétérans de la Force régulière, 67 % des vétérans en service de classe C de la Force de réserve et 74 % des vétérans en service de classe A/B de la Force de réserve.

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<sup>5</sup> <http://www.forces.gc.ca/fr/communaute-fac-services-sante-rvpm-deploiement/modele-continuum-sante-mentale.page> (consultée le 20 janvier 2015).

*Fréquence des problèmes diagnostiqués.* La fréquence des problèmes diagnostiqués (troubles de l'humeur, troubles anxieux ou ESPT) était de 24 % chez les vétérans de la Force régulière, de 17 % chez les vétérans en service de classe C de la Force de réserve (vétérans déployés) et de 9 % chez les vétérans en service de classe A/B de la Force de réserve (vétérans non déployés). Les vétérans de la Force régulière et en service de classe C de la Force de réserve avaient une fréquence plus élevée de troubles de l'humeur, de trouble anxieux et surtout d'ESPT que la population générale canadienne du même âge, et la fréquence était plus élevée que celle établie dans le rapport pour le personnel des FAC en service. Les vétérans en service de classe A/B de la Force de réserve avaient une fréquence beaucoup moins élevée de problèmes de santé mentale et étaient donc plus comme les Canadiens d'âge semblable (39 % avaient reçu leur libération comme recrues). La fréquence des problèmes de santé mentale était si faible que le reste de l'analyse a porté uniquement sur les vétérans de la Force régulière et en service de classe C de la Force de réserve.

*Fréquence des problèmes de santé mentale actuels.* La fréquence de chacune des mesures des problèmes de santé mentale actuels était plus faible que la fréquence des problèmes diagnostiqués à l'aide de seuils reflétant des problèmes graves de santé mentale : 16 % des vétérans de la Force régulière jugeaient leur santé mentale comme passable à mauvaise, 13 % vivaient une détresse psychologique modérée à grave selon la mesure K10, et 17 % avaient une qualité de vie considérablement réduite en raison de leur santé mentale selon le formulaire abrégé de 12 questions (SF-12) menant au Sommaire de la composante mentale (SCM). En ayant recours à des seuils plus larges pour y inclure les problèmes de santé mentale récents moins graves, la fréquence de la santé autoévaluée comme bonne, passable ou mauvaise était de 39 %, celle des problèmes mentaux modérés à graves selon la mesure K10 était de 21 %, et celle de la qualité de vie liée à une santé mentale inférieure à la normale (résultat de moins de 50 au SCM du SF-12) était de 33 %.

*Fréquence des combinaisons de problèmes de santé mentale diagnostiqués et de problèmes de santé mentale actuels.* Des études précédentes des populations civile et militaire ont établi que le nombre de problèmes de santé mentale est plus important que le nombre de diagnostics de problèmes de santé mentale. Les mesures des problèmes de santé mentale actuels ou des derniers mois ne chevauchaient pas complètement les problèmes de santé mentale diagnostiqués. Ceux qui n'ont pas signalé l'un des problèmes diagnostiqués, mais qui avaient un problème de santé mentale selon les quatre autres mesures pourraient avoir eu un des problèmes de santé mentale diagnostiqués sans l'avoir signalé lors de l'enquête, ou pourraient avoir eu d'autres problèmes de santé mentale diagnostiqués, ou des symptômes non diagnostiqués ou sous les seuils.

Les estimations de la fréquence des problèmes de santé mentale à l'aide des combinaisons de problèmes diagnostiqués et d'autres mesures se situent entre 25 et 29 % en ayant recours à des seuils établis pour cerner des problèmes de santé mentale plus importants, et entre 38 et 41 % en ayant recours à des seuils qui incluent les vétérans avec des problèmes de santé mentale moins graves. Par exemple, la proportion de vétérans ayant un diagnostic de problème de santé mentale ou une santé mentale autoévaluée comme passable ou mauvaise était de 26 %, alors que la proportion de vétérans ayant un diagnostic de problème de santé mentale et une santé mentale autoévaluée comme bonne, passable ou mauvaise était de 41 %.

*Gravité des problèmes de santé mentale.* Les problèmes de santé mentale ont différents degrés de gravité. Parmi les vétérans ayant un diagnostic de problèmes de santé mentale :



- 30 % présentaient des niveaux de détresse psychologique graves selon la mesure K10 (7 % de la population), alors que 34 % présentaient des niveaux de détresse psychologique faibles selon la mesure K10 qui correspondaient à la catégorie « vraisemblablement bien » (résultat inférieur à 10 sur l'échelle de Kessler).
- Environ la moitié (55 %) avait une qualité de vie très pauvre en raison de leur santé mentale (résultat inférieur à 40 au SCM) (13 % de la population), alors que 45 % avaient une meilleure qualité de vie liée à leur santé mentale (résultat égal ou supérieur à 40).
- Environ la moitié (55 %) ont jugé leur santé comme passable ou mauvaise (13 % de la population), alors que 13 % se trouvaient dans la catégorie excellente ou très bonne.

### **S3. Déterminants et incidences des problèmes de santé mentale**

Les problèmes de santé mentale chez ces vétérans ont été associés à différents facteurs biopsychosociaux comme les caractéristiques socioéconomiques; les caractéristiques militaires; les facteurs de stress; la capacité d'adaptation et la satisfaction; l'état de santé physique et la comorbidité; et l'invalidité. Toutefois, l'EVAS de 2013, comme toutes les autres enquêtes menées auprès du personnel des FAC en service et des vétérans, est un instantané d'un point dans le temps (enquête ponctuelle). Alors, bien qu'il soit possible de faire des associations statistiques entre les problèmes de santé mentale et les différents facteurs, aucune conclusion ne peut être tirée sur la possibilité qu'il existe une relation de cause à effet. Les problèmes de santé mentale peuvent avoir une incidence sur les vétérans et leur famille de différentes façons, comme la facilité d'adaptation à la vie civile, les relations sociales, l'emploi, le revenu, la qualité de vie, l'invalidité, les idées suicidaires et l'utilisation des ressources. Toutefois, ces mêmes facteurs peuvent également agir comme des déterminants de la santé mentale, par exemple en contribuant à l'établissement ou à la chronicité des problèmes.

*Caractéristiques socioéconomiques.* La probabilité d'avoir un diagnostic de problème de santé mentale était plus élevé chez les vétérans d'âge moyen que chez les plus jeunes et les plus vieux; chez les femmes; les veufs, les séparés et divorcés; ceux ayant des études autres qu'un diplôme d'études postsecondaire; les sans-emploi et les sans-travail ou ceux qui ne cherchaient pas; et ceux qui avaient un faible revenu.

*Caractéristiques militaires.* Chez les vétérans de la Force régulière, le risque d'avoir un diagnostic de problème de santé mentale était considérablement plus élevé chez les militaires du rang subalterne suivis par les militaires du rang supérieur, qui ont servi pendant 10 à 19 ans (carrière interrompue), et qui ont été libérés involontairement suivis par raisons médicales. Il ne semblait pas y avoir d'association avec la branche de service.

*Consommation d'alcool et de tabac.* L'enquête ne contenait aucune donnée sur les troubles de consommation de substance et la dépendance, mais deux risques bien établis ont été évalués : la consommation d'alcool et de tabac. La fréquence des problèmes de santé mentale était supérieure à la moyenne pour les fumeurs quotidiens, mais pas pour les grands buveurs. Le risque d'avoir un diagnostic d'un des trois problèmes de santé mentale était deux fois plus élevé pour les fumeurs quotidiens ayant un problème de santé mentale comparativement aux non-fumeurs, mais le risque n'était pas élevé pour les grands buveurs ayant un problème de santé mentale comparativement à ceux qui n'étaient pas de grands buveurs. La consommation élevée d'alcool n'est pas une mesure directe de la dépendance.

*Santé physique.* La comorbidité est la concomitance d'au moins deux problèmes de santé chez la même personne. La comorbidité, et surtout la multimorbidité (trois problèmes ou plus), correspond à une qualité de vie plus médiocre, une invalidité plus prononcée, une plus grande

complexité du cas et une utilisation plus importante des services de santé. Environ la moitié des vétérans ayant un diagnostic de problème de santé mentale avaient deux problèmes ou plus : 55 % des vétérans de la Force régulière et 47 % des vétérans en service de classe C de la Force de réserve. La plupart des vétérans ayant un problème de santé mentale avaient un problème physique concomitant : 90 % des vétérans de la Force régulière, 92 % des vétérans en service de classe C de la Force de réserve et 63 % des vétérans en service de classe A/B de la Force de réserve. Inversement, 30 % des vétérans de la Force régulière ayant un problème physique avaient un problème de santé mentale, tout comme 24 % des vétérans en service de classe C de la Force de réserve et 12 % des vétérans en service de classe A/B de la Force de réserve.

*Invalidité.* Les quatre types de limitation d'activité mesurés dans l'EVAS de 2013 étaient plus fréquents chez les vétérans ayant un diagnostic de problème de santé mentale que chez ceux n'en ayant pas. Le risque d'avoir un problème de santé mentale était considérablement plus élevé chez ceux qui avaient une limitation d'activité, de 4 à 5 fois plus élevé (vétérans en service de classe C de la Force de réserve et ceux de la Force régulière) chez ceux dont l'activité était limitée en raison de la douleur et l'inconfort, jusqu'à 8 fois plus élevé pour les activités restreintes dans le cadre de la vie quotidienne; jusqu'à 11 et 9 fois plus élevé pour ceux nécessitant de l'aide avec au moins une activité de la vie quotidienne; et jusqu'à 12 et 20 fois plus élevé pour ceux souffrant de détresse psychologique qui perturbe leur vie. En interprétant ces chiffres, il est important de se rappeler que les problèmes de santé physique chroniques étaient concomitants chez la grande majorité des vétérans ayant un problème de santé mentale.

*Stress, capacité d'adaptation et satisfaction.* Les six mesures du stress, de la capacité d'adaptation et de la satisfaction, correspondaient de façon importante, et sans surprise, à la présence de problèmes de santé mentale diagnostiqués : risques plus élevés de problèmes de santé mentale chez ceux qui ont un faible sentiment d'appartenance à la collectivité, une faible maîtrise de la situation, de l'insatisfaction à l'égard de leur vie, beaucoup de stress; ceux qui ont vécu du stress au travail au cours de la dernière année, et ceux qui étaient insatisfaits de leur principale activité durant la dernière année. Le risque d'avoir un problème de santé mentale était plus élevé chez ceux qui avaient une faible maîtrise de la situation, de l'insatisfaction à l'égard de leur vie, et extrêmement ou assez de stress dans leur vie.

*Soutien social.* Les vétérans ayant un diagnostic de problème de santé mentale avaient une moins bonne impression de leur soutien social.

*Idées suicidaires.* Dans la dernière année, des idées suicidaires étaient présentes chez 5 % (IC de 95 %, 4 à 7 %) des vétérans de la classe C de la Force de réserve et chez 7 % (6 à 8 %) des vétérans de la Force régulière, et étaient plus fréquentes chez ceux qui participaient aux programmes d'ACC. Les idées suicidaires étaient plus fréquentes chez les vétérans ayant un diagnostic de problème de santé mentale; et également chez ceux âgés de 40 à 49 ans; les femmes; ceux ayant un diplôme autre qu'universitaire; les sans-emploi et ceux incapables de travailler; ceux ayant un faible revenu; ceux ayant obtenu une libération pour raisons médicales; les militaires du rang subalterne, y compris les soldats; ceux ayant un problème physique ou de santé mentale, particulièrement ceux ayant les deux et un degré plus élevé de comorbidité; les invalides; ceux qui n'étaient pas satisfaits de leur vie; ceux recevant des soins à domicile ou dont les besoins n'étaient pas satisfaits en matière de soins de santé.

*Pratiques exemplaires.* La plupart des vétérans en service de classe C de la Force de réserve et de la Force régulière avaient une assurance-maladie complémentaire (médicaments sur



ordonnance, soins dentaires, lunettes). Les différences entre les vétérans ayant un problème de santé mentale et ceux n'en ayant pas étaient minces. La plupart des vétérans en service de classe C de la Force de réserve et de la Force régulière avaient un médecin. Par ailleurs, le recours aux soins à domicile était considérablement plus fréquent chez les vétérans ayant un problème de santé mentale que chez ceux n'en ayant pas. Les problèmes de santé mentale sont communs chez les vétérans qui ont recours aux services d'ACC : 47 % des clients de la Force régulière avaient un diagnostic d'un des trois problèmes de santé mentale dont il était question dans l'enquête<sup>6</sup>, tout comme 50 % des clients en service de classe C de la Force de réserve.

*Participation aux programmes d'ACC.* La majorité (71 %) des vétérans de la Force régulière ayant un problème de santé mentale participaient aux programmes d'ACC, tout comme près de la moitié (49 %) des vétérans en service de classe C de la Force de réserve ayant un problème de santé mentale. Le personnel d'ACC s'occupe des vétérans ayant des problèmes de santé des plus complexes, mesurés comme la comorbidité des problèmes de santé mentale et physique. Une proportion importante des clients des trois principaux programmes d'ACC avaient un diagnostic d'un des trois problèmes de santé mentale : 47 % dans le programme de prestations d'invalidité, 84 % dans le programme de réadaptation et 60 % dans le Programme pour l'autonomie des anciens combattants.

Une bonne partie de l'état de santé des clients d'ACC n'est pas représentée par les données administratives : parmi les vétérans ayant un diagnostic d'un des problèmes de santé mentale, environ les deux tiers (65 %) recevaient des prestations d'invalidité d'ACC pour un diagnostic psychiatrique, alors que plus d'un tiers (35 %) n'en recevaient pas. Environ les deux tiers des vétérans de la Force régulière, dont un problème de santé mentale avait été signalé lors des entrevues de transition avant leur libération, avaient un problème de santé mentale dans l'enquête; 63 % du personnel de la Force régulière qui a été libérés entre 2006 et 2012 avaient participé à une entrevue de transition, tout comme 12 % des vétérans en service de classe C de la Force de réserve.

*Adaptation à la vie civile.* Parmi les vétérans dont l'adaptation était difficile, plus de la moitié (59 %) des vétérans de la Force régulière avaient des problèmes de santé mentale, tout comme près de la moitié (43 %) des vétérans en service de classe C de la Force de réserve. La difficulté d'adaptation était plus fréquente chez les vétérans ayant un problème de santé mentale au moment de l'enquête que chez ceux n'en ayant pas (62 % par rapport à 26 % dans la Force régulière, et 59 % par rapport à 17 % dans la classe C de la Force de réserve).

## **S4. Répercussions**

Le tableau ci-dessous résume les répercussions dans deux domaines : les politiques, les programmes et les services, d'un côté; et la recherche, de l'autre. La santé de la population et la prestation de soins subissent des répercussions. Les conclusions du présent rapport contribuent à une autre analyse des données de l'EVAS de 2013 pour avoir une meilleure idée de la santé mentale et du bien-être des vétérans des FAC et pour informer les chercheurs qui planifient de nouvelles études visant à combler le manque de connaissances sur la santé mentale des vétérans.

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<sup>6</sup> Troubles de l'humeur, troubles anxieux ou ESPT.

## Répercussion des conclusions de l'EVAS de 2013 sur la santé mentale.

Constatation	Répercussions sur les politiques, les programmes et les services	Répercussions pour la recherche
La plupart des vétérans de la Force régulière et de la Force de réserve se portaient bien en ce qui a trait à l'emploi, au revenu, à la satisfaction à l'égard de leur vie et à la santé mentale.	La majorité des vétérans vont bien, ce qui va à l'encontre de la perception erronée du public qui croit que la plupart ne vont pas bien. Bon nombre des vétérans ayant des problèmes de santé chroniques vivent bien.	Trouver les facteurs qui favorisent la bonne santé mentale chez les vétérans des FAC.
La fréquence des problèmes de santé mentale chez les vétérans était plus grande que dans la population générale.	Favorise la prestation de services de soins de santé mentale et de réadaptation efficaces, ainsi que l'amélioration de ces services et des déterminants sociaux de la santé mentale.	Besoin constant de recherche sur les déterminants de la santé mentale chez les vétérans.
Les vétérans en service de classe C de la Force de réserve (déployés) étaient plus comme les vétérans de la Force régulière que les vétérans de la Force de réserve non déployés ou que la population générale.	Les vétérans déployés de la Force de réserve semblent avoir plus besoin de service de soutien, dans la même mesure que les vétérans de la Force régulière.	Les deux groupes pourraient être combinés pour faire l'objet de quelques analyses.
Les vétérans en service de classe A/B de la Force de réserve en général étaient jeunes et en santé et souffraient relativement moins de problèmes de santé mentale. Ils avaient très peu recours aux services d'ACC. Plus d'un tiers (39%) avaient été libérés comme aspirants.	Les réservistes en service de classe A/B avaient généralement besoin de soutien en santé mentale dans la même mesure que les jeunes adultes canadiens d'âge semblable de la population générale.	D'autres études pourraient concentrer des ressources sur les vétérans déployés de la Force de réserve (en service de classe C) et les vétérans de la Force régulière.
Bon nombre de vétérans ayant un diagnostic de problème de santé mentale n'avaient pas de problème de santé mentale important dans le moment (détresse psychologique, santé mentale autoévaluée comme mauvaise ou mauvaise qualité de vie en raison de la santé mentale).	Les vétérans ayant un diagnostic de problème de santé mentale n'avaient pas tous besoin d'un niveau élevé de service de soutien.	Utiliser des mesures de l'état de santé mentale actuel conjointement avec les problèmes de santé mentale diagnostiqués pour mesurer les problèmes de santé mentale de la population.

<b>Constatation</b>	<b>Répercussions sur les politiques, les programmes et les services</b>	<b>Répercussions pour la recherche</b>
Bon nombre de vétérans ayant un problème de santé mentale (détresse psychologique, santé mentale autoévaluée comme mauvaise ou mauvaise qualité de vie en raison de la santé mentale) n'avaient pas de diagnostic à cet égard.	Le problème de santé mentale de certains vétérans pourrait ne pas avoir été reconnu ou diagnostiqué. Chez d'autres vétérans, les symptômes, qui se trouvaient peut-être sous les seuils, ont néanmoins une incidence sur leur qualité de vie et pourraient évoluer en maladie mentale.	Une autre analyse ayant recours à des combinaisons de mesures de la santé mentale permettra de mieux clarifier les besoins des vétérans des FAC en matière de santé mentale.
Étant donné qu'il s'agissait d'une étude de prévalence, les fluctuations de la gravité des problèmes de santé mentale au cours de la vie d'une personne sont inconnues.	Il est difficile de cibler la prestation de mesures de soutien au cours de la vie d'un militaire après le service; d'où l'importance des services individualisés.	Les études longitudinales en cours de planification clarifieront l'évolution naturelle des problèmes de santé mentale des vétérans au cours de leur vie.
Des caractéristiques socioéconomiques et problèmes de santé physique multiples ont été associés aux problèmes de santé mentale chez les vétérans dans les analyses.	Repère les sous-groupes de vétérans des FAC ayant des taux plus élevés de troubles mentaux. Favorise les programmes et les services qui améliorent le bien-être des vétérans en ciblant de multiples déterminants de la santé mentale, y compris les services de santé physique et mentale et les déterminants sociaux (études, emploi, revenu et soutien social).	Déterminer l'efficacité relative de la prestation de mesures de soutien liées aux déterminants socioéconomiques de la santé dans la gestion de la santé mentale chez les vétérans. Des analyses multivariées qui expliqueraient le facteur de confusion clarifieraient le rôle relatif des déterminants et des répercussions possibles des problèmes de santé mentale chez les vétérans des FAC.
La fréquence des problèmes de santé mentale était plus élevée chez les vétérans d'âge moyen que chez les plus jeunes ou les plus vieux.	Permet de cibler les ressources en repérant les groupes d'âge.	Les études longitudinales en cours de planification clarifieront les changements dans les besoins en matière de santé mentale chez les vétérans au cours de leur vie.
Les femmes vétérans de la Force régulière étaient 1,6 fois plus susceptibles que les hommes d'avoir au moins un diagnostic de problème de santé mentale, et d'autoévaluer leur santé mentale comme passable ou mauvaise.	Permet d'établir les femmes comme groupe cible pour les programmes et la prestation de services.	Les échantillons de femmes sont de petite taille dans les enquêtes menées auprès des vétérans, ce qui restreint les conclusions qui peuvent être tirées des déterminants de la santé mentale chez les femmes vétérans.

<b>Constatation</b>	<b>Répercussions sur les politiques, les programmes et les services</b>	<b>Répercussions pour la recherche</b>
Le risque d'avoir un diagnostic de problème de santé mentale était plus élevé chez les vétérans qui avaient un diplôme autre qu'universitaire, qui n'avaient pas d'emploi et qui avaient un faible revenu.	Constitue une preuve pour les programmes qui visent à améliorer le bien-être grâce à des mesures de soutien aux études, à l'emploi et au revenu.	Tenir compte de l'état de la santé mentale et des limitations d'activité liées à la santé mentale dans les études sur l'emploi et le revenu chez les vétérans des FAC.
Le risque d'avoir un problème de santé mentale était plus élevé chez les militaires du rang que chez les officiers.	Il pourrait y avoir d'importantes différences dans les types de mesures de soutien requis par les militaires du rang au moment de leur transition vers la vie civile.	Mieux comprendre pourquoi les problèmes de santé mentale sont plus fréquents chez les vétérans des FAC qui ont obtenu leur libération comme militaires du rang.
Le risque de signaler une difficulté d'adaptation à la vie civile était dix fois plus élevé chez les vétérans de la Force régulière ayant un diagnostic de problème de santé mentale au moment de l'enquête, et huit fois plus élevé chez les vétérans déployés de la Force de réserve.	Suggère l'importance de favoriser le bien-être mental au moment de la transition dans la promotion d'une bonne santé mentale à long terme.	Clarifier les facteurs d'influence du parcours de vie sur la santé mentale des vétérans des FAC depuis leur transition jusqu'à plus tard dans leur vie.
Les recherches présentent une lacune quant aux facteurs d'influence sur la santé mentale au moment de la transition.	Preuve de supports de transition est largement anecdotique.	Besoin de recherche en santé mentale durant la transition.
Parmi les trois quarts des vétérans de la Force régulière qui ont eu un emploi civil, un sur six avait un diagnostic de problème de santé mentale, un sur quatre avait une qualité de vie sous la moyenne en raison de sa santé mentale, un sur douze avait une détresse psychologique moyenne à grave et un sur dix évaluait sa santé mentale comme passable ou mauvaise.	Penser à offrir des mesures de soutien aux vétérans employés qui ont des problèmes de santé mentale.	Évaluer l'attachement à la population active chez les vétérans des FAC ayant un problème de santé mentale.

<b>Constatation</b>	<b>Répercussions sur les politiques, les programmes et les services</b>	<b>Répercussions pour la recherche</b>
Les problèmes de santé mentale étaient de plus en plus fréquents chez les vétérans sans emploi, qui ne travaillaient pas et qui étaient incapables de travailler.	Étant donné qu'une mauvaise santé mentale est liée au fait de ne pas avoir de rôle professionnel, les mesures incitatives et de soutien visant à promouvoir la santé mentale pourraient jouer un rôle dans le retour à l'emploi des vétérans.	Établir des stratégies efficaces visant à optimiser la santé mentale entourant l'emploi.
Les diagnostics de problème de santé physique étaient très communs chez les vétérans ayant un problème de santé mentale : 90 % chez les vétérans de la Force régulière, 92 % chez les vétérans déployés de la Force de réserve et 63 % chez les vétérans non déployés de la Force de réserve.	La promotion de la santé mentale exige de porter de l'attention à la santé physique et mentale dans les politiques, les programmes et les services. Attire l'attention sur l'importance des soins primaires et des soins collaboratifs multidisciplinaires.	Penser à la santé physique dans le cadre des études sur les déterminants, les répercussions et la gestion des problèmes de santé mentale chez les vétérans des FAC.
La probabilité d'avoir un problème de santé mentale était beaucoup plus élevé chez les vétérans qui présentaient des facteurs de stress élevé, des difficultés d'adaptation, un soutien social perçu comme faible, et différents facteurs d'insatisfaction.	Cette conclusion soutient l'importance de soulager le stress, d'améliorer les capacités de maîtrise de la situation et d'adaptation, et d'améliorer la satisfaction par le soutien social, la consultation, la réadaptation et le soutien pour les déterminants sociaux de la santé.	Il faut tenir compte d'importants facteurs de confusion dans les analyses multivariées. D'autres recherches sont nécessaires pour comprendre la causalité et pour déterminer des moyens efficaces de trouver une solution à ces facteurs pour favoriser le bien-être mental.
Le risque d'avoir un problème de santé mentale était 8 à 11 fois plus élevé chez les vétérans qui avaient une limitation d'activité dans des sphères importantes de leur vie et qui avaient besoin d'aide dans des activités de la vie quotidienne que ceux qui n'avaient pas ces facteurs d'invalidité.	Dirige l'attention sur les problèmes de santé physique et mentale dans les efforts d'atténuation de l'invalidité.	Tenir compte de la santé mentale dans les études sur l'invalidité chez les vétérans.

<b>Constatation</b>	<b>Répercussions sur les politiques, les programmes et les services</b>	<b>Répercussions pour la recherche</b>
Un vétéran sur cinq de la Force régulière et en service de classe C de la Force réserve ayant un diagnostic de problème de santé mentale a eu des idées suicidaires dans la dernière année.	Renforce l'importance d'offrir des soins efficaces en matière de santé mentale.	Déterminer les facteurs qui influencent le suicide chez les vétérans des FAC.
Un vétéran des FAC sur huit qui participe aux programmes d'ACC a eu des idées suicidaires dans la dernière année.	Cette conclusion n'est pas surprenante étant donné que les vétérans recherchent l'aide d'ACC concernant les problèmes de santé chroniques, mais elle renforce l'importance de participer à des activités efficaces de prévention du suicide.	Évaluer l'efficacité des activités de prévention du suicide pour les vétérans ayant un problème de santé chronique et une invalidité.
Dans une grande proportion, les vétérans attribuaient leurs problèmes de santé mentale au service militaire.	Évaluer la portée du programme et offrir des séances de communication efficaces sur la relation des problèmes de santé mentale avec les facteurs en place avant le service militaire par rapport aux facteurs en place après le service.	Déterminer la relation entre le service militaire et la santé mentale après le service.
Les vétérans qui participent aux programmes d'ACC ont des problèmes de santé mentale supérieurs à ceux mentionnés dans les données administratives des prestations d'invalidité d'ACC.	Les données administratives des prestations ne brossent pas un portrait complet de la santé mentale des clients d'ACC.	Renforce l'importance de mener des études sur toute la population.
Chez les clients d'ACC, il y avait une association entre la présence d'un problème de santé mentale dans l'entrevue de transition avant la libération et la présence d'un diagnostic de santé mentale dans l'enquête après la libération.	Les conclusions de l'enquête peuvent servir à avertir les responsables de l'examen préalable que les résultats de la transition risquent d'être médiocres.	Laisse croire que les conclusions de l'entrevue de transition pourraient jouer un rôle dans d'autres recherches. Une recherche longitudinale est nécessaire pour clarifier l'évolution naturelle des troubles mentaux chez les vétérans des FAC.

<b>Constatation</b>	<b>Répercussions sur les politiques, les programmes et les services</b>	<b>Répercussions pour la recherche</b>
La plupart des vétérans de la Force régulière et en service de classe C de la Force de réserve ayant un diagnostic de problème de santé mentale avaient un médecin.	Souligne l'importance d'inclure les médecins de famille et les médecins généralistes dans les services d'ACC et de les avertir des problèmes de santé des vétérans.	Un lien avec les bases de données provinciales donnerait une idée des soins de santé offerts dans les systèmes de soins de santé provinciaux.
La plupart des réservistes de la Force régulière et de la classe C ayant un diagnostic de santé mentale avaient une assurance-maladie.	Ceux qui n'ont pas d'assurance pourraient avoir besoin d'autres mesures de soutien.	Pourrait être utile dans l'évaluation des résultats des programmes d'ACC.



## **S4. Pistes d'interprétation**

Les conclusions du présent rapport décrivent la santé et le bien-être des trois sous-groupes de vétérans des FAC.

- Étant donné que cette étude de prévalence avait des contrôles limités des facteurs de hasard et de confusion, la prudence est de mise avant de conclure qu'il y a des différences ou des similarités entre les groupes alors qu'il n'y a pas d'ajustement des différences d'âge, de sexe et d'autres caractéristiques et que les résultats du test d'hypothèse ne sont pas publiés.
- L'EVAS de 2013 était une enquête ponctuelle, il est donc impossible de tirer des conclusions causales de cette étude seule, y compris des effets du service militaire ou des programmes du MDN, des FAC ou d'ACC sur le parcours de vie à long terme des vétérans.
- Il faut être prudent avant de tirer des conclusions sur la présence de facteurs de « risque » et de « protection ». La méthodologie statistique déductive comme l'établissement d'un modèle de régression sera nécessaire pour contrôler le facteur de confusion, soit les effets mutuels conjoints des caractéristiques et des indicateurs, et parce qu'il s'agit d'une analyse transversale, la causalité ne peut être insinuée.
- Les conclusions ne peuvent servir à faire des généralisations sur tous les vétérans, parce que l'enquête ne portait que sur ceux ayant obtenu leur libération entre 1998 et 2000 (Force régulière) et entre 2003 et 2012 (Force de réserve).

## **S5. Prochaines étapes**

Cette analyse descriptive des conclusions de l'EVAS de 2013 sur la santé mentale a permis d'obtenir des données précieuses sur l'étendue, les déterminants et les répercussions de la santé mentale des vétérans de la Force de la première réserve et de la Force régulière qui ont quitté le service depuis 1998. D'autres analyses en cours permettront d'approfondir les connaissances sur la santé mentale et le bien-être de ces vétérans pour contribuer aux politiques, aux programmes et aux services visant à soutenir les vétérans des FAC.

# Mental Health Findings from the 2013 Life After Service Survey

## 1. Introduction

The first comprehensive survey of the health and well-being of Canadian Armed Forces (CAF) Veterans<sup>7</sup> was the 2010 *Survey on Transition to Civilian Life* in the *Life After Service Studies* program of research (LASS 2010). LASS 2010 studied the health and well-being of former Regular Force personnel who had released from service during 1998-2007 (Thompson et al. 2011a). Mental health findings from LASS 2010 were described in several technical reports and journal publications (Thompson et al. 2014d) describing the prevalence of mental health conditions and mental health-related quality of life (Thompson et al. 2011a, 2012a, 2013a), prevalence and correlates of suicidality (Thompson et al. 2011b, 2012a, 2014c) and the synergistic role of mental and physical health comorbidity in disability (Thompson et al. 2013b, 2014b). These findings were useful both for service providers caring for individual Veterans and for the development of policies and programs designed to meet Veterans' needs.

Reserve Force Veterans were not included in the LASS 2010 study owing to limitations in the data available at the time. The CAF has increasingly drawn on Primary Reserve Force personnel to supplement the Regular Force since the 1990-91 first Gulf War including Bosnia and Afghanistan, so it is important to also study their health and well-being. The 2013 program extended the 2010 studies by including Primary Reserve Force Veterans for the first time, and by including Regular Force Veterans who had released in 1998-2012 (LASS 2013). This computer-assisted telephone interview survey was conducted by Statistics Canada for Veterans Affairs Canada (VAC) and the Department of National Defense (DND) in February-March 2013. The survey sampled former Primary Reserve Force personnel with Class A/B and C service who released from service 01 January 2003 to 31 August 2012 and Regular Force personnel who released 01 January 1998 to 31 August 2012.

The 2013 *Life After Service Survey* in (LASS 2013) extended the 2010 *Survey on Transition to Civilian Life* (LASS 2010) by including Primary Reserve Force personnel who were released in 2003-12 and Regular Force personnel who were released in 1998-2012.

In the initial LASS 2013 report, 24% of Regular Force, 17% of Reserve Class C and 9% of Reserve Class A/B Veterans had one or more of mood disorders, anxiety disorders or PTSD. Mood disorders and anxiety disorders were at least two times more prevalent in Regular Force Veterans than the Canadian general population of similar age and gender, and were also more prevalent in Reserve C Veterans than the general population though to a lesser degree (Thompson et al. 2014a). A contemporary comparator for PTSD was not available when that first report was produced. These preliminary findings indicated the need for further analysis of the mental health findings.

This report describes the LASS 2013 mental health findings in more detail. The goal was to produce a comprehensive reference document to inform policies, programs and services intended to support the mental health and well-being of CAF Veterans. The objectives were to describe need in terms of the prevalence and severity of mental health problems, identify characteristics of subgroups with and without mental health problems, describe service utilization by Veterans with mental health problems and identify possible implications of the findings for policies, programs and services. This first phase of the mental health analysis lays the foundation for part two: more precise estimates of the extent of mental health problems and

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<sup>7</sup> For this study, "Veteran" means a former CAF member with any length of service.

multivariable modelling to identify factors that identify potentially vulnerable subgroups and potentially protective factors in CAF Veterans.

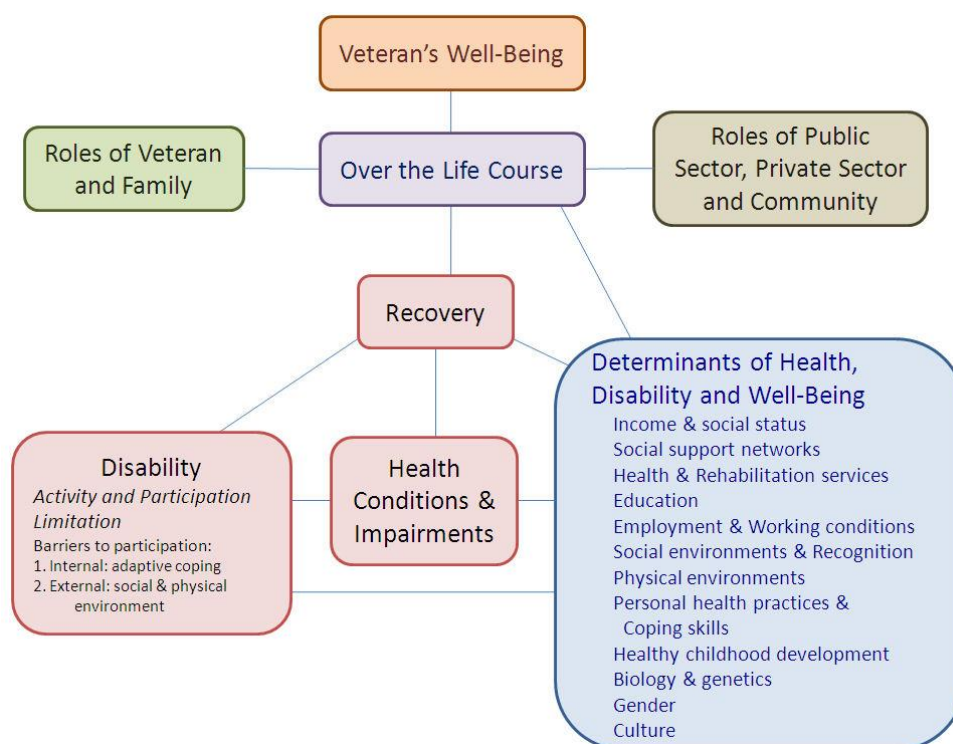
## 2. Methods

### 2.1 Conceptual Framework

The survey design and approach to the analysis in this report were based on the *Veteran's Well-being Conceptual Framework* (Thompson et al. 2012b) (**Figure 1**). Health (mental and physical) is one of the core concepts, along with disability, recovery, the determinants of health, the roles of the Veteran and his/her family, the roles of the public, private and community sectors, all operating over the life course. These core concepts interrelate to affect well-being. Government policies and programs influence health, disability and well-being primarily through determinants of health and well-being such as income, social support, health care and rehabilitation services, employment and working conditions and physical environments. Well-being is influenced by the presence of health conditions and related impairments, the experience of disability (role participation limitation), and the process of recovery. Various actors play roles, including the Veteran and their family on the one hand, and public and private sector actors on the other. All of these operate over the life course as well-being fluctuates over time.

The LASS 2010 and 2013 surveys were designed to collect data on health, disability and the determinants of health and well-being. They were not designed to provide information about recovery and the roles of the Veteran, family, public and private sectors and the community. Since the studies are cross-sectional point-in-time snapshots, life course can only be inferred by looking at age.

**Figure 1. Veterans' well-being conceptual framework.**



## 2.2 Definitions of Veteran and VAC Client

For the purposes of this study:

- Veteran means a former (ex-service) CAF member with any length of service.
- VAC client<sup>8</sup> means a Veteran who was receiving benefits from VAC as of March 2013.

## 2.3 Survey Methodology

Details of the survey methodology, sampling frame and definitions of the measures used in the study are available in a VAC Technical Report (Thompson et al. 2014a).

The survey sampled former CAF Primary Reserve Force personnel with Class A/B or C service who released from service 01 January 2003 to 31 August 2012 and Regular Force personnel who released 01 January 1998 to 31 August 2012. Electronic records were only available for Reserve Force personnel from 2003.

1. *Reserve Force Class A/B.* Veteran who was a Primary Reserve Force member with any Class B temporary full-time service in addition to Class A service.
2. *Reserve Force Reserve Class C:* Veteran who was a Primary Reserve Force member with any Reserve Class C service in addition to Class A and possibly Class B service. Since 2002, Reserve Class C service was only authorized for those deployed on operations, domestically or internationally.
3. *Regular Force.* Veteran who was a member of the Regular Force; some in this category also had service in the Reserve Force.

The sample excluded those who had Class A service only (former Primary Reserve Force members who did not have Class B or C service); had re-enrolled in the CAF; or were living in institutions, the northern Territories or outside Canada owing to small numbers and difficulties contacting Veterans in those locations.

### Mental Health Measures

Measures of mental health in LASS 2013 were three common types of diagnosed mental health conditions (mood disorders including depression, anxiety disorders and post-traumatic stress disorder, PTSD); PTSD symptoms (the Primary Care PTSD screening tool); Kessler's Psychological Distress Scale (K10); self-rated mental health; and the Mental Component Scale (MCS) of the SF-12 Short Form Health Survey (**Appendix 1**).

### Other Characteristics and Indicators

The LASS 2013 survey included a variety of characteristics and indicators for socioeconomic and military characteristics; general health; physical health; health-related quality of life; disability; stress, satisfaction and coping; and utilization of health services and unmet need (Thompson et al. 2014a).

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<sup>8</sup> "Client" includes Veterans who in the past had received a disability benefit (disability award or pension) owing to ongoing eligibility for health care benefits. It would not include a Veteran who had participated in a program in the past and was no longer in receipt of benefits, however only a very small number of VAC clients would be in that category: 98% of CAF VAC clients had disability benefits in March 2013 (VAC Quarterly Fact Sheet) and of the remainder some would have been in receipt of other benefits when the data linkage was made.

## 2.4 Statistical Methods

*Prevalence and Proportion.* Proportion is the number of people with a characteristic out of a defined group of people, for example the proportion of medically released Veterans out of those released in 1998-2012. Prevalence is the proportion of people in a population who have a characteristic at a certain point in time, for example the prevalence of mental health conditions in those who medically released. For objective characteristics obtained through data linkage, prevalence refers to the time of release unless otherwise specified. For self-reported characteristics and indicators, prevalence refers to the time of the survey in March 2013.

This report uses weighted population estimates for prevalences and proportions. Weighted estimates were calculated using individual respondent sampling weights provided by Statistics Canada that accounted for the stratified sample design, and for differences between respondents and non-respondents. **Appendix Figures 1 to 4** show the weighted prevalence of having any of the three diagnosed mental health conditions (mood disorder, anxiety disorder or PTSD) with 95% confidence intervals for sociodemographic/military characteristics, health conditions and determinants of health sociodemographic/military characteristics. Calculations were done in Stata using weighted data.

Confidence intervals around proportions are at the 95% level and were calculated with Stata using weighted data. Tests for statistically significant differences between proportions were done by comparing confidence intervals (present if not overlapping, uncertain if overlapping) or with Chi-squared tests. Tests were not conducted if differences were slight or obvious.

In tables reporting prevalences and proportions, weighted estimates were suppressed for sample sizes less than 30 respondents in keeping with Statistics Canada guidelines (designated “F”).

*Odds Ratios.* **Appendix Tables 1 to 4** show the proportions of Regular Force and Reserve Class C Veterans with and without diagnosed mental health conditions for sociodemographic/military characteristics, health conditions and determinants of health. The tables also show unadjusted odds ratios calculated with Stata using weighted data. An odds ratio compares the odds of having mental health conditions in one category of a characteristic against the odds in another category (e.g. men vs. women, or having vs. not having arthritis). Although the univariate odds ratios identify characteristics of Veterans with higher odds of having mental health conditions, they were not adjusted for the presence of confounding variables in multivariate analysis.

*Comparisons to the General Canadian Population.* Age-gender adjustments and confidence intervals were calculated only for the comparisons with the general Canadian population. For that comparison, 95% confidence intervals for population estimates were calculated using Stata. Comparisons to the Canadian general population were calculated by age-gender adjusting the Canadian comparator data to the LASS study sub-populations. Comparators were taken from the 2010 and 2011-12 Canadian Community Health Surveys (CCHS), 2010 Labour Force Survey (LFS) and 2011 Survey on Labour Income and Dynamics (SLID). Confidence intervals were calculated for the indicators of interest using public use microdata files and survey weights supplied by Statistics Canada. Since the confidence intervals were often asymmetrical, the largest interval was used and the limits were conservatively rounded up to the next tenth of a percentage point. All confidence intervals calculated in this manner are conservatively wide and ranged 0.3% to 1%.



*SF-12 Health Survey*. In calculating means and 95% confidence intervals for the physical (PCS) and mental (MCS) SF-12 summary components, respondent sampling weightings provided by Statistics Canada that accounted for the stratified sampling design were applied to individual respondents' SF-12 data.

### 3 Extent of Mental Health Problems

In this report, the phrase "mental health problems" is broadly inclusive of (1) any of the three diagnosed mental health conditions asked about in this survey, (2) other diagnosed psychological conditions not asked about in the survey, and (3) symptoms but no diagnoses. Of the four stages in the continuum of mental health -- healthy, reacting, injured and ill<sup>9</sup> – the measures used in this survey assess the latter three.

Five measures of mental health problems were used in LASS 2013, summarized in Table 1. All five are brief instruments that capture different dimensions of mental health. The more comprehensive World Health Organization Composite Diagnostic Interview (CIDI) has been used in Canadian and international surveys where the main focus was mental health, but those surveys are lengthier and require the use of in-person interviews. The brief measures used in this survey can be used in telephone interviews, reduce respondent burden, provide reasonably good estimates of mental health prevalences compared to longer measures like the CIDI (Gill et al. 2007) and allow use of a broader array of measures of well-being.

This section describes first the prevalence of mental health problems by single measures, and then the prevalences of combinations of pairs of measures. To date, analyses of the mental health findings of the LASS studies have primarily focused on diagnosed mental health conditions (Thompson et al. 2011a,b; 2012a,b; 2013a,b; 2014a,b,c). However other civilian and military population studies have established that there is a burden of mental health problems larger than captured by mental health diagnoses alone; there is a range of severity of mental health problems; and symptoms and the impacts of diagnosed conditions wax and wane. In a study of CAF personnel deployed in support of the Afghanistan mission, 9% had diagnostic criteria for acute traumatic stress, major depression or generalized anxiety, but a much larger group, 31%, reported experiencing a psychosocial problem; about an eighth (12%) had mental health-related occupational dysfunction and two-thirds of those were in the group without the assessed diagnosed conditions (Garber et al. 2012).

**Table 1. Measures of health problems used in LASS 2013.**

Mental Health Measure	Parameter Measured	Variable Type	Time Frame
<b>1. Diagnosed mental health condition (MHC)</b>	3 questions about mood disorder, anxiety disorder or PTSD that has lasted or is expected to last 6 months or more, diagnosed by a health professional, self-reported.	Categorical: Yes/No	Currently
<b>2. Self-rated mental health (SRMH)</b>	Single question: "In general, would you say your mental health is...?"	Categorical: Excellent, Very good, Good, Fair, Poor.	Currently
<b>3. Kessler K10</b>	Psychological distress; 10 questions about depression and anxiety symptoms.	Continuous: 0-40. Categorical: various methods.	Past month

<sup>9</sup> <http://www.forces.gc.ca/en/caf-community-health-services-r2mr-deployment/mental-health-continuum-model.page> viewed 20 January 2015.

Mental Health Measure	Parameter Measured	Variable Type	Time Frame
<b>4. SF-12 Short Form Health Survey mental component summary (MCS)</b>	12 questions variously thought to measure general health, or health-related quality of life, or functional health.	Continuous: 0-100. Categorical: Various methods.	Past month
<b>5. PC-PTSD</b>	4 questions that screen for probable PTSD using DSM-IV criteria.	3 or more criteria out of 4.	Past Month

### 3.1 Prevalence of Mental Health Problems – Single Measures

#### 3.1.1 Diagnosed Mental Health Conditions (MHC)

The survey asked about chronic mental and physical health conditions that had lasted or were expected to last 6 months or more and were diagnosed by a health professional. About a quarter (24%) of Regular Force, about 1 in 6 (17%) of Reserve Class C and about 1 in 10 (9%) of Reserve Class A/B Veterans had at least one of the three conditions (**Table 1**).

#### 3.1.2 K10 Measure of Psychological Distress (K10)

Kessler's K10 Psychological Distress Scale is a series of questions measuring past-month psychological distress defined as a state of emotional suffering characterized by symptoms of depression and anxiety<sup>10</sup>. The K10 has 10 questions consistent with 15 domains represented in the DSM-III-R diagnoses of major depression and generalized anxiety disorder plus the positive affect domain. K10 scores range 0-40 where higher means more distress and greater probability of meeting DSM-IV criteria for active depression or anxiety.

The K10 and K6 have been validated for screening for active depression and anxiety in several populations (McFarlane et al. 2011). The K10 does not capture psychosis, which is a relatively rare condition. An advantage of the K10 is that it captures not only those who are symptomatic with depression or anxiety, but also those with undiagnosed or subthreshold symptoms that might impact functioning (Mitchell and Beals 2011). For example, Blanc et al. (2014) found that the K10 was associated with self-rated occupational impairment in CAF serving personnel in an operational setting.

**Figure 2. Population frequencies and prevalence of diagnosed mental health conditions (MHC) by K10 degree of psychological distress.**

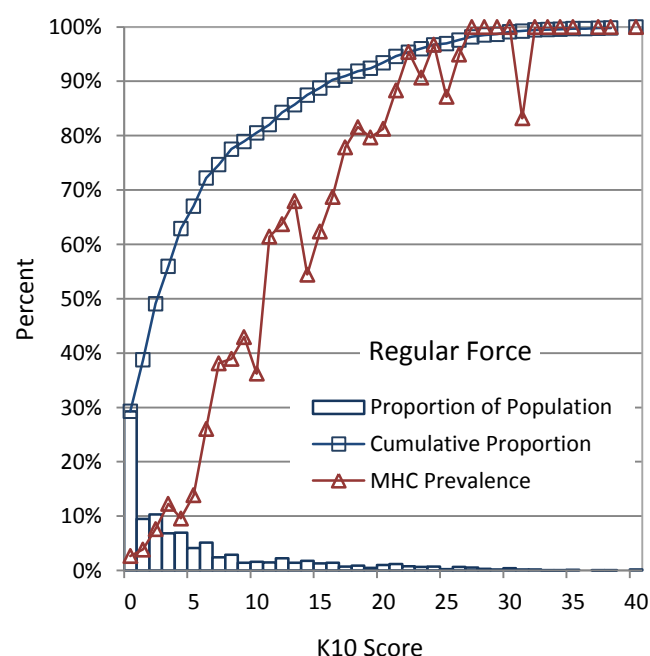


Figure 2 shows the frequency distribution of the K10 scores for Regular Force Veterans in LASS 2013. Since there are no standardized cutoffs, we adopted the Australian Center for Posttraumatic Mental Health approach<sup>11</sup> for this initial analysis (**Appendix Table 1**). Most (79%)

<sup>10</sup>Drapeau et al. [www.itechopen.com](http://www.itechopen.com).

<sup>11</sup>[http://www.acpmh.unimelb.edu.au/site\\_resources/TrainingInitiativeDocuments/follow-up/K10.pdf](http://www.acpmh.unimelb.edu.au/site_resources/TrainingInitiativeDocuments/follow-up/K10.pdf)



had scores below 10 (likely well) and nearly a third (29%) had score of zero. A fifth (21%) had scores indicating mild, moderate or severe mental disorders and 8% had severe disorders.

### 3.1.3 Self-Rated Mental Health (SRMH)

The question for self-rated mental health (SRMH) was "*In general, would you say your mental health is...?*" and the response options were "*Excellent, Very good, Good, Fair and Poor*". This question or a variant of it has been widely used in population health studies worldwide for decades. Responses correlate with health and disability outcomes as well as service utilization.

Most were doing well, since the majority reported very good/excellent SRMH: 62% of Regular Force Veterans, 67% of Reserve Class C and 70% of Class A/B (Table 2). A significant minority had less than very good SRMH: in Regular Force Veterans 39% were good/fair/poor and 16% were fair/poor. Prevalences of fair/poor SRMH were lower in Reserve Class C and lower yet in Class A/B, consistent with other mental health measures.

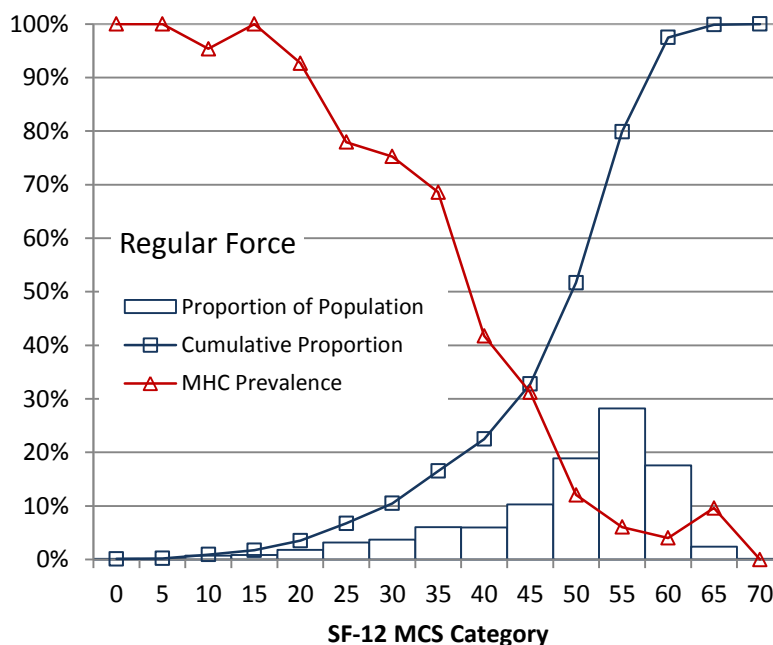
### 3.1.4 SF-12 Mental Component Summary (MCS)

The SF-12 Short Form Health Survey measures health-related quality of life (HRQoL), an important dimension of the subjective "health" experience. Since there is little consensus on a definition for "quality of life", some feel that the SF-12 component summaries can be used as measures of general mental or physical health and others suggest that it describes "functional health". People with serious disorders such as stroke can have good HRQoL and people with less serious disorders can experience poor HRQoL.

The mental component summary (MCS) measures HRQoL attributable to mental health problems based largely on the degree to which respondents in the prior 4 weeks felt calm or peaceful; or felt down-hearted or blue; whether they accomplished less or did not work as carefully as usual owing to emotional problems; did not have a lot of energy; and how often emotional problems interfered with social activities. Other questions in the SF-12 load more onto the physical component summary (PCS) than the MCS, and the two summaries tend to discriminate reasonably well between mental and physical factors. Lower scores indicate poorer "health" in a broad sense, or poorer HRQoL. The U.S. reference population mean is 50 and one standard deviation is 10.

Canadian reference means are slightly higher (Thompson et al. 2013a). Owing to the way data are transformed in deriving the SF-12 scores, lower scores indicate worse health (or health-related quality of life) in a non-linear manner: 84% of the reference population have better health than those with scores of 40 or less

**Figure 3. SF-12 Population distribution and prevalence of diagnosed mental health conditions (MHC) by SF-12 mental component summary (MCS).**



(one standard deviation), and 98% with scores of 30 or less). A difference of 2-3 points is considered meaningful.

As shown for Regular Force Veterans in the tables and this graph, a third (33%) of the population had scores below the general population norm for and about 1 in 8 (17%) had scores less than 40, signaling very poor mental health-related quality of life.

### 3.1.5 Severity of Mental Health Problems

Mental health problems range in severity from mild to severe. Mild mental health problems have mild symptoms, little impact on quality of life and are self-limited, often resolving without need for specialized intervention when socioeconomic and physical health stressors resolve. Severe problems, on the other hand, typically require multidisciplinary interventions and persist over time. Table 1 shows the range of severity of current mental health symptoms using the K10 measure of psychological distress: most (79%) were well and of the remaining 21%, 40% were mild, 24% were moderate and 36% were severe.

Of Regular Force Veterans with diagnosed mental health conditions:

- 30% had severe degrees of psychological distress using the K10 measure (7% of the population), while 34% had K10 scores in the “likely well” category.
- About half (55%) had very low mental health-related quality of life (MCS < 40) (13% of the population), while 45% had better HRQoL ( $\geq 40$ ).
- About half (55%) had fair/poor self-rated health (13% of the population), while 13% were in the excellent/very good category.

In reporting on findings from the World Mental Health (WMH) surveys, Demyttenaere et al. (2004) pointed out that the significant prevalence of mental health problems in all nations creates needs that strain health care systems around the world, making it important to identify the numbers of those most likely to need and benefit from specialized treatment. In their analysis of the WMH data, they found that mild cases were about as prevalent as moderate and serious cases, and that in all countries many with serious mental health problems were not getting treatment (Demyttenaere et al. 2004). The distribution of prevalences by severity using the K10 were similar to those found in the World Mental Health Surveys using a different measure of severity, where for the U.S. population the prevalences were also about equal: 9% mild, 9% moderate and 8% severe (Demyttenaere et al. 2004).

### 3.1.6 Summary of Single Measures for Mental Health Problems

Table 2 summarizes prevalence findings for the five measures of mental health problems. The prevalences of each of the measures of current mental health status were lower using cutoffs reflecting severe mental health states: 16% of Regular Force Veterans had fair/poor self-rated mental health, 13% had likely moderate or severe mental disorders using the K10 measure, and 17% had markedly diminished mental health-related quality of life using the SF-12 mental component summary (MCS). Using broader cutoffs to include mild as well as severe current mental health status, the prevalence of good/fair/poor self-rated health was 39%, the proportion with mild, moderate and severe mental disorders using the K10 was 21%, and the proportion with below-norm mental health-related quality of life (MCS) was 33%.

**Table 2. Prevalence of mental health problems (sample size and weighted population estimate).**

<b>Mental Health Problem</b>	<b>Reserve Class A/B n, Wt% 476, 100%</b>	<b>Reserve Class C n, Wt% 922, 100%</b>	<b>Regular Force n, Wt% 2329, 100%</b>
<b>Diagnosed mental health condition</b>			
Mood disorder	29, F	114, 12.1%	364, 17.1%
Anxiety disorder	26, F	76, 8.1%	230, 11.1%
PTSD	9, F	71, 7.5%	280, 13.1%
One or more	44, 9.1%	160, 17.1%	507, 23.8%
<b>Self-rated mental health</b>			
Very good/excellent	348, 73.7%	618, 67.2%	1499, 61.6%
Good	97, 19.9%	200, 22.0%	485, 22.6%
Fair/poor	31, 6.4%	103, 10.8%	344, 15.8%
<b>Kessler psychological distress (K10)</b>			
0-9 Likely well	422, 89.8%	759, 83.3%	1,860, 78.9%
10-14 Likely mild mental disorder	33, 6.8%	74, 7.9%	196, 8.5%
15-19 Likely moderate mental disorder	8, F	26, F	105, 5.0%
20-40 Likely severe mental disorder	8, F	58, 6.2%	151, 7.6%
10-40 Likely mild, moderate or severe mental disorder	49, 10.2%	158, 16.7%	452, 21.1%
15-40 Likely moderate or severe mental disorder	16, F	84, 8.8%	256, 12.5%
<b>Probable PTSD (PC-PTSD 3 or 4 items)</b>	29, F	105, 11.3%	308, 14.0%
<b>SF-12 Mental Component Score (MCS)</b>			
0-9	1, F	3, F	3, F
10-19	2, F	18, F	33, 1.5%
20-29	6, F	45, 4.8%	103, 5.0%
30-39	34, 7.1%	66, 7.2%	195, 9.8%
40-49	91, 19.4%	172, 18.8%	352, 16.2%
50+ (Above U.S. reference norm)	336, 71.6%	612, 66.8%	1,619, 67.2%
< 50	134, 28.4%	304, 33.2%	686, 32.8%
< 40	43, 9.0%	132, 14.3%	334, 16.5%

MCS = SF-12 mental component summary

Rates not adjusted for age, gender and other differences.

F = Sample size < 30, estimate considered unreliable.

### 3.1.6.1 Low Prevalence of Mental Health Problems in Class A/B Reservists

Reserve Class A/B Veterans had low prevalences of mental health problems compared to Reserve Class C and Regular Force Veterans. Reliable population estimates could not be calculated for the three diagnosed mental health conditions for Reserve Class A/B Veterans owing to the low sample size: only 44 respondents had diagnosed conditions, and only 31 had fair/poor self-rated mental health. These low prevalences in part relate to the younger mean age of this group. Since they had Class A/B service then they had no exposure to operational deployments, however causality cannot be inferred from this single cross-sectional survey. For this reason, the majority of the remainder of this document gives findings only for Reserve Class

## C and Regular Force Veterans.

A number of factors could explain why the prevalence of mental health conditions was lower in Reserve Class A/B Veterans. On average they were younger, physically healthier, much less likely to have released from service owing to career-ending medical employment limitations (medical release) and had much less military service than Reserve Class C or Regular Service Veterans (Thompson et al. 2014a). They were much younger on average (mean 31 years vs. 40 and 44), much more likely to have been single and less likely to have been widowed/separated/divorced. They were more likely to have been employed or in school/training. They were more likely to have had very good/excellent self-rated health and mental health, and less likely to have had either chronic physical or mental health conditions. Unlike the other two groups, none of the A/B group had deployed on operations. They were more likely have released with recruit (39%) or private (14%) rank and to have had less than 10 years of service.

Compared to Reserve Class C and Regular Force Veterans, Class A/B Reservists (non-deployed) were younger, more often had shorter lengths of service and were much less often released owing to medical employment limitations.

Owing to the cross-sectional nature of the survey (a point-in-time snapshot), conclusions cannot be drawn about causality. All that can be concluded is that compared to Class A/B Reservists, Reserve Class C and Regular Force Veterans more often had longer lengths of service and physical and mental health problems and disability, and were more often medically released.

### 3.1.6.2 Reserve Class C are more like Regular Force Veterans

Reserve Class C (deployed) Veterans were more like Regular Force (combined deployed and non-deployed) Veterans than the general Canadian population or Reserve Class A/B in terms of socioeconomic and military characteristics and health and disability indicators. The following table compares the prevalences of mental health problems in Reserve Class C and Regular Force Veterans using Chi-squared tests. There were slight differences for diagnosed mental health conditions except anxiety disorder and for self-rated mental health, but not for degree of psychological distress, possible PTSD or mental health-related quality of life. Further analyses could consider combining Reserve Class C and Regular Force groups however for the purposes of this technical report they will be reported separately.

Reserve Class C (deployed) Reservists are more like Regular Force Veterans, although there are differences.

As shown in the table below, there were no statistically significant differences between Reserve Class C and Regular Force for anxiety disorders, degree of psychological distress, probable PTSD by symptom screener and the mental component summary of the SF-12 Short Form Health Survey, but the differences for any diagnosed mental health condition, diagnosed mood disorder diagnosed PTSD and self-rated mental health were significant.

**Table 3. Comparison of Reserve Class C and Regular Force Veterans.**

<b>Mental Health Indicator</b>	<b>Reserve Class C n, Wt% 922, 100%</b>	<b>Regular Force n, Wt% 2329, 100%</b>	<b>Difference Between Reserve Class C and Regular Force*</b>
<b>Any diagnosed mental health condition</b>	17%	24%	Different
Mood disorder	12%	17%	Different
Anxiety disorder	8%	11%	Not different
PTSD	7%	13%	Different
<b>Self-rated mental health</b>			Different
Very good/excellent	67%	62%	
Good	22%	23%	
Fair/poor	11%	16%	
<b>Kessler psychological distress (K10)</b>			Not different
0-9 Likely well	83%	79%	
10-19 Likely mild	8%	9%	
20-29 Likely moderate	F	5%	
30-40 Likely severe	6%	8%	
10-40 Likely mild, moderate or severe	17%	21%	
<b>Possible PTSD (PC-PTSD 3 or more items)</b>	11%	14%	Not different
<b>SF-12 Mental Component Score (MCS)</b>			Not different
0-9	F	F	
10-19	F	2%	
20-29	5%	5%	
30-39	7%	10%	
40-49	19%	16%	
50+	67%	67%	

Prevalences not adjusted for age, gender and other differences.

F = Sample size < 30, estimate considered unreliable.

\*Chi-squared tests, significant difference if  $p < 0.05$ .

### 3.1.7 Comparison with the Canadian General Population

As shown in Table 4, Regular and Reserve Veterans had higher prevalences of diagnosed mental conditions and lower prevalences of very good/excellent self-rated mental health than Canadians in the general population after adjusting for age and gender differences (Thompson et al. 2014a)<sup>12</sup>. In Regular Force Veterans, the prevalences were almost triple for fair/poor self-rated mental health and mood disorders, nearly double for anxiety disorders, and ten times higher for posttraumatic stress disorder (Table 4). Unlike Reserve Class C and Regular Force Veterans, there were no statistically significant differences in the prevalences of fair/poor self-rated mental health or the three diagnosed mental conditions for Reserve Class A/B Veterans compared to the Canadian general population. Prevalences for individual conditions could not be calculated for A/B Reservists owing to the small sample sizes.

<sup>12</sup>Canadian general population rates were adjusted to match the age and gender profiles of each Veteran subgroup separately. This adjustment only allows comparison between the Veteran subgroup and the general population adjusted to match it but (1) it does not allow direct comparisons across the Veteran subgroups and (2) it artificially distorts the Canadian general population prevalence rates.

**Table 4. Mental health conditions general Canadian population adjusted for age and gender to the Veteran population.**

<b>Diagnosed Mental Health Condition</b>	<b>Reserve Class C 2003-2012 Wt% (95% C.I.)</b>	<b>Regular Force 1998-2012 Wt% (95% C.I.)</b>
Self-rated mental health very good/excellent <i>Canadian General Population, Adjusted<sup>1</sup></i>	67.2% (64.1-70.2%) 73.1% (72.6-73.6%)	61.6% (59.3-63.9%) 72.8% (72.3-73.3%)
Self-rated mental health fair/poor <i>Canadian General Population, Adjusted<sup>1</sup></i>	10.8% (8.9-12.9%) 5.4% (5.1-5.7%)	15.8% (5.1-5.7%) 5.6% (5.3-5.9%)
Mood disorder <i>Canadian General Population, Adjusted<sup>1</sup></i>	12.1% (10.2-14.4%) 6.6% (6.3-6.9%)	17.1% (15.4-19.0%) 6.3% (6.0-6.6%)
Anxiety disorder <i>Canadian General Population, Adjusted<sup>1</sup></i>	8.1% (6.5-10.0%) 5.9% (5.6-6.2%)	11.1% (9.7-12.7%) 5.6% (5.3-5.9%)
Posttraumatic stress disorder <i>Canadian General Population, Adjusted<sup>2</sup></i>	7.5% (5.9-9.3%) 1.5% (0.5-2.5%)	13.1% (11.6-14.7%) 1.3% (0.3-2.3%)
Any mental health condition <sup>3</sup> <i>Canadian General Population, Adjusted<sup>2</sup></i>	17.1% (14.8-19.7%) 9.2% (8.6-9.8%)	23.8% (21.9-25.9%) 8.7% (8.1-9.3%)

C.I. = Confidence Interval.

<sup>1</sup>2011-12 Canadian Community Health Survey (CCHS).

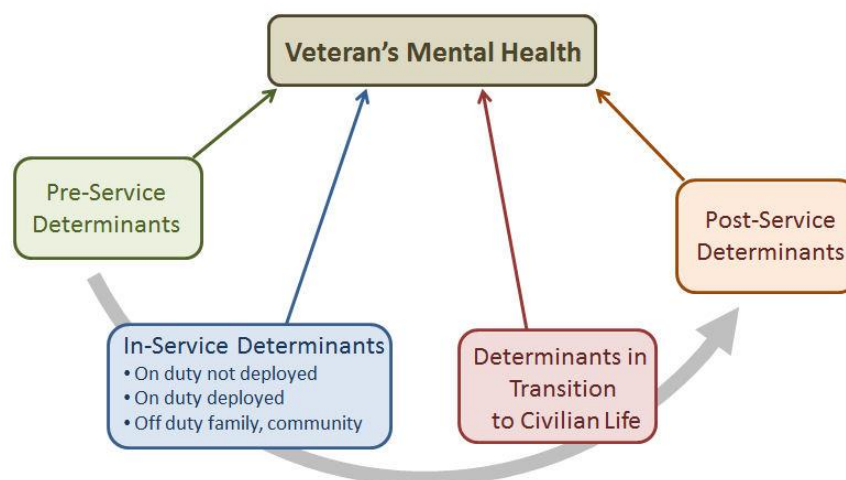
<sup>2</sup>2012 CCHS Mental Health Supplement.

<sup>3</sup>One or more of mood disorder, anxiety disorder, PTSD.

It is not yet known why the prevalences of diagnosed mental health conditions were higher in CAF Veterans compared to the general population. In LASS 2013, mental conditions appear to be more prevalent in deployed Reservists and Regular Force Veterans released since 1998 than in serving personnel in both CFMHS 2002 and 2013 (Statistics Canada 2003, 2014; Asmundson 2000; Pearson et al. 2014) and in largely prior-era Regular and Reserve Force Veterans surveyed in CCHS 2003 (MacLean et al. 2013). This is a list of hypotheses for the differences:

- *Life course factors.* Multiple life course factors determine the mental health of military Veterans in post-service life and many remain to be identified (Figure 4).

**Figure 4. Life course perspective of the determinants of Veterans' mental health.**



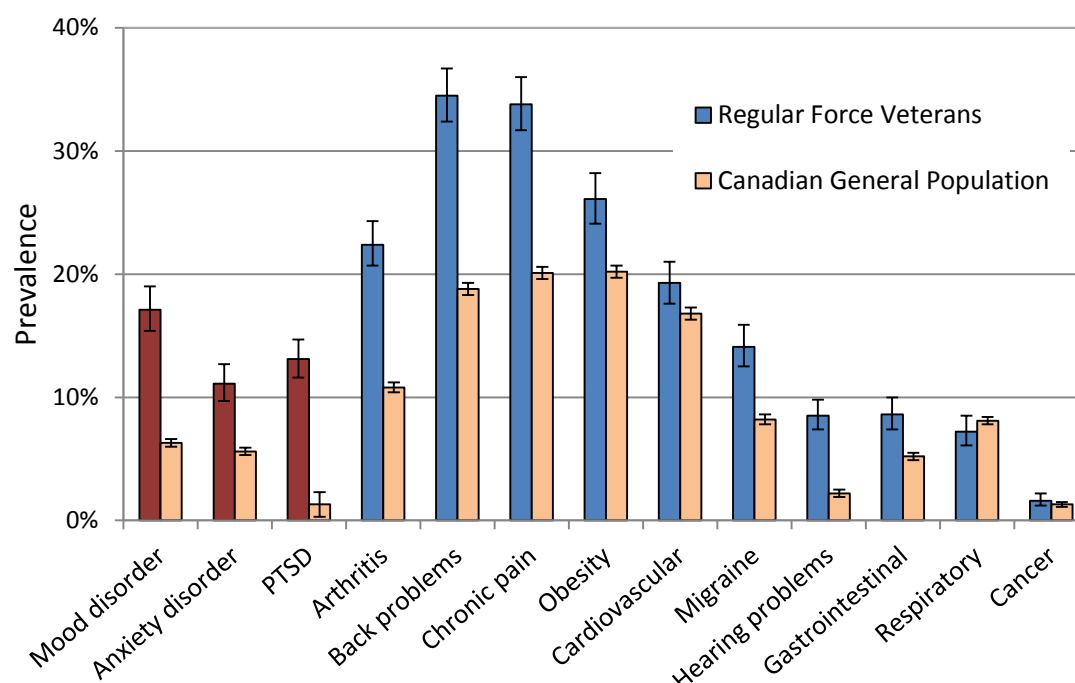


- *Survey differences.* Socioeconomic and occupational differences in the populations studied and methodological differences between the surveys must be considered in making comparisons between surveys.
- *Differences in mental health measures* (Hunt et al. 2014, Castro and Warner 2014). The mental health measure used in LASS 2013 and the CCHS 2012 comparator was self-report of a diagnosed condition that had lasted or was expected to last 6 months or more, while the CFMHS of serving personnel assessed symptoms using the World Mental Health Composite International Diagnostic Interview (WMH-CIDI).
- *Differences in recognition.* Mental health conditions, particularly PTSD, might be recognized and diagnosed relatively more frequently in military populations than civilian populations owing to the CAF's destigmatization efforts, relatively greater access to mental health services for serving personnel and Veterans, and media attention to PTSD in military populations.
- *Effect of military service.* Military service is a unique high demand occupation, so it is likely that service factors play a role to some extent in later life mental health for some (Greenberg 2014). Merely having deployed has been shown in several recent studies not to be associated independently with adverse outcomes such as suicide, suicidal ideation, unemployment and disability in military Veterans (Thompson et al. 2014b, 2014c, Leardmann et al. 2013, Gubata et al. 2013, Garber et al. 2012). Effects of service and deployment experiences need to be nuanced and disentangled from non-military factors. Mental health problems are more prevalent following deployment to high threat locations and with specific types of combat exposure, but most who deploy do not experience mental health problems and problems also occur in serving personnel and Veterans who never deployed (Pietrzak et al. 2012, Boulos and Zamorski 2013, Thompson et al. 2014b, Wisco et al. 2014). Analyses of the CAF Mental Health Survey 2002 data showed that CAF deployment to peacekeeping operations was not associated with increased prevalence of mental disorders and perceived need for care, except when there was exposure to combat and witnessing of atrocities (Sareen et al, 2007). They also found that while PTSD was associated with exposure to combat, the majority of 'mental health outcomes' (mental disorders, perceived need and service use) were not attributable to combat or peacekeeping deployment, highlighting the roles of other determinants of mental health (Sareen et al, 2008, 2013). More recent analysis of the CFMHS 2013 data is providing greater insights into the specific types of deployment exposures that are associated with a greater likelihood of mental health problems.
- *Medical release.* The CAF's policy of releasing members with medical employment limitations who do not meet universality of service standards could have led to a disproportionate prevalence of health problems among recent Veterans compared to the general population, since serving personnel were not included in the LASS surveys.
- *Physical health.* Chronic physical health conditions were more prevalent than chronic mental health conditions in this population. Like the three mental health conditions, several chronic physical health conditions were considerably more prevalent in Veterans than in the general Canadian population, particularly conditions commonly associated with chronic pain (**Figure 5**; Thompson et al. 2014a, VanDenKerkhof et al. 2015). Since mental disorders can arise secondarily to distressing chronic physical conditions (Patten 2001, Hilderink et al. 2012, El-Gabalawy et al. 2012, 2015), it is possible that the higher prevalences of mental conditions could be explained in part by the excess in physical conditions.
- *Subpopulation differences.* Health and disability problems are more common in client than non-clients and the response rate was higher for clients owing to better trace data (Thompson et al. 2014a), however the difference in response rates between clients and non-clients was factored into respondent weightings.

- *Impact of transition experiences.* The effects of stressors on health and well-being during the process of transition to civilian life on post-service mental health are unclear, but there is evidence that difficult transitions are associated with mental health problems (Greenberg 2014). Difficult transition was associated with medical discharge in CAF Regular Force Veterans surveyed in 2010 (MacLean et al. 2014).
- *Late onset/recognition of mental disorders.* Delayed-onset PTSD and delayed recognition/diagnosis are known to occur. In analysis of serving personnel surveyed in CFMHS 2002, Fikretoglu et al. (2012) found that 9% of those with lifetime PTSD had delayed-onset PTSD. In studies of UK military personnel, those with delayed-onset PTSD were more likely to have had psychological ill-health earlier, particularly subsyndromal PTSD (Goodwin et al. 2012, Hunt et al. 2014). The extent to which delayed onset might contribute to the prevalence of PTSD in CAF Veterans released since 1998 is unclear.
- *Effects of bias.* Researchers have considered a number of potential biases unique to surveys in high demand occupations which might explain higher rates, such as differential selection of individuals with adverse childhood backgrounds who seek the stability of military life; potential response bias in health surveys of members of a common occupation; and the effect of potential compensation eligibility (Stansfeld et al. 2013, Goodwin et al. 2013, Sareen et al. 2013, Kessler et al. 2014, Ursano et al. 2014, Goodwin et al. 2015). Sareen et al. (2013) found that the likelihood of CAF serving personnel having adverse mental health was higher in those with both adverse childhood experiences and deployment-related trauma than either of those alone. Symptoms of depression and anxiety were more prevalent in U.K. serving personnel with histories of adverse childhood experiences (Goodwin et al. 2015). Sources of response bias include reluctance of serving personnel to acknowledge a mental health condition owing to stigma concerns, and the possibility that ex-military personnel might be more likely to acknowledge a mental condition owing to the societal trend toward normalization of mental illness and because compensation is available (Rona et al. 2012).
- *Proximal (post-service) determinants of health.* Finally, much remains to be learned about the roles of proximal (post-service) determinants of mental health in military Veterans relative to earlier life course factors.

The differences in self-reported diagnosed PTSD prevalence between the age- and gender-adjusted Canadian general population and Regular Force (8 times) and deployed Reserve Force Veterans (5 times) are considerable (Table 4). This estimate is consistent with the 14.0% prevalence estimated using the PC-PTSD screener (Table 2). The two measures, though consistent, identified PTSD in slightly different segments of the population (see section 3.2.4). Estimates of PTSD prevalence in Veterans across other studies are inconsistent owing in part to differences in methodologies and population frames (Hunt et al. 2014, Hoge and Warner 2014). The LASS 2013 estimate for Regular Force Veterans using self-reported diagnosis of 13.1% is consistent with the 13.5% prevalence in recent-era U.S. Veterans measured using the PLC symptom checklist (Dursa et al. 2014). Those prevalences are higher than the estimates of 4.8% current and 8.0% lifetime PTSD found in another recent study of U.S. Veterans using the PLC symptom checklist (Wisco et al. 2014), however the latter study included Veterans from all eras, not just the recent era, and 42% were aged 60+ yrs. This elderly age group had the lowest prevalence of current PTSD (2.5%) while the prevalence was 9.1% in those aged 21-29 yrs, 8.2% in 30-34 and 7.2% in those aged 45-59. Veterans surveyed in LASS 2013 were young and middle-aged adults.

**Figure 5. Prevalences of chronic mental and physical health conditions in Regular Force Veterans, compared to the general Canadian population matched to the Veterans for age and sex.**



The age and sex-adjusted Canadian general population prevalences of 1.3-1.5% for diagnosed PTSD is lower but of similar general magnitude to other estimates. The prevalence estimated for the whole population of Canadians aged 15+ in 2012 was 1.7% (1.4 - 2.0%; CANSIM online in November 2014). Van Ameringen et al. (2008) found that the past-month prevalence of PTSD in the Canadian general population was 2.4% in adults sampled in 2008 using the WMH-CIDI. There are considerably fewer women in the Veteran population than the general population, and Van Ameringen et al. (2008) found that significantly more women than men met criteria for full and subsyndromal PTSD. In the UK in 2007, the prevalence of current PTSD in the adult general population using a symptom screener was 3.0% (Hunt et al. 2013). In the US general population, prevalence of past-year PTSD in 2001-03 was 3.5% and was about three times higher in women (Kessler et al. 2005). The prevalence in the Australian general population was 4.4% but that was past-year (McEvoy et al 2011).

## 3.2 Prevalence of Mental Health Problems – Combinations of Measures

This section provides insights into overlaps and differences between diagnosed chronic mental conditions and the indicators of mental health problems that measure current symptoms and mental-health related quality of life. Many Veterans who had one of the three chronic diagnosed mental conditions did not have current problems by the other measures, while some who did not have diagnosed conditions had other measures of mental health problems.

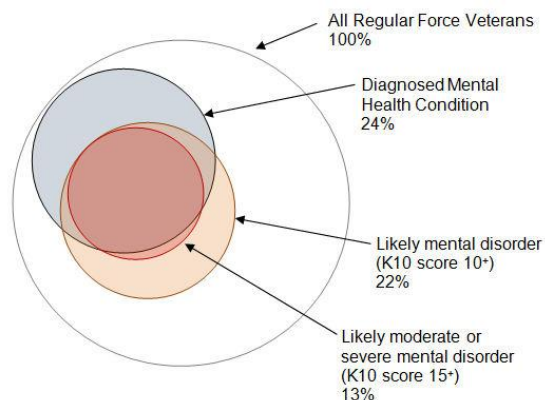
### 3.2.1 Diagnosed Mental Health Conditions versus K10 Psychological Distress

Of the 23% of Regular Force Veterans with one or more diagnosed mental health condition, 21% had mild psychological distress (K10 score 10-15), 15% had moderate distress (K10 15-20) and 30% had severe distress (K10 20-40) (calculated from the values in Table 5). However 34% of those with a diagnosed mental condition scored well on the K10 (score <10), so either

their diagnosed condition was not causing psychological distress at the time of the survey or the K10 did not capture symptoms they were experiencing.

Of the 77% of Regular Force Veterans who had none of the diagnosed mental health conditions, 10% had a mental disorder by K10 (score 10-40).

Of the 8% of Regular Force Veterans with a high degree of psychological distress (K10 score 20-40) 93% had a diagnosed mental health condition, as did 85% of the 13% with moderate or severe (K10 15-40) and 73% of the 22% with mild, moderate or severe distress (K10 10-40).



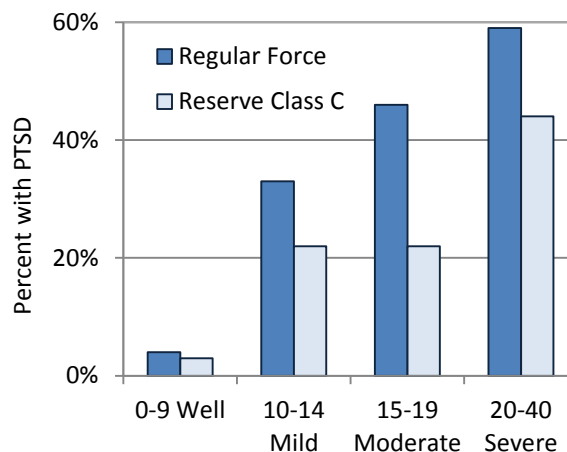
**Table 5. Population estimates for K10 psychological distress versus diagnosed mental condition.**

Diagnosed Mental Health Condition	Likely Well Wt%	Likely Mild Disorder Wt%	Likely Moderate Disorder Wt%	Likely Severe Disorder Wt%	Total Wt%
<b>Regular Force:</b>					
None	71%	4%	1%	1%	77%
Any	8%	5%	4%	7%	23%
Total	79%	9%	5%	8%	100%
<b>Reserve Force Reserve Class C:</b>					
None	76%	5%	1%	1%	83%
Any	7%	3%	2%	5%	17%
Total	83%	8%	3%	6%	100%

### 3.2.1.1 K10 and PTSD

The K10 was designed to detect the presence of severe mood and anxiety disorders. Figure 6 shows that there was correlation between the K10 and PTSD: The proportion of those with PTSD was greater at higher K10 scores, and very few had little or no K10 psychological distress. Although not designed specifically for PTSD, there is symptom overlap and depression and anxiety are commonly comorbid in persons with PTSD.

**Figure 6. Self-reported PTSD diagnosed by a health professional, by degree of K10 psychological distress.**

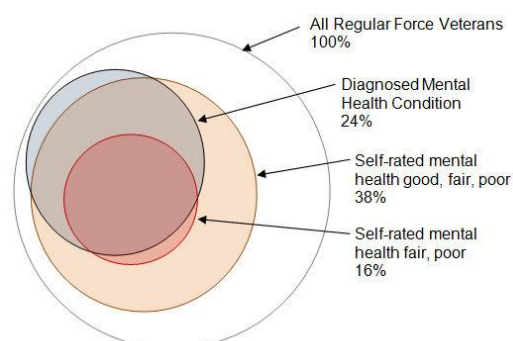


### 3.2.2 Self-Rated Mental Health Associations

#### 3.2.2.1 Association between Diagnosed Conditions and Self-Rated Mental Health

Of the 24% of Regular Force Veterans with one or more diagnosed mental health conditions, 13% had very good/excellent SRMH, 32% good and 55% fair/poor (Table 6). The “good” SRMH category was included because it is associated with adverse well-being indicators, though to a lesser degree than fair/poor SRMH.

Of the 76% of Regular Force Veterans who had none of the diagnosed mental health conditions, 20% had good and 4% had fair/poor SRMH.



Of the 16% of Regular Force Veterans with fair/poor SRMH, 83% had a diagnosed mental health condition, as did 54% of the 38% with good/fair/poor SRMH. Of those with excellent/very good SRMH, the great majority (95%) of Regular Force Veterans had none of the three diagnosed conditions. Of those with good/fair/poor SRMH, 61% had none of the conditions (20% of the population).

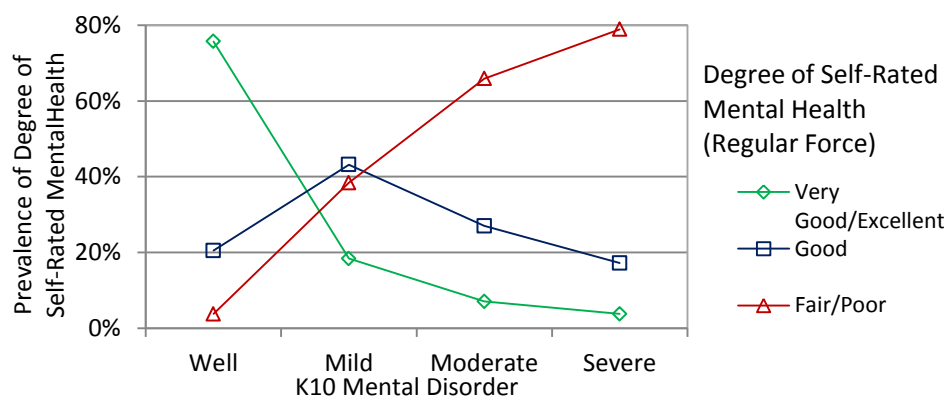
**Table 6. Population estimates for self-rated mental health versus diagnosed mental condition.**

Diagnosed Mental Health Condition	Self-Rated Mental Health			Total Wt%
	Excellent or Very Good	Good	Fair or Poor	
	Wt%	Wt%	Wt%	
Regular Force:				
None	59%	15%	3%	76%
Any	3%	8%	13%	24%
Total	62%	23%	16%	100%
Reserve Class C:				
None	63%	17%	3%	83%
Any	4%	5%	8%	17%
Total	67%	22%	11%	100%

#### 3.2.2.2 Association with Between K10 and SRMH

Figure 7 demonstrate the relationship between self-rated mental health and the K10 degree of psychological distress. There were expected relationships between the K10 categories and the

**Figure 7. Prevalence of degree of SRMH by K10 severity of mental disorder.**





prevalences of both very good/excellent SRMH and fair/poor SRMH. The prevalence of “good” SRMH was highest in the mild K10 category and lower at either end.

Table 7 shows only moderate correlation between K10 and SRMH categories (Kendall's Tau-B = 0.6,  $p = 0.02$ ). About a fifth (21%) of the 8% with severe K10 had good, very good or excellent SRMH, and more than a third (41%) with the 16% with fair/poor SRMH had likely well or mild K10 degrees of psychological distress.

**Table 7. Cross table of self-rated mental health by K10 degree of psychological distress.**

K10 Psychological Distress	Self-Rated Mental Health			Total
	Very good/ Excellent	Good	Fair/Poor	
0-9 Likely Well	59.8%	16.2%	3.0%	79.0%
10-14 Likely mild mental disorder	1.6%	3.7%	3.3%	8.5%
15-19 Likely moderate disorder	0.4%	1.3%	3.3%	5.0%
20+ Likely severe disorder	0.3%	1.3%	6.0%	7.5%
Total	62.0%	22.5%	15.5%	100.0%

### 3.2.2.3. Interpretation of SRMH

In this study, there were respondents with low SRMH who did not report or did not have one of the three diagnosed mental conditions asked about in the survey and conversely almost one in eight with diagnosed conditions had very good/excellent SRMH. Similarly there was only moderate correlation between SRMH and the K10. This is consistent with research showing that a variety of factors influence how respondents answer this question, and that symptomatology of mental disorders can fluctuate, especially in depression.

In investigating the perceived health question used in Canadian population studies, Shields et al. (2001) found that self-rated health was associated with physical health, health behaviours, psychosocial indicators and socioeconomic status. Mawani and Gilmour (2010) analyzed data from the 2002 Mental Health Supplement to the Canadian Community Health Survey to compare SRMH with three measures of mental health morbidity: CIDI symptom criteria for a psychological disorder, K6 measure of non-specific psychological distress and self-reported mental health conditions. SRMH was strongly associated with all three when controlling for the presence of sociodemographic characteristics and physical health conditions, and the association was strongest for measures with a more recent time frame than those with longer timeframes, such as lifetime mental disorder prevalence. They found that 27% of those with a CIDI mental disorder did not self-rate their mental health as fair or poor. These findings are consistent with the fluctuations of mood and anxiety disorder symptomatology and impacts during the life course. They concluded that SRMH cannot be used as a measure of mental disorders, but that it is a useful measure for monitoring population mental health.

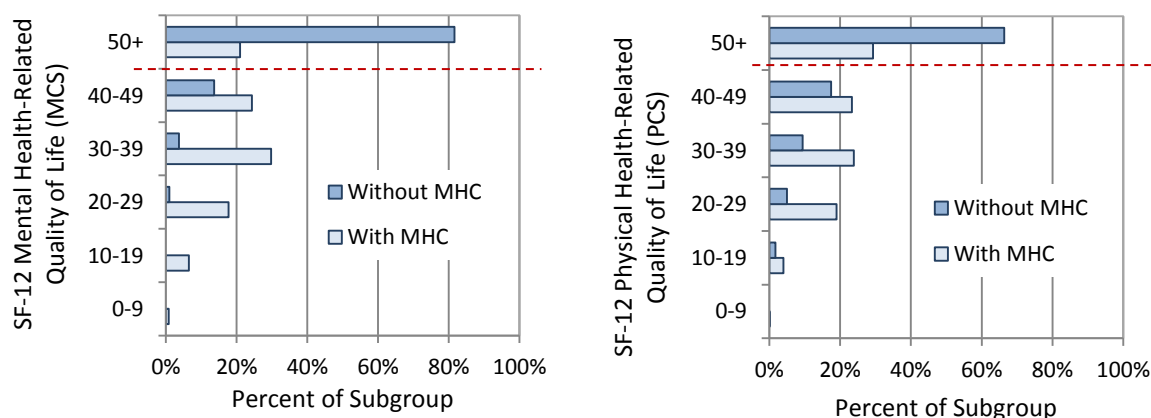
In an Israeli general population survey, Levinson and Kaplan (2014) compared three single questions: self-rated general health (SRGH), self-rated physical health (SRPH) and self-rated mental health (SRMH). They found that while SRPH was correlated with the presence of self-reported physical conditions, SRMH was not correlated with either physical conditions or CIDI 30-day mental disorders, but was correlated with SRGH even more strongly than was SRPH. They concluded that SRMH is a different concept from mental illness, instead measuring mental health.



Ahmad et al. (2014) recently published a comprehensive scoping literature review of research into self-rated mental health. They found moderate correlations between SRMH and mental health scales which indicated that they are related but not interchangeable. They found correlations between SRMH and physical and mental health problems, increased service utilization and lower likelihood of satisfaction with health services. Correlations have been found between SRMH and socioeconomic factors, ethnicity, and social factors, with varying consistency. While it is clear that SRMH measures dimensions of mental health, it is still unclear exactly what other factors the item is measuring. However they also hypothesized, based on longitudinal studies of the self-rated health question, that SRMH might be capturing incipient or undiagnosed mental health problems in addition to fully developed disorders.

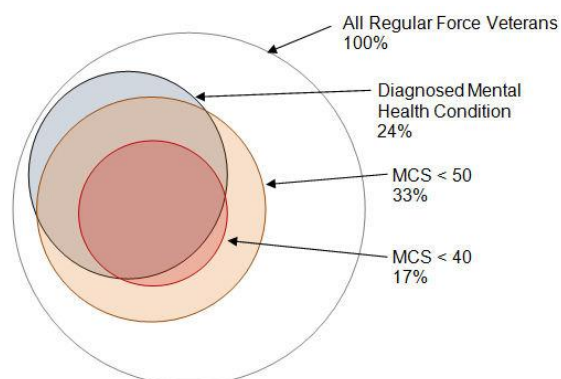
### 3.2.3 SF-12 Diagnosed Mental Health Conditions versus Mental Component Summary (MCS)

Both MCS (mental) and PCS (physical) are correlated with the presence of diagnosed mental health conditions, as shown in the figures below. As shown in the two frequency distributions below, the majority without diagnosed mental conditions had above-average HRQoL (Regular Force 82%). The majority with mental conditions had below-average physical and mental



HRQoL, consistent with the high levels of comorbidity of physical health conditions in those with mental health conditions. Note that 21% with diagnosed mental health conditions had above average MCS, and 18% without diagnosed conditions had below average MCS.

There was considerable overlap between diagnosed mental conditions and low mental HRQoL (MCS). Table 8 compares diagnosed conditions for two MCS cut-offs: less than the reference population mean of 50 (below average HRQoL) and less than 40 (more than 1 standard deviation below average, indicating markedly diminished HRQoL). Of the 24% with a diagnosed mental health condition, 78% had MCS less than 50 and 55% had MCS less than 40. Nearly a quarter (22%) with diagnosed conditions had above-norm HRQoL. A significant proportion without one of the diagnosed conditions had below-norm mental HRQoL, possibly owing to undiagnosed or subthreshold symptoms.



**Table 8. Population estimates for SF-12 mental component summary (MCS) versus diagnosed mental condition for two cutoffs (<40 and <50).**

Any diagnosed mental health condition	SF-12 Mental Component Summary (MCS)					
	Reserve Class C			Regular Force		
	MCS < 40	MCS ≥ 40	Total	MCS < 40	MCS ≥ 40	Total
No	5%	78%	83%	4%	73%	76%
Yes	9%	8%	17%	13%	11%	24%
Total	14%	86%	100%	17%	83%	100%

Any diagnosed mental health condition	SF-12 Mental Component Summary (MCS)					
	Reserve Class C			Regular Force		
	MCS < 50	MCS ≥ 50	Total	MCS < 50	MCS ≥ 50	Total
No	20%	63%	83%	14%	62%	76%
Yes	13%	4%	17%	19%	5%	24%
Total	33%	67%	100%	33%	67%	100%

### 3.2.4 Diagnosed PTSD versus PC-PTSD Screener

PTSD only became a discrete diagnostic category in 1980. The LASS 2013 survey included a symptom-based measure of PTSD called the Primary Care PTSD screener (PC-PTSD). The PC-PTSD consists of 4 questions asking whether the respondent has ever had an experience that was so frightening that in the past month they have had any of four PTSD symptoms using DSM-IV criteria (**Appendix Table 1**). The cut-off for probable PTSD used here is 3 or more, consistent with practice in the U.S. VA where those with positive screens are referred for clinical assessments to determine whether they have PTSD (Bliese et al. 2008, Prins et al. 2003).

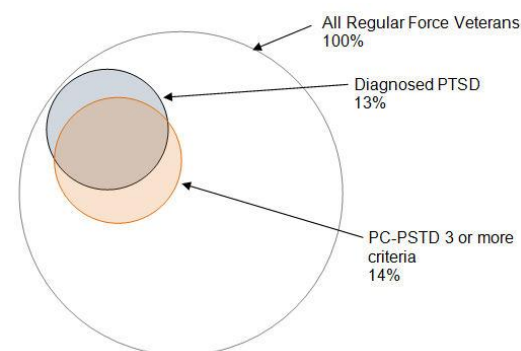


Table 9 below compares self-reported diagnosed PTSD that had lasted or was expected to last 6 months or more with current (past month) PTSD symptoms using the PC-PTSD screener. In Regular Force Veterans, 13% were diagnosed with PTSD. Of those, 38% (5%/13%) did not meet the screening criteria for probable PTSD. This suggests that about a third with a diagnosis of PTSD were not highly symptomatic in the month prior to the survey.

Conversely, 42% of Regular Force Veterans who screened positive for past-month PTSD did not have a diagnosis of PTSD, representing 6% of the population (Table 9). The proportion was higher in Class C Reservists (63%). This suggests unmet need for recognition and diagnosis of PTSD. Emerging evidence demonstrates considerable variation between individuals in PTSD over the life course, fluctuating between no PTSD, subsyndromal PTSD and full PTSD (Bryant et al. 2013). In the UK military, delayed onset PTSD accounted for up to half of cases, but many had subsyndromal PTSD prior to developing the full syndrome (Hunt et al. 2014).

**Table 9. Comparison of diagnosed PTSD with the PC-PTSD screener.**

PC-PTSD Positive	Diagnosed PTSD					
	Reserve Class C			Regular Force		
	Yes	No	Total	Yes	No	Total
No	3%	86%	89%	5%	81%	86%
Yes	4%	7%	11%	8%	6%	14%
Total	7%	93%	100%	13%	87%	100%

### **3.2.5 Summary for Combinations of Measures for Mental Health Problems**

The findings indicate that the five measures of mental health appear to measure somewhat different dimensions of mental health. A significant proportion of Veterans with diagnosed conditions had good current mental health measured as very good/excellent self-rated mental health, absence of psychological distress or good mental health-related quality of life. Conversely, a proportion without diagnosed conditions had mental health problems measured as fair/poor self-rated mental health, psychological distress or poor mental health-related quality of life. Similarly the measures of self-rated mental health, K10 psychological distress and SF-12 mental health-related quality of life varied when directly compared with each other.

The remainder of this report generally focusses on diagnosed chronic mental health conditions because the great majority of Veterans who participate in VAC programs (98%) have disability benefits for diagnosed medical conditions. However, since the threshold for eligibility for the rehabilitation program is a health problem rather than a diagnosed condition, and since undiagnosed mental health problems can have significant impacts, further analysis is under way using a combination of measures to study mental health problems in the Veteran population.

## **4. Determinants and Impacts of Mental Health Conditions**

This section explores potential determinants and impacts of mental health problems. LASS 2013 was a point-in-time snapshot (cross-sectional survey) so, while it is possible to identify statistical associations between mental health problems and various factors, conclusions cannot be drawn about whether a causal relationship exists and therefore the direction of causality.

Mental health problems can impact Veterans and families in a variety of ways, including ease of adjustment to civilian life, social relationships, employment, income, quality of life, disability, suicidality and resource utilization. However these factors can also act as determinants of mental health, for example by contributing to the onset or chronicity of mental health problems. For example, impairments related to a mental health condition such as difficulty concentrating or problem behaviours might contribute to work disability and unfavorably impact income, but satisfactory employment and sufficient income can also help in recovery and prevent adverse mental health and behavioral problems. Similarly chronic pain has been shown to precede the onset of depressive disorders (Hilderink et al. 2012), but chronic pain has a complex bidirectional causal relationship with mental health (Patten 2001, El-Gabalawy et al. 2012, 2015).

Emerging evidence from the U.S. and U.K. suggests that serving and former military personnel with mental health problems are more likely to have mental health problems and vulnerabilities earlier in their life courses, prior to enlistment and during service (Iverson et al. 2005, 2007, Kessler et al. 2014, Rossellini et al. 2014). Less is known about the importance of exposure to determinants of Veterans' mental health in civilian life after service relative to service factors. It is clear that no one factor predominantly explains mental health prevalences in Veterans during

life after service. Evidence from Canadian, U.K. and U.S. studies indicate that non-military factors play important roles, just as they do in civilian populations (Leardmann et al. 2013, Nock et al. 2013, Greenberg 2014, Boulos and Zamorski 2013).

## 4.1 Socioeconomic Characteristics

As in the Canadian general population (Arnett 2006), the likelihood that Veterans had mental health conditions was associated with socioeconomic factors. Table 10 gives unadjusted<sup>13</sup> odds of having one or more of the mental conditions for a variety of socioeconomic characteristics relative to the odds in a comparison category (see also **Appendix Table 1**). The odds of Regular Force Veterans aged 40-49 having a mental health condition were 2.4 times higher than those aged 60-69. In Regular Force Veterans, the odds of having mental health problems were significantly elevated and high in those aged 40-49, women, widowed/separated/divorced, education other than university degree, not being employed (particularly not able to work) and low income.

The picture for Reserve Class C was largely similar with a few differences: the odds of mental conditions were highest in the 50-59 year age group; single/never married in addition to widowed/separated/divorced; odds not elevated for post-secondary education other than university degree; and no correlation with 2 of the 3 lowest income adequacy quintiles<sup>14</sup>. Reasons for these differences between the Reserve Class C and Regular Force populations are not readily explained by socioeconomic status, since there did not appear to be obvious differences in the prevalences of labour force participation and income (compare the total columns in the table below). However, Reserve Class C Veterans were younger and more often were women, had higher education, released at junior non-commissioned member rank and had shorter lengths of service.

**Table 10. Unadjusted odds ratios for mental health conditions by socioeconomic characteristics.**

Socioeconomic Characteristic		Unadjusted Odds Ratio	
		Reserve Class C	Regular Force
Age:	20-29 years of age	0.93	0.94
	30-39	1.59	1.92**
	40-49	3.10**	2.39***
	50-59	3.52**	1.58**
	60-69	1.00	1.00
Gender:	Men	1.00	1.00
	Women	1.28	1.55**
Marital Status:	Married, common law	1.00	1.00
	Widowed, separated, divorced	2.61**	2.15***
	Single, never married	1.83**	1.26
Education:	Less than high school	7.00***	2.53**
	High school	2.03**	1.83***
	Post-secondary not bachelors	1.40	2.01***
	Post-secondary bachelors or higher	1.00	1.00

<sup>13</sup> Not adjusted for the potential confounding effects of other factors.

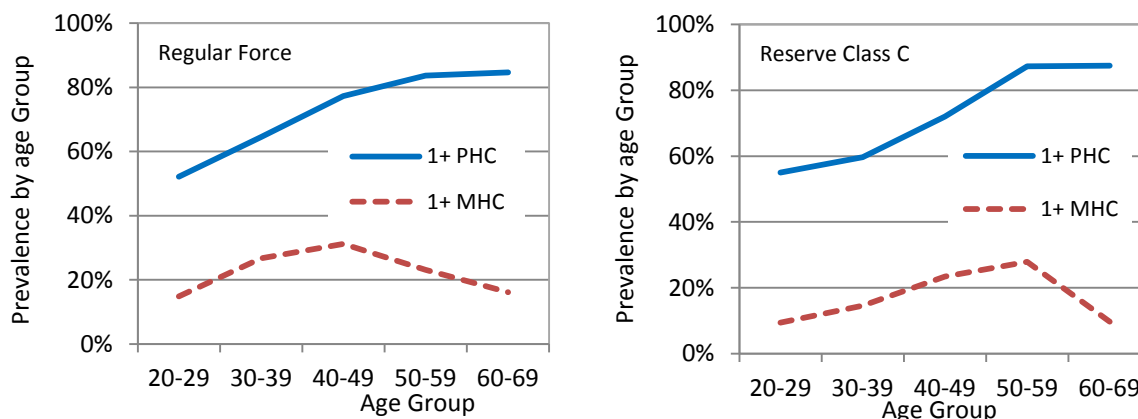
<sup>14</sup> Income adequacy was measured by dividing self-reported household income by Statistics Canada's Low Income Measure for the number of persons in the household (Tjepkema et al. 2013).

Socioeconomic Characteristic	Unadjusted Odds Ratio	
	Reserve Class C	Regular Force
Labour force participation:		
Employed	1.00	1.00
Unemployed	2.86**	2.08**
Not working/looking	2.66***	2.71***
Unable to work	10.70***	17.19***
Income below LIM	2.61***	1.70**
Income adequacy quintile <sup>15</sup> :		
Low 1	3.18***	3.29***
2	1.43	2.63***
3	1.31	1.85**
4	1.40	1.40
High 5	1.00	1.00

Unadjusted odds of having any of the mental health conditions relative to either not having the characteristic or a reference category in the same characteristic; F = sample size less than 30, estimate unreliable; NC = not calculated; Asterisk indicates statistical significance of the odds ratio: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

#### 4.1.2 Age

The age profiles of the Veteran subgroups were very different from each other and from adults in the Canadian general population. The mean age of Reserve Class A/B Veterans (31 years) was much lower than Reserve Force C Veterans (40) who in turn were younger than Regular Force Veterans (44). In contrast, the mean age of adults aged 20 and older in the 2013 Canadian general population was 49 years. The following graphs demonstrate the importance of considering age in making comparisons between populations.



The prevalence of chronic physical<sup>16</sup> health conditions increased with age while the prevalence of chronic mental<sup>17</sup> health conditions was highest in the middle age groups. These trends are similar to the Regular Force Veterans studied in LASS 2010 (Thompson et al. 2011a) and to

<sup>15</sup> Income adequacy was measured by dividing self-reported household income by Statistics Canada's Low Income Measure for the number of persons in the household (Tjepkema et al. 2013).

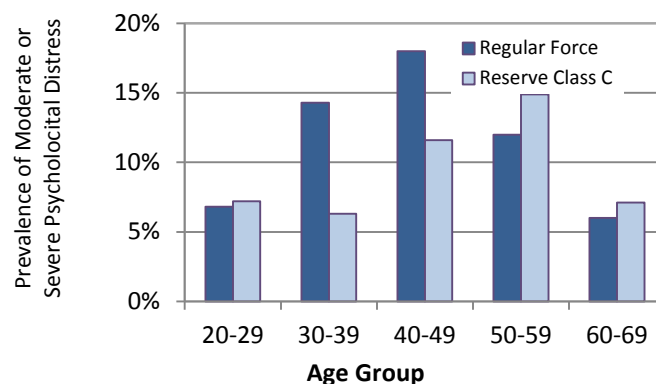
<sup>16</sup> PHC = Any one of: musculoskeletal condition (arthritis or back problem), cardiovascular condition (heart disease, effects of stroke or high blood pressure), gastrointestinal condition (ulcer or bowel disorder), respiratory condition (asthma or COPD chronic obstructive pulmonary disease), central nervous system condition (migraine, dementia or effects of TBI traumatic brain injury), urinary incontinence, diabetes, cancer, obesity, hearing problem or chronic pain/discomfort).

<sup>17</sup> MHC = Any one of mood disorder, anxiety disorder or posttraumatic stress disorder (PTSD).

population studies of similarly aged adults in the Canadian general population (Mawani and Gilmour 2010). As Arnett (2006) pointed out, a survey of employees in the Canadian general population found that combining work and care of dependents, which is typical of people in these adult age groups, impacted negatively on perceived health, more so on mental than physical health (Duxbury and Higgins 2003). This suggests that the combined stresses of work and family life play roles in the higher prevalences of mental health conditions in the 30-59 year age groups.

The Kessler K10 measure of psychological distress showed a similar distribution with age: the prevalence of moderate or severe psychological distress (score 15-40) was highest in the middle age groups (**Figure 8**). This is consistent with a study of U.S. Veterans living in the general population, where the odds of past-month mental distress assessed with a single item were elevated in Veterans aged 40-64 but were not elevated in younger and older Veterans (Blosnich et al. 2014).

**Figure 8. Prevalence of moderate or severe psychological distress (K10) by age group.**



#### 4.1.3 Gender: Mental Health in Men and Women

In the 2013 Canadian general population 51% of adults aged 20 and older were women. The proportions of women in the Veteran groups were much lower:

- Reserve Class A/B 19% (95% confidence interval 15-22%)
- Reserve Class C 23% (21-26%)
- Regular Force 13% (12-15%)

In unadjusted regression analysis, Regular Force women Veterans were 1.6 times more likely than men to have mental conditions and the difference was statistically significant (**Appendix Table 1**). In Class C Reservists the odds ratio for women was 1.3 but the difference was not statistically significant. As shown in Table 11, there were significant differences between women and men for self-rated mental health in Regular and Reserve Class C and K10 scores in Regular Force Veterans and for the presence of one or more diagnosed mental conditions in Regular Force (significant difference not detected for Reserve Class C) but not the presence of possible PTSD using the PC-PTSD screener.

The finding of higher prevalence of fair/poor and lower prevalence of very/good excellent self-rated mental health in women compared to men is consistent with studies in the Canadian general population (Mawani and Gilmour 2010). In the Canadian general population, mood and anxiety disorders have been more prevalent in women than men (Arnett 2006). The smaller sample sizes of women resulted in fewer reliable population estimates for several mental health indicators and associated factors for women than men, and made it difficult to detect statistically significant differences between men and women. In LASS 2010, Regular Force women had lower mental health-related quality of life than men in the 40-49 year age group (Thompson et al. 2013a).



**Table 11. Prevalence of mental health problems in women versus men.**

Indicator	Prevalence in Women vs. Men			
	Reserve Class C	Chi <sup>2</sup>	Regular Force	Chi <sup>2</sup>
<b>Self-rated mental health</b>				
Very good/excellent	61%, 69%	S*	58%, 62%	S**
Good	25%, 21%		21%, 23%	
Fair/poor	15%, 10%		21%, 15%	
<b>Any diagnosed mental health condition</b>	20%, 16%	NS	31%, 23%	S***
Mood disorder	18%, 10%		25%, 16%	
Anxiety disorder	F, 8%		16%, 10%	
PTSD	F, 7%		F, 14%	
<b>Kessler psychological distress (K10)</b>				
0-9 Likely well	80%, 84%	NS	75%, 80%	S*
10-19 Likely mild	F, 8%		8%, 9%	
20-29 Likely moderate	F, F		F, 5%	
30-40 Likely severe	39, 6%		F, 7%	
10-40 Likely mild, moderate or severe	20%, 16%		25%, 20%	
<b>Possible PTSD (PC-PTSD 3 or more items)</b>	F, 12%	NS	F, 15%	NS
<b>SF-12 Mental Component Score (MCS) &lt; 40</b>	17%, 13%	n/t	21%, 16%	n/t

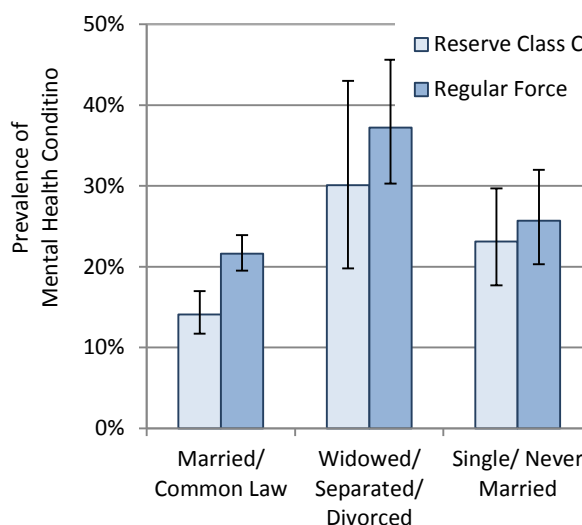
F = Sample size < 30, population estimate considered unreliable.

Chi<sup>2</sup> test: NS = difference between women and men not significant; S = difference is statistically significant: \*p<0.05, \*\*p<0.001.

n/t = not tested.

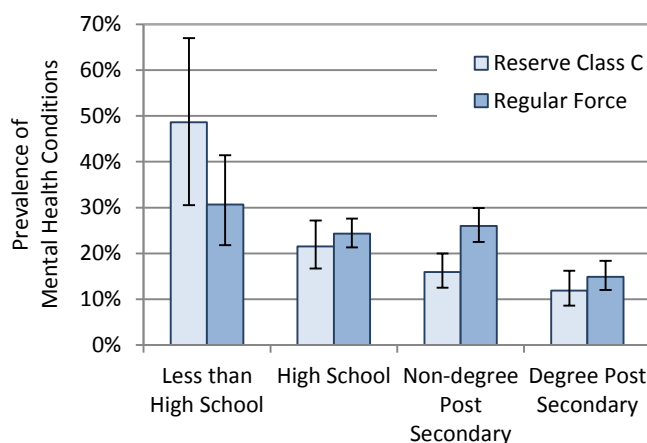
#### 4.1.4 Marital Status

The odds of having mental health conditions were highest in those who were widowed, separated or divorced relative to those who were married: 2.2 times higher for Regular Force and 2.6 times higher for Reserve Class C (Table 11). In Class C Reservists the odds were 1.8 times higher for those who were single or never married, which is more difficult to explain.



#### 4.1.5 Education

Compared to those with post-secondary degree education (bachelor's or higher), the odds of having mental health conditions were significantly elevated in those with less education (Table 10). Odds were highest in those with less than high school education, but there were few in that category and in recent years CAF requires at least high school graduation for recruitment. Odds of having a mental condition in Regular



Force Veterans were double in those with high school or non-degree post-secondary education compared to university degree attainment (**Appendix Table 1**).

#### 4.1.6 Employment

The overall unemployment rate overall for Regular Force Veterans (7%) was not different from the general Canadian population (Thompson et al. 2014a), but the unemployment rate was higher (11%) for those with mental health conditions than those without (6%).

Of the 72% of CAF Regular Force Veterans who were employed in the civilian workforce, one in six (17%) had a diagnosed mental condition, one four (27%) had below average mental health-related quality of life, one in twelve (8%) had moderate to severe psychological distress and one in ten (10%) had fair/poor self-rated mental health. Of Regular Force Veterans who were unemployed, 30% had a diagnosed mental condition, as did, 36% of the 19% who were not working and not looking for work, and 79% of the 4% who were unable to work (**Appendix Figure 4**). The figures for Reserve Class C Veterans were similarly distributed.

In Regular Force Veterans, relatively fewer with mental health conditions were employed than those without, and relatively more with mental conditions were not working for various reasons, pointing to the impact of mental health on employment (Table 12). Similarly relatively more with mental conditions were disabled or on disability in those with mental conditions than in those without. Findings were similar in Reserve Class C Veterans, though to a lesser extent.

**Table 12. Proportions with labour force participation and main activities, with and without mental health conditions.**

	Proportion in each indicator with or without mental health conditions					
	Reserve Class C			Regular Force		
	With MHC	Without MHC	Total	With MHC	Without MHC	Total
<b>Labour Force Participation:</b>						
Employed	61%	84%	80%	52%	78%	72%
Unemployed	F	4%	5%	7%	5%	5%
No job, not looking	23%	12%	13%	29%	16%	19%
Unable to work	F	F	F	12%	F	4%
Total	100%	100%	100%	100%	100%	100%
<b>Main Activity Past Year:</b>						
Worked at job/ran business	55%	81%	77%	48%	76%	69%
Disabled/on disability	21%	F	5%	19%	2%	6%
Retired	F	6%	6%	13%	12%	12%
Caregiving, Other	F	F	4%	8%	4%	5%
School or training	F	5%	6%	F	5%	5%
Looked for work	F	F	F	F	F	2%
Total	100%	100%	100%	100%	100%	100%

This inverse relationship between mental health conditions and employment is well established in studies of the Canadian general population and other military Veteran populations, however causality is unclear and can work both ways: while it might be difficult for some with mental health problems to find employment, a favorable work environment and job security have been shown to lead to better physical and mental health (Barnay 2014).

As shown in Table 13, among Regular Force Veterans with mental health conditions who were not employed a minority were retired and several had main activities in the past year which suggested that they might have had potential to return to work. Studies of employment disability suggest, for example, that some disability policies can be disincentives to return to work. Certain financial benefit packages can inadvertently negatively affect employment integration (Engström and Eriksen, 2002, Gabbe et al. 2007, Chen and van de Klaauw 2005, Barr et al 2010, O'Donnell et al. 2010, Gruber 2000, Staubli 2011, Castello 2012, Maestas et al. 2012). Veteran-specific studies have shown this benefit-related negative effect on employment integration (Drew et al. 2001, Autor and Duggan 2007, Greenberg and Rosenheck 2007, Tsai and Rosenheck 2013). Many countries have tightened benefits while improving employment integration (OECD 2009).

**Table 13. Main activities in those with diagnosed mental health conditions.**

Regular Force	In Those with Mental Health Conditions, Proportion with that Main Activity				Total
	Employed	Unemployed	No Job, Not Looking	Unable to Work	
<b>Main Activity Past Year</b>					
Worked at job/ran business	83%	31%	F	F	48%
Disabled/on disability	F	F	29%	77%	20%
Retired	F	F	33%	F	13%
Caregiving, Other	F	F	F	F	8%
School or training	F	F	F	F	F
Looked for work	F	F	F	F	F
<b>Total</b>	52%	7%	29%	12%	

F = Sample size < 30 so estimate not considered reliable.

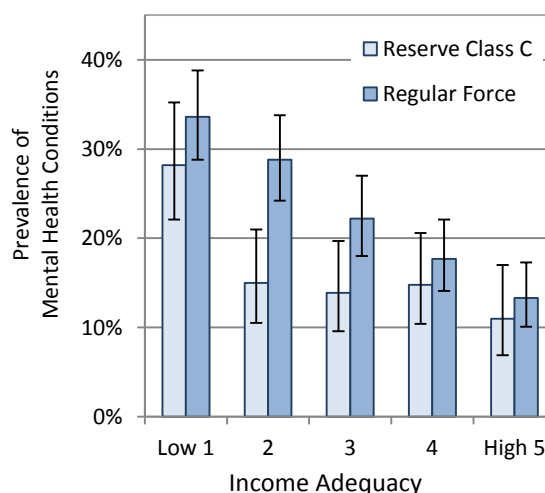
#### 4.1.7 Income

Low income is consistently associated with more prevalent mental health problems in the world literature. In an analysis of data from a longitudinal U.S. general population survey, low income was associated with both higher prevalence of mental disorders and a decrease in household income was associated with an increased risk of developing a mental disorder (Sareen et al. 2011). Causality is probably bidirectional depending on individual circumstances: low income can contribute to mental health problems and vice-versa.

Low income was measured in two ways in LASS 2013 -- rate below the Low Income Measure (LIM) and categories of income adequacy -- was associated with having mental health conditions in both Regular Force and Reserve Class C Veterans (**Appendix Table 4**).

The odds of having a mental health condition were highest in those with income below the Low Income Measure: 1.7 and 2.4 times for Regular Force and Reserve Class C than for those with income above LIM.

**Figure 9. Prevalence of Mental Conditions by Income Adequacy.**

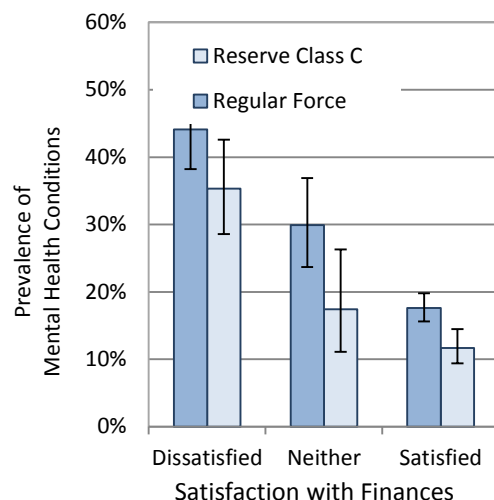


The prevalence of mental health conditions was correlated with quintiles of income adequacy (Figure 9) based on the ratio of household income to Canada's contemporary LIM value for the number of people in the household (Tjepkema 2013). The odds of having a mental health condition were highest in those with the lowest income quintile for both groups: 3.4 and 2.7 times higher than the highest income quintiles for Regular Force and Reserve Class C.

Direction of causality can work in both directions: there is good evidence that in some cases having mental conditions can contribute to disability resulting in reduced income, and difficulty working or having insufficient income can contribute to having mental health problems.

There was a relationship between satisfaction with finances and prevalence of mental health conditions (Figure 10). The odds of having a mental health condition were highest in Regular Force and Reserve Class C Veterans who were dissatisfied or very dissatisfied with their financial situation: 3.7 and 4.1 times higher.

**Figure 10. Prevalence of mental conditions by satisfaction with finances.**

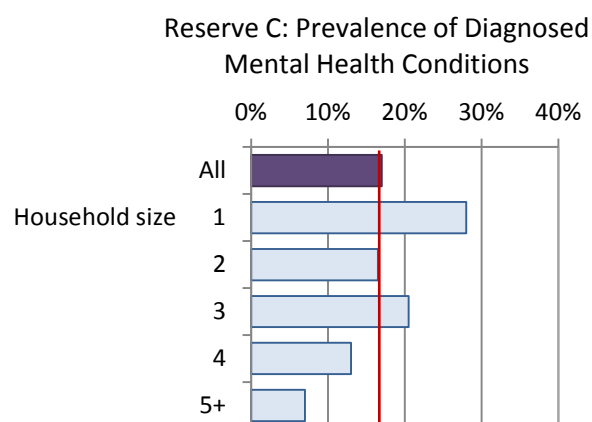
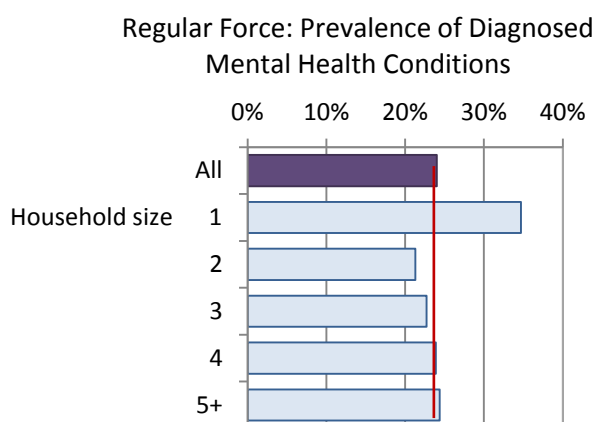


#### 4.1.8 Family Structure

There were two measures of family structure in LASS 2013: number of persons in the household and number of persons in the household under age 18. The survey provided no information on the relationships of people living in the household or the nature of the families in them.

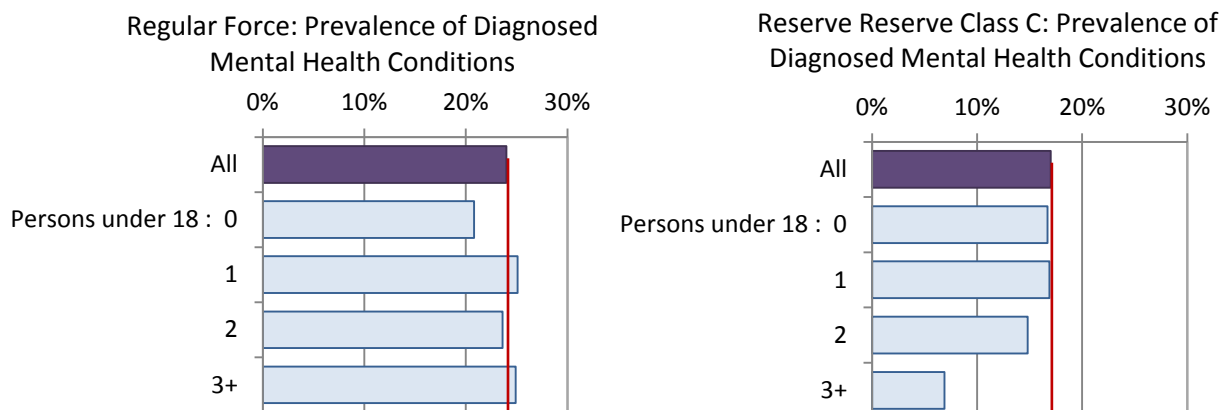
##### *Number of Persons in the Household*

The prevalence of mental health conditions was highest in single-person households, however the differences were not tested statistically and further analysis is required to account for potential confounding factors.



### Number of Persons under Age 18 in the Household

Prevalence of mental health conditions was lowest among Veterans living with no persons in the household under age 18, however differences were not tested statistically and further analysis is required to account for potential confounding factors.



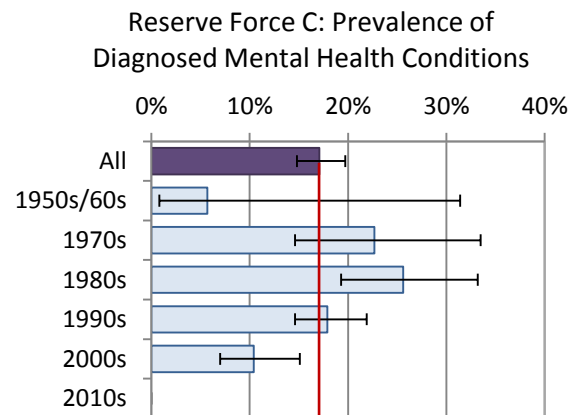
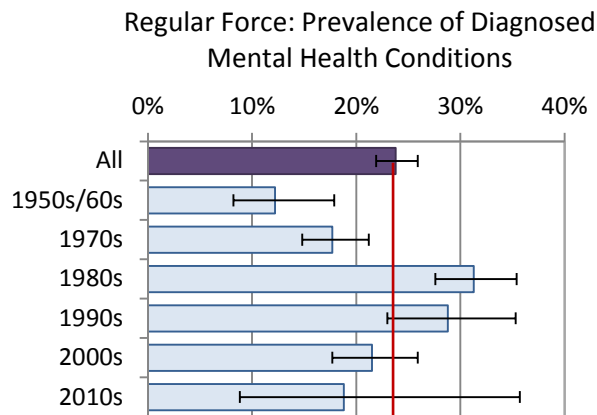
## 4.2 Military Characteristics

Through data linkage to DND administrative data, the LASS studies have been able to include some information about military characteristics at the time of release from service, summarized in this section. No data on deployment or combat experience were available for this study.

The picture for Class C Reservists was largely similar to Regular Force Veterans except that odds of having mental health conditions were not significantly elevated for any of the categories of length of service. This could be due in to the smaller sample sizes for Reserve Class C, making it harder to detect differences if they exist. In general, Reserve Class C Veterans were younger and more often were women, had higher education, released at junior non-commissioned member rank and had shorter lengths of service.

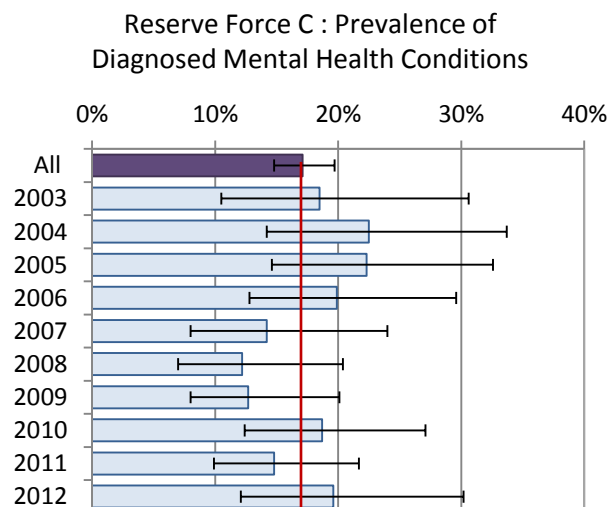
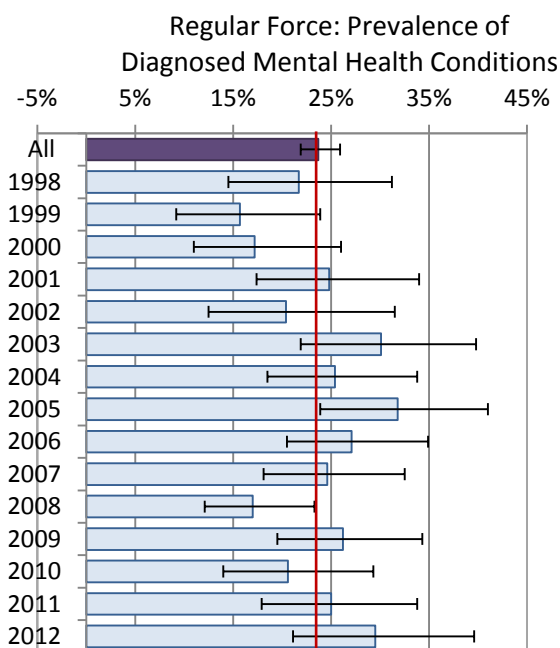
### 4.2.1 Year of Enrolment

The graphs below suggest there might have been a slight era effect: in Regular Force Veterans, the prevalence of any diagnosed mental health condition was highest in those who enrolled in the 1980s compared to those who enrolled earlier or later. This trend was not statistically significant for Reserve Class C Veterans.



#### 4.2.2 Year of Release

The following figures show the prevalence of diagnosed mental health conditions by year of release.



#### 4.2.3 Release Type

Diagnosed mental health conditions were quite prevalent in those who had been medically released (released owing to career-limiting medical employment limitations): 53% in Regular Force and 51% in Reserve Class C Veterans, much higher than the prevalence of mental health conditions in Regular Force Veterans who released voluntarily (15%) and owing to retirement or service complete (14%) (**Appendix Figure 1**). Relative to those who released voluntarily, the highest unadjusted odds of having mental health problems were in those released involuntarily or medically (**Appendix Table 1**).



The release category “medical release” captured the minority who had mental conditions: 47% of Regular Force and 37% of Reserve Class C. The majority with mental health conditions had released for other reasons other than medical: voluntary (33% and 42%) and involuntary or service complete/retired (21% and 20%).

**Table 14. Unadjusted odds of having mental health conditions by release type.**

Release Type	Unadjusted Odds Ratio for Having One or More Mental Condition	
	Reserve Class C	Regular Force
Voluntary	1.00	1.00
Medical release	2.47**	2.38**
Involuntary	8.35***	6.42***
Service complete/retired	0.90	0.95

Unadjusted odds of having any of the mental health conditions relative a reference category in the same characteristic; F = sample size less than 30, estimate unreliable; NC = not calculated.

Asterisk indicates statistical significance of the odds ratio: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

#### 4.2.4 Length of Service

Odds of having a diagnosed mental condition were highest for those with 10-19 years of service and much higher than those with less or greater lengths of service. This finding is consistent with the general conclusion from the LASS 2010 papers that health and disability problems are greater in those with interrupted military careers (Thompson et al 2013a, 2014b, 2014c; MacLean et al. 2014).

**Table 15. Unadjusted odds of having mental health conditions by length of service.**

Service Length	Unadjusted Odds Ratio for Having One or More Mental Condition	
	Reserve Class C	Regular Force
<2 yrs	1.00	1.00
2-9 yrs	1.15	1.87**
10-19 yrs	1.59	4.05***
20+ yrs	1.77	1.44*

Unadjusted odds of having any of the mental health conditions relative a reference category in the same characteristic; F = sample size less than 30, estimate unreliable; NC = not calculated.

Asterisk indicates statistical significance of the odds ratio: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

#### 4.2.5 Rank at Release

There were significant differences between ranks in health and disability status. In LASS 2013, relative to officer ranks including cadets, former non-commissioned members had higher odds of having mental health conditions (Table 16). Odds were highest for Regular Force junior non-commissioned members (Corporal, Master Corporal, Leading and Master Seaman). In Reserve C Veterans, the odds were highest in senior non-commissioned members and privates/recruits. The reason for this difference is unclear but, compared to Regular Force, Reserve Class C Veterans were younger and more often were women, had higher education, released at junior non-commissioned member rank and had shorter lengths of service. Considerably fewer Class

C Reservists had released as recruits than Regular Force. In LASS 2010, non-commissioned rank of corporal and above (and equivalent naval ranks) was associated with poorer health-related quality of life and higher prevalences of medical release, physical and mental health conditions, disability and suicidal ideation than in officers (Thompson et al 2013a, 2014a, 2014b, 2014c). These findings are consistent with research in other nations (Fear et al. 2009).

**Table 16. Prevalence and unadjusted odds of having diagnosed mental health conditions by rank.**

Rank at Release	Prevalence of Mental Conditions		Unadjusted Odds Ratio for Having One or More Mental Condition	
	Reserve Class C	Regular Force	Reserve Class C	Regular Force
Officer	11%	13%	1.00	1.00
Senior NCM	23%	24%	2.45**	2.14***
Junior NCM	17%	34%	1.66	3.45***
Private/Recruit	22%	21%	2.53*	1.78**

Unadjusted odds of having any of the mental health conditions relative a reference category in the same characteristic; F = sample size less than 30, estimate unreliable; NC = not calculated.  
Asterisk indicates statistical significance of the odds ratio: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

There is evidence of significant socioeconomic differences between ranks. For example, as shown in Table 17, most Regular Force Veterans who had released at non-commissioned member ranks had attained high school or post-secondary education other than degrees, while most officers had attained degree education. This finding suggests considerable differences in exposures to socioeconomic determinants of health.

**Table 17. Education attainment by rank, Regular Force Veterans.**

Rank at Release		Less than High School	High School	Non-Degree Post-Secondary	Degree Post-Secondary	Total
Senior Officer 8%		F	14%	10%	75%	100%
Junior Officer 8%		F	15%	17%	67%	100%
Cadet 4%		F	F	F	60%	100%
Senior Non-Commissioned Member 25%		8%	55%	33%	4%	100%
Junior Non-Commissioned Member 30%		F	48%	43%	F%	100%
Private 7%		F	46%	44%	F%	100%
Recruit 18%		F	43%	48%	F%	100%
All Ranks 100%		5%	43%	36%	17%	100%

#### 4.2.6 Element (Service Branch)

The odds of having a mental health condition were significantly elevated only for Regular Force Army Veterans: 1.35 times higher for Army relative to Air Force (**Appendix Table 1**). This is consistent with findings in most Veteran studies, where the prevalences of health problems typically are higher in Army Veterans.

### 4.3 Health Risks: Drinking and Smoking

The survey contained no data on substance use disorders and addiction, but two well-established health risks were assessed: alcohol drinking and smoking. Prevalence of mental health conditions was above average for daily smokers but not for heavy drinkers. The odds of having any of the three diagnosed mental health conditions was elevated for daily smokers with mental health conditions compared to non-smokers (2.2 times greater) but was not elevated for

heavy drinkers with mental health conditions compared to those were not heavy drinkers (**Appendix Figure 2, Appendix Table 2**).

The lack of association between heavy drinking and prevalence of mental health conditions might seem surprising given associations between alcohol use problems and mental disorders reported in the literature; however this analysis did not account for potential confounders such as age, chronic physical health conditions and other factors known to confound the relationship including the social role of drinking. Furthermore heavy drinking, though risky, is not equivalent to having an alcohol use disorder.

#### 4.4 Comorbidity of Mental and Physical Health Conditions

Comorbidity is the co-occurrence of two or more health problems in the same person. Comorbidity and especially multimorbidity (3 or more conditions) is correlated with poorer quality of life, more disability, greater case complexity and greater use of health services. Chronic physical and mental health conditions lie in a continuum of human health rather than two distinct siloes (McWhinney et al. 2001, Kathol et al 2010, Kroenke 2014). Symptoms like fatigue, difficulty concentrating, anxiety, and mood swings can be attributed to either physical or mental health disorders or remain unexplained. Given the central role of the brain in processing both internal messages from other organ systems and external psychosocial stimuli, it is not surprising that the boundaries between "physical health" and "mental health" are blurred. Depending on circumstances, a physical health condition and a mental health condition can occur together without a shared cause; both can share the same cause; or, more typically, either one can contribute causally to the other (Patten 2001).

The prevalence of having one or more chronic physical condition was 3 or more times greater than the prevalence of having one or more mental condition (Table 18). The prevalence of having none of the diagnosed chronic physical or mental health conditions asked about in the survey was highest in Reserve Class A/B (49%), middle in Reserve Class C (33%) and lowest in Regular Force (27%), paralleling age differences in the three groups.

**Table 18. Prevalence of comorbidity types.**

Type of Comorbidity	Prevalence of Type of Comorbidity		
	Reserve Class A/B	Reserve Class C	Regular Force
No PHC or MHC*	42%	31%	24%
Any PHC (+/- MHCs)	55%	68%	74%
Any MHC (+/- PHCs)	9%	17%	24%
Both a PHC and a MHC	F	16%	23%
MHC in those with a PHC	F	24%	30%
PHC in those with a MHC	F	93%	92%
3 or more PHCs (+/- MHCs)**	12%	23%	31%
2 or more MHCs (+/- PHCs)**	F	8%	13%

Not adjusted for age, gender and other differences.

PHC = chronic physical health condition: any one of musculoskeletal condition (arthritis or back problem), cardiovascular condition (heart disease, effects of stroke or high blood pressure), gastrointestinal condition (ulcer or bowel disorder), respiratory condition (asthma or COPD chronic obstructive pulmonary disease), central nervous system condition (migraine, dementia or effects of TBI traumatic brain injury), urinary incontinence, diabetes, cancer, obesity or hearing problem.

\*Meaning absence of the chronic conditions included in the survey, not all possible physical and mental health problems.

\*\*Chronic pain/discomfort was not included in these prevalence rates since they are usually a symptom of physical health conditions and therefore would lead to overestimation of multimorbidity through "double-counting".

MHC = chronic mental health condition: any one of mood disorder, anxiety disorder or PTSD.

F =Sample size less than 30, estimate considered unreliable.

#### 4.4.1 Comorbidity of Diagnosed Mental Health Conditions

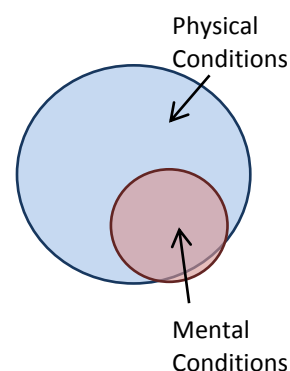
Comorbidity of mental conditions was common. About half of Veterans with any of the three diagnosed mental conditions had two or more of them: 55% of Regular Force and 47% of Reserve Class C (**Table 19**). Sample sizes were too small for Reserve Class A/B to produce reliable estimates.

**Table 19. Prevalence of mental health comorbidity.**

Number of Mental Health Conditions Per Individual	Sample Size, Comorbidity Prevalence	
	Reserve Class C	Regular Force
None	755, 83%	1809, 76%
1	85, 9%	235, 11%
2	49, 5%	177, 9%
3	26, 3%	95, 4%

#### 4.4.2 Comorbidity of Physical and Mental Health Problems

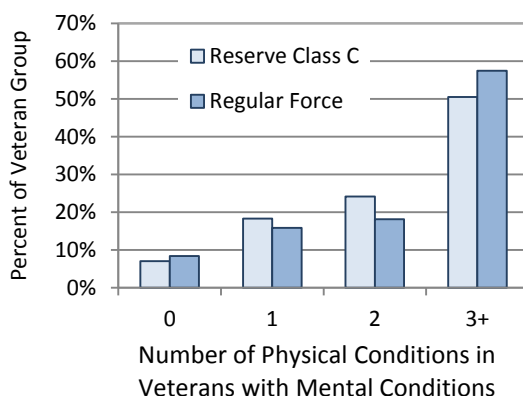
Analyses of the LASS 2010 survey data demonstrated that physical health is important to consider in interpreting mental health findings in CAF Veterans. In 2010, the great majority (95%) of Regular Force Veterans who had mental conditions also had physical conditions (Thompson et al 2012a). The odds of having disability measured as activity limitations were much higher in those with both physical and mental conditions than either alone, and more than half the odds of having disability were attributable to the minority who had multimorbidity of both mental health conditions and 3 or more physical health conditions (Thompson et al. 2014b). More than half of those with past-year suicidal ideation were also in this multimorbidity category (Thompson et al. 2014c).



In LASS 2013, as in 2010 and other population studies, the prevalence of having one or more chronic physical health conditions was higher than having any mental health conditions (**Table 18Table 18**). Importantly, most with mental conditions had co-occurring physical conditions: 90% in Regular Force, 92% in Reserve Class C and 63% in Reserve Class A/B Veterans. Conversely, mental health conditions were not uncommon in those with physical health conditions: 12% in Reserve Class A/B, 24% in Reserve Class C and 30% in Regular Force Veterans. An important implication of these rates of co-occurrence is that services for either type of condition must include consideration of the other. In a longitudinal study of U.S. Veterans in treatment for bipolar disorder, depression symptoms strongly and consistently influenced mental health-related quality of life (SF-12 MCS) but so did illicit drug use, independently of depression symptoms. In those Veterans, physical health comorbidities were common (average 2.7 per Veteran) and influenced physical health-related quality of life (PCS) independently of their depression symptoms (Kilbourne et al. 2009).

Prevalence of mental health conditions was correlated with the number of co-occurring chronic physical health conditions (**Appendix Figure 2**). About half those with mental health conditions had three or more chronic physical health conditions, (Figure 11).

**Figure 11. Proportion of Class C and Regular Force Veterans with comorbid physical health conditions, by number of comorbid physical conditions.**



#### 4.4.2.1 Associations with Specific Types of Diagnosed Physical Conditions

In Regular Force Veterans the odds of having mental conditions was highest for those with effects of traumatic brain injury (7.6 times higher than without the condition) and was also elevated for any neurological condition including TBI, migraine and dementia (5.4), urinary incontinence (4.2), chronic pain (3.8), musculoskeletal conditions (3.5), gastrointestinal conditions (3.5), hearing problem (2.8), respiratory conditions (2.5), obesity (1.7) and cardiovascular (1.5) (**Appendix Table 2**). Odds were not elevated for diabetes and cancer, but sample sizes were small.

In Regular Force Veterans in LASS 2010, anxiety disorders and chronic physical health conditions co-occurred at high rates, and this comorbidity was associated with poorer physical health-related quality of life and activity limitations (El-Gabalawy et al. 2015). The association of mental disorders with gastrointestinal conditions is well established. For example, Maguen et al. (2014) found that gastrointestinal disorders, notably irritable bowel syndrome, were at least twice as likely to occur in recent U.S. Veterans with mental disorders compared to those without.

*Traumatic brain injury (TBI)* is an acute physical injury that can have persistent physical health, cognitive and mental health effects. This survey yielded the first estimate of the prevalence of self-reported effects of traumatic brain injury in Canadian military Veterans. TBI attracted considerable attention in the Iraq and Afghanistan wars owing to the use of blast ambush weapons, although many TBIs even in combat Veterans are caused by non-combat accidents and other mechanisms of head injury. TBI was assessed by asking “*Do you suffer from the effects of a traumatic brain injury (TBI) or concussion?*” The question was asked with a reminder preamble that we were interested in conditions diagnosed by a health professional and expected to last or have lasted 6 months or more, and was asked among the questions about mental health conditions. Response options were yes, maybe and no.

The prevalence of TBI effects (yes and maybe) was 3% for Reserve Class C and 4% for Regular Force Veterans. The sample size of Reserve Class A/B Veterans with TBI effects was

too small for a reliable estimate. The odds of having one of the three diagnosed mental health conditions in those who had the condition relative to those who did not were highest among all the chronic health conditions: 8 times higher for Regular Force Veterans and 14 times higher for Reserve Class C Veterans (**Appendix Table 2**). This strong (though unadjusted) association of a history of prior TBI with mental conditions is consistent with studies done in CAF serving personnel and other nations (Garber et al. 2014). Causality remains unclear.

*Dementia.* As expected, dementia was rare in these young and middle-aged adults so sample sizes were too small to produce reliable estimates for all Veteran subgroups.

*Chronic pain or discomfort* was significantly more prevalent in Reserve Class C and Regular Force Veterans than the general population and was associated with mental health conditions, suicidality and disability measured as activity limitations (Thompson et al. 2014a). The prevalence of chronic pain or discomfort was 13% for Reserve Class A/B, 28% for Reserve Class C and 34% for Regular Force. Moderate to severe pain/discomfort was present in 7% of Reserve Class A/B, 19% of Reserve Class C and 27% of Regular Force Veterans. The odds of having diagnosed mental health conditions were 4 times higher in those with chronic pain than without (**Appendix Table 2**); recall that 90-92% of those with mental conditions also had chronic physical conditions. Chronic pain is a well-established precursor of mental disorders, particularly depression (Patten et al. 2001). Pain both is primarily a symptom of physical health conditions and has significant mental health and disability implications. Chronic pain can contribute directly to mental illness and diminish the likelihood of having good mental health, and pain-related activity restriction partially mediates the relationship (Gilmour 2015).

*Hearing loss* is associated with military service, is more prevalent in CAF Reserve C and Regular Force Veterans than the general Canadian population (Thompson et al. 2014a), and is one of the most common medical diagnoses in eligibility for disability benefits in VAC clients. In analysis of the 2010 survey, hearing problems were found to be associated with disability after adjusting for the presence of other physical and mental health conditions; however the comorbidity of both physical and mental health conditions had higher odds of disability than either type alone. So the finding that the odds of having mental health conditions were three times greater in those with hearing problems than without (**Appendix Table 2**) points to the importance of considering hearing problems in those with mental health conditions, and vice-versa.

#### 4.4.2.2 Associations of Physical Health Comorbidity with K10 and SRMH

The previous sections discussed associations with diagnosed mental conditions however, as shown above, the K10 measure of psychological distress and the question on self-rated mental health each measure mental health problems in different ways. Both degree of psychological distress (Figure 13) and degree of SRMH (Figure 12) are correlated with degree of physical health comorbidity measured as number of conditions<sup>18</sup>. Both were inversely associated with no or 1 chronic physical health condition, and directly associated with 2 or more conditions particularly 3 or more (multimorbidity).

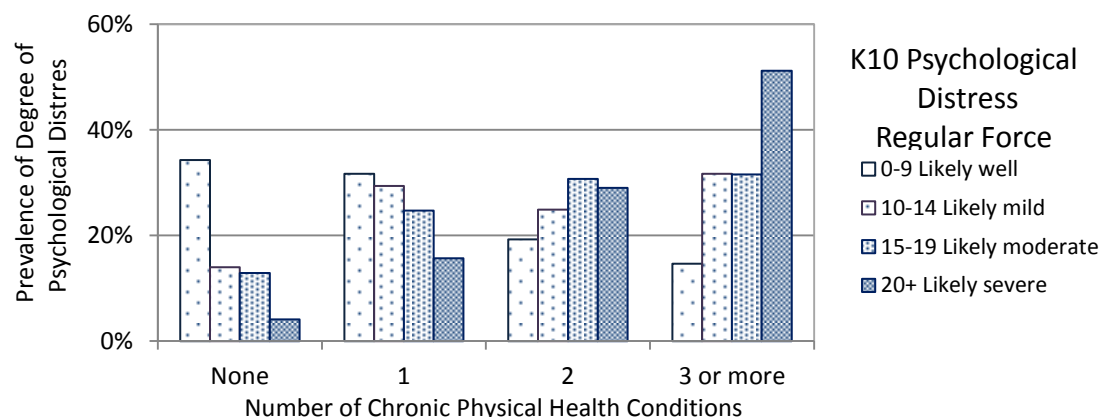
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<sup>18</sup>Physical health conditions counted by organ system: Cardiovascular (heart disease, effects of stroke and high blood pressure), respiratory (asthma, COPD), gastrointestinal (bowel disorders, ulcers), musculoskeletal (arthritis, back problems), central nervous system (Alzheimer's, migraine, traumatic brain injury yes or maybe), obesity, diabetes, cancer, hearing problem or urinary incontinence. Chronic pain or discomfort not included since all of these conditions can be associated with chronic pain or discomfort.

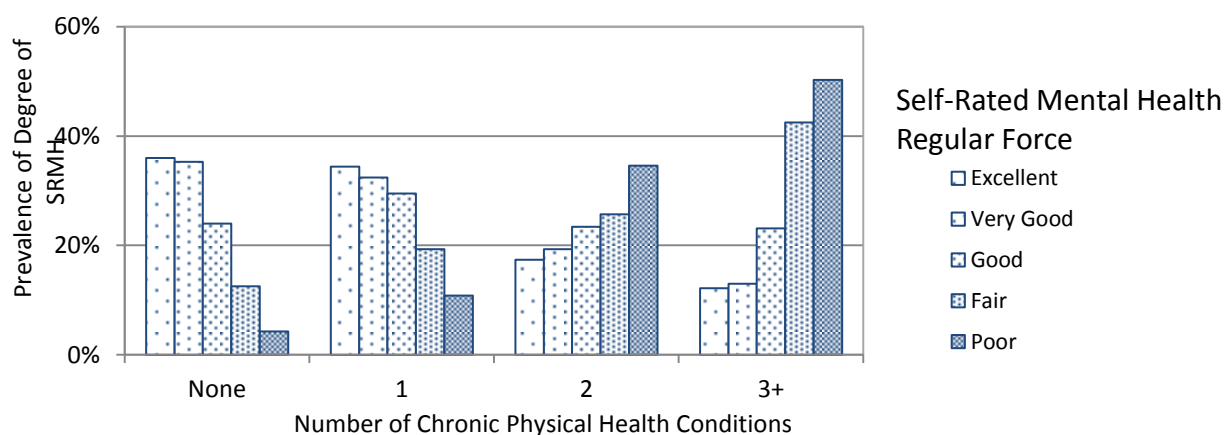


The majority of those with serious mental health problems had multimorbidity of co-occurring physical health conditions. Of the 13% with moderate to severe mental disorders by the K10, 62% had 2 or more physical conditions. Similarly, of the 16% of the population with fair/poor SRMH, most (81%) had 2 or more physical conditions.

**Figure 12. Association between self-rated mental health and degree of physical health comorbidity.**



**Figure 13. Association between K10 measure of psychological distress and degree of physical health comorbidity.**



## 4.5 Self-Reported Attribution to Military Service

### 4.5.1 Chronic Health Conditions

In both surveys, Veterans often attributed their health conditions to prior military service. In the 2010 survey, which asked about service attribution after each mental and physical health condition, the majority of Regular Force Veterans attributed their mental health conditions to prior military service (Thompson et al. 2011a). Attribution rates were very high for PTSD (97%), anxiety disorder (81%), mood disorder (79%) and depression or anxiety (78%), as well as hearing problems (90%), chronic pain or discomfort always present (88%), arthritis (83%) and

back problems (79%). Rates were much lower for physical health conditions that are less common in young and middle-aged adults: gastrointestinal, cardiovascular, respiratory and endocrine conditions, and cancer.

In the 2013 survey, the question "*Do you think any of the previously mentioned conditions you identified are related to your military service?*" was asked only once, at the end of the chronic conditions module. The question applied to all the chronic physical and mental health conditions but did not apply to chronic pain/discomfort, hearing problems, the PC-PTSD screener or the K10 psychological distress screen. Self-reported attribution to military service occurred in 27% of Reserve Class A/B, 56% of Reserve Class C and 62% of Regular Force Veterans who had any of the chronic physical or mental health conditions preceding the attribution question in the questionnaire (so did not include obesity, chronic pain or hearing problems).

The lower overall rate of self-attribution by Regular Force Veterans for combined mental and physical health conditions in 2013 (62%) compared to the proportions in 2010 for individual mental health conditions (78-97%) occurred for a number of reasons. Physical health conditions were more prevalent than mental health conditions. In 2013, the question did not apply to hearing problems and chronic pain, two conditions that were common in this population. As found in 2010, service attribution was much less common for physical conditions that are less common in these age groups, such as cardiovascular and respiratory conditions, cancer and diabetes. Finally, the question might have been interpreted differently by respondents in 2013 because of the way it was asked.

#### **4.5.2 PTSD Attribution to Service**

LASS 2013 asked whether respondents were thinking about an experience related to service after being asked the PC-PTSD screening questions. The question was asked of all respondents. Of those who had 3 or more screening criteria suggesting possible past-month PTSD, 71% of Reserve Class C and 81% of Regular Force Veterans were thinking about an experience in service.

#### **4.6 Health-Related Quality of Life (HRQoL)**

As in LASS 2010, LASS 2013 measured health-related quality of life (HRQoL) using QualityMetric's Short Form Health Survey (SF-12 version 2). The SF-12 PCS (physical) and MCS (mental) component scales measure physical and mental HRQoL respectively. Higher scores indicate better HRQoL. A small decrease in either PCS or MCS signals a large decrease in HRQoL. SF-36 norms for the Canadian general population were 51.9 for the PCS and 52.0 for the MCS, and SF-36 scores correspond reasonably well with SF-12 scores. In the general population PCS decreases and MCS increases with age, so age differences have to be taken into consideration in comparing groups. Some authors interpret SF-12 findings as measures of "general health" or "functional health".

In LASS 2010, CAF Regular Force Veterans had below-average SF-12 physical health-related quality of life (HRQoL; PCS) and average mental HRQoL (MCS) compared to the Canadian general population (Thompson et al. 2013a). The findings in LASS 2013 were similar (Thompson et al. 2014a).

The following table demonstrates the significant impact that mental health conditions can have on mental health-related quality of life, evidenced by the low MCS scores. Mental HRQoL was very low in those with chronic diagnosed mental health conditions, as expected, but physical

HRQoL was also low, in keeping with the high co-occurrence of physical conditions in those with mental conditions. Conversely both MCS and PCS were at the population norms in those without mental conditions.

SF-12 Component Summary	Mean SF-12 Score (95% Confidence Interval)					
	Reserve Class C			Regular Force		
	With MHC	Without MHC	All	With MHC	Without MHC	All
<b>Mental (MCS)</b>	38.0 (35.8-40.2)	53.8 (53.2-54.3)	51.1 (50.4-51.8)	38.9 (37.9-40.2)	55.1 (54.7-55.5)	51.3 (50.8-51.8)
<b>Physical (PCS)</b>	44.4 (42.3-46.5)	52.1 (51.5-52.8)	50.8 (50.1-51.4)	41.1 (39.8-42.4)	50.1 (49.6-50.6)	47.9 (47.4-48.5)

## 4.7 Disability

The World Health Organization recognizes that the term disability is variously applied to impairments, activity limitations and role participation restrictions. Some experts reserve the word disability for the experience of not being able to participate in a life role, an experience that occurs when people with health conditions and related impairments have difficulty with adaptive coping or encounter barriers in their social and physical environments. This ecological interpretation of the ICF (ICF = World Health Organization's International Classification of Health and Disability) encompasses the biological, psychological and social factors that lead to disability and recognizes that disability is more than a characteristic of the person.

In common with many population surveys, LASS 2013 used measures of activity limitation rather than direct measures of role participation problems; however people with activity limitations are more likely to experience role disability. As in LASS 2010, LASS 2013 measured disability as activity limitations in three ways: a mix of impairments, health conditions and activity limitations (participation and activity limitation or PAL); health-related restriction of activity in major life domains; and need for assistance with basic and instrumental activities of daily living. As in previous analyses (Thompson et al. 2014b) we use the latter two measures since PAL mixes impairments with activity limitations. LASS 2013 also included two additional measures of activity limitations that can lead to role disability: number of activities limited owing to pain/discomfort and interference with life and activity limitations owing to psychological distress.

Both health-related restriction of activity in major life domains and needing help with at least one activity of daily living were considerably more prevalent in Regular Force and Reserve Class C Veterans than in the Canadian general population (Thompson et al. 2014a), consistent with the finding in LASS 2010 (Thompson et al. 2014b).

All four types of activity limitations measured in LASS 2013 were more prevalent in Veterans with diagnosed mental health conditions than in those without (**Appendix Figure 4**). The odds of having mental health conditions were considerably higher in those with activity limitations, ranging from 4 and 5 (Reserve Class C and Regular Force) times higher in those with activities limited by pain and discomfort; to 8 times higher for activity restriction in life domains; to 11 and 9 times higher for needing assistance with at least one ADL; and to 12 and 20 times higher for those with psychological distress that interfered with life (**Appendix Table 4**).

In interpreting these numbers it is important to recall that chronic physical health conditions co-occurred in the great majority (90-92%) of those with mental health conditions. In the LASS 2010 survey, the odds of having activity limitations were four times higher in Regular Force

Veterans with co-occurring physical and mental health conditions than either type alone. There was evidence of an additive synergistic effect of the co-occurrence of physical and mental health conditions, meaning a disproportionately greater effect when the two occur together than when either occurs alone (Thompson et al. 2014b). These findings are consistent with considerable evidence from Canadian and international civilian and military research that although physical conditions are much more common than mental health disorders, mental health disorders contribute disproportionately to role participation disability (Alonso 2004, Schmitz et al. 2007, Dewa et al 2007, Druss et al. 2009, Scott et al. 2010, Bruffaerts et al. 2012, Lillie et al. 2013).

There are two key implications of these findings:

1. First, it is important to address disability in those with mental as well as physical conditions.
2. Second, it is important to address mental as well as physical health in rehabilitation to mitigate disability.

#### 4.7.1 Health-Related Restriction of Activity in Major Life Domains

The 2013 survey included questions about whether a long-term physical or mental condition or health problem reduced the amount or kind of activity in four major life domains: home, school, work or other, including transportation. This type of disability was about twice as prevalent in Reserve Class C and Regular Force Veterans as in the general population, affirming the 2010 findings (Thompson et al. 2014b). Odds of having mental health conditions were 8 times higher in Veterans with this type of activity limitation than in those without (**Appendix Table 4**). As shown in Table 20, this type of activity limitation was about twice as prevalent in Veterans with mental health conditions compared to those without (73% vs. 32% in Reserve Class C and 76% vs. 39% in Regular Force Veterans). While many Veterans with mental health problems were employed, about two thirds of those at work with mental conditions had health-related activity restrictions at work (63% of Reserve Class C and 66% of Regular Force). Similarly about half of those at school with mental conditions had activity restrictions at school (46%). In interpreting these findings, recall the high prevalence of physical health conditions in those with mental conditions.

**Table 20. Proportions with health-related activity restrictions in major life domains.**

Domain	Proportion with health-related activity restriction often or sometimes of those with roles in the domain (e.g. at work of those working)					
	Reserve Class C			Regular Force		
	With MHC	Without MHC	Total	With MHC	Without MHC	Total
Home	67%	24%	32%	76%	30%	41%
School	F	F	15%	46%	9%	16%
Work	63%	21%	26%	66%	25%	33%
Other	62%	26%	32%	73%	31%	41%
Total	73%	32%	40%	76%	39%	48%

#### 4.7.2 Needing Help with Activities of Daily Living

LASS 2013 included questions about whether respondents needed help with basic or instrumental activities of daily living, a type of activity limitation that considerably impacts ability

to participate in life roles. The odds of having mental health conditions in those with these types of limitations were 9 (Regular Force) and 11 (Reserve Class C) times higher than in those without such limitations (**Appendix Table 4**). In LASS 2010, 62% of those with needing help with at least one ADL had both physical and mental health conditions, versus 28% of those with health-related restriction of activity in a life domain, demonstrating the differential impact of mental health on disability (Thompson et al. 2014b).

#### 4.7.3 Activity Limitation Owing to Pain/Discomfort

In LASS 2010, chronic pain and pain interference with activities were highly prevalent in CAF Regular Force Veterans and chronic pain was strongly associated with musculoskeletal conditions which were also highly prevalent (VanDenKerkhof et al 2014). Pain and psychological functioning are both processed in the brain, so it is not surprising that while pain usually is a symptom of a physical health condition or pathology, it has significant psychological dimensions. So it is not surprising that the odds of having mental health conditions (in both Regular Force and Reserve Class C Veterans) with this type of limitation were 5 times higher than in those without such limitations (**Appendix Table 4**). Pain-related activity limitations partially mediate the relationship between chronic pain and consequential mental illness, particularly depression (Gilmour 2015).

#### 4.7.4 Degree of Interference of K10 Psychological Distress Feelings with Life or Activities

LASS 2013 assessed the degree to which psychological distress measured using the K10 interfered with life or activities in the prior month. Not surprisingly, the odds of having diagnosed mental health conditions in those with any degree of this type of limitation were 20 (Regular Force) and 12 (Reserve Class C) times higher than in those without such limitations (**Appendix Table 4**). Of interest though, 12% of those with diagnosed mental conditions did not have any psychological interference with life or activities using this measure (emphasizing the range of severity of diagnosed conditions), and of those without a diagnosed mental condition 26% did, emphasizing that absence of a diagnosed condition does not mean absence of impact of mental health on life and activities (**Appendix Table 4**).

Table 21 compares the K10 measure of activity limitation owing to psychological limitations with two other measures: health-related reduction of activity in one or more of four major life domains (home, school, work and other including transportation) and need for assistance with at least one activity of daily living. The pervasive correlation of mental health problems with disability is evident. Of the 55% of Regular Force Veterans who often or sometimes had activity limitations in major life domains, a majority (61%) had some, a little or a lot of interference with life or activities owing to the symptoms of depression or anxiety captured in the K10. A larger majority (81%) of the 20% who needed assistance with at least one ADL had limitations owing to psychological interference.

**Table 21. Comparison of K10 measure of psychological interference with life or activities and two measures of activity limitations (Regular Force).**

	During the past month, how much did these feelings usually interfere with your life or activities?				
	A lot	Some	A little	Not at all	Total
<b>Health-related activity reduction in or more of four major life domains:</b>					
<b>Often</b>	6.2%	7.8%	7.6%	7.1%	28.7%
<b>Sometimes</b>	0.8%	3.5%	7.9%	14.3%	26.5%
<b>Never</b>	0.7%	1.8%	4.9%	37.4%	44.8%
<b>Total</b>	7.7%	13.1%	20.3%	58.9%	100.0%
<b>Need for assistance with at least one activity of daily living (ADL):</b>					
<b>Yes</b>	5.0%	6.2%	5.0%	3.8%	20.0%
<b>No</b>	2.7%	6.9%	15.3%	55.1%	80.0%
<b>Total</b>	7.7%	13.1%	20.3%	58.9%	100.0%

## 4.8 Stress, Coping and Satisfaction

The stress, coping and satisfaction variables are treated here as a group (**Appendix Figure 3** and **Appendix Table 3**) because they are measures both of the way people are responding to their environments and because psychosocial stress "is an important precursor of disease and reduced quality of life" (Rohleder 2014). These factors can cause, aggravate, prevent or mitigate mental health problems but they can also be consequential to having mental health problems. Respondents' answers can reflect psychological state at the time of the survey (Goodwin et al. 2013). Measures to enhance well-being operating through multiple determinants of health can reduce stress, enhance coping, improve sense of satisfaction and improve mental well-being, including self-efficacy counselling, psychotherapy and other treatments.

All six measures of stress, coping and satisfaction were, not surprisingly, significantly correlated with the presence of diagnosed mental health conditions (**Appendix Figure 3** and Table 22): higher odds of mental conditions in those with weak sense of community belonging, low mastery, dissatisfaction with life, high life stress, work stress past year in those at work in the past year, and dissatisfaction with main activity in the past year. Odds ratios for having mental disorders were highest for low mastery, dissatisfaction with life and having extreme/quite a bit of life stress.

The LASS 2013 survey found that prevalences of high life stress were slightly lower in Reserve Class A/B and Regular Force Veterans than similarly aged Canadians in the general population while Reserve Class C Veterans were not different from the general population (Thompson et al. 2014a). Nevertheless, prevalences of adverse stress, coping and satisfaction were substantial: 42% of Regular Force Veterans had a weak sense of community belonging, 71% had low or middle mastery<sup>19</sup>, 22% had extreme/quite a bit of life stress, 22% of those who worked in the prior year had extreme/quite a bit of work stress in the prior year, 14% were dissatisfied with life, 14% were dissatisfied with their main activity in the prior year and 18% were dissatisfied with their financial situations. Satisfaction with life and sense of community belonging were lower than similarly aged Canadians for Regular Force Veterans, as was satisfaction with life for Reserve Class C Veterans (Thompson et al. 2014a). Differences in the

<sup>19</sup> Low mastery if  $\leq 7$  (Lee et al. 2010), high if  $\geq 23$  (Stephens et al. 2000).



prevalences of negative responses between Reserve Class C and Regular Force Veterans were small to non-existent across the six indicators (**Appendix Table 3**).

**Table 22. Unadjusted odds ratios of having mental health conditions by measures of stress, coping and satisfaction.**

		Unadjusted Odds Ratio for Having One or More Mental Health Condition	
		Reserve Class C	Regular Force
Sense of community belonging:			
	Strong	1.00	1.00
	Weak	2.88***	3.02***
Mastery:			
	Low	77.40***	107.89***
	Middle	3.25***	5.14***
	High	1.00	1.00
Life Stress:			
	Not at all/not very	1.00	1.00
	A bit	1.40	2.58***
	Extremely/quite a bit	4.12***	6.30***
Work stress past year in those who worked in the past year:			
	Not at all/not very	1.00	1.00
	A bit	1.89	1.38
	Extremely/quite a bit	3.17***	2.97***
Satisfied with life:			
	Very/somewhat	1.00	1.00
	Neither	5.56***	7.79***
	Dissatisfied/Very dis.	21.31***	16.21***
Satisfaction with main activity:			
	Satisfied/very satisfied	1.00	1.00
	Neither	2.87***	2.84***
	Dissatisfied/Very dis.	5.59***	7.27***
Satisfaction with finances:			
	Very/somewhat	1.00	1.00
	Neither	1.59	2.00***
	Dissatisfied/Very dis.	4.11***	3.71***

Unadjusted odds of having any of the mental health conditions relative to either not having the characteristic or a reference category in the same characteristic; F = sample size less than 30, estimate unreliable; NC = not calculated.

Asterisk indicates statistical significance of the odds ratio: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

## 4.9 Social Support

LASS 2013 used the 10-item Social Provisions Scale to measure perceived (not received) social support. This version of the Social Provisions Scale (SPS) covers 5 dimensions: *guidance* (advice or information), *reliable alliance* (assurance that can count on others in time of stress), *reassurance of worth* (recognition of one's competence), *attachment* (emotional closeness) and *social integration* (sense of belonging to group of friends). Each of the five dimensions was

based on 2 questions with scores ranging from 1 (strongly disagree) to 4 (strongly disagree), so the range for each dimension is 2 to 8.

As Table 23 shows, Regular Force Veterans with a diagnosed mental health condition had lower levels of mean perceived social support overall and in all five dimensions. The differences were not great however, and they have not been tested statistically.

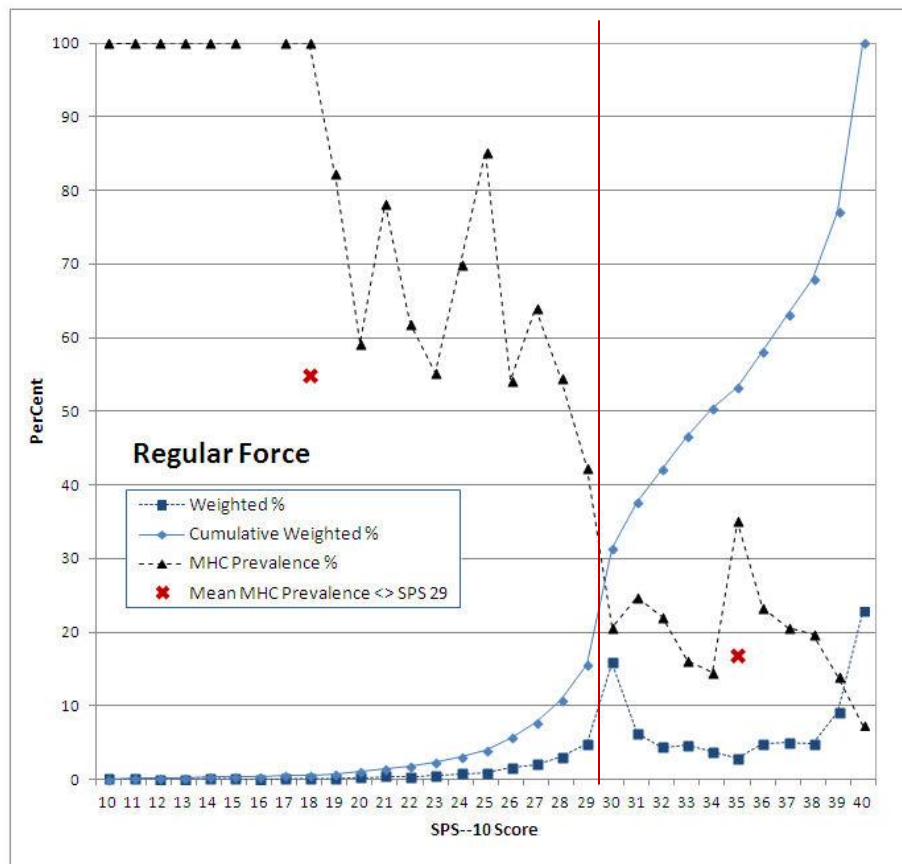
**Table 23. Social provisions scores for Regular Force Veterans with and without diagnosed mental health conditions.**

Regular Force Social Provisions Scale Dimension	With a Mental Health Condition		Without a Mental Health Condition		Total	
	Mean	Range	Mean	Range	Mean	Range
Attachment	6.3	2 - 8	7.1	2 - 8	6.9	2 - 8
Guidance	6.3	2 - 8	7.1	2 - 8	6.9	2 - 8
Reliable Alliance	6.6	2 - 8	7.2	3 - 8	7.0	2 - 8
Social Integration	5.7	2 - 8	6.8	2 - 8	6.6	2 - 8
Reassurance of Worth	6.0	2 - 8	6.9	2 - 8	6.7	2 - 8
Overall	31.0	10-40	35.1	19-40	34.2	10-40

As the **Figure 10** shows, the SPS-10 has a strong ceiling effect: most people scored themselves high (3 or 4 on each question). There appears to be correlation between the prevalence of having a mental health condition and having low perceived social support, but the relationship was much less clear for higher scores between 30 and 40. Owing to the peak at a score of 30, we were unable to divide the population into precisely equal quartiles. Using approximations for quartiles, the prevalence of mental health conditions was 55% in the lowest group (score less than 30 or 16<sup>th</sup> percentile), 21% in the second (30-33 or 32<sup>nd</sup> to 47<sup>th</sup> percentiles), 20% in the third (34-39 or 51<sup>st</sup> to 77<sup>th</sup> percentiles) and 7% in the highest (40 or 100<sup>th</sup> percentile).

The lowest and second lowest category of tertiles, quartiles and quintiles in all cases included Veterans with scores of 30, making that approach impractical. The red vertical line in the graph identifies the 16<sup>th</sup> percentile (15.6% cumulative percent) capturing Regular Force Veterans with scores of 29 and lower. This approach was used by Mallinckrodt et al. (2012) who found that the association between SPS-24 social support and two outcomes (psychological distress and adjustment to illness) in women with breast cancer was almost entirely accounted for by those in the lowest quartile.

**Figure 14. Social Provisions Scale distribution.**



So, using the approach of approximating "low perceived social support" with a SPS-10 cut-off of 29 (16<sup>th</sup> percentile):

- 7% of Class A/B, 10% of Reserve Class C and 16% of Regular Force Veterans had low perceived social support.
- 55% with low perceived social support had mental health conditions compared to 17% with higher perceived social support (overall prevalence was half that: 24%).

#### 4.10 Suicidality

Two of the most important red flags for identifying people on pathways to suicide are suicidal ideation and suicide attempts. In LASS 2013, past-year ideation was present in 5% (95% C.I. 4-7%) of Reserve Class C and 7% (6-8%) of Regular Force Veterans, in the range of the 6% found in LASS 2010 (Thompson et al. 2011b). Sample sizes for past-year suicide attempts in all three Veteran groups were less than 30, rendering population estimates unreliable by Statistics Canada guidelines (asked of those who ever had suicidal ideation, as in the 2010 survey).

Mental health disorders have well-established relationships with suicide. Ideation was an order of magnitude more prevalent in those with mental health conditions than in those without (Table 24). Too few Class A/B Reservists had suicidal ideation to produce a reliable population estimate. No contemporaneous general population comparator was available.

Past-year suicidal ideation was present in 6.6% of all Regular Force Veterans, 12.0% of all Regular Force Veterans who were VAC clients and 3.7% all Veterans who were not VAC

clients. Of Regular Force Veterans with past-year suicidal ideation, 64% were VAC clients and 36% were non-clients. These findings are entirely consistent with worldwide literature showing a higher prevalence of suicidal ideation in civilian, military and Veteran subpopulations with higher prevalences of chronic mental and physical health conditions.

**Table 24. Proportion of Veterans with past-year suicidal ideation in those with and without mental health conditions.**

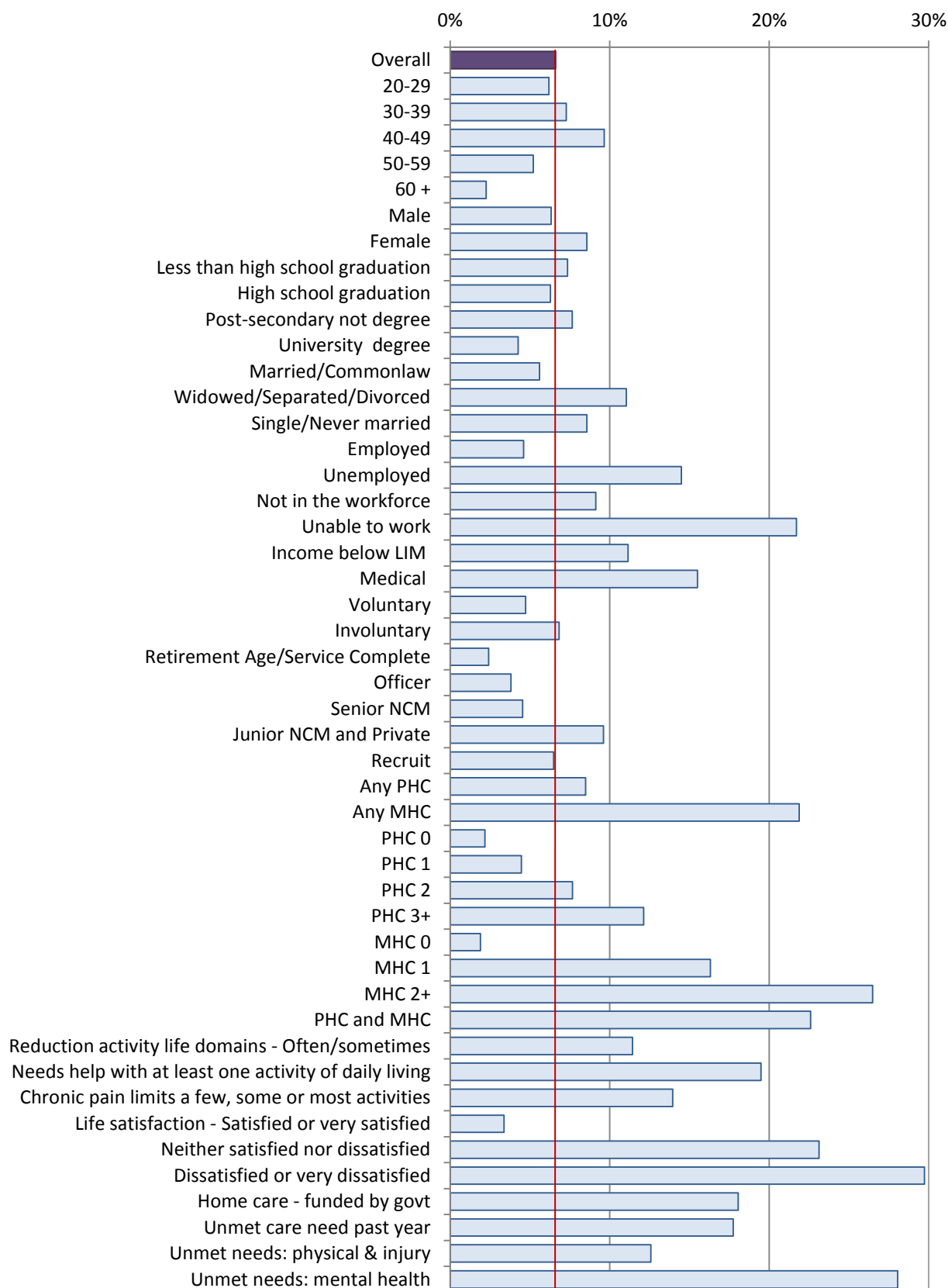
	Reserve Class C Sample size, Population Estimate			Regular Force Sample size, Population Estimate		
	With MHC	Without MHC	Total	With MHC	Without MHC	Total
Past-year suicidal ideation	22%	2%	5%	22%	2%	7%

A variety of factors other than mental disorders play roles in suicidality in military Veterans. Past-year suicidal ideation was relatively more prevalent in those aged 40-49, women, education other than university degree, unemployed and unable to work, low income, medical release, junior NCMs including privates, physical and mental health conditions particularly those with both and with higher degrees of comorbidity, disability, not satisfied with life, home care and unmet needs for either type of health care (Figure 15).

Although causes of suicide in military personnel and Veterans remain unclear, these and other biopsychosocial factors have been shown in research worldwide to be associated with suicidality in civilian and military populations, including psychological predisposition, mental and physical health, and socioeconomic circumstances (Black et al. 2011, Nock et al. 2013, Castro and Kintzle 2014, Blosnich et al. 2014). Analysis of LASS 2010 findings found that past-year suicidal ideation in CAF Regular Force Veterans was associated with a variety of socioeconomic and stress/coping factors and with mental health, however ideation was associated with physical health independently of mental health, though the relationship was not as strong as for mental health (Thompson et al 2014b).

This evidence supports suicide prevention activities that include both mental health services and support for physical health and socioeconomic well-being.

**Figure 15. Prevalence of past-year suicidal ideation by socioeconomic and military characteristics and health and disability indicators for Regular Force Veterans.**



In LASS 2010 past-year prevalence of attempts in Regular Force Veterans was 1.0% (0.7-1.5%) (Thompson et al. 2011b). The suicide attempt question in LASS 2013 was only asked of those who answered yes to the ideation question so no population prevalence estimate is available for attempts.

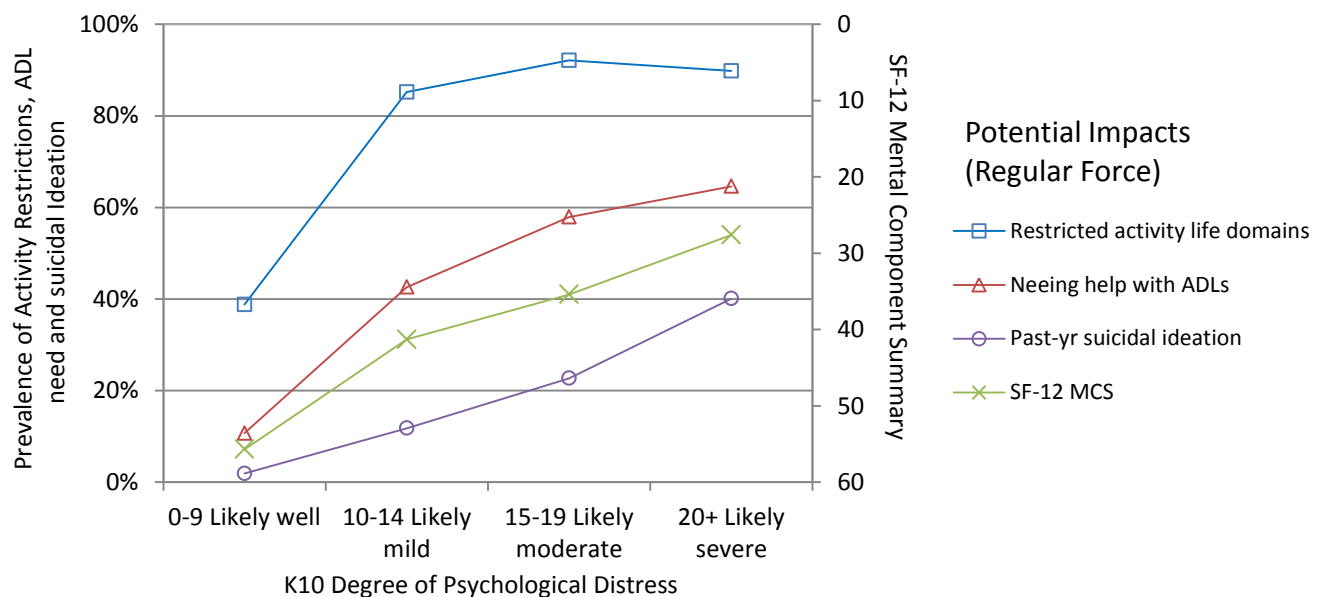
## 4.11 Associations between K10, SRMH and Four Potential Adverse Impacts

Throughout this report we have looked primarily at correlations between diagnosed mental health conditions and various measures of determinants and outcomes. As demonstrated above, the K10 measure of psychological distress and the self-rated mental health question are different measures of mental health problems capturing current mental health status and undiagnosed states, so it is also important to explore how they appear to be associated with potential adverse impacts.

### 4.11.1 Associations with Four Potential Impacts

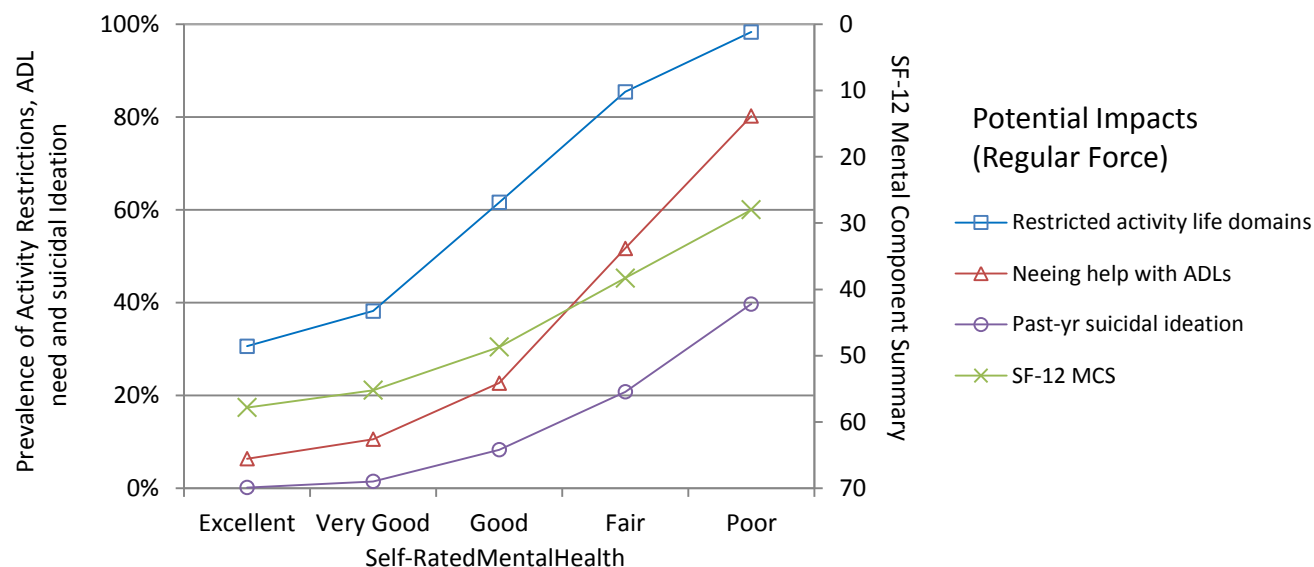
Higher psychological distress and poorer self-rated mental health were associated with activity limitations, suicidal ideation and mental health-related quality of life (SF-12 MCS). (Figure 16 and Figure 17) The relationships were roughly linear except for the K10 and restricted activity in major life domains. Note that “good” SRMH was associated with prevalences of activity limitations and with MCS scores lower than for very good/excellent SRMH (Figure 17).

**Figure 16. Associations between K10 degree of psychological distress and SF-12 mental component summary, past-year suicidal ideation and two measures of activity limitations.**





**Figure 17. Associations between self-rated mental health and SF-12 mental health-related quality of life (MCS), past-year suicidal ideation and two measures of activity limitations.**



## 4.11 Service Utilization

### 4.11.1 Health Care

Health care is provided to Canadian Veterans by publically funded healthcare systems administered by the Provinces and Territories. VAC supports access to health care by paying for and brokering services for eligible Veterans. Eligible Veterans may also receive extended health insurance coverage through the Public Service Health Care Plan.

Table 25 shows findings for health service utilization in those with and without diagnosed mental health conditions. In thinking about these findings, recall that there was a very high co-occurrence of physical health conditions in those with mental health conditions, and respondents might have been thinking about either type or both.

#### 4.11.1.1 Extended Health Insurance

Most Reserve Class C and Regular Force Veterans had extended health insurance (prescription drugs, dental care, eye glasses). Reserve Class C Veterans less often had coverage. Differences between those with and without mental health care conditions were slight and probably not statistically significant so were not tested.

#### 4.11.1.2 Regular Medical Doctor

Most Reserve Class C and Regular Force Veterans had a regular medical doctor. In the 2010 survey, Regular Force Veterans were more likely to have regular doctors than similarly aged Canadians in the general population (Thompson et al. 2011a; not tested using the 2013 data). In the 2013 survey, Veterans with health problems, such as VAC clients, more often had regular doctors than those without (Thompson et al. 2014a). The proportion with regular medical doctors was slightly higher in Regular Force Veterans with mental health conditions compared

to those without but this difference was not statistically significant for Reserve Class C (see table below).

#### 4.11.1.3 Contacts with Health Professionals

There is data on contacts with various health professionals however the questions did not distinguish access between “physical, emotional or mental health” and so was not analyzed for this report.

#### 4.11.1.4 Home Care

Home care utilization was significantly more prevalent in those with mental health conditions than in those without (see table below). About 1 in 4 with a mental health condition was using home care funded by either government or other sources or both (26% for Reserve C and 27% for Regular Force), compared to less than 1 in 10 of those without a mental condition (8% and 9%).

#### 4.11.1.5 Perceived Unmet Health Care Need

Perceived unmet health care need was assessed with the question “*During the past 12 months, was there ever a time when you felt you needed health care but didn’t receive it?*” followed by questions asking about why not and what type of care.

##### 4.11.1.5.1 Prevalence of Unmet Health Care Needs

As Table 25 shows, self-perception of unmet need for health care was approximately three times higher in Veterans with mental health conditions than in Veterans who did not: 33% vs. 12% for Reserve Class C and 34% vs. 10% for Regular Force. In Regular Force Veterans with mental health conditions, 56% had perceived need for a physical health problem and 38% for a mental health problem, which underscores the high co-occurrence of physical health conditions in those with mental health conditions.

**Table 25. Proportion with and without mental health conditions by health system indicators.** (e.g. 91% of those with mental health conditions had prescription drug coverage.)

Indicator	Sample Size and Prevalence Reserve Class C				Prevalence – Regular Force			
	With MHC	Without MHC	Total	Chi <sup>2</sup> Test <sup>A</sup>	With MHC	Without MHC	Total	Chi <sup>2</sup> Test <sup>A</sup>
<b>Extended health insurance coverage:</b>								
Prescription drugs	91%	88%	88%	NT	91%	92%	92%	NT
Dental	75%	79%	78%	NT	82%	88%	87%	NT
Eye glasses	72%	73%	73%	NT	81%	85%	84%	NT
<b>Regular Medical Doctor:</b>								
	82%	78%	78%	NS	88%	78%	81%	S***
<b>Home care:</b>								
Government-funded	F	F	4%	S***	18%	4%	7%	S***
Other funded	19%	7%	9%	S***	14%	6%	8%	S***
Either of above	26%	8%	12%	S***	27%	9%	13%	S***

Indicator	Sample Size and Prevalence Reserve Class C				Prevalence – Regular Force			
	With MHC	Without MHC	Total	Chi <sup>2</sup> Test <sup>A</sup>	With MHC	Without MHC	Total	Chi <sup>2</sup> Test <sup>A</sup>
<b>Perceived unmet health care need past year:</b>								
Any	33%	12%	16%	S***	34%	10%	16%	S***
Physical health/Injury <sup>B</sup>	61%	70%	67%	NS	56%	73%	64%	S**
Mental health <sup>B</sup>	F	12%	17%	NS	38%	F	21%	S***
Other or checkup <sup>B</sup>	F	20%	25%	NS	20%	31%	25%	S*

MHC = diagnosed mental health condition.

<sup>A</sup>Proportions with MHCs and without different if Chi-squared test is significant; NT – not tested, NS = difference not significant; S = difference significant; \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

<sup>B</sup>Of those with an unmet need.

F = Sample size < 30, estimate not considered reliable.

Prevalence of perceived unmet health care need was higher in Reserve Class C and Regular Force Veterans than in the general Canadian population controlling only for age and gender (not for presence of physical health conditions) and higher in VAC clients than non-clients (Thompson et al. 2014a). However, Veteran groups with higher prevalences of unmet health care needs also had higher prevalences of both chronic physical and mental health conditions. This is consistent with prior research showing that people with health conditions are more likely to perceive unmet health care needs than those who do not. In a longitudinal study of Canadians aged 18 and older with chronic health conditions (arthritis, COPD, diabetes, heart disease, hypertension, stroke or mood disorders) based on CCHS 2001 and 2003, 16% had a previous-year unmet need (Ronksley et al. 2014). An analysis of the 1998-99 National Population Health Survey assessed unmet health care need in the general Canadian population (Chen and Hou 2002). Two factors were associated with all three types of unmet need: chronic conditions and degree of distress. Unmet need for mental health care was common in mental health surveys of the Canadian general population in 2002 and 2012. In an analysis of the Ontario respondents in the 2002 survey (Nelson and Park 2006), 5% of adults had unmet mental health care needs. In the 2012 CCHS Mental Health Survey of the general population, 17% of the population aged 15 or older reported having a mental health care need in the prior 12 months; two-thirds (67%) felt their need was met, 21% felt it was partially met and 12% felt it was unmet (Sunderland and Findlay 2013).

#### 4.11.1.5.2 Reasons for Unmet Health Care Needs

Table 26 summarizes reasons for unmet health care needs based the categories proposed by Ronksley et al. (2013): *personal choice*, *availability*, *accessibility* and *acceptability*. Questions on acceptability (dislike doctor, afraid, language problems or didn't know where to go) were not specifically addressed in the survey but might have been given in free text entries, which were not available for analysis. It is not clear whether respondents were considering their physical or mental health problems. Recall that the great majority with mental health problems had chronic physical health conditions.

**Table 26. Reasons for perceived unmet need in those with and without mental health conditions.**

Reason for Unmet Need	Proportion with that Reason			
	Reserve Class C		Regular Force	
	With Mental Health Conditions	Total	With Mental Health Conditions	Total
<b>Personal choice</b>	F	30%	21%	26%
<b>Availability</b>	F	37%	40%	44%
<b>Accessibility</b>	F	27%	14%	13%
<b>Other</b> (free text)	F	26%	38%	29%

**Personal choice:** didn't bother, too busy, thought care would be inadequate or decided not to seek care.

**Availability:** waiting time too long, not available locally or when need required, or doctor thought the care was not necessary.

**Accessibility:** cost.

**Other:** free text, not available for analysis.

F = Sample size < 30, estimate considered unreliable.

In the analysis of the 1998-99 National Population Health Survey (Chen and Hou 2002), reasons for unmet needs were grouped into personal choice (4% of the adult population or 53% of those with unmet need; e.g. being too busy, deciding not to bother, believing care would be inadequate, disliking or fearing medical care), availability (3% of the population or 39% of those with unmet need; e.g. long waiting times, not available when required or in the area) and accessibility (less than 1% of the population or 13% of those with unmet need; most often cost).

In the longitudinal study of Canadian adults with chronic health conditions based on CCHS 2001 and 2003, 16% had a previous-year unmet need (Ronksley et al. 2014), after grouping types of unmet need into accessibility, availability, acceptability and personal choice (Chen and Hou had used 3 categories), 50% with unmet need reported availability types and 36% reported personal choice types. Unmet need was not associated with a greater risk of all-cause or cause-specific hospitalization in those with chronic physical health conditions.

In the analysis of the Ontario respondents in the 2002 survey (Nelson and Park 2006), of those with unmet health care needs 75% were for acceptability (preferred to manage oneself most commonly, then in order didn't think anything more could help, didn't know where to go, afraid to ask help, didn't bother), 17% for availability and 16% for accessibility. Unmet mental health care needs were associated with younger age, female gender, lower social support, and higher service use. In the 2012 CCHS Mental Health Survey of the general population, higher levels of distress and chronic physical conditions were associated with unmet need for mental health care. Of those with unmet health care needs, barriers to mental health care included 73% owing to personal circumstances (didn't know where to get help, haven't got around to it, job interfered, low confidence in care, couldn't afford it), 43% to preferring to manage on their own, and 19% to features of the health care system.

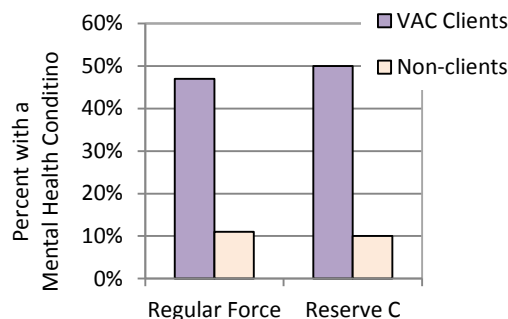
Mental health service use was assessed using data from the 2002 CF Mental Health Survey of serving CAF personnel (Fikretoglu et al. 2008). A significant proportion (43%) with mental health conditions had not obtained mental health care in the prior year. Failure to acknowledge need for care was an important factor among CAF personnel at that time. The majority with diagnostic criteria for mental health disorders who did not receive mental health services felt that they did not need them: 85% of those who did not receive information, 97% who did not receive

medication and 84% who did not receive counseling or therapy felt they did not need it. Since then, CAF has enhanced access to care for mental health problems in a number of ways, including recognition and acceptance of need for timely care among serving personnel.

#### 4.11.2 Veterans Using VAC Services

The great majority of CAF Veterans who use VAC services do so owing to chronic health problems and related disability experiences. As of March 2013, the time of this survey, 98% of VAC clients (serving and Veterans) had disability benefits for service-related, permanent and disabling conditions (medical diagnoses of physical or mental health conditions)<sup>20</sup>.

Mental health problems are common among Veterans using VAC services: 47% of Regular Force clients had one of the three diagnosed mental health conditions asked about in the survey as did 50% of Reserve C clients (see **figure to right**).



*VAC Program Reach.* VAC staff work with Veterans who have the most complex health problems including chronic pain, comorbidity of mental and physical health conditions, and suicidal ideation. As shown in **Table 27** below, the majority of subgroups of Regular Force Veterans with various markers of complex health issues were participating in VAC programs. The majority (71%) of Regular Force Veterans with mental health conditions were participating in VAC programs as were about half (49%) of Reserve Class C Veterans with mental health conditions. A significant number with diagnosed mental health conditions were not participating in VAC programs (51% of Reserve Class C and 29% of Regular Force Veterans).

**Table 27. Proportions of subgroups participating in VAC programs.**

Subgroup	Proportion Who Were VAC Clients	
	Class C Reserve	Regular Force
Fair/poor self-rated mental health	53%	75%
Diagnosed mental health condition	49%	71%
Chronic pain	41%	82%
Three or more comorbid chronic physical conditions	43%	65%
Comorbidity of physical and mental conditions	52%	73%
Past-year suicidal ideation	46%	64%
Activity restrictions in major life domains	39%	63%
Needing help with at least on ADL	34%	81%

##### 4.11.2.1 VAC Service Use by Program

Table 28 shows participation in various VAC programs for VAC clients in the LASS 2013 survey who had diagnosed mental health conditions, based on indicators in the VAC administrative database. A significant proportion of clients in three key VAC programs had one of the three diagnosed mental health conditions: 47% of those in the disability benefit program, 84% in the rehabilitation program and 60% in the Veterans Independence Program.

<sup>20</sup> VAC Quarterly Fact Sheet March 2013, VAC Statistics Directorate.

Of clients with one of the three diagnosed mental health conditions, 65% had disability benefits for a psychiatric diagnosis and 35% did not. An important implication of this finding is that VAC disability benefit data does not reflect the total health and disability experience of CAF Veterans.

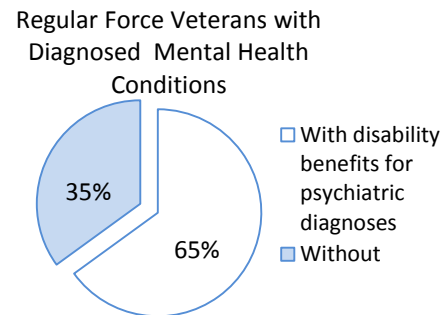


Table 28 shows that of those with mental conditions in the survey, 38% were in the rehabilitation program and 46% were in the VIP program.

The VAC disability assessment used in determining of disability benefits is based on a combination of impairment ratings and quality of life estimate. The large majority (87%) of those with a VAC administrative disability assessment of 48% or greater had a diagnosed mental health condition. This is consistent with a considerable body of evidence internationally showing that mental health disorders exert a disproportionate effect on quality of life and role disability relative to physical health conditions (Patten et al. 1999, Alonso 2004, Schmitz et al. 2007, Dewa et al 2007, Druss et al. 2009, Scott et al. 2009, Bruffaerts et al. 2012, Lillie et al. 2013, Thompson et al. 2014b).

There was no significant difference in urban/rural distribution between those with mental health conditions (77% urban, 22% rural) and those who did not (75% urban, 25% rural).

**Table 28. Participation in VAC programs.**

Regular Force	VAC clients with the indicator who had a diagnosed mental health condition (Row %)	VAC clients with a diagnosed mental health condition who had the indicator (Column %)	All VAC clients with the indicator (Column %)
Indicator			
Disability benefits for any medical diagnosis	47%	100%	100%
Disability benefits for a psychiatric diagnosis	99%	65%	31%
Disability benefits for a PTSD diagnosis	100%	47%	22%
Disability assessment*:			
<5%	19%	2%	5%
5-17%	25%	22%	40%
18-27%	34%	11%	15%
28-47%	61%	23%	17%
48%+	87%	43%	23%
Disability benefits for a musculoskeletal diagnosis	45%	69%	73%
Disability benefits for a hearing loss diagnosis	42%	27%	31%
Rehabilitation program	84%	38%	22%
VIP program	60%	46%	36%
Rural	44%	22%	24%
Urban	48%	78%	76%



\*Categories reflect VAC disability benefit administrative parameters.

#### 4.11.2.2 Disability Benefits do not reflect the Health Status of VAC Clients

VAC keeps statistics on health conditions for which clients have disability benefits (service-related<sup>21</sup> medical diagnoses and permanent disability<sup>22</sup>) however much of the health status of VAC clients is not represented by those administrative data. In March 2013, 16% of all VAC CAF clients were receiving disability benefits for psychiatric medical conditions. This statistic does not reflect the full health status of VAC clients:

1. Of Regular Force VAC clients in the survey, nearly half (47%) had one of the three diagnosed mental health conditions, while 31% were receiving benefits for a service-related mental health diagnosis.
2. Viewed the other way, of those with any of the three diagnosed mental health conditions, about two thirds (65%) had VAC disability benefits for a psychiatric diagnosis while more than a third (35%) did not.
3. A third (33%) of Regular Force Veterans in the survey who were VAC clients had self-reported diagnosed PTSD while a fifth (22%) had a VAC disability benefit for PTSD.

#### 4.11.2.3 Transition Interviews: Hints about Mental Health Problems across Transition

In LASS 2013, 63% of Regular Force personnel who released during 2006-12 had a transition interview, as did 12% of Reserve Class C Reserve Veterans<sup>23</sup>. The sample size for Reserve Class A/B was too small to make a reliable estimate.

In interpreting these data, it is important to recall that while transition interviews took place prior to release from service, respondents were asked about mental health diagnoses at the time of the survey, up to 8 years after transition. In the 2010 survey, MacLean et al. (2011) found that 60% of Regular Force personnel who had released in 2006-08 had a transition interview.

About two-thirds of Regular Force Veterans with mental health problems identified in transition interviews prior to release had mental conditions in the survey (Table 29:  $19\%/28\% = 68\%$ ). Conversely, 88% who did not have a mental health problem identified in the interview did not have a mental condition in the survey ( $88\% = 63\%/72\%$ ). This is consistent with emerging evidence from the U.S. and U.K. which suggests that military personnel with mental health problems in service are more likely to have them before, during and after service (Pietrzak et al. 2012, Kessler 2014, Iversen et al. 2005). In a longitudinal study of military Veterans in the UK, those with mental health problems in service were more likely to be unemployed and experiencing mental health problems in life after service, although this was not universally the case (Iversen et al. 2005).

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<sup>21</sup> Service-related does not necessarily mean caused or aggravated by a factor in service (compensation principle). Service relationship can be found to exist for disability benefit purposes if the condition arose during certain types of service (insurance principle).

<sup>22</sup> VAC Statistics Directorate, March 31, 2013.

<sup>23</sup> Transition interview status was determined from VAC administrative data. Transition interviews were offered from 2006 on, so in this analysis of Regular Force Veterans surveyed in LASS 2013 we excluded those who released earlier.

**Table 29. Presence of diagnosed mental health condition at the time of the survey in Regular Force Veterans who had a transition interview prior to release.**

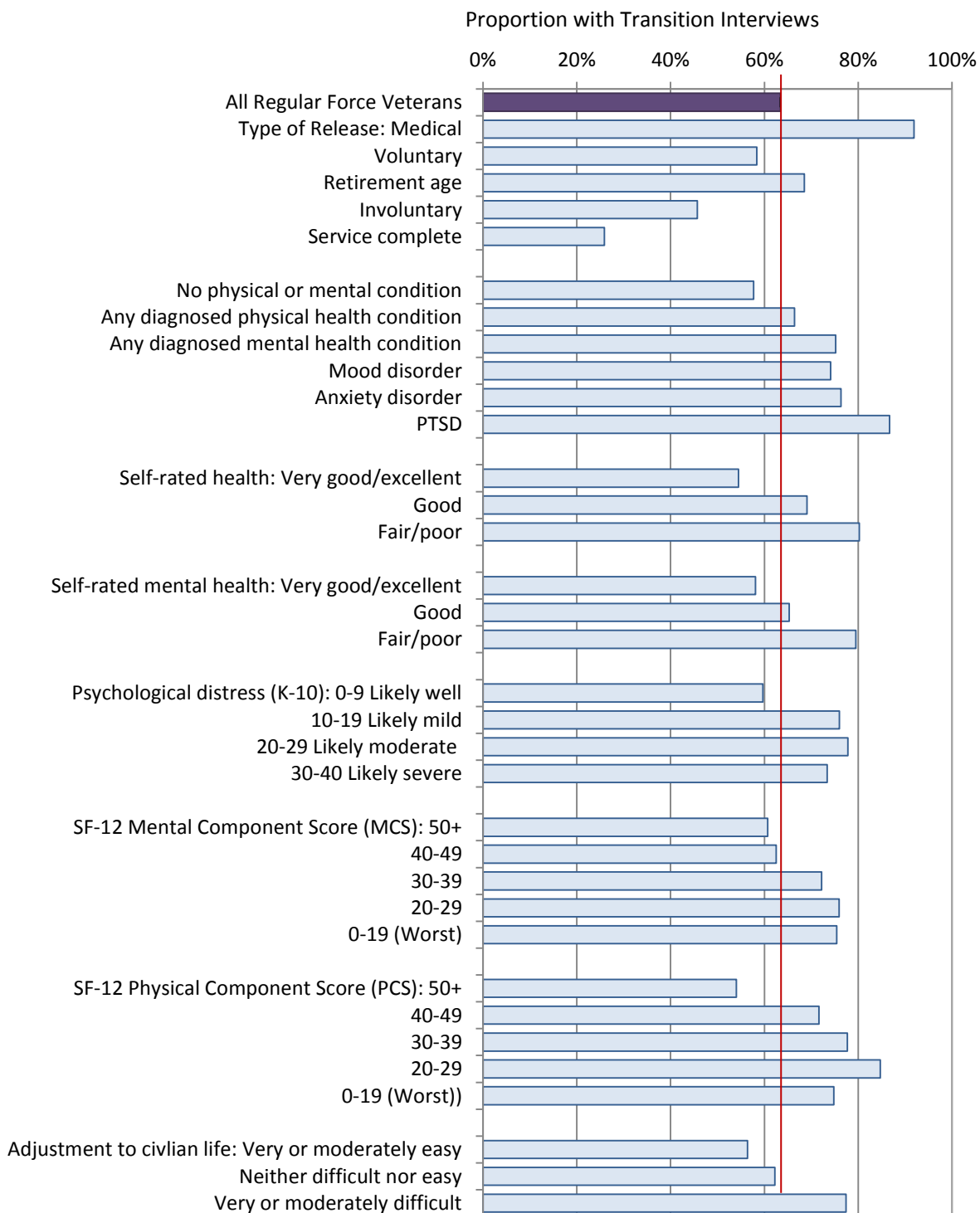
<b>Mental Health Problem Identified on Transition Interview</b>	<b>Weighted Population Estimates</b>		
	<b>With MHC</b>	<b>Without MHC</b>	<b>Total</b>
<b>Yes</b>	19%	9%	28%
<b>No</b>	9%	63%	73%
<b>Total</b>	28%	72%	100%

Since this is a cross-sectional study, it is not known when the Veterans acquired their mental health problems; however some linkable information about mental health status prior to transition was available from transition interviews. VAC and DND/CAF collaborate to provide transition interviews by VAC Client Service Agents for CAF personnel prior to release from service. The transition interview is an opportunity to identify issues that might interfere with transition to civilian life and to establish a relationship with VAC. The structured interview identifies support needs with respect to health, stressors and resources. VAC file numbers are assigned if the member applies for benefits or needs case management. Transition interviews are available to Regular and Reserve Force CAF personnel, but they are not universally accessed.

As shown in Figure 18, transition interviews were most common in Regular Force Veterans who were medically released (92%) and more common in those who at the time of the survey had diagnosed mental conditions, particularly PTSD, worse self-rated health, more psychological distress (K10), worse mental and physical health-related quality of life (SF-12 MCS and PCS) and more difficult adjustment to civilian life.

These findings indicated that a significant number of Regular Force Veterans and even greater number of Reserve Class C Veterans did not have transition interviews but also suggest that the transition interview identifies Regular Force personnel who are more likely to have mental health problems after release from service. Transition interviews were less common among those who underwent voluntary or involuntary transitions compared to those who were medically released, yet some of former have mental health problems. Further analysis of the data would refine transition interview planning to more effectively identify serving personnel who are likely to experience difficulties during and after military-civilian transition.

**Figure 18. Proportions of Regular Force Veterans who released in 2006-2012 and had transition interviews, by health measures assessed in LASS 2013.**

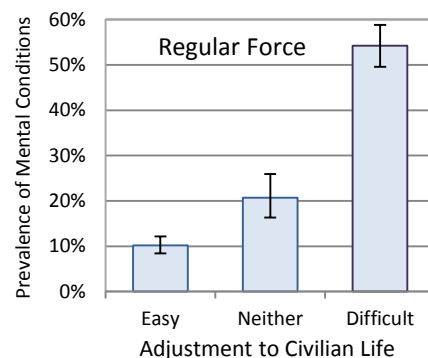


## 4.12 Adjustment to Civilian Life

As in LASS 2010, respondents were asked a single question about their perception of ease of adjustment to civilian life: *"In general, how has the adjustment to civilian life been since you were released from the Canadian Forces?"* with five options for answers: *easy, moderately easy, neither difficult nor easy, moderately difficult, or difficult*. As shown in the first LASS 2013 report (Thompson et al. 2014a p. 34) and an analysis of LASS 2010 (MacLean et al. 2011), ease of adjustment was correlated with a variety of well-being determinants, including socioeconomic characteristics; indicators of stress, coping and satisfaction; and with physical and mental health status.

As shown in the figure to the right and the table below, adjustment to civilian life was strongly correlated with having one or more of the three diagnosed mental conditions (**Appendix Figure 4** and **Appendix Table 4**).

- Of those with difficult adjustment, more than half (59%) of Regular Force Veterans had mental health conditions, as did nearly half (43%) of Reserve Class C Veterans (Table 30). Difficult adjustment was much more prevalent in those with mental health conditions at the time of the survey than in those without (Regular Force 62% vs. 16%, Reserve Class C 59% vs. 17%).
- The odds of having a mental health condition in those with a difficult adjustment were 10 times higher than the odds of having a mental health condition in those with an easy adjustment in Regular Force and 8 times higher in Reserve Force Veterans. The odds of having a mental condition were also elevated about double in those with neither easy nor difficult adjustment relative to easy adjustment (**Appendix Table 4**).



**Table 30. Proportions with type of adjustment to civilian life in those with and without diagnosed mental health conditions.**

Indicator	Proportion with Type of Adjustment to Civilian Life, and Unadjusted Odds Ratio of Having a Diagnosed Mental Health Condition (MHC)							
	Reserve Class C				Regular Force			
	With MHC	Without MHC	Total	UOR	With MHC	Without MHC	Total	UOR
<b>Adjustment to civilian life:</b>								
Moderate/very easy	29%	68%	61%	1.00	24%	67%	56%	1.00
Neither	F	16%	15%	1.91*	14%	17%	17%	2.31***
Moderate/very difficult	59%	17%	24%	8.43***	62%	16%	27%	10.49***
Total	100%	100%	100%		100%	100%	100%	

The adjustment question asked respondents to consider in retrospect how difficult their transition *had been*. However, since the survey was cross-sectional and asked about *current* health, we can only hypothesize about why the presence of chronic mental health conditions at the time of the survey was correlated with reporting difficult adjustment. Some likely had mental health problems before and at release as well as the time of the survey. Longitudinal studies in the UK found that those with mental health problems in service tend to have mental health problems and employment disadvantages after leaving service (Iversen et al. 2005). Some might have developed a mental health problem after leaving service. Some with current mental

health conditions might have been predisposed to retrospectively think of their adjustment as difficult compared to those without. Chronic physical health conditions acquired both in and after service were commonly associated with disability in these Veterans (Thompson et al. 2014b) and can cause secondary mental health problems.

## 5. Discussion

The LASS 2013 survey was the first comprehensive study of the health and well-being of CAF Primary Reserve Force Veterans and extended the comprehensive LASS 2010 study of contemporary Regular Force Veterans. The LASS 2013 survey confirmed the elevated prevalences of mental and physical health problems and disability in Regular Force Veterans compared to the general population that had been identified in the 2010 survey. Former Reserve Class C (deployed) Reservists were more like Regular Force Veterans in terms of mental health status. Former Class A/B (non-deployed) Reservists had very similar mental health to Canadians in the general Canadian population, and very few of them had accessed VAC programs. Consistent with studies in civilian and other military populations, mental health problems were found to be associated with multiple socioeconomic factors and physical health problems in statistical analyses unadjusted for confounding.

### 6.1 Strengths

The LASS 2013 survey has a number of important strengths:

- This was the first survey of Reserve Force Veterans living in the general Canadian population. The survey used generous sample sizes and had very good response rates and high share rates, so the results are considered nationally representative of the Veteran subgroups sampled.
- Like LASS 2010, the data linkage process used by Statistics Canada enabled confidential, objective identification and contacting of CAF Reserve and Regular Force personnel living in the general population.
- Respondent weightings provided by Statistics Canada account for the stratified sample design and for differences between respondents and non-respondents in the calculation of prevalence rates and proportions.
- The questionnaire was standardized on questions used in national Canadian population health studies and validated to varying degrees in a number of studies.
- Statistics Canada has well-developed systems for conducting computer-assisted telephone interviews in national population studies and protecting confidentiality.
- Use of interviewers outside VAC and DND reassured respondents who were offered the choice of whether to share their responses with the two departments.
- Researchers who analyzed the survey data were not aware of respondents' identities.

### 6.2 Limitations

All research studies have limitations. For this analysis of the mental health findings:

- LASS 2013 was a cross-sectional, point in time study, so conclusions cannot be drawn about causal relationships between factors such as military service and participation in VAC programs or the life courses of mental health problems; however these findings provide valuable evidence for hypotheses about causation, particularly in conjunction with findings from other studies.

- Comparisons across the three subgroups of Veterans and with prevalence estimates of mental health problems in serving personnel will require further analysis because these populations all differ in age, gender and other important characteristics that can influence prevalence rates for mental health problems.
- Associations of mental health problems with physical health status and well-being indicators were not adjusted for the confounding effects of multiple factors operating together.
- Primary Reserve Force Veterans had variable lengths of time in Reserve A, B or C service. Many Regular Force Veterans had some Reserve Force service, making it difficult to disentangle possible effects of the two types of service.
- Findings cannot necessarily be generalized to all Veterans, however the findings are considered representative of Veterans who released in those periods. Concordance between the LASS 2010 and LASS 2013 surveys for Regular Force Veterans who released in 1998-2007 was reassuring on this point.
- Most of the health and well-being findings are based on self-report, however most of the self-report indicators have been used for many years in many studies and their strengths and limitations are reasonably well understood. For example, there is evidence of reasonable agreement between self-reported diagnosed physical and mental health conditions and clinical records for several conditions. The questions about self-reported diagnosed mental health conditions were supplemented with the question on self-rated mental health, the Primary Care PTSD symptom-based screening tool and the K10 measure of psychological distress.
- While Reserve Force personnel with only Class A service were not surveyed, it is felt that the findings for Reserve Class A/B Veterans likely apply to the majority of those with Class A or B service since most Reservists have some training for periods that by the time they leave service qualify them as Class B consistent with the definitions described in the Methods section.

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## 7. Appendices

### Appendix 1. Definitions of survey measures.

Indicator	Source or Survey Question	Comparator
<b>Adjustment to Civilian Life</b>		
Adjustment to civilian life	<i>In general, how has the adjustment to civilian life been since you were released from the Canadian Forces? Very Difficult, Moderately Difficult, Neither Difficult nor Easy, Moderately Easy, Very Easy.</i>	LASS 2010 but not CCH 2012
<b>General Health</b>		
Self-Rated health	Self-rated health (SRH). <i>In general, would you say your health is...? Excellent, Very good, Good, Fair, Poor.</i> There is also a second question asking how self-rated health is now compared to 1 year ago.	LASS 2010 CCHS 2012
Self-Rated mental health	Self-rated mental health (SRMH). <i>In general, would you say your mental health is...? Excellent, Very good, Good, Fair, Poor.</i> Validated by Mawani and Gilmour (2010).	LASS 2010 CCHS 2012
Health-related quality of life (SF-12)	QualityMetric's SF-12 Health Survey (Short-Form 12-Item Health Survey version 2) is a measure of self-reported, past-month health-related quality of life (HRQoL) or functional general health. Version 2 includes physical (PCS) and mental (MCS) component summary scores and 8 subscales. Scores derived using QualityMetric's computer scoring software accounting for survey sampling weights.	LASS 2010 (V.1) But not in CCHS 2012
<b>Physical Health</b>		
<b>Chronic physical health conditions diagnosed by a health professional that are expected to last or have already lasted 6 months or more:</b> Any one of: musculoskeletal condition (arthritis or back problem), cardiovascular condition (heart disease, effects of stroke or high blood pressure), gastrointestinal condition (ulcer or bowel disorder), respiratory condition (asthma or COPD chronic obstructive pulmonary disease), central nervous system condition (migraine, dementia or effects of TBI traumatic brain injury), urinary incontinence, diabetes, cancer, obesity, hearing problem or chronic pain/discomfort).		
<b>Mental Health</b>		
<b>Chronic mental health conditions diagnosed by a health professional that are expected to last or have already lasted 6 months or more:</b>		
Mood disorder	<i>Do you have a mood disorder such as depression, mania, dysthymia or bipolar disorder?</i>	CCHS 2012 but not LASS 2010
Anxiety Disorder	<i>Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?</i> Followed by a question on the type of anxiety disorder (phobia, obsessive-compulsive, panic or other).	LASS 2010 CCHS 2012
PTSD	<i>Do you have post-traumatic stress disorder (PTSD)?</i> Asked after the question on anxiety disorder.	LASS 2010 CCHS 2012
<b>Mental Health Other:</b>		

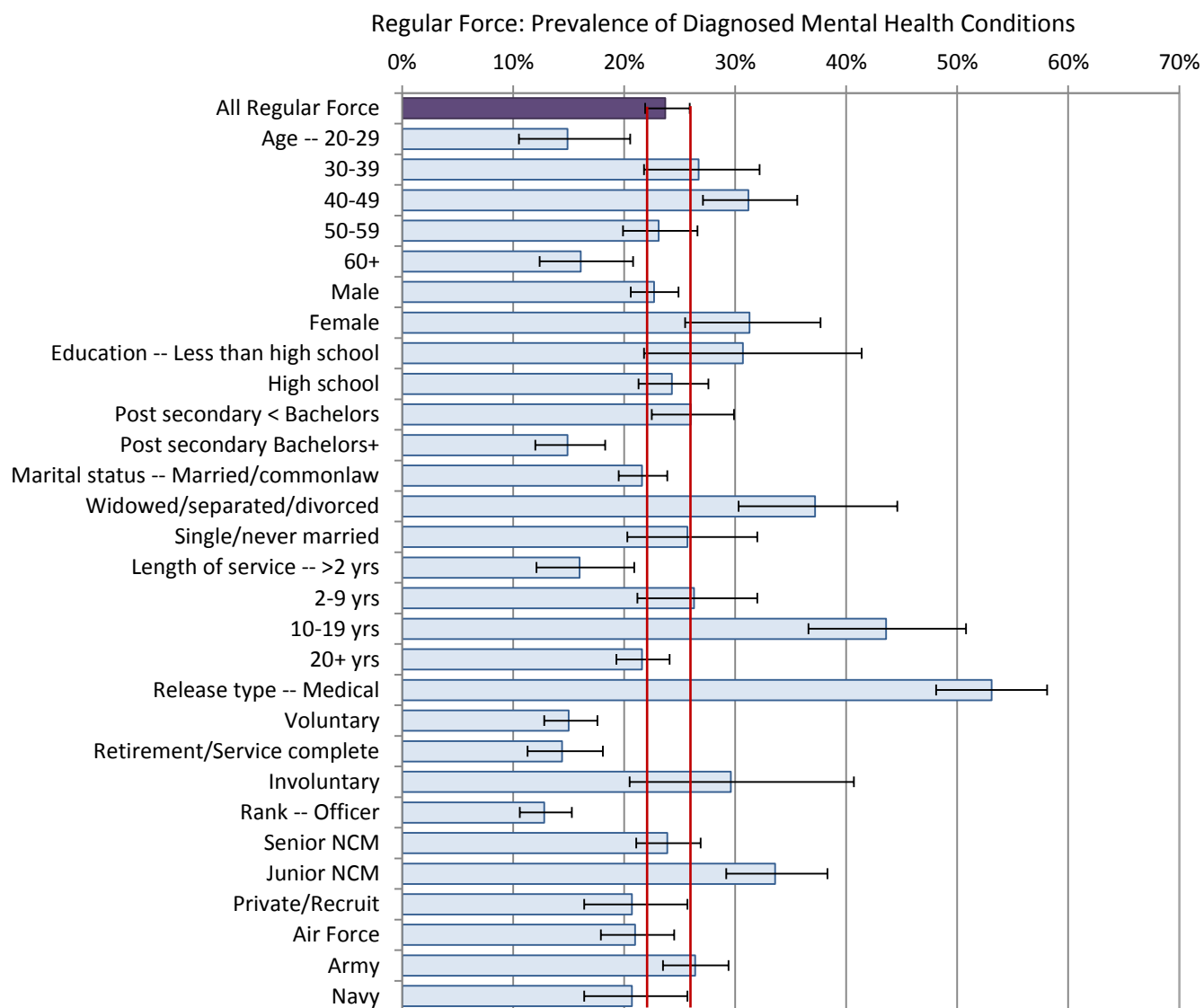
Indicator	Source or Survey Question	Comparator
Possible PTSD	PC-PTSD screener: <i>Have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month, you...</i> 1. <i>Have had nightmares about it or thought about it when you did not want to?</i> 2. <i>Tried hard not to think about it or went out of your way to avoid situations that reminded you of it?</i> 3. <i>Were constantly on guard, watchful, or easily startled?</i> 4. <i>Felt numb or detached from others, activities, or your surroundings?</i> Uses DSM-IV criteria. The [Primary care-PTSD screen or "PC-PTSD" developed by National Center for PTSD for primary care settings] includes 4 questions covering the key domains of PTSD, including re-experiencing trauma, numbing, avoidance, and hyper-arousal. The 2-4 items cut-off compared to the 3-4 items cut-off has higher sensitivity (0.91 vs 0.78) and lower specificity (0.72 vs 0.87) in U.S. V.A. settings where there is a higher prevalence of PTSD (25%) than in the general population (Prins et al. 2003). In serving personnel, the most efficient cutoff values for the PC-PTSD were either 2 or 3 "yes" responses with the latter favoring specificity (Bliese et al. 2008, Gusman et al. 2003).	Neither LASS 2010 nor CCHS 2012
Service-related psychologically traumatic experience	The preamble to the PC-PTSD screener asked about a psychologically traumatic experience and after the 4 PC-PTSD items the survey asked this question: Were you thinking about an experience related to service?	Neither LASS 2010 nor CCHS 2012
Psychological distress K10	Psychological distress is a state of emotional suffering characterized by symptoms of depression and anxiety (Drapeau et al. <a href="http://www.itechopen.com">www.itechopen.com</a> ). The K10 instrument has 10 questions consistent with 15 domains represented in the DSM-III-R diagnoses of major depression and generalized anxiety disorder plus the positive affect domain. Does not capture psychosis. Past month, score range 0-40, higher = more distress. Higher score = probable DSM-IV depression or anxiety. Australian Center for Posttraumatic Mental Health ( <a href="http://www.acpmh.unimelb.edu.au/site_resources/TrainingInitiativeDocuments/follow-up/K10.pdf">http://www.acpmh.unimelb.edu.au/site_resources/TrainingInitiativeDocuments/follow-up/K10.pdf</a> ): 0-9 Likely well 10-14 Likely mild mental disorder 15-19 Likely moderate mental disorder 20-40 Likely severe mental disorder	CCHS-MHS 2012 but neither LASS 2010 nor CCHS 2012
Frequency of Psychological Distress	Statistics Canada derives a scale from 1-8 of frequency, from a lot more than usual to never had any, from three questions following the K10 that ask about past month frequency of psychological distress.	Neither LASS 2010 nor CCHS 2012
<b>Suicidality</b>		
Suicidal ideation	Have you ever seriously considered committing suicide or taking your own life? Has this happened in the past 12 months?	LASS 2010 not CCHS 2012
Suicide attempt	This question was asked only of those with past-year suicidal ideation. Have you ever attempted to commit suicide or tried taking your own life? Did this happen in the past 12 months?	LASS 2010 not CCHS 2012
<b>Service Attribution</b>		
Service Attribution	Do you think any of the previously mentioned conditions you identified are related to your military service? Did not apply to hearing problems, PC-PTSD screener, K10 screener, or pain/discomfort.	Neither LASS 2010 nor CCHS 2012
<b>Disability</b>		
Reduction of activity in life domains (RALD)	RACDIMP: Derived by Statistics Canada from 5 questions (RAC_Q2A-C): <i>Does a long-term physical condition or mental condition or health problem, reduce the amount or the kind of activity you can do: at home; at school; at work; in other activities, for example, transportation or leisure?</i>	STCL 2010, CCHS 2010-11

Indicator	Source or Survey Question	Comparator
ADL Need	<i>Because of any physical condition or mental condition or health problem, do you need the help of another person with (at least one from a list of 6 basic and instrumental ADLs (activities of daily living): preparing meals, getting to appointments/errands, housework, personal care, moving about inside house, personal finances.</i>	STCL 2010, CCHS 2010-11
K10 Distress Interference	Last question in the K10 DIS (psychological distress) module: During the past month, how much did these feelings usually interfere with your life or activities?	Not CCHS 2012
Activity prevented by pain or discomfort	Asked of those who said no to whether they were usually free of pain or discomfort: How many activities does your pain or discomfort prevent? None, a few, some or most.	CCHS 2012 but not SCTL 2010
<b>Stress, Coping and Satisfaction</b>		
Perceived life stress	Thinking about the amount of stress in your life, would you say that most days are...? Not at all, not very, a bit, quite a bit, extremely (stressful).	LASS 2010 CCHS 2012
Satisfaction with life	Using a scale of 0 to 10 where 0 means very dissatisfied and 10 means very satisfied, how do you feel about your life as a whole right now? (Score 0-10). Can be converted to a 5-point scale (very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, very dissatisfied) consistent with usage in the Canadian Community Health Survey (see CCHS 2011-12 Derived Variable Specifications).	LASS 2010 CCHS 2012
Sense of community belonging	How would you describe your sense of belonging to your local community? Would you say it is...? very strong, somewhat strong, somewhat weak, very weak	LASS 2010 CCHS 2012
Work stress	Would you say that most days at work were...? Not at all stressful, Not very stressful, A bit stressful, Quite a bit stressful, Extremely stressful. Asked of those who said yes to Have you worked at a job or business at any time in the past 12 months?	CCHS 2012 but not SCTL 2010
Satisfaction with job or main activity	Thinking about [main activity past year] how satisfied are you? Very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, very dissatisfied.	LASS 2010 but not in CCHS 2012
Satisfaction with financial situation	How satisfied are you with your financial situation? Very satisfied, Satisfied, Neither satisfied nor dissatisfied, Dissatisfied, Very dissatisfied.	LASS 2010 but not in CCHS 2012
Mastery	Derived by VAC using seven questions on mastery. For example "You have little control over the things that happen to you." strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. Score 0-35 low to high. Low mastery if $\leq 7$ (Lee et al.. 2010), high if $\geq 23$ (Stephens et al.. 2000).	LASS 2010 but not in CCHS 2012
Social Provisions Scale	This module focuses on the degree to which respondents' social relationships provide various dimensions of social support. SPS provides a comprehensive assessment of perceived social support without identifying particular sources (Gottlieb et al.. 2010). The 10-item short form of the Social Provisions Scale (SPS) was developed for CCHS-MH 2012 by Dr. Jean Caron at McGill University (Caron 2013, Une validation de la forme abrégée de l'Échelle de provisions sociales: l'ÉPS-10 items, Santé mentale au Québec) and maintains the psychometric properties of the original 24-item SPS. This version has two questions for 5 of the 6 SPS provisions that were in the original: <i>guidance</i> (advice or information), <i>reliable alliance</i> (assurance can count on others in time of stress), <i>reassurance of worth</i> (recognition of one's competence), <i>attachment</i> (emotional closeness) and <i>social integration</i> (sense of belonging to group of friends). There is a continuous derived variable for overall social support: score 10-40, higher = more social support. There are no categorical cutoffs, so we describe the population's SPS in terms of mean and standard deviation. There are 5 derived continuous variables for each of the provisions: score 2-8 for each and no cutoffs into categories for them either.	New and optional in CCHS 2011 (Que, BC, YT, NWT and Nvt); not same as the MOS social support module used in LASS 2010 and prior national surveys

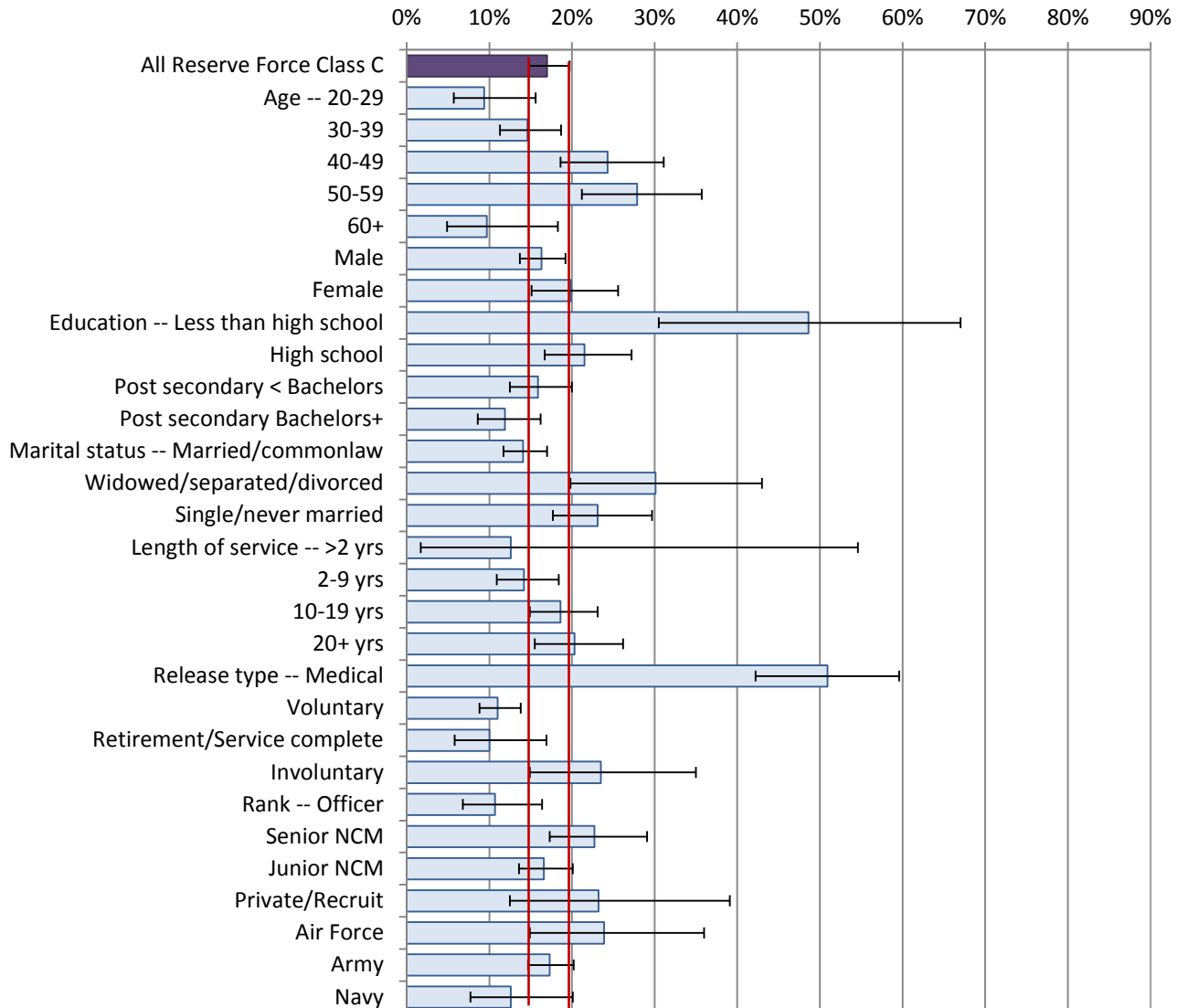
Indicator	Source or Survey Question	Comparator
Health Care		
Contacts with health care professionals	Series of questions on contacts with health professionals in outpatient settings for physical, emotional or mental health, asking about contact in past 12 months, number of contacts past 12 months and setting. Asked for family doctor, pediatrician or general practitioner; ophthalmologist/optometrist; surgeon, allergist, orthopedist, gynecologist/urologist, or psychiatrist; nurse; dentist, dental hygienist or orthodontist; physiotherapist; psychologist; social worker or counsellor; audiologist, speech or occupational therapist.	Neither LASS 2010 nor CCHS 2012
Unmet needs	During the past 12 months, was there ever a time when you felt that you needed health care but you didn't receive it? (Yes/No) Followed by 3 questions: (1) why not (including decided not to seek care and "other" specified; can pick more than one), (2) what type of care (we included injury with physical health; mental health; and other), and (3) where sought.	Neither LASS 2010 nor CCHS 2012
Suicide help-seeking	Did you see or talk to a health professional following your attempt or consideration to commit suicide? Only asked of those who said yes to suicide attempt in the past 12 months, not all with either ideation or attempts. Note that attempts and therefore suicide help-seeking were only asked of those with past-year suicidal ideation, unlike other surveys. Whom did you see or talk to? Family doctor or general practitioner; Psychiatrist; Psychologist; Nurse; Social worker or counselor; Religious or spiritual advisor such as a priest, chaplain or rabbi; Teacher or guidance counselor; Other.	Neither LASS 2010 nor CCHS 2012
Insurance for prescription medications	Do you have insurance that covers all or part of the cost of your prescription medications? Yes, No. Population who reported having insurance that covers all or part of the cost of prescription drugs.	LASS 2010 Not CCHS 2012



**Appendix Figure 1. Prevalence of having mental health conditions by sociodemographic and military characteristics.**



### Reserve Reserve Class C: Prevalence of Diagnosed Mental Health Conditions

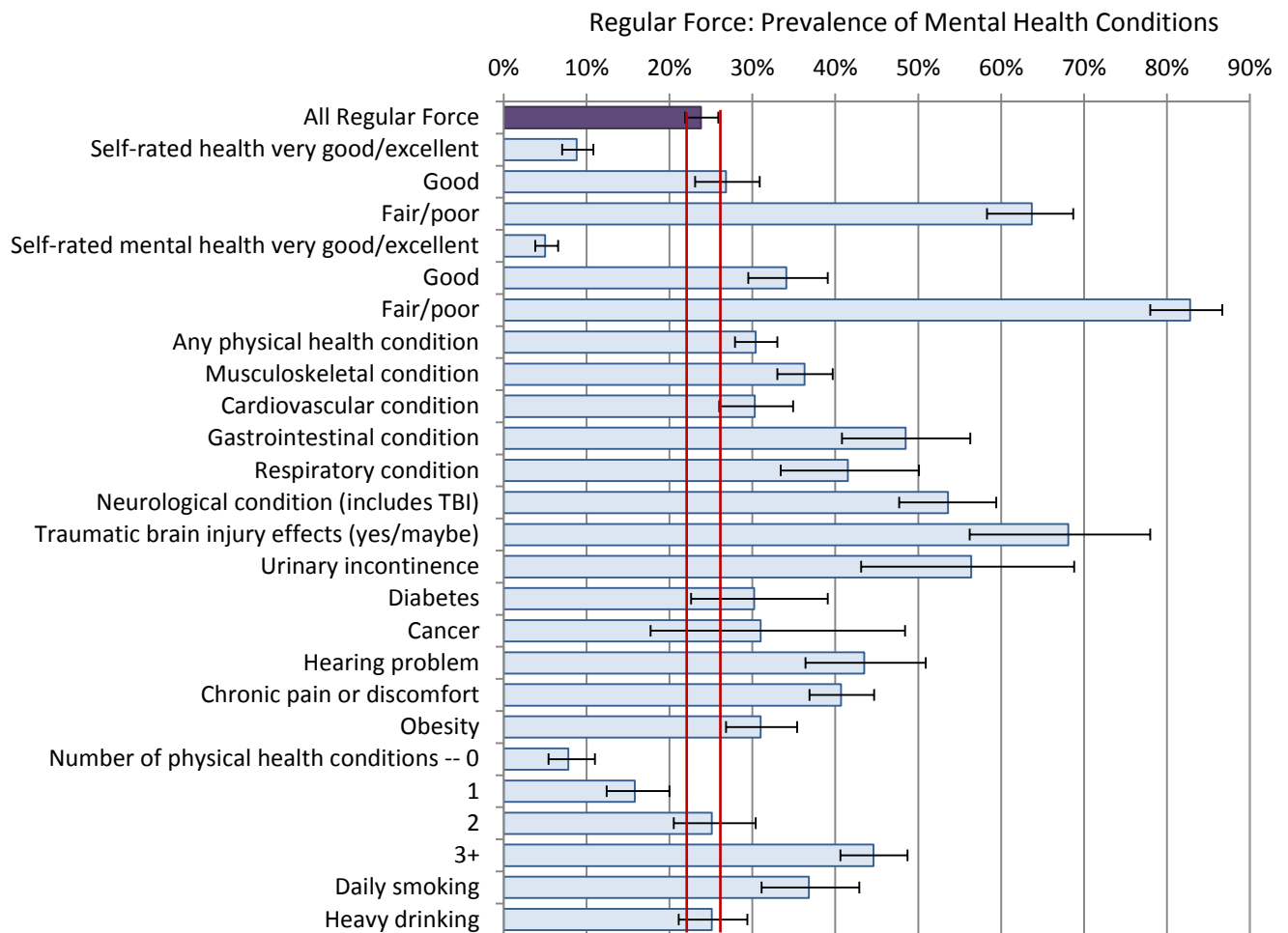


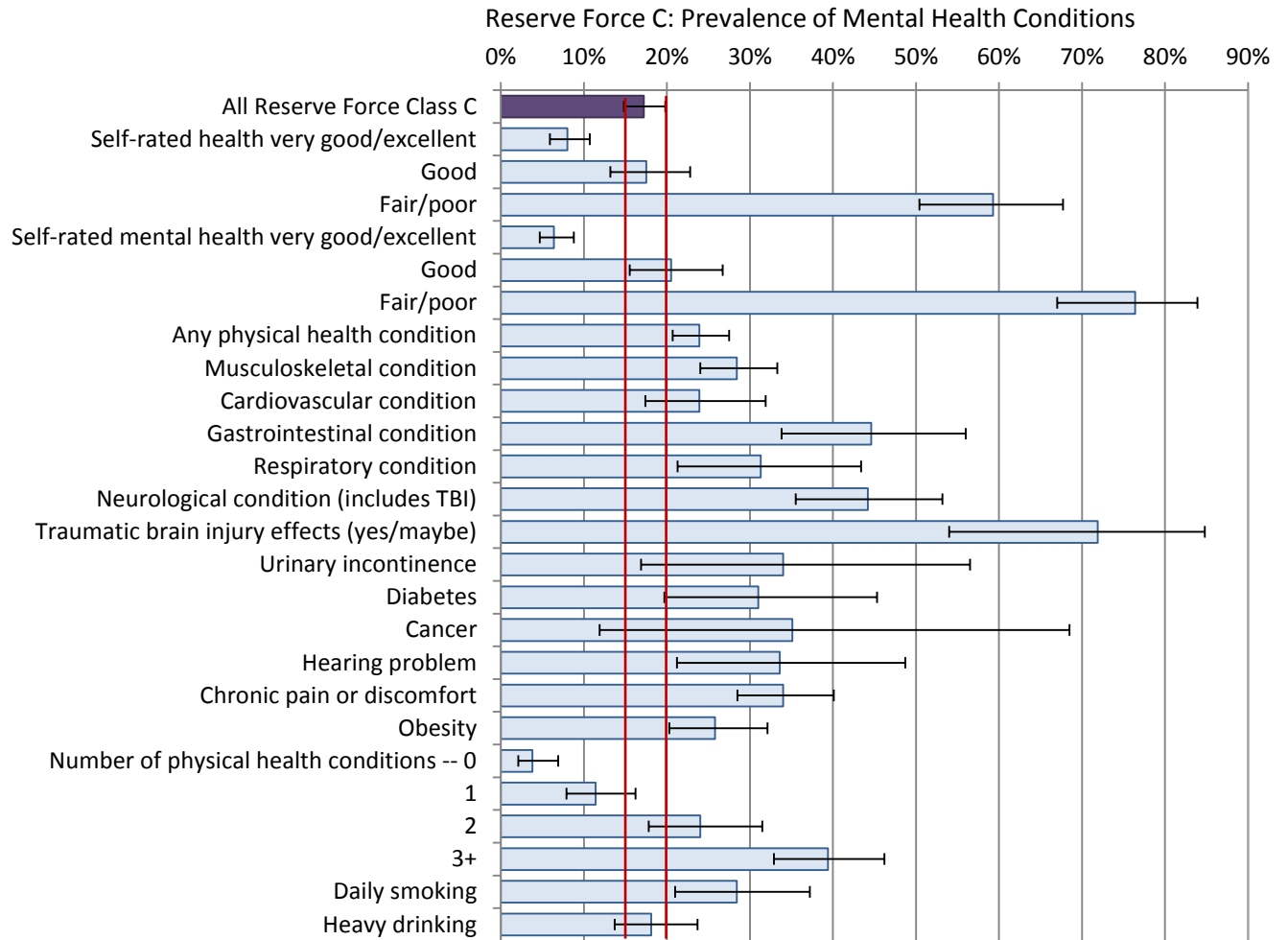
**Appendix Table 1. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by sociodemographic and military characteristics.**

Indicator	Reserve Class C				Regular Force			
	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR
20-29 years of age	13, F	123, 19%	136, 17%	0.93	33, 10%	188, 18%	221, 17%	0.94
30-39	53, 35%	314, 42%	367, 41%	1.59	83, 23%	268, 20%	351, 21%	1.92**
40-49	46, 27%	136, 17%	182, 19%	3.10**	167, 33%	419, 23%	586, 25%	2.39***
50-59	40, 24%	105, 13%	145, 15%	3.52**	173, 27%	625, 28%	798, 28%	1.58*
60-69	8, F	77, 9%	85, 8%	1.00	51, 6%	306, 10%	357, 9%	1.00
Men	114, 73%	582, 77%	696, 76%	1.00	417, 82%	1609, 88%	2026, 87%	1.00
Women	46, 27%	173, 23%	219, 24%	1.28	90, 18%	200, 12%	290, 13%	1.55*
Married, common law	96, 59%	571, 74%	677, 72%	1.00	361, 67%	1477, 76%	1828, 74%	1.00
Widowed, separated, divorced	18, F	42, 5%	60, 6%	2.61**	81, 16%	143, 8%	224, 10%	2.15***
Single, never married	46, 30%	142, 21%	188, 22%	1.83**	65, 18%	199, 16%	264, 16%	1.26
Less than high school	13, F	14, F	27, F	7.00***	31, 7%	79, 5%	110, 5%	2.53**
High school	52, 33%	180, 25%	232, 26%	2.03**	207, 44%	705, 42%	912, 43%	1.83***
Post secondary not bachelors	61, 38%	313, 42%	374, 41%	1.40	180, 39%	521, 35%	701, 36%	2.01***
Post secondary bachelors or higher	34, 21%	247, 32%	281, 30%	1.00	86, 10%	502, 18%	588, 17%	1.00
Officer	18, F	150, 19%	168, 17%	1.00	102, 10%	669, 22%	771, 19%	1.00
Senior NCM	45, 26%	153, 19%	198, 20%	2.45**	201, 25%	639, 25%	840, 25%	2.14***
Junior NCM	88, 56%	422, 58%	510, 58%	1.66	141, 42%	269, 26%	410, 30%	3.45***
Private/Recruit	9, F	30, 5%	39, 5%	2.53*	63, 22%	232, 26%	295, 25%	1.78**
Service length <2 yrs	1, F	6, F	7, F	1.00	49, 14%	286, 24%	335, 21%	1.00
2-9 yrs	48, 34%	289, 43%	337, 41%	1.15	76, 22%	226, 19%	302, 20%	1.87**
10-19 yrs	66, 40%	284, 36%	350, 36%	1.59	90, 21%	135, 8%	225, 11%	4.05***
20+ yrs	45, 25%	176, 21%	221, 21%	1.77	292, 43%	1162, 49%	1454, 48%	1.44*
Voluntary	67, 42%	530, 69%	597, 65%	1.00	163, 33%	989, 58%	1152, 52%	1.00
Medical release	65, 37%	62, 7%	127, 13%	2.47**	245, 47%	236, 13%	481, 21%	2.38**
Involuntary	16, F	52, 9%	68, 10%	8.35***	25, F	73, 6%	98, 7%	6.42***
Service complete/ret'd	12, F	111, 14%	123, 13%	0.90	74, 12%	504, 22%	578, 20%	0.95
Air Force	15, F	51, 6%	66, 7%	1.00	155, 26%	662, 31%	817, 30%	1.00
Army	130, 81%	603, 80%	733, 80%	0.66	278, 59%	814, 52%	1092, 54%	1.35*
Navy	15, F	101, 13%	116, 13%	0.46	74, 14%	333, 17%	407, 16%	0.98

UOR = Unadjusted odds ratio; 1.00 = Reference category; F = estimate unreliable owing to sample size less than 30; NC = Not calculated because prevalence with mental health conditions not different from the overall population prevalence; \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

**Appendix Figure 2. Prevalence of having mental health conditions, by health indicators.**





**Appendix Table 2. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by health indicators.**

Indicator	Reserve Class C				Regular Force			
	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR
Self-rated health:								
Very good/excellent	42, 29%	508, 68%	550, 61%	1.00	102, 19%	1137, 63%	1239, 53%	1.00
Good	43, 26%	197, 26%	240, 26%	2.43***	170, 33%	510, 29%	680, 30%	3.82***
Fair/poor	75, 45%	50, 6%	125, 13%	16.77***	235, 47%	162, 8%	397, 18%	18.24***
Any physical health condition	147, 93%	258, 63%	609, 68%	7.87***	464, 92%	1255, 68%	1719, 74%	5.19***
Musculoskeletal	105, 64%	258, 33%	363, 38%	3.53***	348, 66%	735, 36%	1083, 43%	3.45***
Cardiovascular	32, 20%	105, 13%	137, 14%	1.64*	150, 25%	388, 18%	538, 19%	1.52**
Gastrointestinal	35, 22%	41, 6%	76, 8%	4.74***	90, 18%	113, 6%	203, 9%	3.48***
Respiratory	21, F	47, 6%	68, 7%	2.41**	63, 12%	109, 5%	172, 7%	2.45***
Neurological	54, 33%	67, 8%	121, 13%	5.23***	177, 38%	174, 10%	352, 17%	5.39***
TBI effects (yes/maybe)	23, F	9, F	32, 3%	14.21***	57, 12%	30, 2%	87, 4%	7.59***
Urinary incontinence	7, F	13, F	20, F	2.50	38, 7%	31, 2%	69, 3%	4.22***
Diabetes	15, F	35, 4%	50, 5%	2.29*	43, 7%	106, 5%	149, 6%	1.42
Cancer	3, F	6, F	9, F	2.65	12, F	38, 1%	50, 2%	1.45
Hearing problem	15, F	29, 4%	44, 5%	2.80**	86, 16%	150, 6%	236, 9%	2.83***
Chronic pain or discomfort	91, 55%	170, 22%	261, 28%	4.32***	302, 58%	501, 26%	803, 34%	3.82***
Obesity	56, 35%	160, 21%	216, 23%	2.06***	172, 34%	417, 24%	589, 26%	1.66***
Number of PHCs: 0	11, 7%	267, 37%	278, 32%	1.00	37, 8%	513, 32%	550, 26%	1.00
1	27, 18%	216, 30%	243, 28%	3.23**	71, 16%	465, 27%	536, 24%	2.23**
2	37, 24%	119, 16%	156, 18%	7.91***	90, 18%	344, 18%	434, 18%	4.00***
3+	83, 51%	127, 16%	210, 22%	16.28***	303, 57%	436, 23%	739, 31%	9.59***
Daily smoking	35, 22%	83, 12%	118, 13%	2.18**	115, 25%	206, 14%	321, 16%	2.16***
Heavy drinking	43, 29%	297, 27%	240, 28%	1.10	134, 26%	415, 24%	549, 24%	1.10

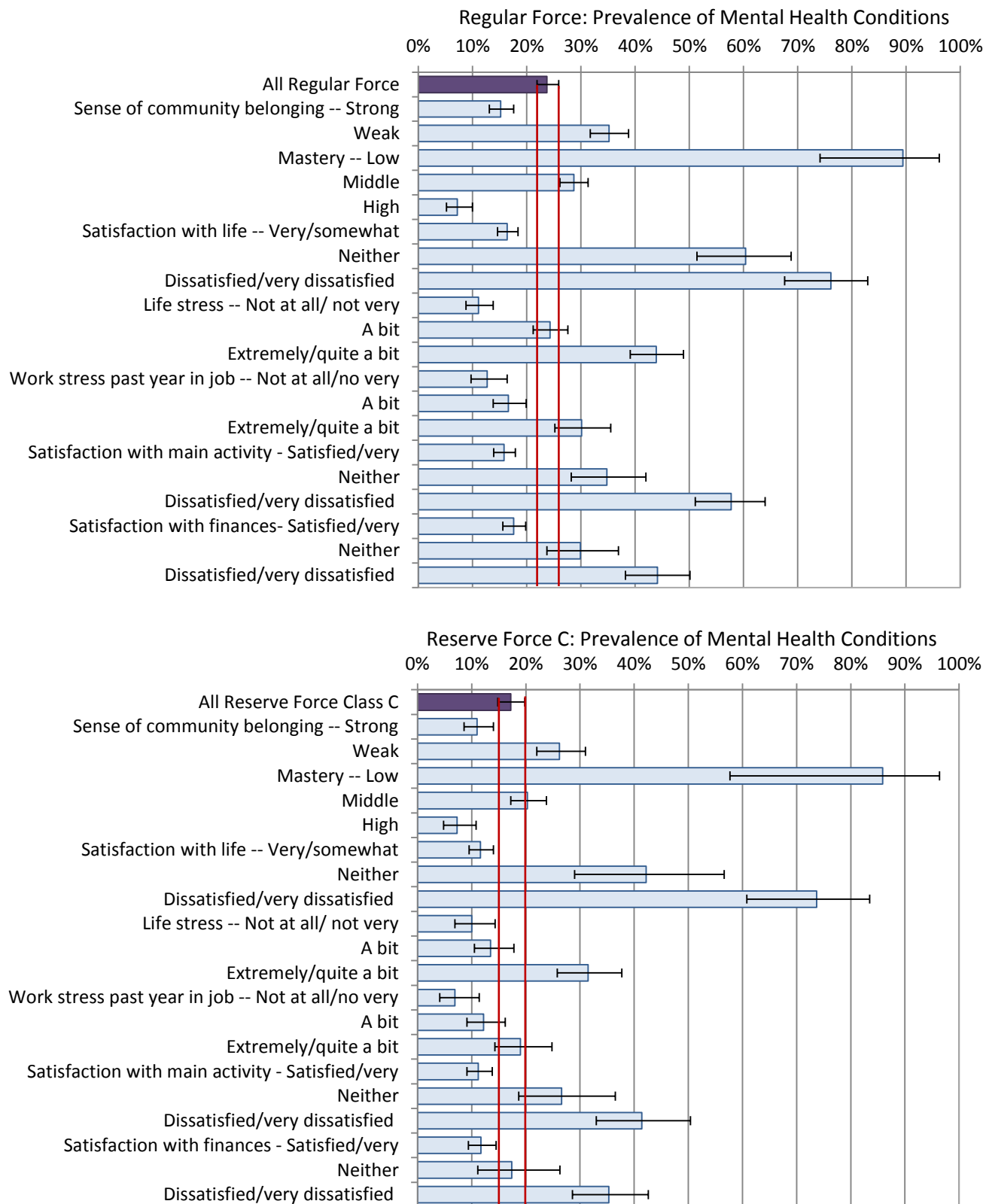
UOR = Unadjusted odds ratio; 1.00 = Reference category; F = estimate unreliable owing to sample size less than 30;

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

PHCs = Musculoskeletal, cardiovascular, gastrointestinal, neurological (TBI yes and maybe), urinary incontinence, diabetes, hearing problem, chronic pain or obese.



**Appendix Figure 3. Prevalence of having mental health conditions, by stress, coping and satisfaction indicators.**



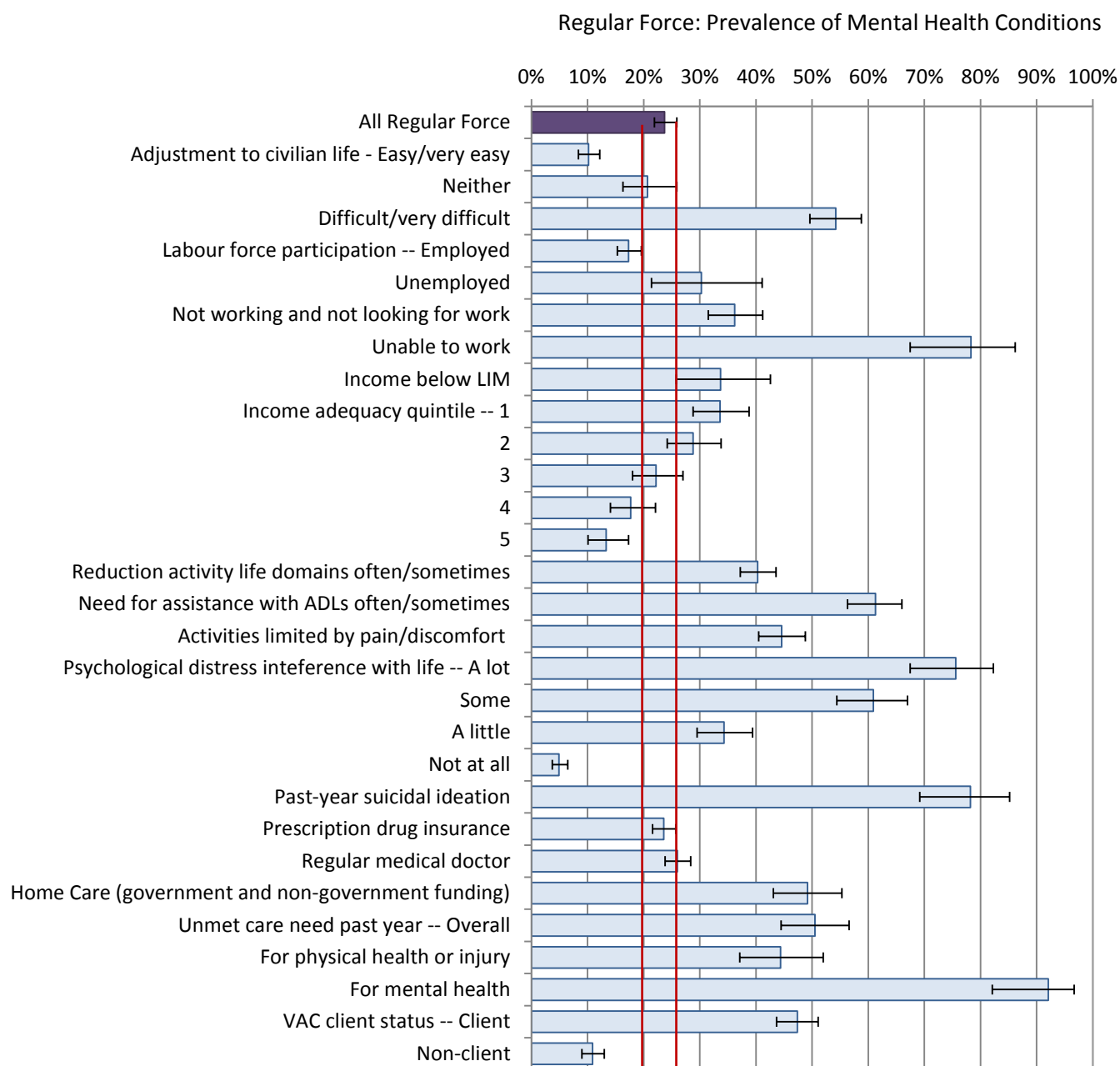
**Appendix Table 3. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by stress, coping and satisfaction indicators.**

Indicator	Reserve Class C				Regular Force			
	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR
Sense of community belonging:								
Strong	60, 39%	487, 64%	547, 60%	1.00	202, 37%	1168, 64%	1370, 58%	1.00
Weak	99, 61%	265, 36%	364, 40%	2.89***	299, 63%	632, 36%	931, 42%	3.02***
Mastery:								
Low	13, F	2, F	15, F	77.40***	32, 7%	5, F	37, 2%	107.89***
Middle	121, 77%	463, 61%	584, 64%	3.25***	421, 84%	1124, 64%	1545, 69%	5.14***
High	22, F	286, 39%	308, 35%	1.00	42, 9%	667, 35%	709, 29%	1.00
Life stress:								
Not at all/not very	27, F	237, 32%	264, 29%	1.00	87, 17%	786, 43%	873, 36%	1.00
A bit	57, 35%	357, 47%	414, 45%	1.40	214, 42%	718, 41%	932, 41%	2.58***
Extremely/quite a bit	76, 47%	161, 21%	237, 26%	4.12***	206, 41%	301, 17%	507, 22%	6.30***
Work stress past year in those who worked in the past year:								
Not at all/not very	14, F	180, 28%	194, 26%	1.00	59, 23%	472, 35%	531, 33%	1.00
A bit	43, 44%	309, 46%	352, 46%	1.89	119, 41%	675, 46%	794, 45%	1.38
Extremely/quite a bit	42, 42%	181, 26%	223, 29%	3.17***	118, 36%	301, 19%	507, 22%	2.97***
Satisfied with life:								
Very/somewhat	94, 60%	712, 95%	806, 89%	1.00	314, 59%	1705, 94%	2019, 86%	1.00
Neither	21, 12%	27, 3%	48, 5%	5.56***	80, 18%	67, 4%	147, 7%	7.79***
Dissatisfied/Very dis.	44, 27%	15, 2%	59, 6%	21.31***	110, 23%	37, 2%	147, 7%	16.21***
Satisfaction with main activity:								
Satisfied/very satisfied	79, 50%	610, 81%	689, 75%	1.00	257, 50%	1538, 83%	1795, 75%	1.00
Neither	26, F	72, 10%	98, 11%	2.87***	82, 17%	145, 10%	227, 11%	2.84***
Dissatisfied/Very dis.	53, 33%	69, 10%	122, 14%	5.59***	162, 33%	125, 8%	287, 14%	7.27***
Satisfaction with finances:								
Very/somewhat	76, 47%	555, 73%	631, 69%	1.00	285, 52%	1450, 76%	1735, 70%	1.00
Neither	18, 11%	84, 11%	102, 11%	1.59	66, 14%	172, 11%	238, 11%	2.00***
Dissatisfied/Very dis.	66, 42%	115, 16%	181, 20%	4.11***	155, 34%	183, 13%	338, 18%	3.71***

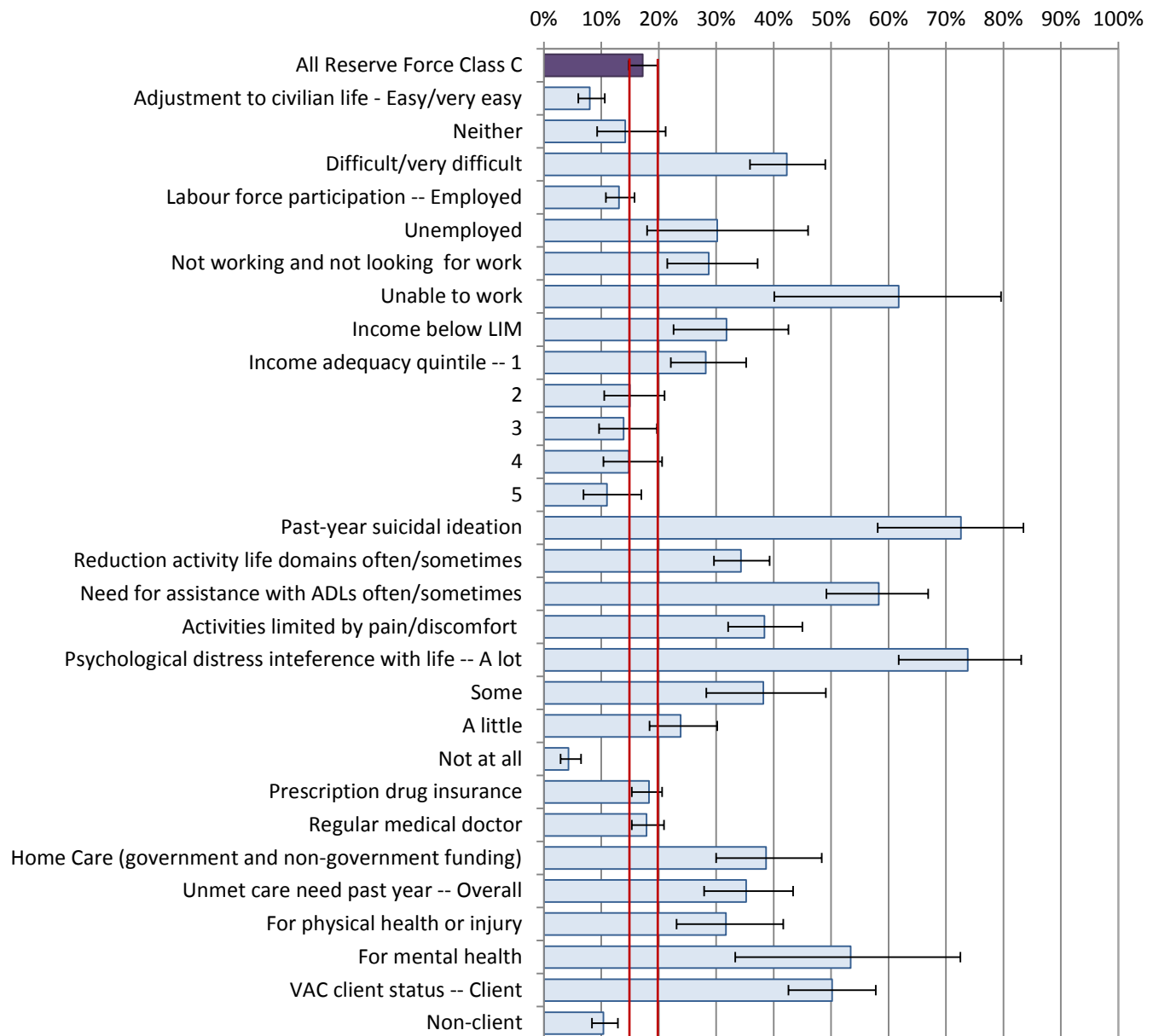
UOR = Unadjusted odds ratio; 1.00 = Reference category; F = estimate unreliable owing to sample size less than 30;

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

**Appendix Figure 4. Prevalence of having mental health conditions, by other impacts and determinants of mental health.**



### Reserve Force C: Prevalence of Mental Health Conditions



**Appendix Table 4. Unadjusted odds of having one or more of the three diagnosed mental health conditions, by other impact and determinant indicators.**

Indicator	Reserve Class C				Regular Force			
	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR	With MHC n, Wt%	Without MHC n, Wt%	Total n, Wt%	UOR
Adjustment to civilian life:								
Easy/very easy	46, 29%	511, 68%	557, 61%	1.00	135, 24%	1255, 67%	1397, 56%	1.00
Neither	20, F	116, 16%	136, 15%	1.91*	74, 14%	281, 17%	356, 16%	2.31***
Difficult/very difficult	94, 59%	128, 17%	222, 24%	8.43***	298, 62%	271, 16%	574, 27%	10.49***
Labour force participation:								
Employed	96, 61%	626, 84%	722, 80%	1.00	259, 52%	1339, 78%	1606, 72%	1.00
Unemployed	12, F	30, 4%	42, 5%	2.86**	33, 7%	75, 5%	109, 5%	2.08**
Not working/looking	38, 23%	91, 12%	129, 13%	2.66***	157, 29%	373, 16%	532, 19%	2.71***
Unable to work	14, F	8, F	22, 2%	10.70***	58, 12%	22, F	80, 4%	17.19***
Income below LIM	27, F	57, 7%	84, 8%	2.40**	48, 11%	96, 7%	121, 8%	1.68*
Income adequacy quintile (ratio of household income to Low Income Measure for the number of people in the household):								
Low 1	54, 32%	130, 17%	184, 20%	2.69**	140, 35%	287, 21%	418, 24%	3.40***
2	28, F	156, 22%	184, 22%	1.30	124, 24%	332, 20%	429, 21%	2.48***
3	26, F	157, 21%	183, 20%	1.15	90, 17%	324, 18%	423, 19%	1.81**
4	29, F	163, 22%	192, 22%	1.26	79, 14%	373, 21%	450, 19%	1.40
High 5	17, F	137, 17%	154, 16%	1.00	61, 9%	429, 230%	453, 16%	1.00
Health-related quality of life:								
Physical (PCS<50)	95, 58%	194, 25%	289, 30%	4.32***	352, 71%	658, 34%	1010, 42%	4.76***
(PCS 50+)	62, 42%	558, 75%	620, 70%	1.00	145, 29%	1137, 66%	1282, 58%	1.00
Mental (MCS<50)	124, 78%	177, 24%	301, 33%	11.50***	390, 79%	291, 18%	681, 33%	16.62***
(MCS 50+)	33, 22%	575, 76%	608, 67%	1.00	107, 21%	1504, 82%	1611, 67%	1.00
Health-related activity restriction in major life domains (often or sometimes):								
	129, 79%	246, 31%	375, 40%	8.39***	436, 84%	763, 39%	1112, 49%	8.14***
Need for assistance with at least one ADL:								
	71, 43%	49, 6%	120, 13%	11.18***	264, 52%	206, 10%	473, 20%	9.40***
Activities limited by pain/discomfort:								
None	74, 49%	622, 83%	696, 77%		218, 44%	1388, 78%	1606, 70%	
A few	16, F%	51, 7%	67, 7%		49, 10%	152, 8%	201, 8%	
Some	29, F%	51, 7%	80, 8%		94, 19%	151, 8%	245, 10%	
Most	41, 24%	31, 4%	72, 7%		146, 27%	115, 6%	261, 11%	
A few, some or most	86, 51%	133, 17%	219, 23%	5.13***	289, 56%	418, 22%	707, 30%	4.54***
Psychological distress interference with life or activities:								
Not at all	23, 16%	531, 71%	554, 61%		57, 12%	1332, 74%	1389, 59%	
A little	49, 31%	153, 20%	202, 22%		154, 29%	309, 17%	463, 20%	
Some	32, 20%	52, 7%	84, 9%		165, 34%	122, 7%	287, 13%	
A lot	53, 33%	17, 2%	70, 7%		124, 25%	40, 2%	164, 8%	
A little, some or a lot	134, 84%	222, 29%	356, 39%	12.80***	443, 88%	471, 26%	914, 41%	19.76***
Past-year suicidal ideation:								
	35, 22%	13, F	48, 5%	NC	99, 22%	29, 2%	130, 7%	NC

UOR = Unadjusted odds ratio; 1.00 = Reference category; F = estimate unreliable owing to sample size less than 30; NC = Not calculated because large difference is obvious; \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

End Sheet