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2023 Report on Suicide Mortality in the Canadian Armed Forces (1995 to 2022)

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2023 Report on Suicide Mortality in the Canadian Armed Forces (1995 to 2022)

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Abstract

Introduction: Each death from suicide is tragic. Suicide prevention is an important public health concern and is a top priority for the Canadian Armed Forces (CAF). In order to better understand suicide in the CAF and refine ongoing suicide prevention efforts, the Canadian Forces Health Services annually examine suicide rates and the relationship between suicide, deployment and other potential suicide risk factors. This analysis, conducted by the Directorate of Mental Health (DMH), is an update covering the period from 1995 to 2022.

Methods: This report assesses suicide data for Regular Force males over the 1995 to 2022 period and Regular Force females over the 2001 to 2022 period. It provides an interpretation of several statistics, including the crude suicide rates observed among various characteristics, the differences in suicide rates that result from comparisons between the Canadian population and the CAF using Standardized Mortality Ratios (SMRs) and the differences in suicide rates that are observed by deployment history when using both SMRs and direct standardization assessments. It also examines the variation in suicide rates that are observed by environmental command and among the suicide deaths that occurred in 2022 and during the prior five years, 2018-2022, it uses data from Medical Professional Technical Suicide Reviews (MPTSR) to examine the prevalence of a number of mental health factors and work or life stressors that are known to be suicide death risk factors.

Results: Over 2018 to 2022 there were 66 CAF Regular Force male suicide deaths with a mean age of 35.0 years. This mean age was not statistically different from the mean age among Regular Force males over this period. Crude suicide rates were also computed for a number of characteristic and for various periods over 2010-2022. Over each time period, the crude suicide rate was higher among ages less than 45 years but there were no statistically significant differences between age groups. For the 2018-2022 period, and for the 2015-2019 and 2020-2022 periods, the suicide rate was higher with statistical significance among Regular Force males who were separated, divorced or widowed when compared to other marital status categories. Additionally, the suicide rate tended to vary by rank category, highest among the junior non-commissioned (JNCM) ranks for the 2018-2022, 2010-2014 and 2015-2019 periods; however, this elevated suicide rate among JNCM ranks was not statistically significant relative to the other rank categories. Moreover, the suicide rate did not differ substantially, and the differences were not statistically significant, by environmental command or by deployment history for each period assessed; however, it was notable that the suicide rate among the Air Force command was elevated in 2015-2019, relative to the prior 2010-2014 period, and this increase just missed being statistically significant as indicated by the minimally overlapping confidence intervals. In contrast, the rate of suicide was higher with statistical significance among males who were in the Army combat arms occupations, relative to those in other occupations, but only during the 2010-2014 period.

In comparison, the general observations among CAF Regular Force females were similar to those among Regular Force males but the absolute numbers were lower. Over 2013 to 2022 there were 11 Regular Force female suicide deaths with a mean age of 32.9 years. This mean age was not statistically different from the mean age among all Regular Force females over this period. Crude suicide rates were also computed for a number of characteristic and for various periods over 2005-2022. The crude suicide rate varied among age groups, tending to be a little higher among those who were younger than 45 years but there were no statistically significant differences by age group. Although the suicide rate tended to be higher among Regular Force females who were single, lower in rank, in Army combat arms occupations and those who did not have a history of deployment, the confidence intervals overlapped for all categories of each characteristic, indicating that these differences were not statistically significant. Similarly, there was no discernable pattern in the suicide rate by environmental

command and no indication that the suicide rate was higher with statistical significance in one command or another.

Crude suicide rates were computed over 1995 to 2022 to evaluate for indications of a changing suicide risk over time. There were no statistically significant increases in the overall suicide rates for either Regular Force males or females when comparing each 5-year incremental time segment over 1995 to 2022. The 5-year rates for males varied from a low of 19.9 per 100,000 population during 1995-1999 to a high of 24.5 per 100,000 in the more recent 2010-2014 and 2015-2019 periods and this difference was not statistically significant. The three-year crude rate for 2020-2022 among males, the most recent period, was 23.0 per 100,000 population and it was not a statistically significant change from any of the prior 5-year rates. Similarly, among Regular Force females the 5-year crude rates varied from 8.2 per 100,000 population in the 2015-2019 period to a high of 15.5 per 100,000 in 2010-2014 and again, this difference was not statistically significant. The three-year crude rate for 2020-2022 among females, the most recent period, was 12.8 per 100,000 population and it was not a statistically significant change from any of the prior 5-year rates. The number of Regular Force males that died by suicide was not statistically higher than that expected based on male suicide rates in the Canadian male population for each period that was evaluated. In contrast, the number of Regular Force female suicides were higher with statistical significance than the number expected based on the suicide rate in the Canadian female population over the 10-year period from 2005-2014, a result that was largely attributable to the higher than usual three female suicide deaths that occurred in 2012, and although also elevated for the other assessed periods, these were not statistically significant.

Rate ratios that separately compared Regular Force males and females with a history of deployment to those without this history did not establish a statistically significant link between deployment and increased suicide risk. Among males with a history of deployment, the suicide rate tended to be elevated relative to those without this experience for almost all periods assessed but none were determined to be statistically significant. However, the rate ratio for the 2005-2014 period (age-standardized suicide rate ratio: 1.44 [95% CI: 0.97, 2.15]), which indicated a higher rate among those with a history of deployment, was close to being statistically significant. In contrast, the suicide rate among females with a history of deployments tended to be lower relative to those without this experience for almost all periods assessed and again, none of the differences were statistically significant. Moreover, the low number of suicide deaths among Regular Force females who had a history of deployment exemplifies the low suicide risk associated with deployment experience among females, but it is also associated with a limited power to conduct the statistical comparison.

These rate ratios also highlighted that, over 2002-2022 for both males and females, being part of the Army command was associated with a slightly higher rate of suicide relative to those who were part of the other environmental commands but the difference for both was not statistically significant. Although not a statistical test, the three-year, and 5-year, suicide rate moving averages provided an indication of how suicide rates fluctuated over time. These suggested that while Army commands appear to have had an elevated rate over 2008 to 2014 among males and 2011 to 2015 among females, the Army and non-Army command suicide rate differences appear to have changed from around 2015 or 2016 onwards. At approximately this time point, the moving average rates became more comparable among Regular Force male Army and non-Army commands and among Regular Force female Army commands, the suicide rate moving average dropped to zero from 2017 to 2019 and remained lower relative to non-Army commands for the subsequent 2020 year. Moreover, in the more recent years the suicide rate moving average appears to have been at a point where it was either more comparable or a little more elevated among non-Army commands.

For the 2002-2022 period, Regular Force males in the Army combat arms occupations had a statistically significant higher suicide rate (31.0/100,000 [95% CI: 25.1, 38.4]) compared to Regular Force males in other occupations (19.7/100,000 [95% CI: 16.8, 22.9]). Similarly, over the 2002-2022 period Regular Force females in the Army combat arms occupations had an elevated suicide rate (27.6/100,000 [95% CI: 3.3, 99.6]) relative to Regular Force females in other occupations (11.3/100,000 [95% CI: 6.9, 17.4]) but this difference was not statistically significant; however, the low numbers being compared limited the power of the assessment of these differences. These occupation comparisons were also assessed for the 10-year 2012-2022 period and the observations were similar to what was observed over the full 2002-2022 period for both males and females. However, the suicide rate difference between Regular Force males in Army combat arms relative to those in other occupations had begun to decrease from 2015 onwards and at this point, the difference in rates for the shorter, but more recent period, was not statistically significant.

Results from the 2018-2022 MPTSRs for both males and females continue to support a multifactorial causal pathway (this includes biological, psychological, interpersonal, and socio-economic factors) for suicide rather than a direct link between single risk factors (such as Post-Traumatic Stress Disorder (PTSD) or deployment) and suicide. This was consistent with MPTSR findings from previous years. Additionally, all CAF members experienced the COVID-19 pandemic and there was no evidence that it contributed to suicide risk. Moreover, during the COVID-19 pandemic the suicide rate and its related characteristics over 2020 to 2022 were comparable to observations from previous years.

Conclusions: Suicide rates among Regular Force males and females in the CAF did not increase with any statistical significance over the period of observation described in these findings; however, after age standardization, the Regular Force female suicide rate was identified to have been higher with statistical significance relative to the rate in the Canadian female population during the 2005 to 2014 period while for Regular force males, the difference relative to the Canadian male population was not statistically significant for any period assessed. Despite the added stressors that CAF members may have experienced as a result of the COVID-19 pandemic, the suicide rate and its related characteristics over 2020 to 2022 were comparable to observations from previous years. However, small numbers do limit the ability, or power, of statistical assessments to detect differences with statistical significance when they are real and not chance occurrences. The elevated risk in Regular Force males under Army command, or more specifically, those in combat arms occupations, continues to be an area that is under observation by the CAF. Moreover, the CAF will also need to continue to monitor the slight elevation in suicide risk among Regular Force males in the Air Force command that was suggested by the data from the most recent period.

Keywords: Age-adjusted rate; Canadian Armed Forces; Canadian population; deployment; rate ratio; rates; standardized mortality ratio; suicide.

Résumé

Introduction : Chaque décès par suicide est une tragédie. La prévention du suicide est une importante préoccupation de santé publique et une des grandes priorités des Forces armées canadiennes (FAC). Afin de mieux comprendre le suicide au sein des FAC et d'améliorer les efforts constants déployés dans le domaine de la prévention du suicide, les Services de santé des Forces canadiennes examinent chaque année les taux de suicide et la relation entre le suicide, le déploiement et d'autres facteurs de risque potentiels de suicide. La présente analyse, réalisée par la Direction de la santé mentale (DSM), représente une mise à jour pour la période s'échelonnant de 1995 à 2022.

Méthodes : Le présent rapport évalue les données sur le suicide chez les hommes de la Force régulière de 1995 à 2022 et chez les femmes de la Force régulière de 2001 à 2022. Il présente une interprétation de plusieurs statistiques, y compris les taux bruts de suicide observés selon diverses caractéristiques, les différences dans les taux de suicide qui découlent des comparaisons entre la population canadienne et les FAC à l'aide des ratios standardisés de mortalité (RSM) et les différences dans les taux de suicide observées dans l'historique de déploiement, lorsqu'on utilise à la fois les RSM et les évaluations directes de normalisation. Il examine également la variation des taux de suicide observée par le commandement d'armée et parmi les décès par suicide survenus en 2022 et au cours des cinq années précédentes, soit de 2018 à 2022; il utilise les données des examens techniques du suicide par les professionnels de la santé (ETSPS) pour examiner la prévalence d'un certain nombre de facteurs de santé mentale et de facteurs de stress au travail ou dans la vie qui sont connus comme étant des facteurs de risque de décès par suicide.

Résultats : De 2018 à 2022, il y a eu 66 décès par suicide chez les hommes de la Force régulière des FAC âgés de 35,0 ans en moyenne. Cet âge moyen n'était pas statistiquement différent de l'âge moyen des hommes de la Force régulière au cours de cette période. Les taux bruts de suicide ont également été calculés pour un certain nombre de caractéristiques et pour diverses périodes entre 2010 et 2022. Au cours de chaque période, le taux brut de suicide était plus élevé chez les personnes âgées de moins de 45 ans, mais il n'y avait pas de différences statistiquement significatives entre les groupes d'âge. Au cours de la période 2018-2022 et des périodes 2015-2019 et 2020-2022, le taux de suicide a été plus élevé et présentait des différences statistiquement significatives chez les hommes de la Force régulière qui étaient séparés, divorcés ou veufs par rapport aux autres catégories d'état matrimonial. De plus, le taux de suicide avait tendance à varier selon la catégorie de grade et était le plus élevé parmi les militaires du rang (subalternes) (MR sub) pour les périodes 2018-2022, 2010-2014 et 2015-2019. Toutefois, ce taux élevé de suicide chez les MR sub n'était pas statistiquement significatif par rapport aux autres catégories de grade. De plus, le taux de suicide ne différait pas considérablement, et les différences n'étaient pas statistiquement significatives par commandement d'armée ou par historique de déploiement pour chaque période évaluée. Toutefois, il était notable que le taux de suicide au sein du commandement de la Force aérienne était élevé en 2015-2019, par rapport à la période précédente 2010 à 2014, et cette augmentation était presque suffisante pour être considérée comme statistiquement significative, comme l'indiquent les intervalles de confiance qui sont en chevauchement minimal. Cependant, le taux de suicide était plus élevé et présentait des différences statistiquement significatives chez les hommes appartenant aux groupes professionnels des armes de combat de l'Armée de terre par rapport au taux des hommes appartenant à d'autres groupes professionnels, mais seulement au cours de la période 2010-2014.

En comparaison, les observations générales chez les femmes de la Force régulière des FAC étaient semblables à celles faites chez les hommes de la Force régulière, mais les nombres absolus étaient inférieurs. De 2013 à

2022, on recense 11 décès par suicide chez les femmes de la Force régulière des FAC âgées de 32,9 ans en moyenne. Cet âge moyen n'était pas statistiquement différent de l'âge moyen de toutes les femmes de la Force régulière au cours de cette période. Les taux bruts de suicide ont également été calculés pour un certain nombre de caractéristiques et pour diverses périodes entre 2005 et 2022. Le taux brut de suicide variait d'un groupe d'âge à l'autre, tendant à être un peu plus élevé chez les personnes âgées de moins de 45 ans, mais il n'y avait pas de différences statistiquement significatives selon le groupe d'âge. Bien que le taux de suicide ait tendance à être plus élevé chez les femmes de la Force régulière célibataires, de grade inférieur et faisant partie des groupes professionnels des armes de combat de l'Armée de terre et chez celles qui n'avaient pas d'antécédents de déploiement, les intervalles de confiance se chevauchaient pour toutes les catégories de chaque caractéristique, ce qui indique que ces différences n'étaient pas statistiquement significatives. De même, il n'y avait aucune tendance évidente concernant le taux de suicide selon le commandement d'armée et aucune indication que le taux de suicide présentait une différence statistiquement significative dans un commandement ou un autre.

Les taux bruts de suicide ont été calculés de 1995 à 2022 afin d'évaluer les indications montrant une évolution du risque de suicide au fil du temps. Tant chez les femmes que chez les hommes de la Force régulière, les taux de suicide généraux n'ont pas affiché d'augmentation statistiquement significative lorsqu'on compare chaque segment de temps additionnel de cinq ans de 1995 à 2022. Les taux sur cinq ans pour les hommes variaient d'un minimum de 19,9 pour 100 000 personnes pendant la période 1995-1999 à un maximum de 24,5 pour 100 000 personnes dans les périodes plus récentes de 2010-2014 et 2015-2019, et cette différence n'était pas statistiquement significative. Le taux brut sur trois ans chez les hommes pour la période 2020-2022, soit la période la plus récente, était de 23,0 pour 100 000 personnes et ne constituait pas un changement statistiquement significatif par rapport à l'un ou l'autre des taux des cinq années précédentes. De même, parmi les femmes de la Force régulière, les taux bruts sur cinq ans variaient de 8,2 pour 100 000 personnes au cours de la période 2015-2019 à un sommet de 15,5 pour 100 000 personnes de 2010 à 2014, et, encore une fois, cette différence n'était pas statistiquement significative. Le taux brut sur trois ans chez les femmes pour la période 2020-2022, soit la période la plus récente, était de 12,8 pour 100 000 personnes et ne constituait pas un changement statistiquement significatif par rapport à l'un ou l'autre des taux des cinq années précédentes. Le nombre d'hommes de la Force régulière décédés par suicide n'était pas statistiquement plus élevé que le taux anticipé en fonction des taux de suicide observés au sein de la population masculine du Canada, pour chaque période évaluée. En revanche, le nombre de suicides chez les femmes de la Force régulière était plus élevé, et ce de façon statistiquement significative, que le nombre attendu en fonction du taux de suicide au sein de la population féminine canadienne au cours de la période de dix ans s'échelonnant de 2005 à 2014, résultat en très grande partie attribuable au nombre de décès par suicide chez les femmes survenus en 2012, qui était plus élevé que d'habitude. Bien qu'ils étaient également élevés pour les autres périodes évaluées, ces chiffres n'étaient pas statistiquement significatifs.

Les ratios des taux comparant séparément les hommes et les femmes de la Force régulière ayant des antécédents de déploiement à ceux sans antécédents de déploiement n'établissent pas de lien statistiquement significatif entre le déploiement et le risque de suicide plus élevé. Chez les hommes ayant des antécédents de déploiement, le taux de suicide avait tendance à être élevé par rapport à ceux ne possédant pas cette expérience pour presque toutes les périodes évaluées, mais aucune n'a été considérée comme étant statistiquement significative. Toutefois, le ratio des taux pour la période 2005-2014 (ratio des taux de suicide standardisés selon l'âge : 1,44 [IC à 95 % : 0,97, 2,15]), qui indiquait un taux plus élevé chez les militaires ayant des antécédents de déploiement, était près d'être statistiquement significatif. En revanche, le taux de suicide chez les femmes ayant des antécédents de déploiement avait tendance à être plus faible par rapport à celles ne possédant pas cette expérience pour presque toutes les périodes évaluées, et encore une fois, aucune des différences n'était

statistiquement significative. De plus, le faible nombre de décès par suicide chez les femmes de la Force régulière qui avaient des antécédents de déploiement illustre le faible risque de suicide associé à l'expérience de déploiement chez les femmes, mais il est également associé à un pouvoir limité d'effectuer la comparaison statistique.

Ces ratios de taux ont également mis en évidence le fait que, de 2002 à 2022, tant pour les hommes que pour les femmes, le fait de faire partie du commandement de l'Armée était associé à un taux de suicide légèrement plus élevé par rapport à celui des militaires faisant partie d'autres commandements d'armée. Cependant, la différence n'était pas statistiquement significative pour les deux sexes. Bien qu'il ne s'agisse pas d'un test statistique, les moyennes mobiles des taux de suicide sur trois ans et cinq ans donnent une indication de la façon dont les taux de suicide fluctuent au fil du temps. Elles laissent supposer que si les commandements de l'Armée de terre semblent afficher un taux élevé de 2008 à 2014 chez les hommes et de 2011 à 2015 chez les femmes, les différences entre les taux de suicide du commandement de la Force terrestre et d'autres commandements semblent avoir changé à partir de 2015 ou 2016 environ. À peu près à ce moment-là, les taux moyens mobiles sont devenus plus comparables entre les commandements de l'Armée de terre et d'autres commandements d'hommes de la Force régulière, tandis que parmi les commandements de l'Armée de terre de femmes de la Force régulière, le taux de suicide est tombé à zéro entre 2017 et 2019, et est demeuré faible par rapport à celui des commandements autres que les commandements de l'Armée de terre au cours de l'année subséquente 2020. De plus, au cours des dernières années, la moyenne mobile du taux de suicide semble avoir été à un point où elle était soit plus comparable, soit un peu plus élevée parmi les commandements autres que ceux de l'Armée de terre.

Pendant la période 2002-2022, les hommes de la Force régulière appartenant aux groupes professionnels des armes de combat de l'Armée de terre affichaient un taux de suicide statistiquement plus élevé (31,0/100 000 [IC à 95 % : 25,1, 38,4]) que celui des hommes de la Force régulière appartenant à d'autres groupes professionnels (19,7/100 000 [IC à 95 % : 16,8, 22,9]). De même, au cours de la période 2002-2022, le taux de suicide chez les femmes de la Force régulière appartenant à des groupes professionnels d'armes de combat de l'Armée de terre était élevé (27,6/100 000 [IC à 95 % : 3,3, 99,6]) par rapport à celui des femmes de la Force régulière appartenant à d'autres groupes professionnels (11,3/100 000 [IC à 95 % : 6,9, 17,4]), mais cette différence n'était pas statistiquement significative. Toutefois, les faibles chiffres comparés limitaient la capacité de l'évaluation de ces différences. Ces comparaisons des professions ont également été évaluées pour la période de dix ans s'échelonnant de 2012 à 2022, et les observations étaient semblables à celles observées au cours de la période complète 2002-2022, tant chez les hommes que chez les femmes. Toutefois, la différence du taux de suicide entre les hommes de la Force régulière dans les professions d'armes de combat de l'Armée de terre par rapport à ceux d'autres groupes professionnels avait commencé à diminuer à partir de 2015 et, à ce stade, la différence des taux pour la période plus courte, mais plus récente, n'était pas statistiquement significative.

Les résultats des ETSPS effectués de 2018 à 2022, tant pour les hommes que pour les femmes, continuent d'appuyer l'enchaînement de causalité multifactoriel (qui comprend des facteurs biologiques, psychologiques, interpersonnels et socio-économiques) pour expliquer le suicide plutôt qu'un lien direct entre des facteurs de risque individuels (comme le trouble de stress post-traumatique [TSPT] ou le déploiement) et le suicide. Ces résultats concordent avec les constatations des ETSPS des années précédentes. En outre, tous les membres des FAC ont vécu la pandémie de COVID-19, et il n'y a aucune preuve qu'elle a contribué à créer un risque de suicide. De plus, pendant la pandémie de COVID-19, le taux de suicide et ses caractéristiques connexes pendant la période 2020-2022 étaient comparables aux observations des années précédentes.

Conclusions : Les taux de suicide parmi les hommes et des femmes de la Force régulière des FAC n'ont pas augmenté de façon statistiquement significative au cours de la période d'observation décrite dans ces constatations. Cependant, une fois la standardisation selon l'âge effectuée, le taux de suicide des femmes de la Force régulière s'est avéré supérieur, et ce, de façon statistiquement significative, à celui de la population féminine du Canada pour la période 2005-2014, tandis que la différence entre le taux de suicide des hommes de la Force régulière et celui de la population masculine du Canada n'était pas statistiquement significative, quelle que soit la période évaluée. Malgré la présence de facteurs de stress supplémentaires que les membres des FAC ont pu vivre en raison de la pandémie de COVID-19, le taux de suicide et ses caractéristiques connexes pendant la période 2020-2022 étaient comparables aux observations des années précédentes. Toutefois, la faible quantité de données limite la capacité, ou le pouvoir, des évaluations statistiques de relever les différences statistiquement significatives lorsqu'elles sont réelles et non le fruit du hasard. Le risque accru chez les hommes de la Force régulière sous le commandement de l'Armée de terre, et particulièrement ceux appartenant aux groupes professionnels des armes de combat, est un aspect que les FAC continuent d'observer. De plus, les FAC devront également continuer de surveiller la légère hausse du risque de suicide chez les hommes de la Force régulière au sein du commandement de la Force aérienne, comme le laissent supposer les données de la période la plus récente.

Mots clés : Taux rajusté selon l'âge; Forces armées canadiennes; population canadienne; déploiement; ratio du taux; taux; ratio standardisé de mortalité; suicide

Executive Summary

The tragic loss of life of Canadian Armed Forces (CAF) members due to suicide requires ongoing focus to understand these difficult events and to refine CAF suicide prevention efforts. This report describes the suicide experience in the CAF and the descriptive characteristics of Regular Force males that died by suicide between 1995 and 2022 and Regular Force females that died by suicide between 2001 and 2022, with additional information on the known risk factors associated with these deaths by suicide in the most recent period.

Methods

Data described in Section 3.1 [Results from the Medical Professional Technical Suicide Review (MPTSR) Reports, Regular Force Males and Females, 2022 updates] are drawn from the MPTSRs, focusing on 2022 for males and the 2018 – 2022 period for females. The MPTSR is one of the investigations that follows each CAF suicide. The MPTSR is a quality assurance tool for Canadian Forces Health Services (CFHS) that is requested immediately following the confirmation of all Regular Force and Primary Reserve Force suicides. Each MPTSR is typically conducted by a team consisting of a mental health professional and a primary care physician.

Epidemiological data described in Section 3.2 (Epidemiology of Suicide in Regular Force Members) and 3.3 (Epidemiology of Suicide in Regular Force Members, by Environmental Command) consists of identified suicide deaths that were obtained from the Directorate of Casualty Support Management up until 2012. As of September 2012, the number of suicides was tracked by DMH. Information on date of birth, military or other characteristics for the suicide deaths and comparable CAF population originated from the Directorate of Human Resources Information Management (DHRIM); this data was updated using data received in 2022 and 2023. Finally, Canadian general population data and suicide counts, by age and sex, were obtained from Statistics Canada and this data was retrieved in 2023.

Frequencies, crude rates, standardized mortality ratios (SMRs) (i.e., an SMR is the ratio of the observed number of CAF suicides relative to the expected number of CAF suicides, which is the number expected if the CAF had the same age and sex-specific rates as the Canadian general population) and directly standardized rates were calculated. The most recent SMRs were calculated for 2021 in this report because at the time of data retrieval, 2021 data was the most recent data that was released by Statistics Canada for the Canadian general population.

This report analyses only Regular Force males and females who have died by suicide. The annual Reserve force suicide deaths were not analysed. There is a lack of access to data for Reservists as they receive much of their health care in the provincial system and the details of these deaths, including the details for confirming whether it was a suicide, are sometimes not reported to the CAF and as such, the associated information tends to be unavailable during the MPTSR process where possible suicides are reviewed and confirmed.

Results

Mental Health Diagnoses among the Regular Force Males that Died by Suicide in 2022 and the Regular Force Females that Died by Suicide over 2018 – 2022

The mental disorders that were identified among the Regular Force males at the time of their suicide death in 2022 included depressive disorders (25.0%), anxiety disorders (16.7%), post-traumatic stress disorder (PTSD) (8.3%) and other (non-PTSD) trauma and stress-related disorders (25.0%). A documented addiction or substance use disorder was reported in 8.3% of these suicide deaths and 16.7% had a traumatic brain injury in the past. A moderate fraction (25.0%) had at least two active mental health problems at the time of death (i.e., a combination that could include: depressive disorders, trauma and stress-related disorders, anxiety disorders, addictions or substance-use disorders, traumatic brain injury or personality disorders). Additionally, there was documented evidence of prior suicidal ideation and/or prior suicide attempts among 66.7% of the Regular Force male suicides in 2022.

In comparison, the mental disorders that were identified among the Regular Force females at the time of their suicide death in 2018 – 2022 included depressive disorders (33.3%), anxiety disorders (33.3%), PTSD (16.7%) and other (non-PTSD) trauma and stress-related disorders (16.7%). A documented addiction or substance use disorder was reported in 33.3% of these suicide deaths and 33.3% had been identified with a personality disorder. It was common (66.7%) for these members to have at least two active mental health problems at the time of death. Additionally, there was documented evidence of prior suicidal ideation and/or prior suicide attempts among 50.0% of the Regular Force female suicides during 2018 – 2022.

Work and Life Stressors of the Regular Force Males that Died by Suicide in 2022 and the Regular Force Females that Died by Suicide over 2018 – 2022

Several work and life stressors were assessed among Regular Force males and females who died by suicide, stressors that include failing relationship(s), friend/family suicide, family/friend death, family and/or personal illness, excessive debt, work problems or legal problems. At the time of death, all (100%) Regular Force males that died by suicide in 2022 were reported to have had at least one of these work and/or life stressors and a majority (83.3%) had two or more concomitant stressors prior to their death.

In comparison, a majority (83.3%) of the Regular Force females that died by suicide over 2018 – 2022 were reported to have had at least one of the work and/or life stressors at their time of death and similarly, 83.3% had two or more of the stressors. Additionally, all CAF members were exposed to the COVID-19 pandemic and as such, this was a common potential stressor among all subsets of this population; however, there was no evidence that it contributed to suicide risk. Moreover, during the COVID-19 pandemic the suicide rate and its related characteristics in 2020 and 2022 were comparable to observations from previous years.

Crude Suicide Rates

Regular Force Males:

Over the prior five 5 years (2018 to 2022) there were 66 CAF Regular Force male suicide deaths with a mean age of 35.0 years (95% CI: 33.0, 37.0; median age: 34.5 years). This mean age was not statistically different from the mean age of 34.7 years (95% CI: 34.7, 34.7; median age: 33.0 years) among Regular Force males over this period. Crude suicide rates were also computed for a number of characteristic and for various periods over 2010 – 2022. Over each time period, the crude suicide rate was higher among ages less than 45 years but there were no statistically significant differences between age groups. For the 2018 – 2022 period, and for the 2015-2019 and 2020-2022 periods, the suicide rate was higher with statistical significance among Regular Force males who were separated, divorced or widowed when compared to other marital status categories. Additionally, the suicide rate tended to vary by rank category, highest among the junior non-commissioned (JNCM) ranks for

the 2018 – 2022, 2010 – 2014 and 2015 – 2019 periods; however, this elevated suicide rate among JNCM ranks was not statistically significant relative to the other rank categories. Moreover, the crude suicide rate did not differ substantially, and the differences were not statistically significant, by environmental command or by deployment history for each period assessed; however, it was notable that the suicide rate among the Air Force command was elevated in 2015 – 2019, relative to the prior 2010 – 2014 period, and this increase just missed being statistically significant as indicated by the minimally overlapping confidence intervals. In contrast, the rate of suicide was higher with statistical significance among males who were in the Army combat arms occupations, relative to those in other occupations, but only during the 2010 – 2014 period.

Consecutive 5-year crude suicide rates were computed to assess whether the rate changed over time. These 5-year crude suicide rates for Regular Force males varied from a low of 19.9 per 100,000 population during 1995 – 1999 to a high of 24.5 per 100,000 in the more recent periods, but these differences were not statistically significant. The most recent 5-year (i.e., 2015 – 2019) suicide rate for Regular Force males (24.5/ 100,000 [95% CI: 19.2, 31.2]) was similar to the 2020 – 2022 three-year crude suicide rate of 23.0 per 100,000 population (95% CI: 16.2, 31.5) and the earlier 5-year rate for 2010 – 2014 (24.5/ 100,000 [95% CI: 19.2, 31.2]). Moreover, as the suicide rate confidence intervals for all measured 5-year periods had some degree of overlap, these differences in the crude rate were not statistically significant.

Regular Force Females:

Over the prior 10 years (2013 to 2022) there were 11 Regular Force female suicide deaths with a mean age of 32.9 years (95% CI: 28.1, 37.7; median age: 30.0 years). This mean age was not statistically different from the mean age of 35.6 years (95% CI: 35.6, 35.7; median age: 35.0 years) among all Regular Force females over this period. Crude suicide rates were also computed for a number of characteristic and for various periods over 2005 – 2022. The crude suicide rate varied among age groups, tending to be a little higher among those who were younger than 45 years, but there were no statistically significant differences by age group. Although the suicide rate tended to be higher among Regular Force females who were single, lower in rank, in Army combat arms occupations and those who did not have a history of deployment, the confidence intervals overlapped for all categories of each characteristic, indicating that these differences were not statistically significant. Similarly, there was no discernible pattern in the suicide rate by environmental command and no indication that the suicide rate was higher with statistical significance in one command or another.

Consecutive 5-year crude suicide rates were computed to assess whether the rate changed over time. The 5-year rates for Regular Force females varied from a low 8.2 per 100,000 population in the more recent 2015 – 2019 period to a high of 15.5 per 100,000 in 2010 – 2014, but these differences were not statistically significant. The most recent 5-year (i.e., 2015 – 2019) suicide rate (8.2/ 100,000 population [95% CI: 2.2, 20.9]) was lower than the 2020 – 2022 three-year crude suicide rate of 12.8 per 100,000 population (95% CI: 3.5, 32.7) and the earlier 5-year rate for 2010 – 2014 crude rate (15.5/ 100,000 [95% CI: 6.2, 32.0]), but again, these differences were not statistically significant. As with Regular Force males, the female suicide rate confidence intervals for all measured 5-year periods had some degree of overlap, suggesting a low likelihood of statistically significant differences among the crude rates over time; however, given the small numbers being compared, the statistical comparisons had low power to detect relatively small differences that may be real.

Comparison of CAF Regular Force Member Suicide Rates to Canadian Rates Using Standardized Mortality Ratios

Standardized mortality ratios (SMRs) were computed to compare the suicide rate among Regular Force members to the rate among the Canadian population after controlling for age differences in the two populations. Note that an SMR above 100% suggests that the suicide rate is higher in the Regular Force population whereas an SMR below 100% suggests that the suicide rate is lower in the Regular Force population and the 95% confidence intervals help us determine whether the difference is statistically significant. The 5-year SMRs for Regular Force males were above 100% only for the more recent periods of 2010 – 2014 (118% [95% CI: 93, 151]) and 2015 – 2019 (113% [95%CI: 89, 144]) but both were statistically non-significant, indicating that, for both periods, the observed number of Regular Force male suicides was similar to what would be expected in the Canadian male population, after controlling for population age differences. The most recent SMR that we could compute was for the two-year period of 2020 – 2021 and while it was elevated above 100%, the wide confidence intervals that included 100% indicate that it was not statistically significant.

In comparison, we computed SMRs among Regular Force females but for broader periods because of the lower suicide numbers being compared and these SMRs were all above 100%. For the 10-year period of 2005 – 2014, the SMR was 215% (95% CI: 111, 377) and it was statistically significant; however, this statistically significant SMR was largely attributable to the higher than usual three female suicide deaths that occurred in 2012. The 7-year period SMR for 2015 – 2021 was 141% (95%CI: 56, 290) and it was not statistically significant. The elevated and significant 2005 – 2014 SMR indicates that the observed number of Regular Force female suicides for that period were more than would be expected in the Canadian female population, after controlling for population age differences.

Impact of Deployment on CAF Regular Force Member Suicide Rates

SMRs were also computed separately for members with a history of deployment and those without a history of deployment, individually comparing their suicide risk to the risk in the Canadian male population. For the initial two periods assessed among Regular Force males, 1995 – 1999 and 2000 – 2004, the SMRs were very similar between those with a history of deployment and those without this experience and as each SMR confidence interval included 100%, suicide risk differences relative to the risk in Canadian male population were not statistically significant. The following two 5-year periods, 2005 – 2009 and 2010 – 2014, resulted in SMRs for those with deployments that were above 100% and higher relative to those without deployments but for each period, the suicide risk differences relative to the Canadian male population were not statistically significant. The 2015 – 2019 period indicated a bit of a reversal, as the higher SMR was observed in those without a deployment history but again, the suicide risk differences relative to the Canadian male population were not statistically significant. Additionally, the most recent SMRs, which were only computed with two years of data (i.e., 2020 and 2021), suggested that, once again, the SMR was higher among individuals with a history of deployments, but the suicide risk differences relative to the Canadian male population were not statistically significant.

In comparison, among the Regular Force female suicide deaths over 2001 – 2021 there weren't many who had a history of deployment, which is an observation that exemplifies a low suicide risk associated with deployment experience among females. The data for the full 20-year period, 2001 – 2021, indicated that the Regular Force female suicide rate, relative to the Canadian female population and adjusting for age differences, was elevated in both those with a deployment history and those without this experience but it was only statistically significant

among those without a deployment history (i.e., SMR no deployment history: 197% [95% CI: 110, 325]). The results of the 10-year 2005 – 2014 period SMRs were similar to what was observed for the full 2001 – 2021 period, where the SMRs were above 100% both for those with and for those without a history of deployment but only statistically significant for those without this experience (i.e., SMR no deployment history: 233% [95% CI: 100, 459]). Similarly, the more recent 2015 – 2021 period SMRs (i.e., seven years) were somewhat reflective of what was found for the full 2001 – 2021 period but there was only a single Regular Force female suicide with a deployment history for this shorter timeframe. Moreover, these findings largely follow the earlier observation that overall, Regular Force females had a higher suicide rate relative to the Canadian female population for the 2005 – 2014 period; however, the number of Regular Force female suicides with a history of deployment was low, and while this suggests a lower associated suicide risk, the small numbers limit the ability to make definitive judgements.

Impact of Environmental Command on CAF Regular Force Member Suicide Rates

For Regular Force males, an age-standardized suicide rate ratio was calculated to compare Army to non-Army commands for the 2002 – 2022 period. This rate ratio was not statistically significant (1.10 [95% CI: 0.85, 1.42]), indicating an equivalent suicide rate among Regular Force males in the Army and non-Army commands. This finding was supported by the suicide SMRs that were computed for each command over consecutive 5-year periods, where none of the SMRs were statistically significant. However, the SMRs were a little elevated over 100%, but not statistically significant, for the Army command during both the 2007 – 2011 and 2012 – 2016 periods and the Air Force command during the 2017 – 2021 period. Notably, the suicide SMR among the Army command for the 2017 – 2021 period was relatively low and more comparable to the other commands, with the exception of the elevated Air Force SMR for that period, but none of these SMRs were statistically significant. In comparison, the age-standardized suicide rate ratio for Regular Force females that compared Army to non-Army commands for the 2002 – 2022 period was similarly not statistically significant (1.43 [95% CI: 0.53, 3.85]). This is reflected in the SMRs computed for each command and each assessed period in which, for each period, the different command SMRs were similar among the Regular Force females.

Suicide rate moving averages, although not a statistical test, provides an indication of how suicide rates fluctuate over time for Army and non-Army commands. These moving average rates suggested that while Army commands appeared to have had an elevated rate over 2008 to 2014 among males and 2011 to 2015 among females relative to the other commands, the difference between Army and non-Army command suicide rates changed from around 2015 or 2016 onwards. At approximately this time point, the moving average rates became more comparable among Regular Force male Army and non-Army commands and among Regular Force female Army commands, the suicide rate moving average dropped to zero from 2017 to 2019 and remained lower relative to non-Army commands for the subsequent 2020 year. Moreover, in the more recent years the suicide rate moving average appears to have been at a point where it was either more comparable or a little more elevated among non-Army commands.

The suicide rate among the Army combat arms occupations was also assessed. Over the 2002 – 2022 period the crude suicide rate among Regular Force males in the Army combat arms occupations was found to be higher than the overall rate among Regular Force males in other occupations (i.e., 31.0/ 100,000 [95% CI: 25.1, 38.4] for Army combat arms occupations versus 19.7/ 100,000 [95% CI: 16.8, 22.9] among others) and this difference was statistically significant. Additionally, when looking at the more recent 10-year period of 2012 – 2022, the observations were very similar. For this recent period, the crude suicide rates were 34.0 per 100,000 population (95% CI: 25.6, 44.6) in the Army combat arms occupation versus 19.4 per 100,000 population (95% CI: 15.6, 24.1) for those in other occupations and the difference was also statistically significant. However, a look at

crude rates in shorter intervals (i.e., mainly 5-year intervals) over 2010 to 2022 suggested that while the suicide rate difference between those in Army combat arms relative to other occupations was high and statistically significant in 2010 – 2014, the difference had begun to decrease in 2015 – 2019 and then decreased further afterwards; furthermore, from 2015 onwards, the difference had become not statistically significant.

In contrast, over the 2002 – 2022 period the crude suicide rate among Regular Force females in the Army combat arms occupations was found to be not statistically different than the overall rate among other occupations (i.e., 27.6/ 100,000 [95% CI: 3.3, 99.6] for Army combat arms occupations versus 11.3/ 100,000 [95% CI: 6.9, 17.4] among others). However, while the overlapping confidence intervals between these two rates among Regular Force females indicate that the moderately large difference (i.e., 27.6/ 100,000 versus 11.3/ 100,000) is not statistically significant, the numbers being compared are low and this influences the power to detect differences that may be real. Additionally, there were only two suicides among females from the Army combat arms occupation group and these occurred during the 2010 – 2014 period and, with zero suicides in this occupation group outside this period, this suggests an elevated suicide rate in this occupation group but only during the briefer 2010 – 2014 period.

Conclusion

Suicide rates among Regular Force males and females in the CAF did not increase (or decrease) with any statistical significance over the period of observation described in these findings; however, after age standardization, the Regular Force female suicide rate was identified to be higher with statistical significance relative to the rate in the Canadian female population over the 2005 to 2014 period while for Regular force males, the difference relative to the Canadian male population was not statistically significant for any assessed period. Additionally, despite the added stressors associated with the COVID-19 pandemic, the suicide rate and its related characteristics over 2020 to 2022 were comparable to observations from previous years. However, small numbers do limit the ability, or power, of statistical assessments to detect differences with statistical significance when they are real and not chance occurrences and this may have influenced some of the assessments. The elevated risk in Regular Force males under Army command, particularly those in combat arms occupations, continues to be under observation by the CAF and suicide prevention programs have been advised to implement this information into their prevention efforts. Moreover, the CAF will also need to monitor the slight elevation in suicide risk among Regular Force males in the Air Force command that was suggested by the data from the most recent time period.

Sommaire

La perte tragique de vie par suicide des membres des Forces armées canadiennes (FAC) requiert notre attention constante, afin de comprendre ces événements difficiles et d'améliorer nos efforts de prévention du suicide au sein des FAC. Le présent rapport décrit le phénomène du suicide au sein des FAC et les caractéristiques descriptives des hommes de la Force régulière morts par suicide entre 1995 et 2022 et des femmes de la Force régulière mortes par suicide entre 2001 et 2022, et donne des renseignements supplémentaires sur les facteurs de risque connus associés à ces décès par suicide au cours de la période la plus récente.

Méthodes

Les données décrites dans la section 3.1 [Résultats des rapports d'examen technique des suicides par des professionnels de la santé (ETSPS), hommes et femmes de la Force régulière, mises à jour de 2022] sont tirées des ETSPS principalement axés sur 2022 pour les hommes et sur la période 2018-2022 pour les femmes. L'ETSPS est une des enquêtes qui suivent chaque suicide survenant au sein des FAC. L'ETSPS est un outil d'assurance de la qualité pour les Services de santé des Forces canadiennes (SSFC) qui est appliqué immédiatement après la confirmation de tout suicide survenu dans la Force régulière ou dans la Première réserve. Chaque ETSPS est généralement effectué par une équipe composée d'un professionnel de la santé mentale et d'un médecin de soins primaires.

Les données épidémiologiques décrites dans la section 3.2 (Épidémiologie des suicides chez les membres de la Force régulière) et la section 3.3 (Épidémiologie des suicides chez les membres de la Force régulière, selon le commandement d'armée) portent sur les décès par suicide relevés auprès de la Direction de la gestion du soutien aux blessés jusqu'en 2012. Depuis septembre 2012, la DSM effectue le suivi des données sur le nombre de suicides. Les renseignements relatifs à la date de naissance, aux caractéristiques militaires ou à d'autres caractéristiques associées aux décès par suicide et à la population comparable des FAC proviennent de la Direction de la gestion de l'information des ressources humaines (DGIRH); ces données ont été mises à jour au moyen de données reçues en 2022 et en 2023. Enfin, les données sur la population générale canadienne et les dénombrements des suicides en fonction de l'âge et du sexe ont été obtenues auprès de Statistique Canada et ont été récupérées en 2023.

Les fréquences, les taux bruts, les ratios standardisés de mortalité (RSM) (le RSM est le ratio du nombre observé de suicides dans les FAC par rapport au nombre de suicides prévus dans les FAC, soit le nombre prévu si les FAC présentaient les mêmes taux propres à l'âge et au sexe que ceux de la population canadienne générale) et les taux standardisés de façon directe ont été calculés. Les RSM les plus récents ont été calculés pour 2021 dans le présent rapport parce qu'au moment de l'extraction des données, les données de 2021 étaient les plus récentes publiées par Statistique Canada pour la population générale canadienne.

Le présent rapport n'analyse que les suicides des hommes et des femmes de la Force régulière. Les décès par suicide survenus chaque année au sein de la Force de réserve ne sont pas visés par cette analyse. L'accès aux données pour les réservistes est insuffisant, car ils reçoivent une grande partie de leurs soins de santé dans le réseau provincial et les détails de ces décès, y compris les détails permettant de confirmer s'il s'agissait d'un suicide, ne sont parfois pas signalés aux FAC et, par conséquent, les renseignements connexes ont tendance à ne pas être disponibles pendant le processus d'ETSPS, lorsque les suicides possibles sont examinés et confirmés.

Résultats

Diagnostic de maladie mentale chez les hommes de la Force régulière qui sont morts par suicide en 2022 et chez les femmes de la Force régulière qui sont mortes par suicide de 2018 à 2022

Au nombre des troubles mentaux mis en évidence au moment du décès par suicide des hommes de la Force régulière en 2022 figuraient les troubles dépressifs (25,0 %), les troubles anxieux (16,7 %), le trouble de stress post-traumatique (TSPT) (8,3 %) ou d'autres troubles liés à des traumatismes et au stress (25,0 %). Des troubles liés à la dépendance et à la consommation de substances documentés ont été signalés dans 8,3 % de ces décès par suicide, et 16,7 % des personnes avaient subi un traumatisme crânien dans le passé. Une fraction modérée des victimes (25,0 %) souffraient d'au moins deux troubles de santé mentale actifs au moment du décès (c.-à-d. une combinaison qui pouvait comprendre des troubles dépressifs, des troubles liés à des traumatismes et au stress, des troubles anxieux, des troubles liés à la dépendance ou à la consommation de substances, un traumatisme crânien ou des troubles de la personnalité). En outre, des preuves documentées font état d'idées suicidaires antérieures ou de tentatives de suicide antérieures pour 66,7 % des hommes de la Force régulière morts par suicide en 2022.

En comparaison, les troubles mentaux mis en évidence chez les femmes de la Force régulière au moment de leur décès par suicide de 2018 à 2022 comprenaient des troubles dépressifs (33,3 %), des troubles anxieux (33,3 %), le TSPT (16,7 %) ou des troubles liés à des traumatismes et au stress autres que le TSPT (16,7 %). Des troubles liés à la dépendance ou à la consommation de substances documentés ont été signalés dans 33,3 % de ces décès par suicide, et 33,3 % des personnes avaient été désignées comme ayant un trouble de la personnalité. Il était fréquent (66,7 %) que ces militaires présentent au moins deux troubles de santé mentale actifs au moment de leur décès. De plus, des preuves documentées font état d'idées suicidaires antérieures ou de tentatives de suicide antérieures pour 50,0 % des femmes de la Force régulière mortes par suicide entre 2018 et 2022.

Facteurs de stress professionnel et personnel chez les hommes de la Force régulière qui sont morts par suicide en 2022 et chez les femmes de la Force régulière qui sont mortes par suicide de 2018 à 2022

Plusieurs facteurs de stress professionnel et personnel ont été évalués chez les hommes et les femmes de la Force régulière morts par suicide, soit des facteurs de stress tels que l'échec d'une relation, le suicide d'un ami ou d'un membre de la famille, le décès d'un ami ou d'un membre de la famille, une maladie personnelle ou la maladie d'un membre de la famille, un endettement excessif, des problèmes professionnels ou des problèmes juridiques. Au moment du décès, au moins un facteur de stress professionnel ou personnel était présent dans 100 % des cas de suicide survenus en 2022 parmi les hommes de la Force régulière, tandis qu'une majorité (83,3 %) des militaires présentait au moins deux facteurs de stress concomitants avant leur décès.

En comparaison, on a signalé que la majorité (83,3 %) des femmes de la Force régulière mortes par suicide de 2018 à 2022 avaient au moins un des facteurs de stress professionnel ou personnel au moment de leur décès et, de même, 83,3 % en avaient au moins deux. De plus, tous les membres des FAC ont vécu la pandémie de COVID-19, un facteur de stress potentiel courant dans tous les sous-ensembles de cette population. Cependant, rien ne prouve que la pandémie a contribué à faire augmenter le risque de suicide. De plus, pendant la pandémie

de COVID-19, le taux de suicide et ses caractéristiques connexes en 2020 et 2022 étaient comparables aux observations des années précédentes.

Taux bruts de suicide

Hommes de la Force régulière :

Au cours de la période de cinq ans précédente (2018-2022), on a recensé 66 décès par suicide chez les hommes de la Force régulière des FAC âgés de 35,0 ans en moyenne (IC de 95 % : 33,0, 37,0; âge médian : 34,5 ans). Cet âge moyen n'était pas statistiquement différent de l'âge moyen de 34,7 ans (IC à 95 % : 34,7, 34,7; âge médian : 33,0 ans) chez les hommes de la Force régulière au cours de cette période. Les taux bruts de suicide ont également été calculés pour un certain nombre de caractéristiques et pour diverses périodes entre 2010 et 2022. Au cours de chaque période, le taux brut de suicide était plus élevé chez les personnes âgées de moins de 45 ans, mais il n'y avait pas de différences statistiquement significatives entre les groupes d'âge. Au cours des périodes 2018-2022, 2015-2019 et 2020-2922, le taux de suicide était plus élevé et présentait des différences statistiquement significatives chez les hommes de la Force régulière qui étaient séparés, divorcés ou veufs par rapport à celui des hommes faisant partie d'autres catégories d'état matrimonial. De plus, le taux de suicide avait tendance à varier selon la catégorie de grade, et il était le plus élevé parmi les militaires du rang (subalternes) (MR sub) au cours des périodes 2018-2022, 2010-2014 et 2015-2019. Toutefois, ce taux de suicide élevé chez les MR sub n'était pas statistiquement significatif par rapport à celui des militaires faisant partie d'autres catégories de grades. De plus, le taux brut de suicide ne différait pas considérablement, et les différences n'étaient pas statistiquement significatives, par commandement d'armée ou par antécédents de déploiement pour chaque période évaluée. Toutefois, il était notable que le taux de suicide au sein du commandement de la Force aérienne était élevé entre 2015 et 2019, par rapport à la période antérieure de 2010 à 2014, et cette augmentation n'était tout simplement pas statistiquement significative, comme l'indiquent les intervalles de confiance qui présentent un chevauchement minimal. Cependant, le taux de suicide présentait des différences statistiquement significatives chez les hommes appartenant aux groupes professionnels des armes de combat de l'Armée de terre par rapport au taux des hommes appartenant à d'autres groupes professionnels, mais seulement au cours de la période 2010-2014.

Des taux bruts de suicide consécutif sur cinq ans ont été calculés pour évaluer si le taux a changé au fil du temps. Ces taux bruts de suicide sur cinq ans chez les hommes de la Force régulière variaient d'un minimum de 19,9 pour 100 000 personnes de 1995 à 1999 à un maximum de 24,5 pour 100 000 personnes au cours des périodes plus récentes, mais ces différences n'étaient pas statistiquement significatives. Le plus récent taux de suicide sur cinq ans (c.-à-d. pour 2015 à 2019) chez les hommes de la Force régulière (24,5/100 000 [IC à 95 % : 19,2, 31,2]) était semblable au taux brut de suicide sur trois ans de 2020-2022 de 23,0 par 100 000 habitants (IC à 95 % : 16,2, 31,5) et au taux sur cinq ans antérieur pour 2010-2014 (24,5/100 000 [IC à 95 % : 19,2, 31,2]). De plus, puisque les intervalles de confiance des taux de suicide pour toutes les périodes de cinq ans étudiées se chevauchaient dans une certaine mesure, ces différences dans le taux brut n'étaient pas statistiquement significatives.

Femmes de la Force régulière :

Au cours de la période de dix ans précédente (2013-2022), on recense 11 décès par suicide chez les femmes de la Force régulière des FAC âgées de 32,9 ans en moyenne (IC à 95 % : 28,1, 37,7; âge médian : 30,0 ans). Cet âge moyen n'était pas statistiquement différent de l'âge moyen de 35,6 ans (IC à 95 % : 35,6, 35,7; âge médian : 35,0 ans) parmi toutes les femmes de la Force régulière au cours de cette période. Les taux bruts de suicide ont

également été calculés pour un certain nombre de caractéristiques et pour diverses périodes de 2005 à 2022. Le taux brut de suicide variait d'un groupe d'âge à l'autre, tendant à être un peu plus élevé chez les personnes âgées de moins de 45 ans, mais il n'y avait pas de différences statistiquement significatives selon le groupe d'âge. Bien que le taux de suicide ait tendance à être plus élevé chez les femmes de la Force régulière célibataires, de grade inférieur et faisant partie des groupes professionnels des armes de combat de l'Armée de terre et chez celles qui n'avaient pas d'antécédents de déploiement, les intervalles de confiance se chevauchaient pour toutes les catégories de chaque caractéristique, ce qui indique que ces différences n'étaient pas statistiquement significatives. De même, il n'y avait aucune tendance évidente concernant le taux de suicide selon le commandement d'armée et aucune indication que le taux de suicide était plus élevé et présentait une différence statistiquement significative dans un commandement ou un autre.

Des taux bruts de suicide consécutifs sur cinq ans ont été calculés pour évaluer si le taux a changé au fil du temps. Les taux sur cinq ans pour les femmes de la Force régulière variaient d'un minimum de 8,2 pour 100 000 personnes au cours de la période plus récente de 2015 à 2019 à un maximum de 15,5 pour 100 000 personnes de 2010 à 2014, mais ces différences n'étaient pas statistiquement significatives. Le plus récent taux de suicide sur cinq ans (c.-à-d. pour la période 2015-2019) (8,2/100 000 habitants [IC à 95 % : 2,2, 20,9]) était inférieur au taux brut de suicide sur trois ans de 2020-2022 de 12,8 pour 100 000 habitants (IC à 95 % : 3,5, 32,7) et le taux sur cinq ans antérieur pour 2010-2014 brut (15,5/100 000 [IC à 95 % : 6,2, 32,0]), mais encore une fois, ces différences n'étaient pas statistiquement significatives. Comme pour les hommes de la Force régulière, les intervalles de confiance du taux de suicide chez les femmes pour toutes les périodes de cinq ans évaluées présentaient un certain degré de chevauchement, ce qui laisse supposer une faible probabilité de différences statistiquement significatives entre les taux bruts au fil du temps. Cependant, étant donné les petits nombres comparés, les comparaisons statistiques pouvaient difficilement déceler des différences relativement petites qui peuvent être réelles.

Comparaison entre les taux de suicide chez les membres de la Force régulière des FAC et les taux canadiens au moyen des ratios standardisés de mortalité

Les ratios standardisés de mortalité (RSM) ont été calculés pour comparer le taux de suicide chez les membres de la Force régulière au taux dans la population canadienne après contrôle des différences d'âge dans les deux populations. Soulignons qu'un RSM supérieur à 100 % laisse supposer que le taux de suicide est plus élevé dans la population de la Force régulière, alors qu'un RSM inférieur à 100 % laisse supposer que le taux de suicide est plus faible dans la population de la Force régulière, et les intervalles de confiance à 95 % nous aident à déterminer si la différence est statistiquement significative. Les RSM sur cinq ans pour les hommes de la Force régulière n'étaient supérieurs à 100 % que pour les périodes les plus récentes 2010-2014 (118 % [IC à 95 % : 93, 151]) et 2015-2019 (113 % [IC à 95 % : 89, 144]), mais n'étaient pas statistiquement significatifs, ce qui indique que, pour les deux périodes, le nombre observé de suicides chez les hommes de la Force régulière était semblable à ce à quoi on aurait pu s'attendre dans la population masculine au Canada, après contrôle des différences d'âge de la population. Le RSM le plus récent que nous avons pu calculer concernait la période de deux ans 2020-2021 et, bien qu'il soit supérieur à 100 %, les grands intervalles de confiance qui incluaient 100 % indiquent qu'il n'était pas statistiquement significatif.

En comparaison, nous avons calculé les RSM chez les femmes de la Force régulière, mais pour des périodes plus longues, en raison du nombre inférieur de suicides comparés. Ces RSM étaient tous supérieurs à 100 %.

Pour la période de dix ans s'échelonnant de 2005 à 2014, le RSM était de 215 % (IC à 95 % : 111, 377) et était statistiquement significatif. Toutefois, ce RSM statistiquement significatif était en grande partie attribuable aux trois décès par suicide survenus chez les femmes plus en 2012, nombre qui est plus élevé que d'habitude. Le RSM de la période de sept ans s'échelonnant de 2015 à 2021 était de 141 % (IC à 95 % : 56, 290) et n'était pas statistiquement significatif. Le RSM élevé et significatif de la période 2005-2014 indique que le nombre observé de suicides de femmes de la Force régulière pour cette période était supérieur à ce à quoi on aurait pu s'attendre dans la population féminine au Canada, après contrôle des différences d'âge de la population.

Répercussions des déploiements sur les taux de suicide parmi les membres de la Force régulière des FAC

Les RSM ont également été calculés séparément pour les militaires qui avaient des antécédents de déploiement et pour ceux qui n'en avaient pas et ont comparé individuellement le risque de suicide de ces militaires au risque prévalant dans la population masculine canadienne. Pour les deux premières périodes évaluées pour les hommes de la Force régulière, soit 1995-1999 et 2000-2004, les RSM étaient très semblables entre ceux qui avaient des antécédents de déploiement et ceux qui n'en avaient pas, et comme chaque intervalle de confiance des RSM comprenait 100 %, les différences de risque de suicide par rapport au risque prévalant dans la population masculine canadienne n'étaient pas statistiquement significatives. Les deux périodes de cinq années suivantes, soit 2005-2009 et 2010-2014, ont donné lieu à des RSM pour les militaires affectés en déploiement supérieurs à 100 % et plus par rapport à ceux qui n'ont pas pris part à des déploiements, mais pour chaque période, les différences de risque de suicide par rapport à la population masculine canadienne n'étaient pas statistiquement significatives. Pour la période 2015-2019 on a constaté un léger renversement : un RSM plus élevé a été observé chez les militaires qui n'avaient pas d'antécédents de déploiement, mais encore une fois, les différences de risque de suicide par rapport à la population masculine canadienne n'étaient pas statistiquement significatives. De plus, les RSM les plus récents, qui n'ont été calculés qu'au moyen de données recueillies sur deux ans (c.-à-d. 2020 et 2021), laissaient supposer qu'encore une fois, le RSM était plus élevé chez les militaires qui avaient des antécédents de déploiement, mais les différences de risque de suicide par rapport à la population masculine canadienne n'étaient pas statistiquement significatives.

En comparaison, parmi les femmes de la Force régulière mortes par suicide de 2001 à 2021, il n'y en avait pas beaucoup qui avaient des antécédents de déploiement, ce qui est une observation qui illustre un faible risque de suicide associé à une expérience de déploiement chez les femmes. Les données pour la période 2001-2021 complète ont indiqué que le taux de suicide des femmes de la Force régulière, par rapport à la population féminine canadienne et après rajustement des différences d'âge, était élevé à la fois chez celles qui avaient des antécédents de déploiement et chez celles qui n'en avaient pas, mais que cela n'était statistiquement significatif que parmi celles qui n'avaient pas d'antécédents de déploiement (c.-à-d. RSM sans antécédents de déploiement : 197 % [IC à 95 % : 110, 325]). Les résultats des RSM de la période de dix ans s'étendant de 2005 à 2014 étaient semblables à ceux observés pour l'ensemble de la période de 2001 à 2021, où les RSM étaient supérieurs à 100 % à la fois pour les femmes ayant des antécédents de déploiement et pour celles qui n'en avaient pas, mais seulement statistiquement significatifs pour celles qui n'en avaient pas (c.-à-d. RSM sans antécédents de déploiement : 233 % [IC à 95 % : 100, 459]). De même, les RSM les plus récents de la période 2015-2021 (c.-à-d. sept ans) reflétaient quelque peu ce qui avait été constaté pour la période complète 2001-2021, mais on a recensé seulement un suicide parmi les femmes de la Force régulière ayant des antécédents de déploiement au cours de cette période plus courte. De plus, ces résultats correspondent en grande partie à l'observation précédente selon laquelle, dans l'ensemble, les femmes de la Force régulière affichaient un taux de suicide plus élevé par rapport à celui de la population féminine canadienne pour la période 2005-2014. Cependant, le nombre

de femmes de la Force régulière mortes par suicide qui avaient des antécédents de déploiement était faible, et même si cela laisse supposer un risque de suicide associé plus faible, le petit nombre limite la capacité de porter des jugements tranchés.

Répercussions du commandement d'armée sur les taux de suicide chez les membres de la Force régulière des FAC

Pour les hommes de la Force régulière, un ratio des taux de suicide standardisé en fonction de l'âge a été calculé afin de comparer les commandements de l'Armée de terre à d'autres commandements pour la période 2002-2022. Ce ratio de taux n'était pas statistiquement significatif (1,10 [IC à 95 % : 0,85, 1,42]), ce qui indique un taux de suicide équivalent chez les hommes de la Force régulière dans le commandement de l'Armée de terre et dans d'autres commandements. Cette constatation était appuyée par les RSM de suicide calculés pour chaque commandement sur des périodes consécutives de cinq ans, où aucun des RSM n'était statistiquement significatif. Cependant, les RSM dépassaient légèrement les 100 %, mais n'étaient pas statistiquement significatifs, pour le commandement de l'Armée de terre pendant les périodes 2007-2011 et 2012-2016 et pour le commandement de la Force aérienne pendant la période 2017-2021. Notamment, le RSM de suicide au sein du commandement de l'Armée de terre pour la période 2017-2021 était relativement faible et plus comparable aux autres commandements, à l'exception du RSM élevé de la Force aérienne pour cette période, mais aucun de ces RSM n'était statistiquement significatif. En comparaison, le ratio des taux de suicide ajustés selon l'âge chez les femmes de la Force régulière qui comparait les commandements de l'Armée de terre aux autres commandements pour la période 2002-2022 n'était pas non plus statistiquement significatif (1,43 [IC à 95 % : 0,53, 3,85]). Cela se reflète dans les RSM calculés pour chaque commandement et chaque période évaluée dans laquelle, pour chaque période, les RSM des différents commandements étaient semblables parmi les femmes de la Force régulière.

Les moyennes mobiles du taux de suicide, bien qu'elles ne constituent pas un test statistique, donnent une indication de la façon dont les taux de suicide fluctuent au fil du temps pour le commandement de l'Armée de terre et d'autres commandements. Ces taux moyens mobiles laissent supposer que si les commandements de l'Armée de terre semblaient avoir affiché un taux élevé de 2008 à 2014 chez les hommes et de 2011 à 2015 chez les femmes par rapport aux autres commandements, la différence entre les taux de suicide dans l'Armée de terre et dans d'autres commandements a changé à partir de 2015 ou 2016 environ. À peu près à ce moment-là, les taux moyens mobiles sont devenus plus comparables entre les commandements de l'Armée de terre et d'autres commandements d'hommes de la Force régulière, tandis que parmi les commandements de l'Armée de terre de femmes de la Force régulière, le taux de suicide est tombé à zéro entre 2017 et 2019, et est demeuré faible par rapport à celui des commandements autres que les commandements de l'Armée de terre au cours de l'année subséquente 2020. De plus, au cours des dernières années, la moyenne mobile du taux de suicide semble avoir été à un point où elle était soit plus comparable, soit un peu plus élevée parmi les commandements autres que ceux de l'Armée de terre.

Le taux de suicide parmi les groupes professionnels des armes de combat de l'Armée de terre a également été évalué. Au cours de la période 2002-2022, le taux brut de suicide chez les hommes de la Force régulière dans les groupes professionnels des armes de combat de l'Armée de terre s'est avéré plus élevé que le taux global chez les hommes de la Force régulière appartenant à d'autres groupes professionnels (c.-à-d. 31,0/100 000 [IC à 95 % : 25,1, 38,4] pour les groupes professionnels des armes de combat de l'Armée de terre contre 19,7/100 000 [IC à 95 % : 16,8, 22,9] entre autres), et cette différence était statistiquement significative. De plus, lorsqu'on examine la plus récente période de dix ans s'échelonnant de 2012 à 2022, les observations étaient très semblables. Pour cette période récente, les taux bruts de suicide étaient de 34,0 par 100 000 habitants (IC à

95 % : 25,6, 44,6) dans le groupe professionnel des armes de combat de l'Armée de terre contre 19,4 par 100 000 habitants (IC à 95 % : 15,6, 24,1) pour les personnes exerçant d'autres professions, et la différence était également statistiquement significative. Toutefois, un examen des taux bruts dans les intervalles plus courts (c.-à-d. principalement des intervalles de cinq ans) entre 2010 et 2022 laissait supposer que même si l'écart du taux de suicide entre les membres des groupes professionnels des armes de combat de l'Armée de terre par rapport aux militaires appartenant à d'autres groupes professionnels était élevé et statistiquement significatif entre 2010 et 2014, l'écart avait commencé à diminuer au cours de la période 2015-2019, puis a diminué davantage par la suite. De plus, à partir de 2015, l'écart était devenu non statistiquement significatif.

En revanche, au cours de la période 2002-2022, le taux brut de suicide chez les femmes de la Force régulière dans les groupes professionnels des armes de combat de l'Armée de terre n'était pas statistiquement différent du taux général dans d'autres groupes professionnels (c.-à-d. 27,6/100 000 [IC à 95 % : 3,3, 99,6] pour les groupes professionnels des armes de combat de l'Armée de terre contre 11,3/100 000 [IC à 95 % : 6,9, 17,4] entre autres). Toutefois, bien que les intervalles de confiance qui se chevauchent entre ces deux taux chez les femmes de la Force régulière indiquent que l'écart modérément important (c.-à-d. 27,6/100 000 par rapport à 11,3/100 000) n'est pas statistiquement significatif, les chiffres comparés sont faibles et cela influence la capacité de déceler les différences qui peuvent être réelles. De plus, il n'y a eu que deux suicides parmi les femmes du groupe professionnel des armes de combat de l'Armée de terre et ceux-ci se sont produits au cours de la période 2010-2014, et il n'y a eu aucun suicide dans ce groupe professionnel en dehors de cette période. Cela laisse supposer un taux de suicide élevé dans ce groupe professionnel, mais seulement pendant la courte période 2010-2014.

Conclusion

Les taux de suicide des hommes et des femmes de la Force régulière des FAC n'ont pas augmenté (ni diminué) de façon statistiquement significative au cours de la période d'observation décrite dans ces constatations. Cependant, une fois la standardisation selon l'âge effectuée, le taux de suicide des femmes de la Force régulière s'est avéré supérieur, et ce, de façon statistiquement significative, à celui de la population féminine canadienne au cours de la période s'étendant de 2005 à 2014, tandis que la différence entre le taux de suicide des hommes de la Force régulière et celui de la population masculine canadienne n'était pas statistiquement significative pour aucune période évaluée. En outre, malgré les facteurs de stress supplémentaires liés à la pandémie de la COVID-19, le taux de suicide et ses caractéristiques connexes en 2022 étaient comparables aux observations des années précédentes. Toutefois, la faible quantité limite la capacité, ou le pouvoir, des évaluations statistiques de relever les différences statistiquement significatives lorsqu'elles sont réelles et non le fruit du hasard, ce qui peut avoir influencé certaines des évaluations. Le risque élevé chez les hommes de la Force régulière faisant partie du commandement de l'Armée de terre, et particulièrement chez ceux appartenant aux groupes professionnels des armes de combat, est un constat que les FAC continuent d'observer. Les programmes de prévention du suicide ont été avisés de tenir compte de ces renseignements dans la planification de leurs efforts de prévention. De plus, les FAC devront également continuer de surveiller la légère hausse du risque de suicide chez les hommes de la Force régulière au sein du commandement de la Force aérienne, comme le laissent supposer les données de la période la plus récente.

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2023 Report on Suicide Mortality in the Canadian Armed Forces (1995 to 2022)

1. Introduction

Each death from suicide can have a tragic impact on families, friends and colleagues. Suicide prevention is an important public health concern in Canada and is a top priority for the Canadian Armed Forces (CAF). The CAF Suicide Prevention Action Plan reflects the CAF's commitment to ensuring that everything that can be done is done to mitigate the risk of suicide. The investigation and analysis of deaths from suicide by CAF members provides valuable information that can assist in guiding and refining ongoing suicide prevention efforts. This annual report is one method used to ensure that clinical and prevention programmes are optimised.

There has been concern since the early 1990s about the rate of suicide in the CAF and its possible relationship to deployment. In response to these concerns, the CAF began a suicide mortality surveillance program to determine the rate of suicide among CAF personnel in comparison to the Canadian general population (CGP), as well as the rate of suicide in those personnel with a history of deployment compared to those without such a history.

Historically the reports have focused on the surveillance and epidemiology of suicide within the CAF. Since 2015, the report has expanded its scope to describe additional information related to suicide in the CAF including an in-depth analysis of the variation of suicide rates by environmental command. This report also provides information on the underlying risk factors that may have contributed to the Regular Force male suicides that took place in 2022, and Regular Force female suicides over 2018 – 2022, based on an assessment of the Medical Professional Technical Suicide Reviews (MPTSRs).

This report separately analyses Regular Force males and Regular Force females who have died by suicide. MPTSRs are completed for all CAF deaths from suicide, including Reserve members; however, data from those investigations among Reserve members as well as any available data on suicide attempts are not included in this analysis for the following reasons:

1) For Reserve Force data there are issues associated with completeness, in addition to concerns with possible identity and attribute disclosure.[1] Since many Reserve Force members receive their health care

[1] Statistics Canada defines *identity disclosure* as: "identifying an individual from a table, typically from small cell showing 1 or 2 persons with a characteristic. If no other information is released it is not necessarily a confidentiality breach but the perception of a breach is there. This translates into a "small cell" problem, where, for the purpose of vital statistics, "small" is defined as frequencies representing fewer than 5 births, deaths or stillbirths. "

Attribute disclosure is defined as: "disclosing attributes of individuals, even if they are not specifically identified. For example, a table row where all units share the same attribute because they are found in a single column. This translates into "zero cell" and "full cell" problems. Not all zero cells are problematic. Full cells, which occur when only one cell in a row or column is non-zero, are more likely to be."

Taken from: **Statistics Canada. Disclosure control strategy for Canadian Vital Statistics Birth and Death Databases. Ministry of Industry: Ottawa, 2016[1].**

in the provincial health care system, Reserve member reporting and their available records may be incomplete.

2) Since data on suicide attempts is often incomplete, due to differences in its definition and inconsistent reporting by members, and in keeping with other occupational health studies, this report evaluates only deaths from suicide, not attempts. Furthermore, the data used for this analysis include only those who have died of suicide while active in the Regular Forces, and do not include those who have died of suicide after retirement from the military. For more information on Veterans see the 2021 Veteran Suicide Mortality Study [2].

2. Data Sources and Methods

2.1 Data Sources

2.1.1 Medical Professional Technical Suicide Review

Data on suicide risk factors (mental health and psycho-social factors reported to be associated with suicide deaths) are collated from the Medical Professional Technical Suicide Reviews (MPTSR). MPTSRs are requested by the Canadian Forces Health Services (CFHS) when a death is deemed to have been due to suicide and are conducted by military medical professionals. This team reviews all pertinent health records and conducts interviews with family members, health care providers and colleagues who worked with the member and who may be knowledgeable about the circumstances of the death. MPTSRs began in 2010 as a Quality Assurance tool within the CFHS to provide the Surgeon General with observations and recommendations for optimising suicide prevention efforts within CFHS. All MPTSR information is collected and managed by the Directorate of Mental Health (DMH).

Six mental health factor categories and nine work and life stressor categories were enumerated. Each was identified as present if it was documented and considered an active issue around the time of death. In some instances, a mental health factor or stressor was identified as suspected or unknown when there was no, or insufficient, documentation to definitively indicate its presence or absence as an active issue. While these suspected or unknown instances were uncommon, these factors or stressors were considered absent in the calculation of statistics. Additionally, it should be noted that all members were exposed to stressors associated with the COVID-19 pandemic during 2020 to 2022. For some, this added stressor may have increased the risk of suicide, either directly or indirectly through its influence on other stressors; however, the contribution of the pandemic to suicide deaths was not captured in the MPTSR investigations and as such, no valid conclusion can be drawn about its influence. The mental health factor categories included:

1) depressive disorders: i) disruptive mood dysregulation disorder; ii) major depressive disorder, single and recurrent episodes; iii) persistent depressive disorder (dysthymia); iv) premenstrual dysphoric disorder; v) substance/medication-induced depressive disorder; vi) depressive disorder due to another medical condition; vii) other specified depressive disorder; and viii) unspecified depressive disorder.

2) trauma and stressor-related disorders: i) reactive attachment disorder; ii) disinhibited social engagement disorder; iii) posttraumatic stress disorder; iv) acute stress disorder; v) adjustment disorders; vi) other

specified trauma- and stressor-related disorder; and vii) unspecified trauma- and stressor-related disorder.

3) anxiety disorders: i) separation anxiety disorder; ii) selective mutism; iii) specific phobia; iv) social anxiety disorder (social phobia); v) panic disorder; vi) panic attack; vii) agoraphobia; viii) generalized anxiety disorder; ix) substance/medication-induced anxiety disorder; x) anxiety disorder due to another medical condition; xi) other specified anxiety disorder; and xii) unspecified anxiety disorder.

4) addictions or substance-use disorders;

5) traumatic brain injury: considered to be an active issue if it occurred at any time in an individual's past; and

6) personality disorders: considered an active issue if it was identified at any time in an individual's past

The work and life stressor categories included:

1) failed or failing spousal or intimate partner relationship;

2) failed or failing other relationship (e.g., family, friends);

3) spousal, family or friend death by suicide (considered to be an active issue if it had occurred at any time in an individual's past);

4) family or friend death (other than suicide);

5) physical health problem;

6) chronic illness in spouse or family member;

7) excessive debt, bankruptcy or financial strain;

8) job, supervisor or work performance problem; and

9) legal problems (e.g., child custody dispute, litigation**).**

2.1.2 Epidemiological Surveillance

Information on the number of suicides and demographic information was obtained from the Directorate of Casualty Support Management (DCSM) up to 2012. As of September 2012, suicides were tracked and data were provided by DMH. DMH cross-references their results with those collected by the Administrative Investigation Support Centre (AISC), which is part of the Directorate Special Examinations and Injuries (DSEI).

Information on deployment history and CAF population data (i.e., age, sex, marital status, rank, unit, command, Military Occupational Structure ID/Military Occupation code (MOSID/MOC) and deployment history) for active members, as of July 1st of a given year, originated from the Directorate of Human Resources Information

Management (DHRIM). History of deployment was based on data obtained from DHRIM and deployments were defined to include all international assignments with a location outside of Canada and the U.S. and, when determinable, excluded training, exercises and meetings with international partners. It should be noted that the number of active personnel who were serving in a given year and those with a history of deployment occasionally changes from previous reports due to the continual updating of DHRIM records. Additionally, command was categorized into one of four environmental command groupings (Army, Air, Navy or other command) based on individuals' last specified command or in some cases, unit information. Moreover, the 2001, 2002 and 2010 to 2022 population data that were used in various rate calculations were updated with data obtained in 2023 for this current report. As such, rates for periods that include these years may have changed relative to previous year reports.

Canadian suicide counts by age and sex were obtained from Statistics Canada. Data were available up to 2021 at the time of preparation of this report. Canadian suicide rates are derived from death certificate data collected by the provinces and territories and collated by Statistics Canada. Codes utilized for this report were ICD-9 E950-E959 (suicide and self-inflicted injury) in the Shelf Tables produced by Statistics Canada from 1995 to 1999. For 2000 to 2021 the number of suicide deaths was based on ICD-10 codes X60-X84 and Y87.0 utilizing Table 13-10-0392-01 'Deaths and age-specific mortality rates, by selected grouped causes' from Statistics Canada. During Statistics Canada's production of each year's death statistics, data from previous years may have been revised to reflect any updates or changes that had been received from the provincial and territorial vital statistics registrars. Open verdict cases (ICD-9: E980-E989; ICD-10: Y10-Y34, Y87.2) are excluded by Statistics Canada[2], although they are routinely included in suicide statistics reported elsewhere (e.g., UK – both in civilian and military contexts). To ensure valid comparisons, the Statistics Canada exclusions were followed for these analyses. Canadian population (CGP) denominators up to 2000 were taken from Statistics Canada CANSIM Table 051-0001; from 2000 onwards, they were taken from Table 17-10-0005-01 'Population estimates on July 1st, by age and sex'. Denominator numbers, up to and including 2015, were final inter-censal estimates; however, while the denominator numbers were final post-censal estimates for 2016 to 2020, for 2021 the estimates were updated post-censal ones.

For the CAF members who died from suicide, information on date of birth, sex, last reported marital status, rank, component, environmental command, MOSID/MOC, deployment history and last known unit were obtained through a request to the Directorate of Human Resources Information Management (DHRIM) and for each year from 2001 to 2021, these numbers were updated with data obtained in 2022, the 2022 information came from data received in 2023. In most cases, environmental command was explicitly stated in the DHRIM data and in the remainder, the last specified unit was used to assign a command grouping. This method was also used to assign command for the CAF population that was used in calculating rates.

MOSID information for the analysis involving the Army combat arms occupations was obtained directly from DHRIM. Individuals were considered to be employed in an Army combat arms occupation if they had the following MOSIDs: 00005 (CRMN), 00008 (ARTYMN-FD), 00009 (ARTYMN-AD), 00010 (INFMN), 000178

[2] Statistics Canada causes of death mapping between ICD-9 and ICD-10, intent of injury not known maps from ICD-9: E980-E989 to ICD-10: Y10-Y34, Y87.2, as per https://www150.statcan.gc.ca/n1/pub/82-003-x/2013007/article/11852/tbl/appb-eng.htm.

(ARMD), 000179 (ARTY), 000180 (INF), 000181 (ENGR), 00339 (CBT ENGR) and 00368 (ARTYMN) (since 2012).[3]

2.2 Methods

Crude CAF Regular Force male suicide rates were calculated for various periods over 1995 to 2022 and similarly, crude CAF Regular Force female suicide rates were calculated for various periods over 2001 to 2022. For a single year, a crude rate is the total number of events, or count, in that year divided by the mid-year total population and multiplied by 100,000, although a different constant that is a multiple of 10 can be used. As a result, the crude rates within this report are defined as the number per 100,000 population per year but may be calculated over a single year or multiple years, such as a single year rate, a 5-year rate or a10-year rate. Within this report, the rates are largely reported as a number per 100,000 and this is the short form for a number per 100,000 population per year for the specified period. Additionally, the periods for which rates were calculated tended to be broader for Regular force females (i.e., predominantly 10-year periods) relative to Regular Force males (i.e., predominantly 5-year periods) to produce more stable estimates; less stable estimates are ones that can change substantially with the addition or subtraction of a single case, and which result in confidence intervals that are excessively broad. Suicide rates prior to 1995 have not been calculated as the historical method of ascertainment of suicides within the CAF was not well defined for that period.

To separately compare CAF Regular Force male and female suicide rates with the Canadian population (CGP) rates, the indirect method of standardization by age was used to provide Standardized Mortality Ratios (SMRs) for suicides up to 2021. This method controls for the difference in age distribution when comparing between the CAF Regular Force and general Canadian populations, separately for males and females. An SMR is the observed number of cases divided by the number of cases that would be expected in the population at risk based on the age and sex-specific rates of a standard population (the CGP in this case) expressed as a percentage. Therefore, an SMR less than 100% indicates that the population in question has a lower rate than the CGP, while an SMR greater than 100% indicates a higher rate.

SMRs were calculated separately for male and female Regular Force members with and those without a history of deployment, as well as for those in the four environmental command groupings (i.e., Army, Air and Navy or 'Other').

The calculation of confidence intervals (CIs) for statistics from population data are provided in this report for those who may want to generalize or compare the results between years or to other defined populations. Confidence intervals were calculated for the CAF Regular Force suicide rates and SMRs and these were generated as Poisson distribution 95% confidence limits that used the exact method described by Breslow and Day [3].

Confidence intervals are typically used as a measure of uncertainty around a statistical estimate (e.g., a sample mean or mortality rate) when working with samples from a defined population. However, when statistics such as suicide rates are computed from a completely enumerated population, questions of statistical stability are less relevant to these calculated rates, as everybody in the population is counted. Errors associated with the process

[3] Details on the different MOSIDs, including the general duties associated with them, are available at: http://www.forces.gc.ca/en/about-policies-standards-medical-occupations/cf-mosid-task-statements.page.

of data collection, the coding of cause of death, or in the estimation of the population denominators are usually of greater concern. In such situations, the calculated suicide rate and its confidence intervals simply represent a characterisation of the rate's population distribution, and this assumes that it is distributed according to a known theoretical distribution (e.g., Poisson distribution) around the calculated rate (i.e., some individuals who did not die had a non-zero probability of death from suicide). This permits a comparison of one population's rates, and distribution, to those of another population (e.g., populations characterized by year); confidence intervals provide some guidance as to whether the two population estimates are comparable (i.e., when confidence intervals overlap) or different (i.e., when confidence intervals do not overlap) with a certain level of statistical probability. The p=0.05 level is used to determine whether two population distributions are different with statistical significance.

Direct standardization, standardized to the age structure of the total male or female Regular Force population, was also used for two comparisons. To further compare suicide risk between Regular force males or females with a history of deployment versus those without such a history and between members in the Army command versus those in non-Army commands, standardized rate ratios with 95% confidence intervals were computed as outlined in Rothman and Greenland [4].

Because the annual suicide numbers for the Canadian Armed Forces are small, they are influenced by random annual variability. Moving averages, which take an average of the year of interest as well as the previous and following year[4], have been used by others in a similar military suicide context [5]. This method attempts to control the aforementioned annual variability caused by small numbers and provides a snapshot of potential temporal trends in the data.

3. Results

3.1 Results from the Medical Professional Technical Suicide Review Reports, Regular Force Males and Females, 2022 Updates

3.1.1 Mental Health Factors

Males

MPTSRs were completed for all 12 of the 2022 CAF Regular Force male suicides and for 63 of the 66 male suicides over 2018 – 2022. Table 1 provides a summary of the representation of mental health factors among the 12 Regular Force male suicides in 2022 and the 63 over 2018 – 2022 that had a completed MPTSR; however, the description that follows will focus on the data for 2022. Among these 12 male CAF member suicides in 2022, six (50.0%) had at least one of the mental health factors in Table 1 identified as an active issue. The trauma and stress-related disorders mental health factor category was the most frequent, identified in four (33.3%) individuals and among these, one (8.3%) individual had PTSD and three (25.0%) had other disorders in this category. The depressive disorders factor was identified as an active issue at the time of death for three

[4] For example, the three-year moving average value for 2006 would be an average of 2005, 2006 and 2007. For 2002 where there is no prior year, the moving average was based on two years' worth of data (e.g., 2002 = average of 2002 and 2003). For 2021, where there is no subsequent year, the data point is suppressed, as it is not a true moving average.

(25.0%) individuals, an anxiety disorder was identified as an active issue for two (16.7%) individuals, a traumatic brain injury was identified in the past for two (16.7%) individuals, an addictions or substance-use disorder was identified for one (8.3%) individual and no individuals had been identified with a personality disorder. Overall, three (25.0%) individuals had at least two of the mental health factors listed in Table 1 at the time of death. The representation of mental health factors was similar between 2021 and the 5-year 2018 – 2022 period for Regular Force male suicides but the addictions or substance-use disorder factor appeared to be less pronounced in 2022 relative to the 5-year period.

Additionally, there was documented evidence of prior suicidal ideation and/or prior suicide attempts for eight (66.7%) of the Regular Force male suicides in 2022 and this was similar for the 2018 – 2022 period, where 32 (50.8%) individuals had this documented evidence.

The MPTSR does not provide an indication as to whether these mental health concerns were related to operational stress[5]; however, it does attempt to provide an indication as to whether the suicide was related to a deployment and for this query, 'no' or 'unknown' was recorded for all 12 individuals in 2022.

Table 1: Mental Health Factors (Regular Force Males and Females)

Mental health factor		2018-2022 (# (%))[a]		2022 (# (%))[a]	
		Females (Total = 6)	**Males (Total = 63)**	**Females[c] (Total = 1)**	**Males (Total = 12)**
i)	Depressive disorders	2 (33.3%)	25 (39.7%)	-	3 (25.0%)
ii)	Trauma and stress-related disorders:	2 (33.3%)	23 (36.5%)	-	4 (33.3%)
	PTSD	1 (16.7%%)	12 (19.0%)	-	1 (8.3%)
	Other	1 (16.7%)	11 (17.5%)	-	3 (25.0%)
iii)	Anxiety disorders	2 (33.3%)	11 (17.5%)	-	2 (16.7%)
iv)	Addictions or a substance-use disorder	2 (33.3%)	26 (41.3%)	-	1 (8.3%)
v)	Traumatic brain injury (ever)[b]	0 (0%)	11 (17.5%)	-	2 (16.7%)
vi)	Personality disorders (ever identified)[b]	2 (33.3%)	5 (7.9%)	-	0 (0%)

[5] As defined in the Surgeon General's Mental Health Strategy, "*… the term "Operational Stress Injury" (OSI) is not a diagnosis; rather it is a grouping of diagnoses that are related to injuries that occur as a result of operations. The most common OSIs are PTSD, major depression and generalized anxiety. This term has helped break down several barriers to care and reduce the stigma surrounding mental illness.*"

[a] The total does not equal 100% as not all individuals were diagnosed with a mental health factor at time of death, and some individuals had more than one of the mental health factors listed.
[b] Determined to be an active concern if it occurred during an individual's life history.
[c] The total number of individuals were too few to describe.

Females

MPTSRs were completed for all six of the CAF Regular Force female suicides over 2018 – 2022 and Table 1 provides a summary of the representation of mental health factors. Among these female CAF member suicides, five (83.3%) had at least one of the mental health factors in Table 1 identified as an active issue. A depressive disorder, trauma and stress-related disorder, anxiety disorder, addictions or substance use disorder and personality disorder were each identified in two (33.3%) individuals. No individuals were identified with a past traumatic brain injury. Overall, four (66.7%) individuals had at least two of the mental health factors listed in Table 1 at the time of death.

Additionally, there was documented evidence of prior suicidal ideation and/or prior suicide attempts for three (50.0%) of the Regular Force female suicides during 2018 – 2022. The MPTSRs also indicated that all six suicides had either no or an unknown relationship to a past deployment.

3.1.2 Work and Life Stressors

Males

Work and life stressors identified for the Regular Force male suicide deaths in 2022, and the period of 2018 – 2022, are listed in Table 2. In 2022, all 12 (100%) individuals had at least one reported stressor and 10 (83.3%) individuals had two or more. The most prevalent stressor was a job, supervisor or work performance problem, identified in nine (75.0%) individuals, and this was followed by spousal, family or friend death by suicide and a physical health problem, each identified in six (50.0%) individuals. Additionally, all Regular Force males were exposed to the COVID-19 pandemic and as such, this was a common potential stressor in this population but there was no evidence that it contributed to suicide risk. Moreover, during the COVID-19 pandemic the characteristics of those who died by suicide over 2020 to 2022 were comparable to observations from previous years.

In comparing the representation of work and life stressors between 2022 and the 2018 – 2022 period, it was observed to be similar with the exception that job, supervisor or work performance problems were a little more pronounced in 2022 relative to the 5-year period. Over 2018 – 2022, the most prominent stressor was a failed or failing spousal or intimate partner relationship (55.6%), followed by a job, supervisor or work performance problem (46.0%) and a physical health problem (39.7%) but the other stressors had moderately high representations as well, ranging from 12.7% to 31.7%.

In addition to these stressors among Regular Force male suicides in 2022, six (50.0%) individuals had a documented history of being a victim of physical, sexual and/or emotional abuse or assault during their lifetime. There were five (41.7%) individuals who had been experiencing legal, disciplinary or 'other' proceedings prior to their death. There was also one (8.3%) individual who was in the process of being released from the CAF at the time of their death and it was identified as an administrative release.

Table 2: Prevalence of Documented Work and Life Stressors Prior to Suicide (Regular Force Males and Females)

Work and life stressors	2018-2022 (# (%))[a]		2022 (# (%))[a]	
	Females (Total = 6)	Males (Total = 63)	Females[c] (Total = 1)	Males (Total = 12)
Failed or failing spousal or intimate partner relationship	5 (83.3%)	35 (55.6%)	-	5 (41.7%)
Failed or failing other relationship (e.g., family, friends)	1 (16.7%)	15 (23.8%)	-	2 (16.7%)
Spousal, family or friend death by suicide (ever)[b]	1 (16.7%)	20 (31.7%)	-	6 (50.0%)
Family or friend death (other than suicide)	0 (0%)	10 (15.9%)	-	0 (0%)
Physical health problem	2 (33.3%)	25 (39.7%)	-	6 (50.0%)
Chronic illness in spouse or family member	3 (50.0%)	10 (15.9%)	-	3 (25.0%)
Excessive debt, bankruptcy or financial strain	2 (33.3%)	20 (31.7%)	-	3 (25.0%)
Job, supervisor or work performance problem	4 (66.7%)	29 (46.0%)	-	9 (75.0%)
Legal problems (e.g., child custody dispute, litigation)	0 (0%)	8 (12.7%)	-	1 (8.3%)

[a] The total does not equal 100% as some individuals had no indication of the measured stressors and others had more than one.

[b] Determined to be an active concern if it occurred during an individual's life history.

[c] The total number of individuals were too few to describe.

Females

Work and life stressors identified for the Regular Force female suicide deaths during 2018 – 2022 are listed in Table 2. Over this period, five (83.3%) individuals had at least one reported stressor and these five (83.3%) individuals also had two or more stressors. The most prevalent stressor was a failed or failing spousal or intimate partner relationship, identified in five (83.3%) individuals, and this was followed by a job, supervisor or work performance problem, identified in four (66.7%) individuals and a chronic illness in a spouse or family member, identified in three (50.0%) individuals. Additionally, all Regular Force females were exposed to the COVID-19 pandemic and as such, this was a potential stressor in this population but there was no evidence that it contributed to suicide risk. Moreover, during the COVID-19 pandemic the characteristics of those who died by suicide over 2020 to 2022 were comparable to observations from previous years.

In addition to these stressors among Regular Force female suicide deaths over the 2018 – 2022 period, three (50.0%) individuals had a documented history of being a victim of physical, sexual and/or emotional abuse or assault during their lifetime. There was also one (16.7%) individual who had been experiencing legal, disciplinary or 'other' proceedings prior to their death and one (16.7%) individual who was in the process of being released (i.e., a medical release) from the CAF.

3.2 Epidemiology of Suicide in Regular Force Members

3.2.1 Overview

Males

Over the prior five years (2018 – 2022), there were 66 CAF Regular Force male suicide deaths. The characteristics of these 66 suicide deaths are provided in Table 3 along with the suicide rate for each characteristic and to provide a temporal comparison, suicide rates for each characteristic are also provided for 5-year periods (i.e., 2010 – 2014, 2015 – 2019 and 2020 – 2022). Note that the suicide rates account for the relative distribution of the characteristic in the Regular Force male population, allowing one to compare the prominence of a characteristic relative to another among the suicide deaths. For instance, if a rate is higher for one characteristic relative to an opposing characteristic (e.g., one age group versus another) then it suggests that the characteristic with the higher rate is more common among the suicide deaths; however, small differences could be due to chance alone and the underlying suicide risk may be the same for both characteristics. Statistical tests and confidence intervals help guide this judgement and these tests are limited in their ability to identify differences that are real when numbers are low.

The mean age among the male suicide deaths was 35.0 years (95% CI: 33.0, 37.0; median age: 34.5 years) for the 2018 – 2022 period and this compares with a mean of 34.7 years (95% CI: 34.7, 34.7; median age: 33.0 years) among all Regular Force males who were between 15 and 59 years of age over the same period; a difference that was not statistically significant. Additionally, the mean age among the suicide deaths for each 5-year period was similar and the differences between periods were not statistically significant. Although the suicide rate was higher among ages less than 45 years, the confidence intervals overlapped for all age groups which indicates that there were no statistically significant differences in suicide rate by age group. The suicide rate did differ with statistical significance by marital status. For the prior five years (2018 – 2022) and for the 2015- 2019 and 2020 – 2022 periods, the suicide rate was higher with statistical significance among Regular Force males who were separated, divorced or widowed when compared to other marital status categories. Additionally, the suicide rate tended to vary by rank category, highest among the junior non-commissioned (JNCM) ranks for the 2018 – 2022, 2010 – 2014 and 2015 – 2019 periods; however, while the elevated suicide rate among JNCM ranks was not statistically significant relative to the other rank categories, it did just miss being statistically significant relative to officers for the prior 5-year 2018 – 2022 period. Moreover, the suicide rate did not differ substantially, and the differences were not statistically significant, by environmental command or by deployment history for each period assessed; however, it was notable that the suicide rate among the Air Force command was elevated in 2015 – 2019, relative to the prior 2010 – 2014 period, and this increase just missed being statistically significant as indicated by the minimally overlapping confidence intervals. In contrast, the rate of suicide was higher with statistical significance among males who were in the Army combat arms occupations, relative to those in other occupations, but only during the 2010 – 2014 period.

Table 3: Rate of Suicide by various Regular Force Male Characteristics, 2018 to 2022 and over Time[a]

	2010 - 2014	2015 - 2019	2020 - 2022	2018 – 2022 (prior 5yrs)	
	Rate per 10^5 (95% CI)	Rate per 10^5 (95% CI)	Rate per 10^5 (95% CI)	# (%)	Rate per 10^5 (95% CI)
Age					
15-29	27.1 (17.9, 39.6)	28.5 (19.0, 41.4)	21.7 (11.2, 37.9)	19 (28.8%)	19.9 (12.0, 31.0)
30-44	25.4 (17.3, 36.1)	27.9 (19.5, 38.6)	27.0 (17.0, 40.8)	39 (59.1%)	29.0 (20.6, 39.7)
45-59	18.0 (8.6, 33.1)	9.3 (3.0, 21.6)	13.9 (3.8, 35.5)	8 (12.1%)	16.2 (7.0, 31.9)
Mean age (95% CI)	33.3 (31.2, 35.3)	33.1 (31.0, 35.3)	34.0 (31.5, 36.5)		35.0 (33.0, 37.0)
Median age	31	34	33.5		34.5
Marital status					
Married/CL	17.8 (12.0, 25.5)	17.7 (11.8, 25.4)	17.3 (9.9, 28.0)	28 (42.4%)	17.8 (11.8, 25.8)
Single	32.9 (22.2, 47.1)	30.1 (20.5, 42.8)	24.6 (14.1, 39.8)	25 (37.9%)	23.0 (14.9, 34.0)
Separated/ Divorced/ Widowed	54.0 (23.3, 106.5)	64.6 (29.6, 122.7)	79.9 (29.3, 174.2)	13 (19.7%)	101.0 (53.7, 172.8)
Rank					
JNCM	32.7 (24.3, 43.1)	29.3 (21.4, 39.3)	27.9 (18.0, 41.3)	43 (65.2%)	28.2 (20.4, 38.1)
SNCM	15.2 (7.3, 28.0)	21.1 (11.5, 35.5)	29.0 (14.5, 51.9)	17 (25.8%)	26.4 (15.4, 42.3)
Officer	13.7 (5.9, 26.9)	16.3 (7.8, 30.0)	5.3 (0.6, 19.0)	6 (9.1%)	9.6 (3.5, 20.8)
Command					
Army	31.9 (22.3, 44.4)	20.7 (13.0, 31.3)	22.7 (12.4, 38.2)	21 (31.8%)	20.1 (12.4, 30.7)
Air	8.5 (2.8, 19.9)	32.2 (19.4, 50.2)	20.2 (8.1, 41.5)	16 (24.2%)	27.4 (15.6, 44.3)
Navy	22.3 (9.6, 44.0)	11.1 (3.0, 28.3)	27.5 (10.1, 60.0)	8 (12.1%)	22.0 (9.5, 43.3)
Other	27.3 (16.7, 42.0)	30.1 (19.3, 44.5)	23.2 (11.6, 41.5)	21 (31.8%)	26.3 (16.3, 40.2)
Army combat arms					
Yes	43.4 (29.7, 61.4)	35.5 (23.2, 52.2)	21.2 (9.7, 40.3)	15 (22.7%)	20.7 (11.6, 34.2)
No	17.7 (12.4, 24.5)	20.7 (15.0, 27.9)	23.5 (15.8, 33.9)	51 (77.3%)	24.6 (18.3, 32.5)
History of deployment					
Yes	27.0 (19.4, 36.6)	22.8 (15.7, 32.0)	26.4 (16.5, 39.8)	37 (56.1%)	26.3 (18.5, 36.2)
No	21.5 (14.2, 31.4)	26.4 (18.5, 36.5)	19.5 (11.2, 31.6)	29 (43.9%)	20.9 (14.0, 30.2)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards).

Females

Over the prior 10 years (2013 – 2022), there were 11 CAF Regular Force female suicide deaths. The characteristics of these 11 suicides deaths are provided in Table 4 along with the suicide rate for each characteristic and to provide some temporal comparison, suicide rates for each characteristic are also provided for the 2005 – 2011, 2010 – 2019 and 2020 – 2022 periods. As mentioned earlier, the suicide rates account for the relative distribution of the characteristic in the Regular Force female population, identifying situations where a characteristic with a higher rate may be more common among the suicide deaths than would be expected by chance alone; however, statistical tests and confidence intervals help guide this judgement and these tests are limited when numbers are low.

The mean age of the female suicide deaths was 32.9 years (95% CI: 28.1, 37.7; median age: 30.0 years) for the 2013 – 2022 period and this compares with a mean of 35.6 years (95% CI: 35.6, 35.7; median age: 35.0 years) among all Regular Force females who were between 15 and 59 years of age over the same period; a difference that was not statistically significant. Although the suicide rate varied among age groups over the 2013 – 2022 period, tending to be higher among those who were younger than 45 years, the confidence intervals overlapped for all age groups which indicates that there were no statistically significant differences in suicide rate by age group. Additionally, although the suicide rate tended to be higher among Regular Force females who were single, lower in rank, in Army combat arms occupations and those who did not have a history of deployment, the confidence intervals overlapped for all categories of each characteristic, indicating that these differences were not statistically significant. Similarly, there was no discernable pattern in the suicide rate by environmental command and no indication that the suicide rate was higher with statistical significance in one command or another.

Table 4: Rate of Suicide by various Regular Force Female Characteristics, 2013 to 2022 and over Time[a]

	2005 – 2022[b]	2010 - 2019	2020 - 2022	2013 – 2022 (prior 10yrs)	
	Rate per10^5 (95% CI)	Rate per 10^5 (95% CI)	Rate per 10^5 (95% CI)	# (%)	Rate per 10^5 (95% CI)
Age					
15-29	18.0 (8.3, 34.3)	10.8 (2.2, 31.5)	21.4 (2.6, 77.3)	3 (27.3%)	10.4 (2.1, 30.5)
30-44	10.5 (4.8, 19.9)	14.5 (5.8, 29.9)	6.2 (0.2, 34.3)	6 (54.5%)	11.8 (4.3, 25.7)
45-59	7.0 (0.8, 25.3)	5.6 (0.1, 30.9)	17.5 (0.4, 97.6)	2 (18.2%)	10.5 (1.3, 37.9)
Mean age (95% CI)	30.6 (27.4, 33.8)	32.7 (28.6, 36.8)	29.3 (19.6, 38.9)		32.9 (28.1, 37.7)
Median age	30	32	26		30
Marital Status					
Married/CL	7.5 (3.0, 15.4)	5.6 (1.2, 16.3)	11.4 (1.4, 41.2)	5 (45.5%)	8.9 (2.9, 20.7)
Single	20.7 (10.3, 37.0)	19.8 (7.3, 43.2)	18.1 (2.2, 65.5)	6 (54.5%)	18.2 (6.7, 39.8)
Separated/ Divorced/ Widowed	12.4 (1.5, 44.7)	21.0 (2.5, 75.7)	0.0	0 (0%)	0.0
Rank					
JNCM	15.3 (8.2, 26.2)	14.6 (5.9, 30.2)	13.5 (1.6, 48.7)	8 (72.7%)	16.5 (7.1, 32.6)
SNCM	11.0 (3.0, 28.2)	9.4 (1.1, 34.0)	27.8 (3.4, 100.2)	3 (27.3%)	13.2 (2.7, 38.6)
Officer	6.9 (1.4, 20.3)	8.0 (1.0, 28.9)	0.0	0 (0%)	0.0
Command					
Army	13.1 (4.2, 30.5)	13.4 (2.8, 39.3)	13.9 (0.4, 77.5)	3 (27.3%)	13.1 (2.7, 38.2)
Air	9.1 (1.9, 26.5)	16.3 (3.4, 47.5)	0.0	2 (18.2%)	10.7 (1.3, 38.5)
Navy	5.4 (0.1, 30.3)	0.0	0.0	0 (0%)	0.0
Other	14.7 (7.4, 26.4)	11.6 (3.8, 27.1)	20.5 (4.2, 60.0)	6 (54.5%)	13.0 (4.8, 28.4)
Army combat arms					
Yes	30.5 (3.7, 110.1)	54.4 (6.6, 196.4)	0.0	1 (9.1%)	23.7 (0.6, 132.2)
No	11.4 (6.8, 18.0)	10.0 (4.6, 18.9)	13.4 (3.7, 34.4)	10 (90.9%)	10.6 (5.1, 19.5)

History of deployment					
Yes	8.1 (2.6, 18.9)	8.0 (1.6, 23.3)	8.6 (0.2, 47.9)	2 (18.2%)	5.2 (0.6, 18.8)
No	14.6 (8.2, 24.1)	14.2 (6.1, 27.9)	15.3 (3.1, 44.5)	9 (81.8%)	15.0 (6.9, 28.4)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards).

[b] The year 2005 – 2022 was included for comparative purposes because of the small numbers for some characteristics.

3.2.2 Rate Comparisons

Males

The annual number of male Regular Force suicide deaths between 1995 and 2022, inclusive, are captured in Table 5, as are the corresponding 5-year crude rates. The differences among the consecutive 5-year crude CAF Regular Force male suicide rates over 1995 to 2022 were not statistically significant but they did range from a low of 19.9 per 100,000 population for the 1995 – 1999 period to a high of 24.5 per 100,000 in the more recent 2010 – 2014 and 2015 – 2019 periods. The three-year crude rate for 2020 – 2022, the most recent period, was 23.0 per 100,000 population (95% CI: 16.2, 31.5) and it was not a statistically significant change from any of the prior 5-year rates. Moreover, the confidence intervals for all 5-year time periods and the recent three-year period have substantial overlap, which suggests that the period differences were not statistically significant.

Table 5: CAF Regular Force Male Multiyear Suicide Rates (1995 – 2022)[a]

Year	Number of CAF Regular Force Male Person-Years[6]	Number of CAF Regular Force Male Suicides	CAF Regular Force Male Suicide Rate per 10^5 (95% CI)
1995	62 255	12	
1996	57 323	8	
1997	54 982	13	
1998	54 284	13	
1999	52 689	10	
1995 – 1999	**281 533**	**56**	**19.9 (15.1, 26.0)**
2000	51 537	12	
2001	45 649	10	
2002	47 285	9	
2003	48 431	9	
2004	48 189	10	
2000 – 2004	**241 091**	**50**	**20.7 (15.4, 27.4)**

[6] Person time is defined as "*a measurement combining person and time as the denominator in incidence and mortality rates when, for varying periods, individual subjects are at risk of developing disease or dying. It is the sum of the periods of time at risk for each of the subjects.* ***The most widely used measure is person-years,***" (emphasis added) [6].

Year	Number of CAF Regular Force Male Person-Years[6]	Number of CAF Regular Force Male Suicides	CAF Regular Force Male Suicide Rate per 10^5 (95% CI)
2005	48 491	10	
2006	49 425	7	
2007	51 101	9	
2008	51 861	13	
2009	53 575	12	
2005 – 2009	**254 453**	**51**	**20.0 (14.9, 26.4)**
2010	55 608	12	
2011	55 513	21	
2012	55 520	10	
2013	55 570	9	
2014	55 157	16	
2010 – 2014	**277 212**	**68**	**24.5 (19.2, 31.3)**
2015	55 225	14	
2016	55 884	14	
2017	56 278	13	
2018	56 813	13	
2019	57 018	15	
2015 – 2019	**281 218**	**69**	**24.5 (19.2, 31.2)**
2020	57 168	12	
2021	54 589	14	
2022	53 806	12	
2020 – 2022	**165 563**	38	**23.0 (16.2, 31.5)**

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards).

An SMR comparison of suicide rates among Regular Force males relative to their civilian counterparts is presented in Figure 1 and Table 6 for consecutive 5-year periods over 1995 to 2021. The SMRs for the periods of 1995 – 1999, 2000 – 2004 and 2005 – 2009 show the Regular Force male population as having a lower suicide rate relative to the male Canadian general population (CGP), after adjusting for population age differences; however, the difference was only statistically significant for the 1995 – 1999 period. The 1995 – 1999 period SMR of 72% indicates that the Regular Force male population had a suicide rate that was 28% lower relative to the CGP rate as the confidence interval did not include 100%. For the periods assessed after 2005 – 2009, there has been a consistent tendency for the SMRs to be above 100%, even though these were all not statistically significant as the confidence intervals for each of these SMRs included 100%. The most recent SMR was only able to be computed with two years of data (i.e., 2020 and 2021) and although elevated, it was also not statistically significant. This increasing SMR tendency will be monitored.

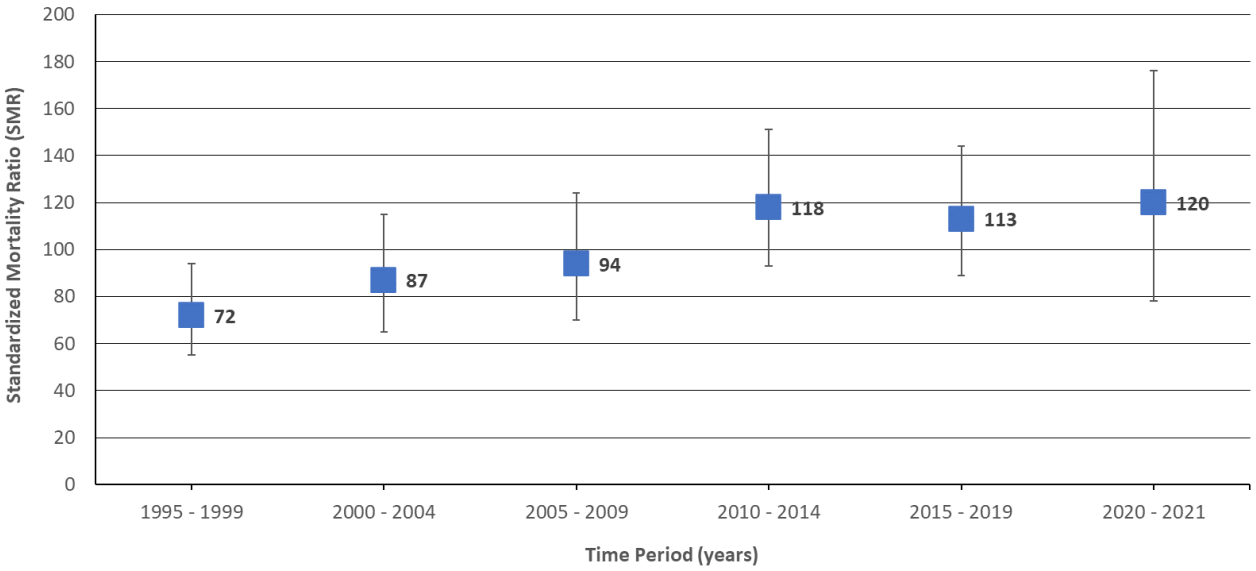

Figure 1: Comparison of CAF Regular Force Male Suicide Rates to Canadian Male Rates Using Standardized Mortality Ratios (SMRs) and 95% Confidence Intervals for Consecutive 5-year Periods over 1995 – 2021.

Table 6: Comparison of CAF Regular Force Male Suicide Rates to Canadian Male Rates Using Standardized Mortality Ratios (SMRs) (1995 – 2021)[a]

Year	SMR for Suicide (95% Confidence Intervals)
1995 – 1999	72% (55, 94)[†]
2000 – 2004	87% (65, 115)
2005 – 2009	94% (70, 124)
2010 – 2014	118% (93, 151)
2015 – 2019	113% (89, 144)
2020 – 2021	120% (78, 176)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards) and Statistics Canada's reported vital statistics and Canadian male population estimates (2000 onwards).

[†] Statistically significant.

An additional analysis was implemented to compare SMRs computed separately for members with a history of deployment and those without a history of deployment, individually comparing their suicide risk to the risk in the Canadian male population, and this is presented in Table 7. For the initial two periods assessed, 1995 – 1999 and 2000 – 2004, the SMRs were very similar between those with a history of deployment and those without this experience and as each SMR confidence interval included 100%, suicide risk differences relative to the risk in Canadian male population were not statistically significant. The following two 5-year periods, 2005 – 2009 and 2010 – 2014, resulted in SMRs for those with deployments that were above 100% and higher relative to those without deployments but for each period, the suicide risk differences relative to the Canadian male population were not statistically significant. The 2015 – 2019 period indicated a bit of a reversal, as the higher SMR was observed in those without a deployment history but again, the suicide risk differences relative to the Canadian male population were not statistically significant. Additionally, the most recent SMRs, which were only computed with two years of data (i.e., 2020 and 2021), suggested that, once again, the SMR was higher among individuals with a history of deployments, but the suicide risk differences relative to the Canadian male population were not statistically significant.

Table 7: Standardized Mortality Ratios for Suicide in the CAF Regular Force Male Population by History of Deployment (1995 – 2021)[a]

Year	SMR (95% CI) for those With a History of Deployment	SMR (95% CI) for those Without a History of Deployment
1995 – 1999	68% (42, 105)	74% (52, 103)
2000 – 2004	90% (59, 134)	84% (54, 124)
2005 – 2009	105% (70, 151)	82% (52, 124)
2010 – 2014	125% (89, 169)	110% (72, 160)
2015 – 2019	101% (70, 142)	127% (89, 176)
2020 – 2021	141% (81, 228)	97% (46, 178)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards) and Statistics Canada's reported vital statistics and Canadian male population estimates (2000 onwards).

[†] Statistically significant.

An analysis comparing the same groups but using a statistically different method (i.e., direct standardization), a method which also adjusts for age distribution differences between groups, is presented in Table 8 and it also failed to identify a statistically significant relationship between those with a history of deployment versus those without such a history. However, the observations for the three-year 2020 – 2022 period suggested a possibly elevated risk of suicide among Regular Force males who had past deployments when compared to those without this history, a difference that was not statistically significant. Although not statistically significant, this apparent change was attributed to a decrease in the suicide rate among those without a history of deployment relative to the rate observed in the prior 2015 – 2019 period, a change that caused the rate among those with a deployment history to appear elevated in comparison. It is important to note that this observation was for only three years of data and

age-adjusted comparisons to the Canadian population were not yet possible. A comparison of the 10-year directly standardized rates by deployment history for the 1995 – 2004 and 2005 – 2014 periods, as well as the eight-year 2015 – 2022 period rate, all appeared to be statistically non-significant, with age-standardized suicide rate ratios of 1.04 (95% CI: 0.70, 1.55), 1.44 (95% CI: 0.96, 2.15) and 0.95 (95% CI: 0.62, 1.44), respectively. However, the rate ratio for the 2005 – 2014 period, which indicated a higher rate among those with a history of deployment, was close to being statistically significant.

Table 8: Comparison of CAF Regular Force Male 5-Year Suicide Rates by Deployment History Using Direct Standardization (1995 – 2022)[a]

Year	History of Deployment (Rate per 10^5)	No History of Deployment (Rate per 10^5)	Suicide Rate Ratio (95% CI)
1995 – 1999	19.83	19.90	1.00 (0.57, 1.75)
2000 – 2004	21.00	19.00	1.11 (0.62, 1.96)
2005 – 2009	26.53	17.85	1.49 (0.80, 2.76)
2010 – 2014	26.30	18.50	1.42 (0.84, 2.40)
2015 – 2019	22.27	27.48	0.81 (0.48, 1.36)
2020 – 2022	22.13	17.10	1.29 (0.64, 2.62)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards).

Females

The annual number of female Regular Force suicide deaths between 2001 and 2022, inclusive, are captured in Table 9, as are the corresponding 5-year crude rates. Note that there were no suicide deaths reported among Regular Force females from 1995 to 2002. The differences among the consecutive 5-year crude CAF Regular Force female suicide rates over 2005 to 2022 were not statistically significant but they did vary from a low of 8.2 per 100,000 population (95% CI: 2.2, 20.9) in the 2015 – 2019 period to a high of 15.5 per 100,000 (95% CI: 6.2, 32.0) in the 2010 – 2014 period. Note that the crude rate over the four-year 2001 – 2004 period was 7.8 per 100,000 population. The three-year crude rate for 2020 – 2022, the most recent period, was 12.8 per 100,000 population (95% CI: 3.5, 32.7) and it was not a statistically significant change from any of the prior 5-year rates. Moreover, all 5-year, and the recent three-year, rates were similar except for the dip over 2015 – 2019 and their confidence intervals for all periods have substantial overlap, suggesting that the period differences were not statistically significant. However, the confidence intervals were all broad and this occurs when suicide numbers are low for a given period (i.e., a small change in suicide deaths for a period can change the rate, and relative rate, substantially and the associated power to detect real differences is reduced), which warrants some caution in definitively stating whether a difference is not statistically significant. As a result, some of the reported statistics that follow will be reported for 10-year periods.

Table 9: CAF Regular Force Female Multiyear Suicide Rates (2001 – 2022)[a,b]

Year[b]	Number of CAF Regular Force Female Person-	Number of CAF Regular Force Female Suicides	CAF Regular Force Female Suicide Rate per 10^5 (95% CI)
2001	5874	0	
2002	6330	0	
2003	6676	2	
2004	6799	0	
2001 – 2004	**25 679**	**2**	**7.8 (0.9, 28.1)**
2005	7026	0	
2006	7378	1	
2007	7864	1	
2008	8168	1	
2009	8578	2	
2005 – 2009	**39 014**	**5**	**12.8 (4.2, 29.9)**
2010	8874	0	
2011	8850	1	
2012	8915	3	
2013	9182	1	
2014	9208	2	
2010 – 2014	**45 029**	**7**	**15.5 (6.2, 32.0)**
2015	9295	1	
2016	9452	1	
2017	9705	0	
2018	10 102	0	
2019	10 392	2	
2015 – 2019	**48 946**	**4**	**8.2 (2.2, 20.9)**
2020	10 647	2	
2021	10 386	1	
2022	10 250	1	
2020 – 2022	**31 283**	**4**	**12.8 (3.5, 32.7)**

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards).

[b] There were no reported suicides among Regular Force females from 1995 to 2002.

[7] Person time is defined as "*a measurement combining person and time as the denominator in incidence and mortality rates when, for varying periods, individual subjects are at risk of developing disease or dying. It is the sum of the periods of time at risk for each of the subjects.* ***The most widely used measure is person-years,***" (emphasis added) [6].

An SMR comparison of suicide rates among Regular Force females to their civilian counterparts is presented in Figure 2 and Table 10 for consecutive periods over 2001 to 2021. The data for the full 2001 – 2021 period (SMR: 172%; [95% CI: 106, 263]) indicated that the CAF Regular Force female population had a suicide rate that was 72% higher relative to the Canadian female population, after adjusting for age differences, and this SMR was statistically significant as the confidence interval did not include 100%. Shorter periods within the 2001 – 2021 timeframe were assessed, and this provides an indication whether there was some fluctuation in the SMR over time. The 10-year period SMR for 2005 – 2014 was 215% and it was statistically significant, indicating that the suicide risk among Regular Force females was higher than the risk in the Canadian female population for that time frame. However, this statistically significant SMR was largely attributable to the higher than usual three female suicide deaths that occurred in 2012 (see Table 9). For the more recent 2015 – 2021 period (seven years), the SMR was 141% and although it suggests that the Regular Force female suicide rate was still elevated relative to the female Canadian general population, it was not a statistically significant difference.

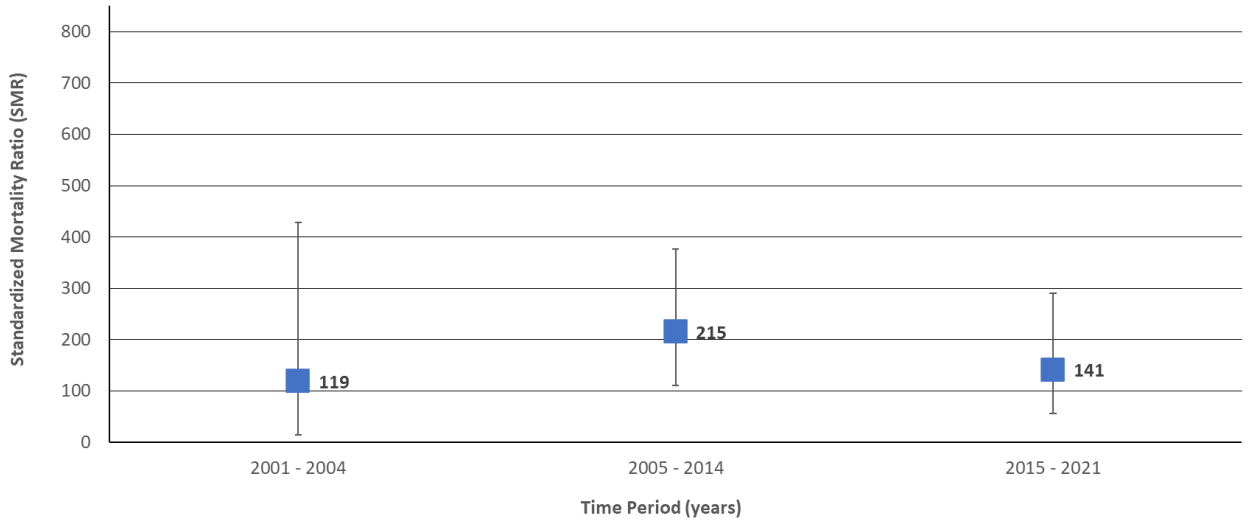

Figure 2: Comparison of CAF Regular Force Female Suicide Rates to Canadian Female Rates Using Standardized Mortality Ratios (SMRs) and 95% Confidence Intervals for Consecutive Periods over 2001 – 2021.

Table 10: Comparison of CAF Regular Force Female Suicide Rates to Canadian Female Rates Using Standardized Mortality Ratios (SMRs) (2001 – 2021)[a]

Year	SMR for Suicide (95% Confidence Intervals)
2001 – 2004[b]	119% (14, 428)
2005 – 2014	215% (111, 377)[†]
2015 – 2021[b]	141% (56, 290)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards) and Statistics Canada's reported vital statistics and Canadian male population estimates (2000 onwards).

[b] Based on less than 10 years of observations (10-year intervals were preferred)

[†] Statistically significant.

Among the Regular Force female suicides there weren't many with a history of deployment; six individuals over the 2001 – 2022 period had this experience (crude rate: 8.7/100,000; [95% CI: 3.2, 19.0]) compared with 16 who did not (crude rate: 13.2/ 100,000 [95% CI: 7.6, 21.4]) and their confidence intervals overlapped substantially, which indicates that the differences were not statistically significant. SMRs were computed separately for members with a history of deployment as well as those without a history of deployment, individually comparing their suicide risk to the risk in the Canadian female population, and these are presented in Table 11. The data for the full 2001 – 2021 period indicated that the Regular Force female suicide rate, relative to the Canadian female population and adjusting for age differences, was elevated in both those with a deployment history and those without this experience but it was only statistically significant among those without a deployment history. The 2001 – 2021 SMR was 131% (95%CI: 48, 285) among those with a history of deployment, compared with 197% (95%CI: 110, 325) among those without a history of deployment. The results of the 10-year 2005 – 2014 period SMRs were similar to what was observe for the full 2001 – 2021 period, where the SMRs were above 100% both for those with and for those without a history of deployment but only statistically significant for those without this experience. Similarly, the more recent 2015 – 2021 period SMRs (i.e., seven years) were somewhat reflective of what was found for the full 2001 – 2021 period but the number of Regular Force female suicides with a deployment history included only one individual for this shorter timeframe. Moreover, these findings largely follow the earlier observation that overall, Regular Force females had a higher suicide rate relative to the Canadian female population for the 2005 – 2014 period (see Figure 2 and Table 10) and suggests no difference in suicide rate between those with and those without a deployment history; however, the number of Regular Force female suicides with a history of deployment was low, and while this in itself suggests a lower associated suicide risk, the small numbers limit the ability to make definitive judgements.

Table 11: Standardized Mortality Ratios for Suicide in the CAF Regular Force Female Population by History of Deployment (2001 – 2021)[a]

Year	SMR (95% CI) for those With a History of Deployment	SMR (95% CI) for those Without a History of Deployment
2001 – 2004[b]	201% (5, 1119)	84% (2, 467)
2005 – 2014	187% (51, 479)	233% (100, 459) †
2015 – 2021[b]	52% (1, 289)	197% (72, 430)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards) and Statistics Canada's reported vital statistics and Canadian male population estimates (2000 onwards).

[b] Based on less than 10 years of observations (10-year intervals were preferred)

† Statistically significant.

An analysis comparing the same groups but using a statistically different method (i.e., direct standardization), a method which also adjusts for age distribution differences between the groups, is presented in Table 12 and it also failed to identify a statistically significant relationship between those with a history of deployment versus those without such a history for any of the periods identified in the table. Moreover, the four-year period of 2001 – 2004 suggests an elevated rate among those with a history of deployment but the numbers are too low to validly compare statistically. Overall, the 2001 – 2022 period directly standardized rates were 8.29 and 11.67 for those with and those without a history of deployment, respectively, and the age-standardized suicide rate ratio was 0.71 (95% CI: 0.27, 1.87), which was not statistically significant. Additionally, the directly standardized rates for the 10-year 2003 – 2012 and 2013 – 2022 periods were both also not statistically significant, with age-standardized suicide rate ratios of 1.33 (95% CI: 0.38, 4.62) and 0.26 (95% CI: 0.05, 1.20), respectively.

Table 12: Comparison of CAF Regular Force Female 10-Year Suicide Rates by Deployment History Using Direct Standardization (2001 – 2022)[a]

Year	History of Deployment (Rate per 10^5)	No History of Deployment (Rate per 10^5)	Suicide Rate Ratio (95% CI)
2001 – 2004[b]	15.91	4.24	3.75 (0.23, 59.92)
2005 – 2014	11.28	12.65	0.89 (0.27, 2.98)
2015 – 2022[b]	2.16	13.82	0.16 (0.02, 1.28)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards).

[b] Based on less than 10 years of observations (10-year intervals were preferred)

3.3 Epidemiology of Suicide in Regular Force Members, by Environmental Command

Males

Over the past 21 years (2002 – 2022), there were 106 deaths by suicide among the Regular Force males within the Army command and 148 within the other commands combined (Navy, Air Force and Other). The crude Army suicide rate was 24.6 per 100,000 population (95% CI: 20.2, 29.9) compared to 21.4 per 100,000 population (95% CI: 18.2, 25.2) for the non-Army rate. The confidence intervals for these two command rates (i.e., Army and non-Army) did overlap, indicating that there was not a statistically significant difference between the two groups. The age-adjusted, directly standardized, rates (Army: 23.9/ 100,000 [95% CI: 19.3, 28.6]; non-Army: 21.8/ 100,000 [95% CI: 18.2, 25.3]) were very similar to the crude rates. Additionally, the age-standardized suicide rate ratio was not statistically significant (1.10 [95% CI: 0.85, 1.42]), indicating that the age-standardized suicide rate among Regular force males in the Army could not be considered different with statistical significance from the rate in the non-Army commands.

SMRs (i.e., comparisons with the CGP) were calculated for each command grouping and 5-year period over the 2002 to 2021 timeframe (Table 13). The SMRs for the Army command in the periods from 2007 onwards were all above 100% but none were statistically significant and in the most recent period (i.e., 2017 – 2021), the SMR is more comparable to what is observed among all commands. In contrast, during this more recent period of 2017 – 2021, the SMR for the Air Force command group was somewhat elevated above 100%, an observation that was unexpected as the SMR was below 100% for the prior three periods; however, this most recent SMR was not statistically significant. All other SMRs were not statistically significant, indicating that the suicide rate for each command and period could not be considered different to the suicide rate in the Canadian male population after adjusting for age differences.

Table 13: Standardized Mortality Ratios for Suicide in CAF Regular Force Males by Environmental Command (2002 – 2021)[a]

Environmental Command	SMR for Suicide (95% Confidence Intervals), 2002 – 2006	SMR for Suicide (95% Confidence Intervals), 2007 – 2011	SMR for Suicide (95% Confidence Intervals), 2012 – 2016	SMR for Suicide (95% Confidence Intervals), 2017-2021
Army	98% (60, 151)	141% (95, 202)	133% (88, 192)	109% (70, 161)
Air Force	69% (31, 130)	79% (38, 145)	74% (34, 140)	135% (79, 216)
Navy/Other	76% (43, 123)	122% (80, 178)	109% (71, 160)	104% (68, 153)
All Commands	82% (60, 111)	119% (93, 152)	110% (85, 142)	112% (88, 144)

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards) and Statistics Canada's reported vital statistics and Canadian male population estimates (2000 onwards).

[†] Statistically significant.

The suicide rate in Army combat arms occupations in the Regular Force male population was also calculated. Between 2002 and 2022, there were a total of 91 suicides among Regular Force males who had an Army combat arms MOSID relative to 163 suicides among those with other MOSID designations. The suicide rate in the Regular Force male population who were in an Army combat arms occupation appeared to be higher than the overall suicide rate among Regular Force males who were in other occupational groups. The crude suicide rates for the 2002 – 2022 period were 31.0 per 100,000 population (95% CI: 25.1, 38.4) in the Army combat arms occupation versus 19.7 per 100,000 population (95% CI: 16.8, 22.9) for those in other occupations (Figure 3). As the confidence intervals between the two rates did not overlap, the difference appears to be statistically significant, indicating an increased risk of suicide in Regular Force males in the Army combat arms relative to those in other occupations. Moreover, when looking at the recent 10-year period of 2012 – 2022, the observations were very similar. For this 10-year period, the crude suicide rates were 34.0 per 100,000 population (95% CI: 25.6, 44.6) in the Army combat arms occupation versus 19.4 per 100,000 population (95% CI: 15.6, 24.1) for those in other occupations and as the confidence intervals did not overlap, the difference appears to also be statistically significant. However, a look at crude rates in shorter intervals (i.e., mainly 5-year intervals) over 2010 to 2022 (see Table 3) suggested that while the suicide rate difference between Regular Force males in Army combat arms relative to those in other occupations was high and statistically significant in 2010 – 2014, the difference had begun to decrease in 2015 – 2019 and then decreased further afterwards; furthermore, from 2015 onwards, the difference had become not statistically significant.

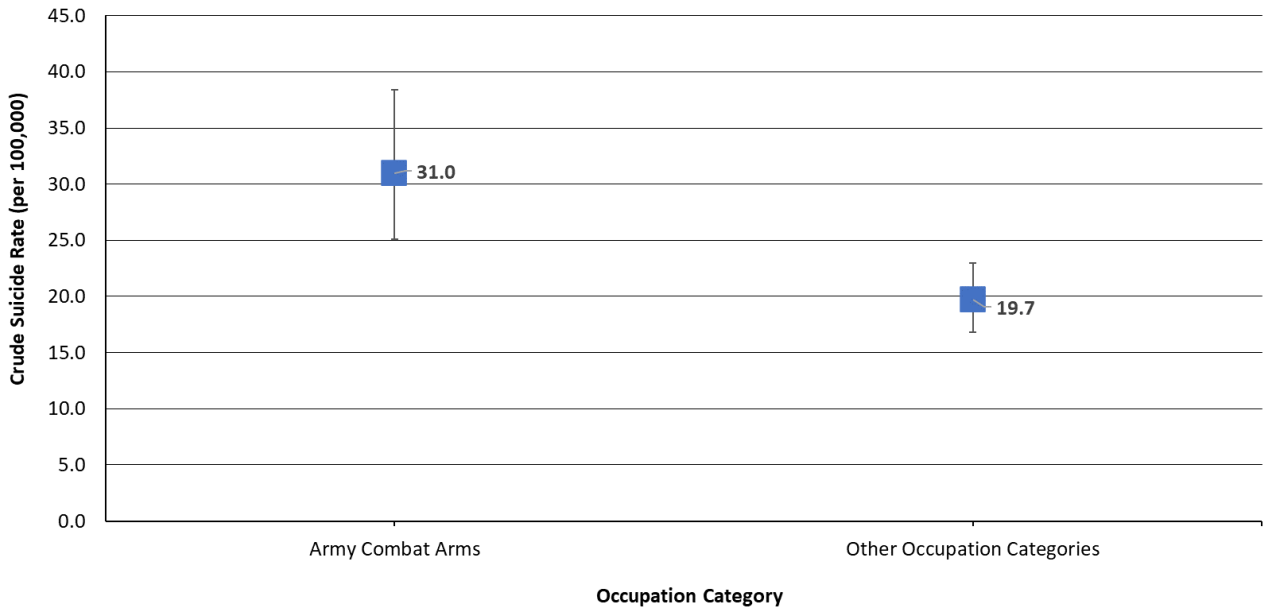

Figure 3: Crude suicide rates and 95% Confidence Intervals for Regular Force Males by Occupational Category (Army Combat Arms and Other Categories), 2002 – 2022.

Figure 4 presents the three-year suicide rate moving average trend (i.e., suicide rates computed for consecutive three-year periods that are incremented one year at a time) line for Army command only (represented by the diamond markers) and for the non-Army commands (represented by the square markers). These moving average lines are not statistical tests, but they provide some indication of how suicide rates, and possibly suicide risks, have fluctuated some over time for the different commands. Note that the three-year moving average rates are reported against the middle year (e.g., the rates for 2020, 2021 and 2022 are incorporated into the moving average reported against 2021). This figure illustrates that the suicide rate among the Army command had been slightly higher than the rate among all other commands combined for the period up until 2007; however, in a period that appears to have begun in 2008, the suicide rate moving average exhibited a pronounced increase among the Army command, becoming elevated relative to the other commands. The magnitude of this elevated Army suicide rate appears to have shifted post-2012, slowly becoming more comparable with the suicide rate moving average among the non-Army commands. In comparison, between 2010 and 2013 the non-Army suicide rate moving average appeared to be decreasing, but subsequently returned to pre-2010 levels and appears to have stabilized a little above those pre-2010 levels. Since 2012, the differential in suicide rate moving averages between the Army and non-Army commands had been declining and in recent years (i.e., 2015 onwards), they have become more comparable. Although the exact attribution for this decline is unknown, the CAF has a comprehensive suicide prevention strategy, programs that aim to reduce the stigma of seeking mental health care and increase both mental health education and resilience, and improved chain of command awareness of suicide risk and mental health. These initiatives may have contributed to this declining trend.

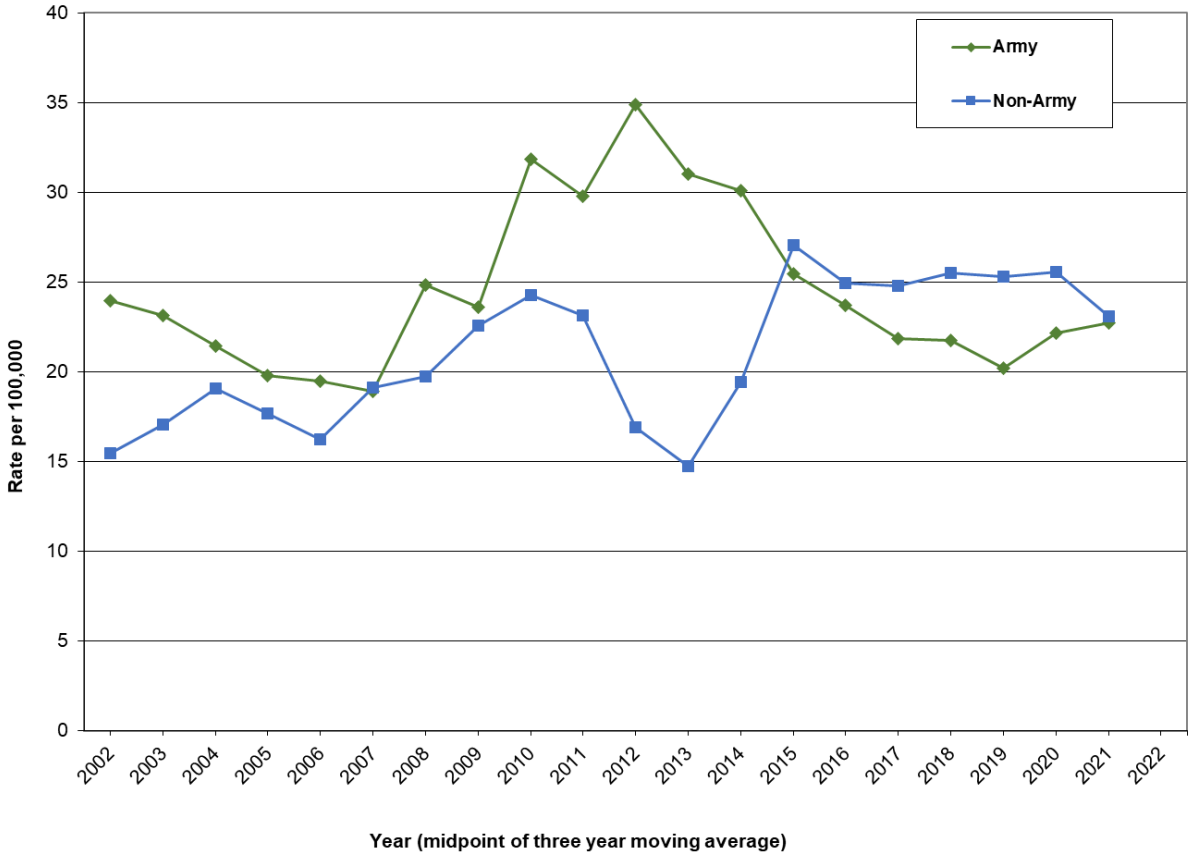

Figure 4: Three-Year Moving Averages for Regular Force Males by Command, Canadian Armed Forces, 2002 – 2022.

Females

Over the past 21 years (2002 – 2022), there were six deaths by suicide among the Regular Force females within the Army command and 16 within the other commands combined (Navy, Air Force and Other). The crude Army suicide rate was 14.1 per 100,000 population (95% CI: 5.2, 30.7) compared to 11.3 per 100,000 population (95% CI: 6.5, 18.3) for the non-Army rate. The confidence intervals for these two command rates (i.e., Army and non-Army) overlap, indicating that there was not a statistically significant difference between the two groups. The age-adjusted, directly standardized, rates (Army: 16.3/ 100,000 [95% CI: 2.2, 30.3]; non-Army: 11.4/ 100,000 [95% CI: 5.8, 17.0]) were similar to the crude rates and also exhibited overlapping confidence intervals, which suggest that the differences were not statistically significant. Additionally, the age-standardized suicide rate ratio was not statistically significant (1.43 [95% CI: 0.53, 3.85]), indicating that the age-standardized suicide rate among Regular force females in the Army could not be considered different with statistical significance from the rate in the non-Army commands.

SMRs were calculated for each command grouping and 10-year period over the 2002 to 2021 timeframe, including the full 2002 – 2021 period (Table 14). All SMRs were above 100% and within each period, the SMRs were

moderately comparable. Only the SMRs for the grouped 'all commands' category over the 2012 – 2021 period, and the aggregated 2002 – 2021 period, were statistically significant. However, the suicide numbers were low when divided among each period and command combination, which provides low power to detect differences that may be present. Additionally, the statistically significant 'all commands' category is simply an SMR comparison between Regular Force females and the Canadian female population that was already identified as statistically significant for periods that included the 2012 year, a year that included a higher than usual three female suicide deaths (see Table 9). Thus, it suggests little difference in suicide rate among the commands but as already indicated, an elevated suicide rate in Regular Force females relative to the Canadian female population for periods that include the 2012 year, after adjusting for age differences.

Table 14: Standardized Mortality Ratios for Suicide in CAF Regular Force Females by Environmental Command (2002 – 2021)[a]

Environmental Command	SMR for Suicide (95% Confidence Interval), 2002 – 2011	SMR for Suicide (95% Confidence Interval), 2012 – 2021	SMR for Suicide (95% Confidence Interval), 2002 – 2021
Army	178% (21, 641)	189% (39, 551)	185% (60, 430)
Air Force	174% (21, 627)	153% (19, 553)	164% (45, 419)
Navy/Other	147% (40, 376)	202% (87, 398)	179% (93, 314)
All Commands	160% (69, 315)	190% (101, 324) †	177% (110, 271) †

[a] Some estimates may have changed slightly compared to previous reports due to updates implemented for CAF data (2001, 2002 and 2010 onwards) and Statistics Canada's reported vital statistics and Canadian male population estimates (2000 onwards).
† Statistically significant.

The suicide rate in Army combat arms occupations in the Regular Force female population was calculated. Between 2002 and 2022, there were two suicides in Regular Force females with an Army combat arms MOSID relative to 20 suicides among Regular Force females with other MOSID designations. The crude suicide rate in the Regular Force female population who were in an Army combat arms occupation over the 2002 – 2022 period was 27.6 per 100,000 population (95% CI: 3.3, 99.6), which is higher than the rate of 11.3 per 100,000 population (95% CI: 6.9, 17.4) for those in other occupations but this difference was not statistically significant (Figure 5). Moreover, when looking at the more recent 10-year period of 2012 – 2022, the observations were a little different. For this recent period, the crude suicide rates were 43.9 per 100,000 population (95% CI: 5.3, 158.5) in the Army combat arms occupation versus 11.7 per 100,000 population (95% CI: 6.0, 20.4) for those in other occupations and the difference was also not statistically significant. For both time periods, the confidence intervals for the rates in the Army combat arms and other occupation group overlapped substantially and as such, it is not possible to say that the suicide rates were statistically significant even though the rate differences were somewhat large; however, the numbers being compared are low and this influences the power to detect differences that may be real. The two suicides from the Army combat arms occupation group occurred during the 2010 – 2014 period and, with zero suicides in this occupation group outside this period, it suggests that the suicide rate was elevated in this occupation group but only during this 2010 – 2014 period; however, the statistical comparisons cannot provide a definitive judgement because of the low numbers being compared.

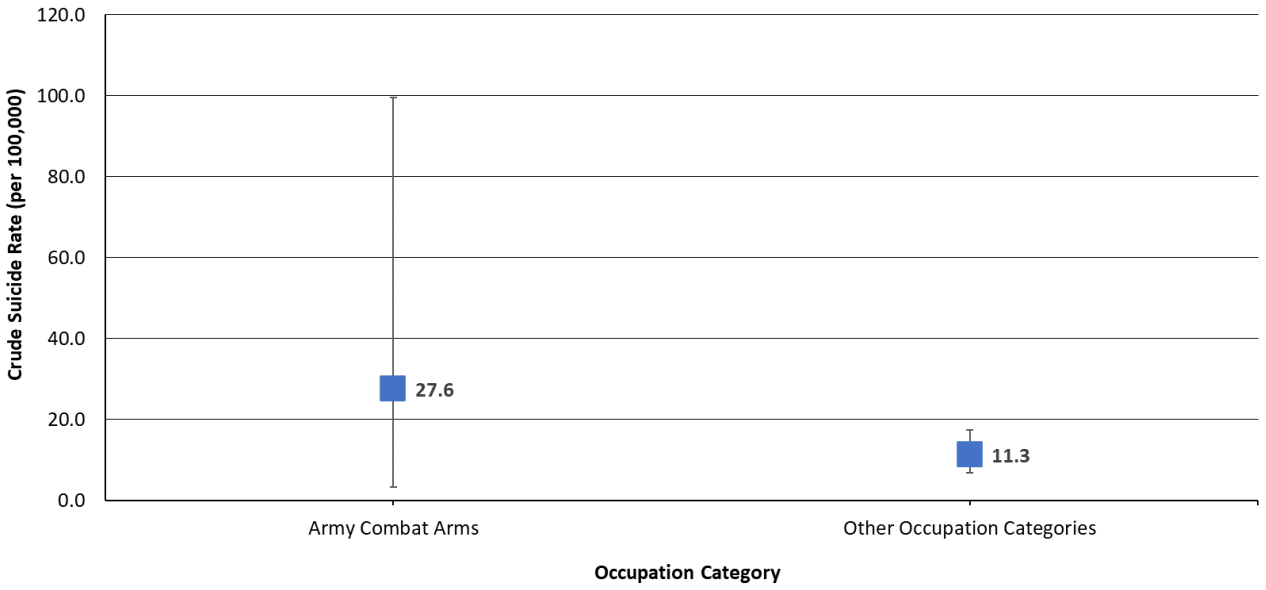

Figure 5: Crude suicide rates and 95% Confidence Intervals for Regular Force Females by Occupational Category (Army Combat Arms and Other Categories), 2002 – 2022.

Figure 6 presents the 5-year suicide rate moving average trend lines for Army command only (represented by the diamond markers) and for the non-Army commands (represented by the square markers). As mentioned earlier, these moving average lines are not statistical tests, but they provide some indication of how suicide rates, and possibly suicide risks, have fluctuated some over time for the different commands. Also, note that the 5-year moving average rates are reported against the middle year (e.g., the rates for 2017, 2018, 2019, 2020 and 2021 are incorporated into the moving average reported against 2019). Over the 2002 – 2022 period, there were six Regular Force female suicides among the Army command compared with 16 among the non-Army commands. The six Army command suicides occurred over 2003 to 2014 and 2022. Three of the six occurred over 2010 – 2014, as illustrated by a peak in the trend line for this period. The figure suggests that the suicide rate moving average among females in the Army command had been elevated relative to the non-Army commands for two periods (i.e., approximately, 2003 – 2005 and 2011 – 2015) and comparable or non-existent afterwards. Notably, the 2011 – 2015 elevated rate among females roughly reflects the elevated rate among males in the Army command for the same period (see Figure 4). In comparison, the suicide rate moving average among the non-Army commands appeared to rise after 2006 and then changed to a decline in 2015 and 2016, after which there was a slight rise that becomes stable in the most recent period. The slight elevation in the suicide rate moving average among the non-Army command in the more recent years relative to the Army command is something that will need to be monitored. Moreover, the low suicide rate moving average trend among Regular Force females in the Army command is welcomed but its attribution is unknown.

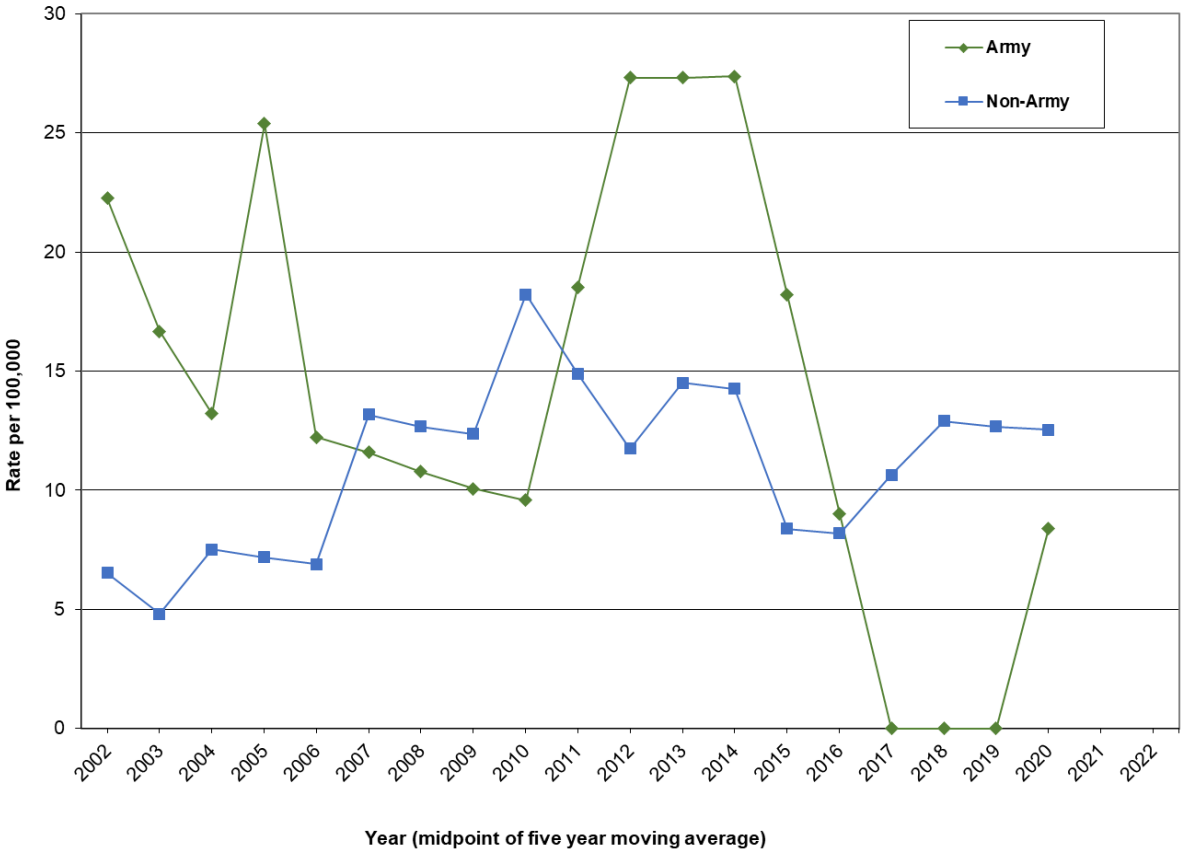

Figure 6: Five-Year Moving Averages for Regular Force Females by Command, Canadian Armed Forces, 2002 – 2022.

4. Data Limitations

1) The numbers on which these analyses were based are small and vary from year-to-year; consequently, these findings must be interpreted with caution.

2) Female suicide numbers were low, ranging between zero and two events per year, and as such, definitive conclusions often can't be fully drawn when conducting comparative and trend analyses.

3) An individual's last known unit in the human resources database was used to categorize environmental command. It does not evaluate the amount of time an individual was in the environmental command, or whether they had just recently been posted to that command.

4) The data for this study were taken from the DHRIM system and to some degree, Statistics Canada both of which receive periodic updates and data cleaning. Consequently, the data and computed rates may vary from one report to another depending on when data were retrieved.

5) The MPTSR data provided a summary of the mental health factors and stressors that were experienced by those who died by suicide, but similar information among the underlying population was unavailable. Without this information among the underlying population, it was not possible to identify the relative importance of these factors and stressors or to estimate the magnitude of their link to suicide and suicide risk in the Regular Force population. However, the included data do provide an important description of the mental health and stressors that were experienced by individuals around their time of death and these factors are known to have a link to suicide risk.

6) Finally, the wide confidence intervals for many of the rates reported here indicate that in some cases, the analyses may not have a high enough power to detect differences that were present.

5. Conclusions

The following conclusions of the 2023 analysis of CAF Regular Force deaths due to suicide are consistent with those of past years and should be considered together with the limitations discussed above.

1) Over 1995 to 2022 there has been no statistically significant change in the 5-year suicide rate for CAF Regular Force males. Similarly, over 2001 to 2022 the 5-year suicide rate for CAF Regular Force females has fluctuated but there has been no statistically significant change. Additionally, despite the added stressors associated with the COVID-19 pandemic, the suicide rate and its related characteristics over 2020 to 2022 were comparable to observations from previous years.

2) The rate of suicide among CAF Regular Force males, when standardized for age, was not significantly different from that of the Canadian male population; however, the rate of suicide among CAF Regular Force females, when standardized for age, was found to be elevated relative to the rate in the Canadian female population and statistically significant over the 2005 – 2014 period. This elevated rate among Regular Force females was determined to be statistically significant only for the 2005 – 2014 period and it was observed to be largely attributed to the higher than usual three female suicide deaths that occurred in 2012. However, the rate did remain elevated relative to the Canadian female population in the period after 2014 but it was not a statistically significant elevation.

3) The assessment of the MPTSRs continues to support a multifactorial causal pathway for suicide rather than a direct link with a single risk factor. Among the Regular Force male suicides in 2022, there was a high prevalence of mental health factors (50.0% had one active disorder and 25.0% had at least two of the assessed disorders) and work or life stressors (100% had at least one and 83.3% had two or more of the assessed stressors). The most prominent work or life stressors were job, supervisor or work performance problems (75.0%), physical health problems (50.0%), a past spousal, family or friend suicide death (50.0%), failing spousal/intimate relationships (41.7%), excessive debt (25.0%), chronic illness in a spouse or family member (25.0%) and a failed or failing family (non-spousal) or friend relationship (16.7%). Similarly, among Regular Force female suicides over 2018 – 2022 there was a high prevalence of mental health factors (83.3% had one active disorder and 66.7% had at least two of the assessed disorders) and work or life stressor (83.3% had at least one and 83.3% had two or more of the assessed stressors). The most prominent work or life stressors were a failing spousal/intimate relationships (83.3%), job, supervisor or work performance problems (66.7%), chronic illness in a

spouse or family member (50.0%), physical health problems (33.3%), excessive debt (33.3%), a past spousal, family or friend suicide death (16.7%) and a failed or failing family (non-spousal) or friend relationship (16.7%).

4) Among Regular Force males, the SMR analyses suggest that since 2007 and up to and including 2016, being employed within the Canadian Army was associated with a higher risk of suicide relative to those who were part of the other Environmental Commands, but the difference was not statistically significant. In the most recent 2017 to 2021 period, the SMRs suggested that the suicide risk among males in the Army command have become more comparable to those in other commands with the exception that among males in the Air Force command, there was a slight elevation in suicide risk but the elevation was not statistically significant. In comparison, the SMR rate comparisons suggest that the suicide risk among Regular Force females employed the Canadian Army was a little elevated relative to other environmental commands for the 2002 – 2011 period but again, the difference was not statistically significant. The graphical trend analyses provided another portrayal of how suicide rates varied among the commands over time. Using suicide rate moving averages, it was suggested that while Regular Force members in the Canadian Army appear to have had an elevated rate over 2008 to 2014 among males and 2011 to 2015 among females relative to other environmental commands, the difference in the suicide rate moving average between Army and non-Army commands changed from 2015 or 2016 onwards. At approximately this time point, the moving average rates became more comparable among Regular Force male Army and non-Army commands and among Regular Force female Army commands, the suicide rate moving average dropped to zero from 2017 to 2019 and remained lower relative to non-Army commands for the subsequent 2020 moving average year. Moreover, in the more recent years the suicide rate moving average appears to have been at a point where it was either more comparable or a little more elevated among non-Army commands.

5) Additionally, there was a statistically significant difference in the Regular Force male crude suicide rate among the Army combat arms trades relative to those in other trades over the 2002 to 2022 period and when this was assessed for the 10-year 2012 – 2022 period, the statistically significant difference persisted. However, the suicide rate difference between Regular Force males in Army combat arms relative to those in other occupations had begun to decrease from 2015 onwards and at this point, the difference in rates for the shorter, but more recent period, was not statistically significant. In comparison, although the Regular Force female crude suicide rate was much higher in the Army combat arms trades relative to those in other trades, this difference was not statistically significant, but this non-significance was possibly influenced by low numbers.

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12. ABSTRACT (Brief and factual summary of the document.)

Introduction: Each death from suicide is tragic. Suicide prevention is an important public health concern and is a top priority for the Canadian Armed Forces (CAF). In order to better understand suicide in the CAF and refine ongoing suicide prevention efforts, the Canadian Forces Health Services annually examine suicide rates and the relationship between suicide, deployment and other potential suicide risk factors. This analysis, conducted by the Directorate of Mental Health (DMH), is an update covering the period from 1995 to 2022.

Methods: This report assesses suicide data for Regular Force males over the 1995 to 2022 period and Regular Force females over the 2001 to 2022 period. It provides an interpretation of several statistics, including the crude suicide rates observed among various characteristics, the differences in suicide rates that result from comparisons between the Canadian population and the CAF using Standardized Mortality Ratios (SMRs) and the differences in suicide rates that are observed by deployment history when using both SMRs and direct standardization assessments. It also examines the variation in suicide rates that are observed by environmental command and among the suicide deaths that occurred in 2022 and during the prior five years, 2018-2022, it uses data from Medical Professional Technical Suicide Reviews (MPTSR) to examine the prevalence of a number of mental health factors and work or life stressors that are known to be suicide death risk factors.

Results: Over 2018 to 2022 there were 66 CAF Regular Force male suicide deaths with a mean age of 35.0 years. This mean age was not statistically different from the mean age among Regular Force males over this period. Crude suicide rates were also computed for a number of characteristic and for various periods over 2010-2022. Over each time period, the crude suicide rate was higher among ages less than 45 years but there were no statistically significant differences between age groups. For the 2018-2022 period, and for the 2015-2019 and 2020-2022 periods, the suicide rate was higher with statistical significance among Regular Force males who were separated, divorced or widowed when compared to other marital status categories. Additionally, the suicide rate tended to vary by rank category, highest among the junior non-commissioned (JNCM) ranks for the 2018-2022, 2010-2014 and 2015-2019 periods; however, this elevated suicide rate among JNCM ranks was not statistically significant relative to the other rank categories. Moreover, the suicide rate did not differ substantially, and the differences were not statistically significant, by environmental command or by deployment history for each period assessed; however, it was notable that the suicide rate among the Air Force command was elevated in 2015-2019, relative to the prior 2010-2014 period, and this increase just missed being statistically significant as indicated by the minimally overlapping confidence intervals. In contrast, the rate of suicide was higher with statistical significance among males who were in the Army combat arms occupations, relative to those in other occupations, but only during the 2010-2014 period.

In comparison, the general observations among CAF Regular Force females were similar to those among Regular Force males but the absolute numbers were lower. Over 2013 to 2022 there were 11 Regular Force female suicide deaths with a mean age of 32.9 years. This mean age was not statistically different from the mean age among all Regular Force females over this period. Crude suicide rates were also computed for a number of characteristic and for various periods over 2005-2022. The crude suicide rate varied among age groups, tending to be a little higher among those who were younger than 45 years but there were no statistically significant differences by age group. Although the suicide rate tended to be higher among Regular Force females who were single, lower in rank, in Army combat arms occupations and those who did not have a history of deployment, the confidence intervals overlapped for all categories of each characteristic, indicating that these differences were not statistically significant. Similarly, there was no discernable pattern in the suicide rate by environmental command and no indication that the suicide rate was higher with statistical significance in one command or another.

Crude suicide rates were computed over 1995 to 2022 to evaluate for indications of a changing suicide risk over time. There were no statistically significant increases in the overall suicide rates for either Regular Force males or females when comparing each 5-year incremental time segment over 1995 to 2022. The 5-year rates for males varied from a low of 19.9 per 100,000 population during 1995-1999 to a high of 24.5 per 100,000 in the more recent 2010-2014 and 2015-2019 periods and this difference was not statistically significant. The three-year crude rate for 2020-2022 among males, the most recent period, was 23.0 per 100,000 population and it was not a statistically significant change from any of the prior 5-year rates. Similarly, among Regular Force females the 5-year crude rates varied from 8.2 per 100,000 population in the 2015-2019 period to a high of 15.5 per 100,000 in 2010-2014 and again, this difference was not statistically significant. The three-year crude rate for 2020-2022 among females, the most recent period, was 12.8 per 100,000 population and it was not a statistically significant change from any of the prior 5-year rates. The number of Regular Force males that died by suicide was not statistically higher than that expected based on male suicide rates

in the Canadian male population for each period that was evaluated. In contrast, the number of Regular Force female suicides were higher with statistical significance than the number expected based on the suicide rate in the Canadian female population over the 10-year period from 2005-2014, a result that was largely attributable to the higher than usual three female suicide deaths that occurred in 2012, and although also elevated for the other assessed periods, these were not statistically significant.

Rate ratios that separately compared Regular Force males and females with a history of deployment to those without this history did not establish a statistically significant link between deployment and increased suicide risk. Among males with a history of deployment, the suicide rate tended to be elevated relative to those without this experience for almost all periods assessed but none were determined to be statistically significant. However, the rate ratio for the 2005-2014 period (age-standardized suicide rate ratio: 1.44 [95% CI: 0.97, 2.15]), which indicated a higher rate among those with a history of deployment, was close to being statistically significant. In contrast, the suicide rate among females with a history of deployments tended to be lower relative to those without this experience for almost all periods assessed and again, none of the differences were statistically significant. Moreover, the low number of suicide deaths among Regular Force females who had a history of deployment exemplifies the low suicide risk associated with deployment experience among females, but it is also associated with a limited power to conduct the statistical comparison.

These rate ratios also highlighted that, over 2002-2022 for both males and females, being part of the Army command was associated with a slightly higher rate of suicide relative to those who were part of the other environmental commands but the difference for both was not statistically significant. Although not a statistical test, the three-year, and 5-year, suicide rate moving averages provided an indication of how suicide rates fluctuated over time. These suggested that while Army commands appear to have had an elevated rate over 2008 to 2014 among males and 2011 to 2015 among females, the Army and non-Army command suicide rate differences appear to have changed from around 2015 or 2016 onwards. At approximately this time point, the moving average rates became more comparable among Regular Force male Army and non-Army commands and among Regular Force female Army commands, the suicide rate moving average dropped to zero from 2017 to 2019 and remained lower relative to non-Army commands for the subsequent 2020 year. Moreover, in the more recent years the suicide rate moving average appears to have been at a point where it was either more comparable or a little more elevated among non-Army commands.

For the 2002-2022 period, Regular Force males in the Army combat arms occupations had a statistically significant higher suicide rate (31.0/100,000 [95% CI: 25.1, 38.4]) compared to Regular Force males in other occupations (19.7/100,000 [95% CI: 16.8, 22.9]). Similarly, over the 2002-2022 period Regular Force females in the Army combat arms occupations had an elevated suicide rate (27.6/100,000 [95% CI: 3.3, 99.6]) relative to Regular Force females in other occupations (11.3/100,000 [95% CI: 6.9, 17.4]) but this difference was not statistically significant; however, the low numbers being compared limited the power of the assessment of these differences. These occupation comparisons were also assessed for the 10-year 2012-2022 period and the observations were similar to what was observed over the full 2002-2022 period for both males and females.

Results from the 2018-2022 MPTSRs for both males and females continue to support a multifactorial causal pathway (this includes biological, psychological, interpersonal, and socio-economic factors) for suicide rather than a direct link between single risk factors (such as Post-Traumatic Stress Disorder (PTSD) or deployment) and suicide. This was consistent with MPTSR findings from previous years. Additionally, all CAF members experienced the COVID-19 pandemic and there was no evidence that it contributed to suicide risk. Moreover, during the COVID-19 pandemic the suicide rate and its related characteristics over 2020 to 2022 were comparable to observations from previous years.

Conclusions: Suicide rates among Regular Force males and females in the CAF did not increase with any statistical significance over the period of observation described in these findings; however, after age standardization, the Regular Force female suicide rate was identified to have been higher with statistical significance relative to the rate in the Canadian female population during the 2005 to 2014 period while for Regular force males, the difference relative to the Canadian male population was not statistically significant for any period assessed. Despite the added stressors that CAF members may have experienced as a result of the COVID-19 pandemic, the suicide rate and its related characteristics over 2020 to 2022 were comparable to observations from previous years. However, small numbers do limit the ability, or power, of statistical assessments to detect differences with statistical significance when they are real and not chance occurrences. The elevated risk in Regular Force males under Army command, or more specifically, those in combat arms occupations, continues to be an area that is under observation by the CAF. Moreover, the CAF

will also need to monitor the slight elevation in suicide risk among Regular Force males in the Air Force command that was suggested by the data from the most recent period.

Introduction : Chaque décès par suicide est une tragédie. La prévention du suicide est une importante préoccupation de santé publique et une des grandes priorités des Forces armées canadiennes (FAC). Afin de mieux comprendre le suicide au sein des FAC et d'améliorer les efforts constants déployés dans le domaine de la prévention du suicide, les Services de santé des Forces canadiennes examinent chaque année les taux de suicide et la relation entre le suicide, le déploiement et d'autres facteurs de risque potentiels de suicide. La présente analyse, réalisée par la Direction de la santé mentale (DSM), représente une mise à jour pour la période s'échelonnant de 1995 à 2022.

Méthodes : Le présent rapport évalue les données sur le suicide chez les hommes de la Force régulière de 1995 à 2022 et chez les femmes de la Force régulière de 2001 à 2022. Il présente une interprétation de plusieurs statistiques, y compris les taux bruts de suicide observés selon diverses caractéristiques, les différences dans les taux de suicide qui découlent des comparaisons entre la population canadienne et les FAC à l'aide des ratios standardisés de mortalité (RSM) et les différences dans les taux de suicide observées dans l'historique de déploiement, lorsqu'on utilise à la fois les RSM et les évaluations directes de normalisation. Il examine également la variation des taux de suicide observée par le commandement d'armée et parmi les décès par suicide survenus en 2022 et au cours des cinq années précédentes, soit de 2018 à 2022; il utilise les données des examens techniques du suicide par les professionnels de la santé (ETSPS) pour examiner la prévalence d'un certain nombre de facteurs de santé mentale et de facteurs de stress au travail ou dans la vie qui sont connus comme étant des facteurs de risque de décès par suicide.

Résultats : De 2018 à 2022, il y a eu 66 décès par suicide chez les hommes de la Force régulière des FAC âgés de 35,0 ans en moyenne. Cet âge moyen n'était pas statistiquement différent de l'âge moyen des hommes de la Force régulière au cours de cette période. Les taux bruts de suicide ont également été calculés pour un certain nombre de caractéristiques et pour diverses périodes entre 2010 et 2022. Au cours de chaque période, le taux brut de suicide était plus élevé chez les personnes âgées de moins de 45 ans, mais il n'y avait pas de différences statistiquement significatives entre les groupes d'âge. Au cours de la période 2018-2022 et des périodes 2015-2019 et 2020-2022, le taux de suicide a été plus élevé et présentait des différences statistiquement significatives chez les hommes de la Force régulière qui étaient séparés, divorcés ou veufs par rapport aux autres catégories d'état matrimonial. De plus, le taux de suicide avait tendance à varier selon la catégorie de grade et était le plus élevé parmi les militaires du rang (subalternes) (MR sub) pour les périodes 2018-2022, 2010-2014 et 2015-2019. Toutefois, ce taux élevé de suicide chez les MR sub n'était pas statistiquement significatif par rapport aux autres catégories de grade. De plus, le taux de suicide ne différait pas considérablement, et les différences n'étaient pas statistiquement significatives par commandement d'armée ou par historique de déploiement pour chaque période évaluée. Toutefois, il était notable que le taux de suicide au sein du commandement de la Force aérienne était élevé en 2015-2019, par rapport à la période précédente 2010 à 2014, et cette augmentation était presque suffisante pour être considérée comme statistiquement significative, comme l'indiquent les intervalles de confiance qui sont en chevauchement minimal. Cependant, le taux de suicide était plus élevé et présentait des différences statistiquement significatives chez les hommes appartenant aux groupes professionnels des armes de combat de l'Armée de terre par rapport au taux des hommes appartenant à d'autres groupes professionnels, mais seulement au cours de la période 2010-2014.

En comparaison, les observations générales chez les femmes de la Force régulière des FAC étaient semblables à celles faites chez les hommes de la Force régulière, mais les nombres absolus étaient inférieurs. De 2013 à 2022, on recense 11 décès par suicide chez les femmes de la Force régulière des FAC âgées de 32,9 ans en moyenne. Cet âge moyen n'était pas statistiquement différent de l'âge moyen de toutes les femmes de la Force régulière au cours de cette période. Les taux bruts de suicide ont également été calculés pour un certain nombre de caractéristiques et pour diverses périodes entre 2005 et 2022. Le taux brut de suicide variait d'un groupe d'âge à l'autre, tendant à être un peu plus élevé chez les personnes âgées de moins de 45 ans, mais il n'y avait pas de différences statistiquement significatives selon le groupe d'âge. Bien que le taux de suicide ait tendance à être plus élevé chez les femmes de la Force régulière célibataires, de grade inférieur et faisant partie des groupes professionnels des armes de combat de l'Armée de terre et chez celles qui n'avaient pas d'antécédents de déploiement, les intervalles de confiance se chevauchaient pour toutes les catégories de chaque caractéristique, ce qui indique que ces différences n'étaient pas statistiquement significatives. De même, il n'y avait aucune tendance évidente concernant le taux de suicide selon le

commandement d'armée et aucune indication que le taux de suicide présentait une différence statistiquement significative dans un commandement ou un autre.

Les taux bruts de suicide ont été calculés de 1995 à 2022 afin d'évaluer les indications montrant une évolution du risque de suicide au fil du temps. Tant chez les femmes que chez les hommes de la Force régulière, les taux de suicide généraux n'ont pas affiché d'augmentation statistiquement significative lorsqu'on compare chaque segment de temps additionnel de cinq ans de 1995 à 2022. Les taux sur cinq ans pour les hommes variaient d'un minimum de 19,9 pour 100 000 personnes pendant la période 1995-1999 à un maximum de 24,5 pour 100 000 personnes dans les périodes plus récentes de 2010-2014 et 2015-2019, et cette différence n'était pas statistiquement significative. Le taux brut sur trois ans chez les hommes pour la période 2020-2022, soit la période la plus récente, était de 23,0 pour 100 000 personnes et ne constituait pas un changement statistiquement significatif par rapport à l'un ou l'autre des taux des cinq années précédentes. De même, parmi les femmes de la Force régulière, les taux bruts sur cinq ans variaient de 8,2 pour 100 000 personnes au cours de la période 2015-2019 à un sommet de 15,5 pour 100 000 personnes de 2010 à 2014, et, encore une fois, cette différence n'était pas statistiquement significative. Le taux brut sur trois ans chez les femmes pour la période 2020-2022, soit la période la plus récente, était de 12,8 pour 100 000 personnes et ne constituait pas un changement statistiquement significatif par rapport à l'un ou l'autre des taux des cinq années précédentes. Le nombre d'hommes de la Force régulière décédés par suicide n'était pas statistiquement plus élevé que le taux anticipé en fonction des taux de suicide observés au sein de la population masculine du Canada, pour chaque période évaluée. En revanche, le nombre de suicides chez les femmes de la Force régulière était plus élevé, et ce de façon statistiquement significative, que le nombre attendu en fonction du taux de suicide au sein de la population féminine canadienne au cours de la période de dix ans s'échelonnant de 2005 à 2014, résultat en très grande partie attribuable au nombre de décès par suicide chez les femmes survenus en 2012, qui était plus élevé que d'habitude. Bien qu'ils étaient également élevés pour les autres périodes évaluées, ces chiffres n'étaient pas statistiquement significatifs.

Les ratios des taux comparant séparément les hommes et les femmes de la Force régulière ayant des antécédents de déploiement à ceux sans antécédents de déploiement n'établissent pas de lien statistiquement significatif entre le déploiement et le risque de suicide plus élevé. Chez les hommes ayant des antécédents de déploiement, le taux de suicide avait tendance à être élevé par rapport à ceux ne possédant pas cette expérience pour presque toutes les périodes évaluées, mais aucune n'a été considérée comme étant statistiquement significative. Toutefois, le ratio des taux pour la période 2005-2014 (ratio des taux de suicide standardisés selon l'âge : 1,44 [IC à 95 % : 0,97, 2,15]), qui indiquait un taux plus élevé chez les militaires ayant des antécédents de déploiement, était près d'être statistiquement significatif. En revanche, le taux de suicide chez les femmes ayant des antécédents de déploiement avait tendance à être plus faible par rapport à celles ne possédant pas cette expérience pour presque toutes les périodes évaluées, et encore une fois, aucune des différences n'était statistiquement significative. De plus, le faible nombre de décès par suicide chez les femmes de la Force régulière qui avaient des antécédents de déploiement illustre le faible risque de suicide associé à l'expérience de déploiement chez les femmes, mais il est également associé à un pouvoir limité d'effectuer la comparaison statistique.

Ces ratios de taux ont également mis en évidence le fait que, de 2002 à 2022, tant pour les hommes que pour les femmes, le fait de faire partie du commandement de l'Armée était associé à un taux de suicide légèrement plus élevé par rapport à celui des militaires faisant partie d'autres commandements d'armée. Cependant, la différence n'était pas statistiquement significative pour les deux sexes. Bien qu'il ne s'agisse pas d'un test statistique, les moyennes mobiles des taux de suicide sur trois ans et cinq ans donnent une indication de la façon dont les taux de suicide fluctuent au fil du temps. Elles laissent supposer que si les commandements de l'Armée de terre semblent afficher un taux élevé de 2008 à 2014 chez les hommes et de 2011 à 2015 chez les femmes, les différences entre les taux de suicide du commandement de la Force terrestre et d'autres commandements semblent avoir changé à partir de 2015 ou 2016 environ. À peu près à ce moment-là, les taux moyens mobiles sont devenus plus comparables entre les commandements de l'Armée de terre et d'autres commandements d'hommes de la Force régulière, tandis que parmi les commandements de l'Armée de terre de femmes de la Force régulière, le taux de suicide est tombé à zéro entre 2017 et 2019, et est demeuré faible par rapport à celui des commandements autres que les commandements de l'Armée de terre au cours de l'année subséquente 2020. De plus, au cours des dernières années, la moyenne mobile du taux de suicide semble avoir été à un point où elle était soit plus comparable, soit un peu plus élevée parmi les commandements autres que ceux de l'Armée de terre.

Pendant la période 2002-2022, les hommes de la Force régulière appartenant aux groupes professionnels des armes de combat de l'Armée de terre affichaient un taux de suicide statistiquement plus élevé (31,0/100 000 [IC à 95 % : 25,1, 38,4]) que celui des hommes de la Force régulière appartenant à d'autres groupes professionnels (19,7/100 000 [IC à 95 % : 16,8, 22,9]). De même, au cours de la période 2002-2022, le taux de suicide chez les femmes de la Force régulière appartenant à des groupes professionnels d'armes de combat de l'Armée de terre était élevé (27,6/100 000 [IC à 95 % : 3,3, 99,6]) par rapport à celui des femmes de la Force régulière appartenant à d'autres groupes professionnels (11,3/100 000 [IC à 95 % : 6,9, 17,4]), mais cette différence n'était pas statistiquement significative. Toutefois, les faibles chiffres comparés limitaient la capacité de l'évaluation de ces différences. Ces comparaisons des professions ont également été évaluées pour la période de dix ans s'échelonnant de 2012 à 2022, et les observations étaient semblables à celles observées au cours de la période complète 2002-2022, tant chez les hommes que chez les femmes. Toutefois, la différence du taux de suicide entre les hommes de la Force régulière dans les professions d'armes de combat de l'Armée de terre par rapport à ceux d'autres groupes professionnels avait commencé à diminuer à partir de 2015 et, à ce stade, la différence des taux pour la période plus courte, mais plus récente, n'était pas statistiquement significative.

Les résultats des ETSPS effectués de 2018 à 2022, tant pour les hommes que pour les femmes, continuent d'appuyer l'enchaînement de causalité multifactoriel (qui comprend des facteurs biologiques, psychologiques, interpersonnels et socio-économiques) pour expliquer le suicide plutôt qu'un lien direct entre des facteurs de risque individuels (comme le trouble de stress post-traumatique [TSPT] ou le déploiement) et le suicide. Ces résultats concordent avec les constatations des ETSPS des années précédentes. En outre, tous les membres des FAC ont vécu la pandémie de COVID-19, et il n'y a aucune preuve qu'elle a contribué à créer un risque de suicide. De plus, pendant la pandémie de COVID-19, le taux de suicide et ses caractéristiques connexes pendant la période 2020-2022 étaient comparables aux observations des années précédentes.

Conclusions : Les taux de suicide parmi les hommes et des femmes de la Force régulière des FAC n'ont pas augmenté de façon statistiquement significative au cours de la période d'observation décrite dans ces constatations. Cependant, une fois la standardisation selon l'âge effectuée, le taux de suicide des femmes de la Force régulière s'est avéré supérieur, et ce, de façon statistiquement significative, à celui de la population féminine du Canada pour la période 2005-2014, tandis que la différence entre le taux de suicide des hommes de la Force régulière et celui de la population masculine du Canada n'était pas statistiquement significative, quelle que soit la période évaluée. Malgré la présence de facteurs de stress supplémentaires que les membres des FAC ont pu vivre en raison de la pandémie de COVID-19, le taux de suicide et ses caractéristiques connexes pendant la période 2020-2022 étaient comparables aux observations des années précédentes. Toutefois, la faible quantité de données limite la capacité, ou le pouvoir, des évaluations statistiques de relever les différences statistiquement significatives lorsqu'elles sont réelles et non le fruit du hasard. Le risque accru chez les hommes de la Force régulière sous le commandement de l'Armée de terre, et particulièrement ceux appartenant aux groupes professionnels des armes de combat, est un aspect que les FAC continuent d'observer. De plus, les FAC devront également continuer de surveiller la légère hausse du risque de suicide chez les hommes de la Force régulière au sein du commandement de la Force aérienne, comme le laissent supposer les données de la période la plus récente.

13. KEYWORDS, DESCRIPTORS or IDENTIFIERS (Technically meaningful terms or short phrases that characterize a document and could be helpful in cataloguing the document. Use semi-colons as delimiters.)

Age-adjusted rate; Canadian Armed Forces; Canadian population; deployment; rate ratio; rates; standardized mortality ratio; suicide

Taux ajusté selon l'âge; Forces armées canadiennes; population canadienne; déploiement; ratio de taux; taux; ratio standardisé de mortalité; suicide

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