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A Summary of the U.S. Marine Recruit Assessment Program (RAP) Procedures and Survey from 2003 to 2021

Zeina G. Khodr, PhD; Jennifer McAnany, PhD; Yohannes G. Haile, MS; Vanessa G. Perez, MPH; Lt Col Patricia Rohrbeck, DrPH, MPH, MS

The Recruit Assessment Program (RAP) is a cross-sectional, baseline survey of U.S. Marine recruits administered at Marine Corps Recruit Depot, San Diego. This report presents RAP study procedures and survey content that was administered to 229,015 participants between 2003 and 2021. Self-reported data were collected on recruit demographics, physical and mental health, adverse life experiences, lifestyle and risky behaviors, and substance use. In 2013, the survey was updated to remove questions with other linkable and reliable sources and those with low completion rates and low relevance to Marine health research; the removal of these items allowed for the addition of instrument measures for major depression, post-traumatic stress disorder, anger, and resilience with no significant change to overall survey length. Average completion rates are approximately 95%. Multiple studies have shown the utility of RAP data collected thus far as a robust data repository of pre-service health and behavioral measures.

What are the new findings?

By surveying Marine recruits within days of arrival, RAP can more accurately obtain information on their lives and experiences prior to military service. RAP establishes a comprehensive profile of a recruit, creating a robust resource that takes into consideration each recruit's unique history when assessing future experiences and concerns.

What is the impact on readiness and force health protection?

The purpose of the RAP survey is to increase understanding of how pre-service exposures may affect a recruit's health and readiness while in service, and thereby inform policy decisions that protect Marines' mental and physical health while sustaining military readiness. RAP data can also be linked to other military data sources to assess how past experiences influence future decisions, behaviors, and outcomes that may affect operational health and readiness. Utilization of this additional level of information aids policy and intervention improvement efforts.

A major limitation in military health research is the inability to account for events that occurred prior to military service. A Presidential Review Directive,[1] Institute of Medicine reports,[2] and military advisory boards have emphasized the need for collection of baseline health data for pre-existing health conditions and risks.[3,4] To further investigate concerns related to pre-service health and behavioral measures and military health and career progression, the Recruit Assessment Program (RAP) was developed by the Naval Health Research Center (NHRC).

RAP was implemented in June 2001 among male recruits at the Marine Corps Recruit Depot (MCRD), San Diego.[5] While initially established with the goal of automating recruit enrollment within the electronic medical record system, RAP has evolved to focus on assembling a comprehensive profile of U.S. Marine recruits' experiences prior to military duty.

The RAP survey consists of measures of Marine recruits' pre-service health and behaviors not collected elsewhere. Collected during recruit training, RAP contributes to the understanding of a Marine recruit's pre-service mental, physical, social, and behavioral health, and it can inform prevention and intervention strategies for adverse outcomes such as sexual assault and military attrition.[6,7] RAP provides baseline data for health risk assessments during general service in the Marine Corps, as well as those associated with operational deployments and within military occupational specialties. The ever-changing demographics of Marine recruit populations emphasize the need for self-reported, autonomous, baseline data to properly account for pre-service exposures when assessing the effects of military life.

Marine recruit training is a 13-week process, during which a recruit leaves civilian life and adapts to a Marine Corps lifestyle. Training takes place at MCRD, Parris Island, South Carolina, or at MCRD, San Diego, California. Thus far, RAP has collected data exclusively on recruits at MCRD San Diego, where each receiving company of 250 to 645 Marine recruits are offered the opportunity to complete a RAP survey.

This report summarizes survey administration and content for the RAP versions 4 and 5 (2003-2021), the predominant versions that provided 87.7% of all RAP data

collected. The survey has gone through multiple revisions, with the first version in 2001 (n=17,424),[5] versions 2 and 3 in 2002 (n=14,673),[8,9] version 4 in 2003-2013 (n=134,761),[8] followed by version 5, currently in use (n=94,254). Prior reports have provided detailed reviews of survey versions 1 through 3.[5,8-10] Survey approval was obtained by the U.S. Marine Corps Survey Office. All data were collected voluntarily from participants who provided informed consent, with the approval of the Institutional Review Board at the NHRC.

Methods

Survey Content

Survey content was developed utilizing standardized survey instruments in combination with subject matter expert (SME) and stakeholder recommendations. Approximately 32% of the content in version 4 was removed from version 5, with new content in version 5 comprising 13% (Table 1). Removal of version 4 questions that had other linkable and reliable sources, low completion rates, or low relevance to Marine health stakeholders allowed the addition of instrument measures for major depression, post-traumatic stress disorder (PTSD), anger, and resilience.

Demographics

Demographic data collected include date of birth, most recent home location, race and ethnicity, education, marital status, handedness, height, and current and past year weights. Family demographic data include familial structure, education, and ability to provide essential needs. Military demographic data collected include prior service, reason for joining, and parental military service.

Health

Physical Health

Physical health questions were adapted from the Seabee Survey of Health Conditions,[11] the 12-Item Short Form Survey (SF-12),[12] and the 36-Item Short Form Survey (SF-36).[13] Specific health symptoms surveyed, ranging from chronic cough to muscle aches, were reduced from 23 to 16 questions in versions 4 and 5, respectively.

Mental Health

Version 4 included SF-36 questions about reasoning and problem-solving, forgetfulness, attention, and concentration within the past year.[13] Version 5 included the following validated instrument measures: the 8-item Patient Health Questionnaire (PHQ-8) depression scale[14]; the Primary Care PTSD Screen for DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) (PC-PTSD-5)[15]; the 7-item Pearlin Mastery Scale[16]; and 1 question assessing self-perception of resilience.[17]

Medical Care

Version 4, but not version 5, included questions about medical care during the past 5 years such as care received, reasons for recommended preventive care (e.g., medical or dental checkup), hospitalizations, and prescription use.

Life Experiences

Lifestyle and Risky Behaviors

Multiple questions focus on lifestyle habits, as well as risky behaviors, including diet, sleep, television, schooling, driving safety, sexual activity, emotional behavior, social support, and religious activities. Age at first sexual intercourse, condom use, and sexually transmitted infection (STI) diagnoses were ascertained in both versions. Questions about anger were expanded to include the Dimensions of Anger Reactions (DAR-5) scale.[18,19]

Adverse Experiences

Ten standardized questions on adverse childhood experiences (ACEs) were included in the survey,[20] in addition to questions about adverse experiences throughout life as well as in the past year (e.g., self-harm, attack, rape, arrest, etc.). Questions about attention-deficit/hyperactivity disorder (ADHD) were reduced in version 5. Three questions on traumatic brain injury (TBI), adapted from the Post Deployment Health Assessment (PDHA), were added in version 5.[21] Past occupational exposures were collected for participants who had worked in a position for more than 1 month.

Substance Use

Questions about tobacco use were adapted from prior military health surveys such as the Seabee Health Study[11] and the National Health Survey of Persian Gulf War Era Veterans.[22] Questions specific to cigarettes focused on age at first use, cessation attempts, last use, and typical use. Use of pipes, hookahs, cigars, and smokeless tobacco products were also surveyed. Detailed questions about alcohol use, age at first use, frequency, quantity, and behavior were included with the Cut, Annoyed, Guilty, and Eye (CAGE)[23] instrument and 3-item Alcohol Use Disorders Identification Test (AUDIT)-C.[24] Version 5 also included the full 10-item AUDIT.[25]

Survey Administration

RAP was designed to be a self-reported, paper and pencil-based survey that could be completed within 45 minutes, administered in various induction settings, and generalizable to a culturally diverse population.[9] Once a week, Drill Instructors (DIs) led receiving recruits into an auditorium-style classroom, where blank RAP survey booklets were placed at each seat.

To allow for autonomy, DIs were not present during the survey's introduction, when recruits were provided an approximately 15-minute verbal briefing on RAP and their option for voluntary participation. NHRC researchers presented slides reviewing the survey's "Consent to Participate in Research" section, addressing: 1) voluntary participation, 2) benefits and risks, 3) data confidentiality and security, and 4) if desired, guidance for study withdrawal. Version 5 included options for consent to use of the data in future research beyond the RAP protocol purview, along with a Health Insurance Portability and Accountability Act (HIPAA) authorization for permission to link to protected health information (PHI).

TABLE 1. Changes to RAP Survey Questions by Version, Excluding Minor Edits to Questions, Prompts, or Response Options

Survey Question Topic		Version 4 (2003–2013)	Version 5 (2013–2021)
Demographics	State and country of birth	Included	Removed
	Size of hometown	Included	Removed
	Twin status	Included	Removed
	Parental military service	Included (yes/no response)	Added question on number of years in service
	Race and ethnicity	Included as a combined question	Separated race ('unknown' response) and ethnicity question
	Marital status	Included ('living together' response)	Separated questions about current and past marital status
	Weight in last year	Included (multiple choice response)	Changed (3-digit numeric field response)
	Parental death	Included ('before/after age of 10' response)	Changed (yes/no response)
	Number of siblings	Included (2-digit numeric field response)	Changed (multiple choice response)
	Maternal and paternal education	Included as 2 separate questions	Combined as 1 question
Health	Health issues: acne, sleepwalking, bed wetting, stuttering, frequent indigestion, constipation or loose bowels, and pain or problems during sexual intercourse	Included	Removed
	Allergies	Included	Removed
	Family history of health conditions	Included	Removed
	SF-36 questions about changes in health over the past year	Included 7 additional questions	Removed 7 questions
	Medical care	Included	Removed
	Health questions on memory, critical thinking, and memory	Included 4 additional questions	Removed 4 questions
	SF-12 questions on physical and emotional health	Included (yes/no response)	Changed (Likert scale response)
	PHQ-8	Not included	Added
	PC-PTSD-5	Not included	Added
	7-item Pearlin Mastery Scale	Not included	Added
	Self-perception of resilience	Not included	Added
Life experiences	ADHD, hyperactivity, or learning disability treatment	Included	Removed
	Number of years ever home-schooled	Included	Removed
	Ever taking diet pills, laxatives, or vomiting for weight loss	Included	Removed
	Have children in the last year	Included	Removed
	Parental divorce	Included ('before/after age of 10' response)	Changed (yes/no response and 'separated/divorced')
	TBI	Not included	Added
	Household member imprisoned	Not included	Added
	DAR-5 scale	Not included	Added
	Ever spending night in jail	Not included	Added
Substance use	Likert scale question on smoking cigarettes in the last year	Included	Removed
	Alcohol use in last year, total years ever, or while driving	Included	Removed
	Skip patterns in tobacco use section and collapsed response options	Not included	Added
	Skip patterns in alcohol use section	Not included	Added
	10-item full AUDIT	Not included	Added

Abbreviations: RAP, Recruitment Assessment Program; PHQ-8, 8-Item Patient Health Questionnaire depression scale; PC-PTSD, Primary Care Post-Traumatic Stress Disorder Screen for DSM-5; TBI, Traumatic brain injury; DAR, Dimensions of Anger Reactions; AUDIT, Alcohol Use Disorders Identification Test; ADHD, Attention-deficit/hyperactivity disorder; SF, Short Form Survey.

Following each briefing, recruits were given time to independently review the consent forms and discuss questions or concerns with the research team. Once the allotted hour for survey completion passed, recruits returned their surveys and were dismissed to their DIs. All recruits returned their survey, whether completed or not.

Survey Processing

Surveys were processed at NHRC. Surveys without consent or with consent withdrawn were destroyed. Surveys with consent were scanned using Teleform software (OpenText Corporation, Waterloo, Ontario, Canada) and entered into the RAP SQL database. A sample of 3-5% of surveys were manually checked for accuracy.

SAS version 9.4 (SAS Institute, Cary, NC) was used to manage and prepare the final analytic RAP database. Self-reported identifiers (e.g., Social Security number, date of birth, name) were verified with Defense Manpower Data Center (DMDC) records and entered if necessary. Implausible outliers for variables such as age, height, and weight were set to 'missing.' Survey versions were cleaned separately, prior to consolidation in a final analytic dataset, as they differed in question order, response options, skip patterns, and study domains. Questions from different survey versions were standardized when possible, with raw variables retained.

Historically, participation rates were calculated from denominators generated from DMDC records, which were prone to misclassification. In 2012, participation rate accuracy was improved by documenting the total numbers of recruits present.

Results

Participants

From 2003 through 2021, 229,015 recruits completed the survey; 134,761 participants completed version 4 (2003-2013) and 94,254 completed version 5 (2013-2021). DMDC demographic data were utilized to verify 99.6% of participants as Marine service members. Peaks in enrollment count mirrored peak recruitment periods, with highest participation in June. The average number of participants enrolled was approximately 12,000 recruits per year, with a high of 17,198 (7.51%) enrolled in 2005 and a low of 5,945 (2.60%) in 2020, when survey administration was paused from April through August due to the COVID-19 pandemic. As MCRD San Diego exclusively enrolled male Marine recruits until March 2021, RAP version 5 was the first to include female participants (n=109).

Completion Rates

Average participation rates were 88.1% between 2012 and 2021, with a high of 97.8% in 2017, which decreased in 2020 and 2021 to 74.4% and 69.3%, respectively, due to implementation of guidelines for COVID-19 pandemic restrictions on movement. Average completion rates for individual survey questions were 94.5% and 95.3% for versions 4 and 5, respectively, and accounted for skip questions **(Figure)**. The minimum completion rate was approximately 87% for both surveys. Completion rates for the final question declined to 89.9% and 88.2% for the final questions of versions 4 and 5, respectively.

Lower completion rates were observed in both surveys for questions not applicable to most participants (e.g., SF-12 questions about general health; use of tobacco products other than cigarettes, such as pipes; past occupational exposures). Marine recruits are a young and healthy population less likely to suffer from physical health issues that limit daily activities. Approximately 28% of participants reported themselves to be smokers, with a 97% completion rate in version 4 for smoking habit questions, and only 94% for pipe and cigar questions, which declined to 96% and 89%, respectively, in version 5. Completion rates were lower for questions discussing sensitive topic areas, although some improved after survey question reordering, specifically familial ability to provide essential needs (87.9%, version 4; 94.1%, version 5), family medical history (95.8-98.2%, version 4), prior health care provision (88.7-89.5%, version 4), alcohol use (91.4-96.5%, version 4; 95.3-99.5%, version 5), and risky behaviors (91.2-94.9%, version 4; 96.3-98.5%, version 5).

RAP Publications

RAP has demonstrated its capacity as a cross-sectional, individual resource[26,27] that is also readily linkable to other data sources for longitudinal assessment of military health research **(Table 2)**.[6,7,26,28-36] Past RAP studies have successfully linked with data from the DMDC,[6,26,33] PDHAs,[28] the Naval Criminal Investigative Service Consolidated Law Enforcement Operations Center,[7] and Department of Defense Medical Mortality Registry[33]; as well as other self-reported epidemiological data such as the RAP II,[30,34] a follow-up survey for deployed RAP participants, and the Millennium Cohort Study, the largest self-reported, longitudinal military cohort study.[36] More importantly, the study domains included in RAP surveys have demonstrated relevancy to military outcomes of interest, through findings from prior literature.

Discussion

RAP data are proven to complement personnel data, which may not be as candid due to their collection during assessment for military duty. RAP data should be evaluated within the context of certain limitations. Currently, RAP administration is limited to MCRD San Diego and does not represent recruitment for the eastern U.S. Thus far, research studies using RAP data are limited to male participants, as MCRD San Diego did not include female recruits until 2021. Inherent limitations of self-reported, paper-and-pencil survey studies include low participation rates, misreporting of sensitive topics, and resource-intensive administration. Lastly, the lengthy RAP survey is administered during a strenuous time in a recruit's career, which can increase respondent fatigue. Although question completion rates decreased nearer the survey's end, they remained high, however, at 87%.

SME and stakeholder reviews have guided survey revisions that will allow future research on pre-service mental health and psychosocial factors as predictors for retention, mental health care provision, and suicide ideation and completion.

FIGURE. Completion Rates for 2003-2013 RAP Survey (A) Version 4 (n=134,761 Participants) and 2013-2021 RAP Survey (B) Version 5 (n=94,254 Participants)
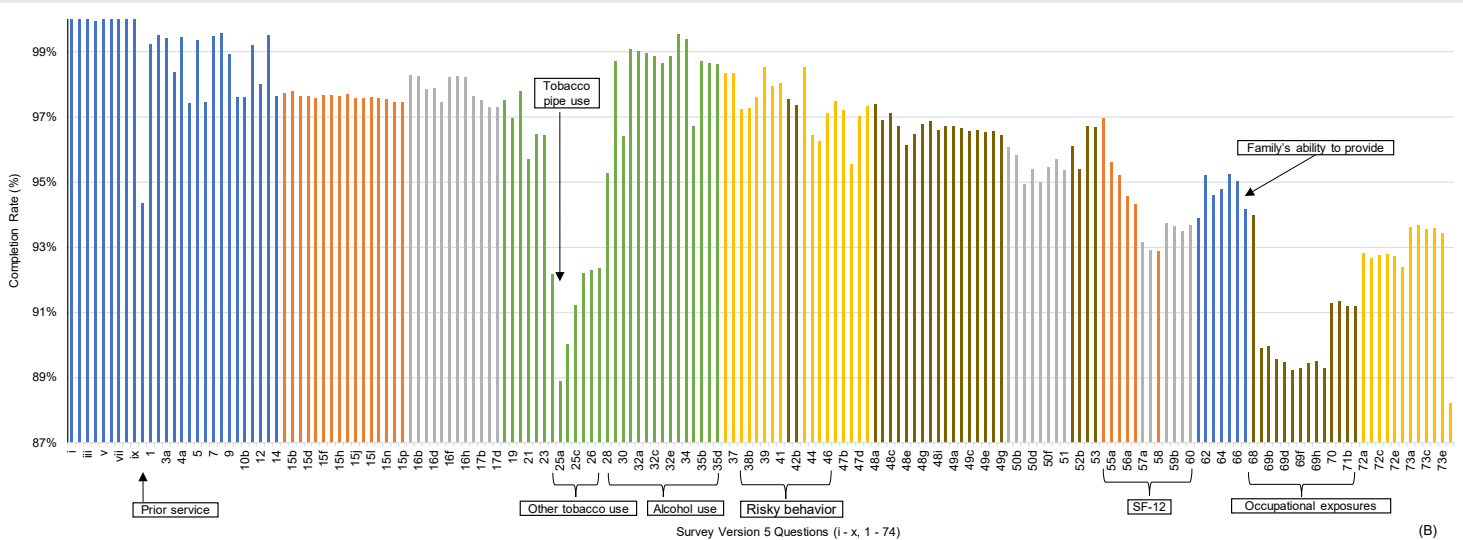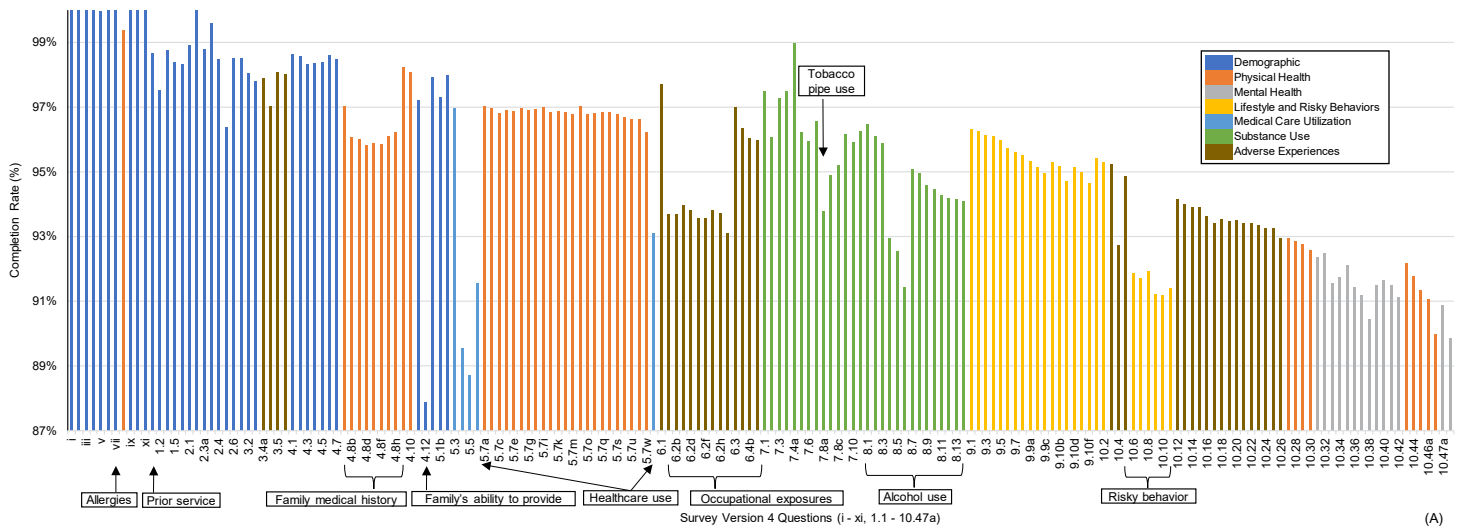
Ongoing survey content considerations include media use, marijuana use, diversity and inclusion, sexual orientation, and women's reproductive health. The ever-changing demographics of Marine recruit populations emphasize the need for resources such as RAP, which continues to evolve with changing needs for military operational health and readiness.

This study protocol was reviewed and approved by the Institutional Review Board of the Naval Health Research Center, in compliance with all applicable Federal regulations governing human subject

TABLE 2. RAP Publications Linking RAP Survey Data with Other Data Sources for Epidemiological Study

First Author	Publication Year	Data Source(s)	Findings
Larson[28]	2009	DMDC, PDHA, and MDR	Post-deployment psychiatric disorders were associated with low pay grade, hospitalization during deployment, low education, pre-service smoking, and PTSD symptoms at end of deployment. Findings supported expansion of combat-related questions in the PDHA.
Leardmann[29]	2010	DMDC and MDR	Childhood physical neglect was associated with post-deployment PTSD. Findings suggest Marines who experience multiple types of ACEs have increased risk for post-deployment PTSD.
Phillips[30]	2010	DMDC and RAP II	Risk factors for post-deployment PTSD included pre-service measures of violence exposure and combat experiences of feeling in great danger of death, being shot or seriously injured, and witnessing someone wounded or killed. Follow-up measures of military rank, social support, and number of deployments were also associated with post-deployment PTSD.
Booth-Kewley[31]	2010	DMDC and MDR	The strongest predictors of bad conduct discharges and military demotions among combat-deployed Marines were post-combat psychiatric diagnoses and younger age. These results indicate that combat-related psychological disorders may manifest as impulsive, disruptive, and antisocial behavior.
Horton[26]	2014	Physical fitness of recruit and DMDC	Trends in pre-service health and behavioral measures during the OEF/OIF era were improvements in BMI and physical activity levels and increases in smokeless tobacco use, caffeine use, and angry outbursts.
Feinberg[32]	2015	Physical fitness of recruit	Smoking cessation in this cohort of male, Marine recruits resulted in improved physical aerobic performance, independent of other pre-service health and behavioral measures. Average recruit running speeds improved among all recruits, but improvement was greater among prior smokers compared to recruits with no history of smoking.
White[6]	2016	DMDC	Pre-service risk factors for military attrition due to drug use included endorsement of a Black racial group, incomplete high school education, joining the military to "leave problems at home," and an arrest within the year prior to joining the military. Attrition due to drug use accounted for a significant loss in service years of trained service members.
Phillips[33]	2017	DOD Medical Mortality Registry, DMDC, and MDR	Risk factors for suicide completion included incomplete high school education and current smoking behavior at enlistment. Diagnoses of TBI or depression and relationship counseling during military service also were risk factors for suicide completion. Suicide prevention efforts should not preferentially focus on deployed service members, as deployment was not an independent risk factor.
Bauer[34]	2020	RAP II	Deployed Marines were less likely to reduce fast food consumption versus non-deployed Marines at 3 years of follow-up from enlistment. Combat-deployed Marines, compared with non-deployed Marines, had increased odds of several adverse health-related behaviors post-deployment including binge drinking, new-onset alcohol dependence, initiation of smoking, and reduced seat belt use.
Leardmann[7]	2022	NCIS	A low prevalence of sexual offenses over a 9-year period were observed (0.01%). Pre-service health and behavioral measures associated with sexual misconduct while in military service included endorsement of American Indian/Alaskan Native, Hispanic, and Multiracial/Other race and ethnicity categories; incomplete high school education; adverse experiences such as parental death and school suspension/expulsion; and unprotected sex.
Reed-Fitzke[36]	2023	MCS	Subgroups of exposure to pre-service ACEs indicative of adversity, such as parental absence, have more impact on risk for depression and PTSD symptoms versus absolute count of ACEs. These associations were modified by combat exposure when assessing moderate adversity with parental loss.
MacGregor[37]	in preparation	PHA	New-onset alcohol misuse was more likely among Marines who turned 21 years old during follow-up. Pre-service experiences associated with alcohol misuse in this study included a higher ACE score, job dismissal, and witnessing a stranger injured or killed.

Abbreviations: RAP, Recruit Assessment Program; PDHA, Post Deployment Health Assessment; MDR, Military Health System Data Repository; PTSD, Post-traumatic stress disorder; ACE, adverse childhood experience; OEF/OIF, Operation Enduring Freedom/Operation Iraqi Freedom; BMI, body mass index; DOD, Department of Defense; TBI, traumatic brain injury; NCIS, Naval Criminal Investigative Service; MCS, Millennium Cohort Study; PHA, Periodic Health Assessment.

participant protection. Research data were derived from an approved Naval Health Research Center Institutional Review Board protocol NHRC.2000.0003.

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Incidence and Health Care Burden of Uterine Fibroids Among Female Service Members in the Active Component of the U.S. Armed Forces, 2011–2022

Chiping Nieh, PhD, CPH; Sithembile L. Mabila, PhD, MSc

Uterine fibroids are the most common benign tumors of the uterus among women of reproductive age, disproportionally affecting non-Hispanic Black women compared to other races and ethnicities. This report is an update of a 2011 *MSMR* report that examined uterine fibroids among female active component service members in the U.S. Armed Forces from 2001 to 2010. Incident uterine fibroids were identified for this report from inpatient and outpatient medical encounter data from 2011 to 2022. Health care burden was estimated utilizing uterine fibroid-related inpatient and outpatient diagnostic and procedure codes. Crude incidence rates and incidence rate ratios were calculated to compare rate differences between subpopulations. A total of 16,046 new uterine fibroid cases were identified, with an incidence rate of 63.5 cases per 10,000 person-years (95% confidence interval: 62.5-64.5). The highest incidence rates were observed among service women 40 years and older, non-Hispanic Black women, and those who served in the Army. Health care burden analysis showed that, even with increases in medical encounters and individuals affected, the numbers of hospital bed days declined over time. The decline in uterine fibroid-related hospital bed days could be attributed to early diagnoses and minimally-invasive treatments. Continued promotion of uterine fibroid awareness can potentially help further reduce uterine fibroid-related impacts on military readiness.

What are the new findings?

Uterine fibroid-related medical encounters and individuals affected increased over time from 2011 to 2022, but the number of hospital bed days decreased from 699 days in 2011 to 625 days in 2022. This decrease in bed days could be attributed to the early detection of uterine fibroid cases and increased accessibility of non- or less invasive treatments.

What is the impact on readiness and force health protection?

With the growth of medical encounters and individuals affected over time, the decline in uterine fibroid-related hospital bed days shows that early diagnoses and minimally-invasive treatments can effectively reduce uterine fibroid-related health care burdens and minimize impacts on military readiness.

Uterine fibroids are the most common benign tumors of the uterus among women of reproductive age, disproportionally affecting Black women compared to other races and ethnicities.[1,2] A systematic review by Guiliani et al. found high prevalence of uterine fibroids detected by ultrasound among U.S. Black and White women, 80% and 70% respectively, by the age of 50.[2] Guiliani et al. reported that Black women were more likely to have uterine fibroids at younger ages, or larger fibroid sizes, compared to their counterparts. In a more recent study, Huang et al. found that, besides Black women, Asian-Chinese women were also disproportionately affected by uterine fibroids.[3]

In addition to race and ethnicity, other risk factors of uterine fibroids reported in the literature include older age, early menarche, obesity, stress, hypertension, nulliparity, late menopause, and family history.[2,4-6] Many studies have focused on the disproportionally high incidence of uterine fibroids among Black women and identified potential risk factors including lack of fruit, vegetable or fiber intake, vitamin D deficiency, obesity, life stressors, in addition to limited access to care.[7-9]

Approximately 30% of women with uterine fibroids experience symptoms such as profound bleeding, anemia, pelvic pressure or pain, in addition to others.[2] Many different treatments are available for symptomatic uterine fibroids.[10] Recommended treatment for each patient is determined based upon the number, size, and location of tumors, as well as the patient's desire for maintaining fertility.[11] Recently, with growing interest among women for non-surgical treatments, more minimally-invasive methods, including uterine artery embolization, high intensity focused ultrasound, microwave ablation, and radiofrequency ablation, have become available.[12]

Due to the prevalence of uterine fibroids and advanced treatments associated with it, annual direct and indirect costs in the U.S. are estimated to be as high as $34.4 billion.[2] In addition to health care costs, symptomatic uterine fibroids

can also cause loss of work days or work productivity.[13]

Regardless of the high prevalence and potential impacts of uterine fibroids, women have continued to delay seeking medical attention due to lack of knowledge or awareness.[14] During the past 10 years, researchers began examining any associations between hair products used by Black women and their risk of developing uterine fibroids or uterine cancer,[15,16] which helped raise uterine fibroid awareness. Marsh et al.[11] found, however, that only half of women experiencing fibroid-related symptoms without clinical diagnosis had heard of uterine fibroids. Marsh et al. also found that lack of awareness was more prevalent among low-income women or racial minorities. Since many uterine fibroids are discovered by chance, through routine pelvic exams,[4] continuing to raise awareness is important, for encouraging women who are experiencing symptoms to consult health care providers.

This report is an update of a 2011 *MSMR* report,[17] published as a Surveillance Snapshot, that provided numbers, rates, and demographic characteristics of uterine fibroids as well as uterine fibroid-related health care among female service members in the active component of the U.S. Armed Forces. The 2011 report identified higher rates of uterine fibroids among non-Hispanic Black women among all age groups.[17] The 2011 report also showed a declining trend of hysterectomy treatments among patients.

This report aims to confirm whether similar trends to those discerned in 2011 persisted from 2011 to 2022 among female service members. This report also assesses possible procedural delays due to the coronavirus disease (COVID-19) pandemic related to new gynecological ultrasound guidance published by the International Society of Ultrasound in Obstetrics and Gynecology,[18] following COVID-19 guidelines for non-emergent surgical procedures developed by the American College of Surgeons.[19] During the COVID-19 pandemic, health care providers were more likely to offer fibroid patients less invasive procedures that could be performed in an outpatient setting or required no more than 1 overnight hospital stay.[20]

Methods

The study population of this report included all female service members serving in the active component of any branch of the U.S. Armed Forces during the surveillance period, from January 1, 2011 through December 31, 2022. Data were queried from the Defense Medical Surveillance System (DMSS). Uterine fibroid cases were determined based on outpatient and inpatient administrative health records from both direct and purchased care.

Case definition

International Classification of Diseases, 9th/10th revision (ICD-9/ICD-10) diagnostic codes were used to define uterine fibroid cases **(Table 1)**. Female service members with either 1 inpatient or outpatient medical encounter with a uterine fibroid case-defining code in the primary diagnostic position, or a case-defining code in the secondary diagnostic position paired with an associated symptom code in the primary diagnostic position, were considered as uterine fibroid cases. The date of the first case-defining inpatient or outpatient medical encounter was used as the incident date, and service members were counted once per lifetime. Service members with a case-defining encounter prior to the surveillance period were deemed ineligible and excluded from this report.

Health care burden

To precisely measure health care burdens associated with uterine fibroids, only inpatient or outpatient medical encounters with a case-defining code in the primary diagnostic position were included. Uterine fibroid-related procedures were identified using ICD-9/ICD-10 procedural codes as well as the Current Procedural Terminology (CPT) codes **(Table 1)**. Procedures were then categorized into 3 groups: Hysterectomy, Myomectomy, and Other. Total numbers of medical encounters, individuals affected, hospital bed days, as well as numbers and percentages of uterine fibroid-related treatment procedures were utilized to quantify the health care burdens of uterine fibroids in the U.S. Armed Forces.

Time-censoring calculations

For each eligible service member's person-time calculations, the most recent of 2 dates—either military enrollment or the beginning of the surveillance period, January 1, 2011—was used as the starting time. Time was then censored at the earliest of 3 dates: date of uterine fibroid diagnosis, date of separation from active component or military service, or end of the surveillance period, December 31, 2022.

Statistical analysis

Incident cases of uterine fibroids by key demographic variables were determined. Crude incidence rates (IRs) were calculated as incident uterine fibroid diagnoses per 10,000 person-time (p-years) with 95% confidence intervals (CIs). Based on the IRs, the least at-risk subgroup of each demographic variable was selected as the reference group. Incidence rate ratios (IRRs) were then calculated. All analyses were conducted using SAS Enterprise Guide (version 8.3).

Results

The study population included female service members who served in the active component, from January 1, 2011 through December 31, 2022. Among 586,252 eligible female service members, a total of 16,046 new onset uterine fibroid cases were identified, for an IR of 63.5 per 10,000 p-years (95% CI: 62.5-64.5). Among all new onset cases, 97% (n=15,578) were outpatient cases.

As shown in **Table 2**, highest incidence rates of uterine fibroids were observed among service women aged 40 years and older (IR: 276.6 per 10,000 p-yrs, 95% CI: 268.9-284.2), non-Hispanic Black women (IR: 150.5 per 10,000 p-yrs, 95% CI: 147.3-153.6), and those serving in the Army (IR: 85 per 10,000 p-yrs, 95% CI: 83-87). Incidence rate ratio analysis revealed that non-Hispanic Black women were almost 5 times more likely to develop uterine fibroids than their non-Hispanic White counterparts. Service women aged 40 years and older were 29 times more likely to be diagnosed

TABLE 1. Uterine Fibroids Case-defining Codes, Associated Symptom Codes, and Uterine Fibroid-related Inpatient and Outpatient Procedure Codes

	ICD-10	ICD-9	CPT
Case-defining codes			
Uterine leiomyomas (fibroids)	D25.-	218.xx	
Associated symptom codes			
Anemia due to blood loss	D50.0, D62	280.0, 285.1	
Vaginal bleeding, menstrual bleeding disorders	N89.8, N92.0, N92.1, N92.3, N92.4, N92.5, N92.6, N93.8, N93.9	623.8, 626.2, 626.6, 626.5, 627.0, 626.8, 626.9	
Inpatient procedure codes			
Hysterectomy	0UT97ZL, 0UT97ZZ, 0UT98ZL, 0UT98ZZ, 0UT90ZL, 0UT90ZZ, 0UT94ZL, 0UT94ZZ, 0UT9FZL, 0UT9FZZ	683, 6831, 6839, 684, 6841, 6849, 6851, 6859, 686, 6879, 689	
Myomectomy	0UB90ZZ	6829	
Outpatient procedure codes			
Hysterectomy			58150, 58152, 58180, 58200, 58210, 58951, 58953, 58954, 59525, 56308, 58550, 58552, 58553, 58554,58260, 58261, 58262, 58263, 58267, 58270, 58275, 58280, 58285, 58290, 58291, 58292, 58293, 58294
Myomectomy			58140, 58145, 58146, 58545, 58551, 58546
D&C, hysteroscopy			58120, 58555, 58558, 58561, 58563
Uterine artery embolization			37204
Other (endometrial ablation)			58353
Magnetic resonance-guided focused ultrasound surgery			0398T, 0071T, 0072T

Abbreviation: D&C, Dilation and curettage

with uterine fibroids than those under 25 years of age **(Table 2)**. **Table 2** also demonstrates a trend of increasing uterine fibroids with increased ages of service women.

When examining uterine fibroid cases by both age and race and ethnicity, incidence rates of uterine fibroids among non-Hispanic Black service women were consistently higher than among other races and ethnicities, for all age groups **(Figure 1)**. The incidence rate differences between non-Hispanic Black women and other races and ethnicities augmented with increasing age.

As shown in **Figure 2**, health care burden analysis revealed that both numbers of medical encounters and individuals affected increased over time, with medical encounters showing a steeper upward slope. From 2011 to 2022, annual numbers of medical encounters increased from 2,496 to 6,585,

while numbers of individuals affected rose from 1,208 to 2,994, with a slight decrease of both medical encounters and individuals affected in 2020, followed by elevations in 2021 and 2022. During the surveillance period, the total number of female service members also increased substantially, from 193,211 in 2011 to 228,145 in 2022. Regardless of the increase of both medical encounters and individuals affected, the total number of bed days declined gradually after peaking at 911 days in 2014, from 699 days in 2011 to 625 days in 2022.

The percentage of hysterectomies declined consistently, from 50% in 2011 to 17% in 2022 **(Figure 3)**. While fibroid-related myomectomy treatments trended upward over the surveillance period, from 22% to 28%, the speed of the increase was relatively low. A higher speed of increase was observed (from 28% to 55%) among

other fibroid-related treatments including uterine artery embolization (UAE) and hysteroscopy dilation and curettage (D&C, hysteroscopy) **(data not shown)**.

Discussion

This report summarizes counts, incidence rates, and treatment trends of uterine fibroids among female service members in the active component of U.S. Armed Forces from 2011 to 2022. The same pattern of highest incidents among older non-Hispanic Black female service members reported in the 2011 report[17] was observed in this analysis. This report also found non-Hispanic Black women more likely to develop uterine fibroids at a younger age, confirming existing literature.[2,4,17]

TABLE 2. Numbers and Rates of Uterine Fibroids by Demographics and Miltiary Characteristics Among Active Component Female Service Members, 2011–2022

Characteristic	No. of Cases	IR[a] (95% CI)	IRR (95% CI)
Total	16,046	63.5 (62.5, 64.5)	---
Age group			
<25	1,000	9.6 (9.0, 10.1)	Ref
25-29	2,329	36.2 (34.7, 37.7)	3.8 (3.5, 4.1)
30-34	3,429	85.2 (82.3, 88.0)	8.9 (8.3, 9.6)
35-39	4,301	169.3 (164.3, 174.4)	17.7 (16.5, 19.0)
40+	4,987	276.6 (268.9, 284.2)	29.0 (27.1, 31.0)
Race and ethnicity			
White, non-Hispanic	3,648	32.3 (31.3, 33.4)	Ref
Black, non-Hispanic	8,974	150.5 (147.3, 153.6)	4.7 (4.5, 4.8)
Hispanic	1,727	38.9 (37.1, 40.7)	1.2 (1.1, 1.3)
Other	1,697	47.4 (45.1, 49.6)	1.5 (1.4, 1.6)
Service			
Army	6,986	85.0 (83.0, 87.0)	4.1 (3.7, 4.5)
Navy	3,471	48.4 (46.8, 50.1)	2.3 (2.1, 2.6)
Air Force	4,785	64.3 (62.5, 66.2)	3.1 (2.8, 3.4)
Marine Corps	373	20.8 (18.7, 22.9)	Ref
Coast Guard	431	65.4 (59.3, 71.6)	3.1 (2.7, 3.6)

Abbreviations: No., number; IR, incidence rate; CI, confidence interval; IRR, incidence rate ratio.

[a]per 10,000 person-years

FIGURE 1. Incidence Rates of Uterine Fibroids by Age and Race or Ethnicity Among Active Component Female Service Members, 2011–2022
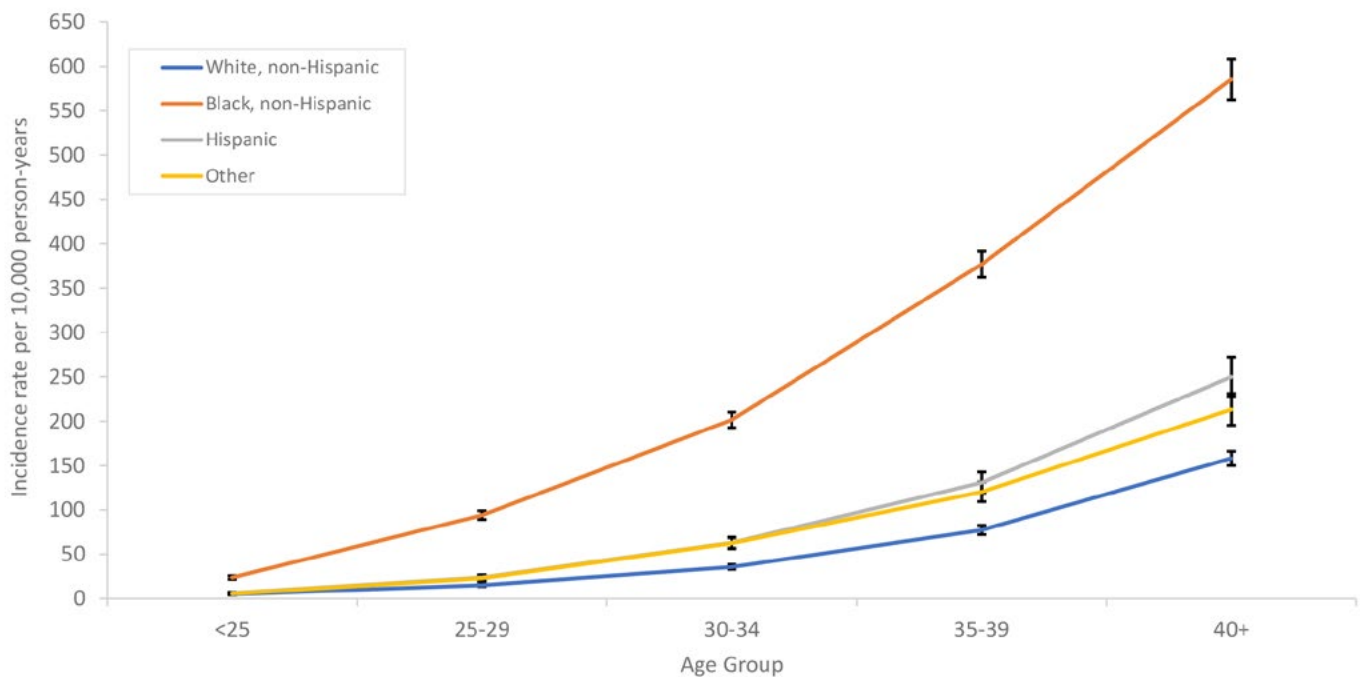
FIGURE 2. Total Numbers of Uterine Fibroid-related Medical Encounters, Individuals Affected, and Hospital Bed Days Among Active Component Female Service Members, 2011–2022
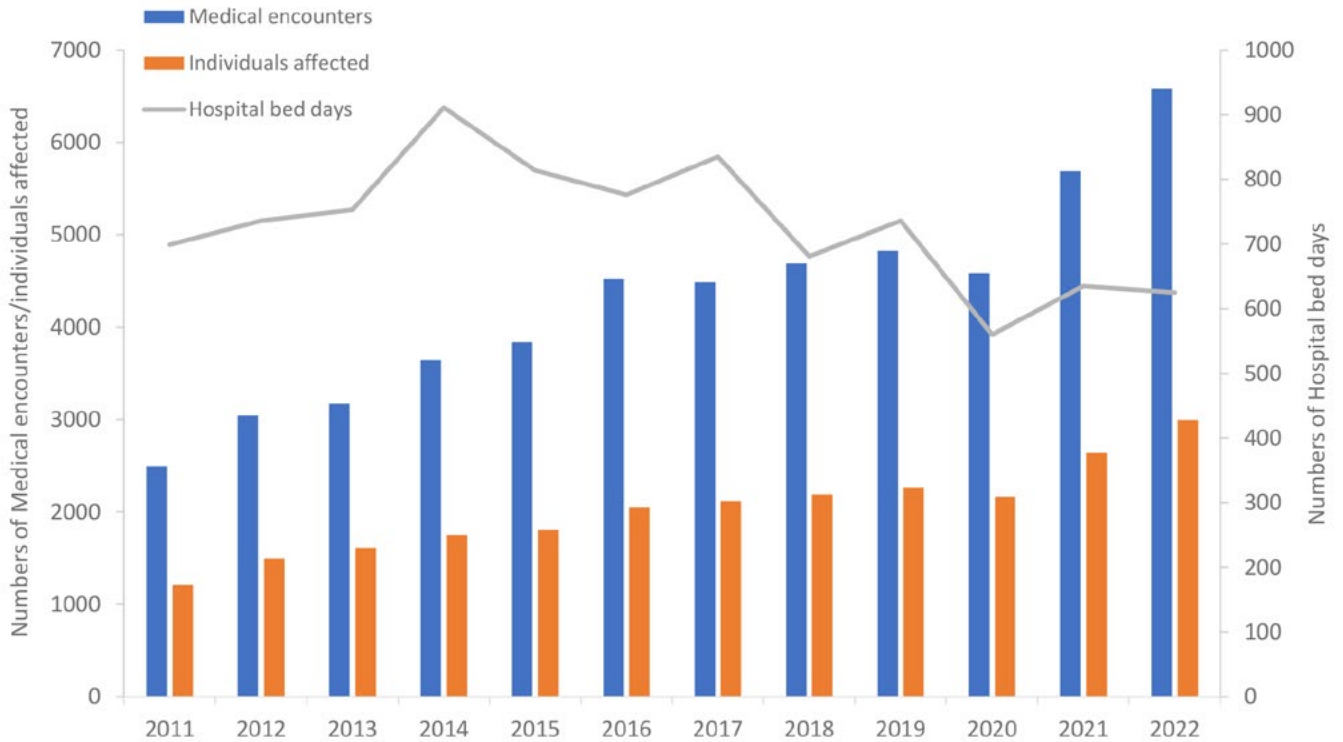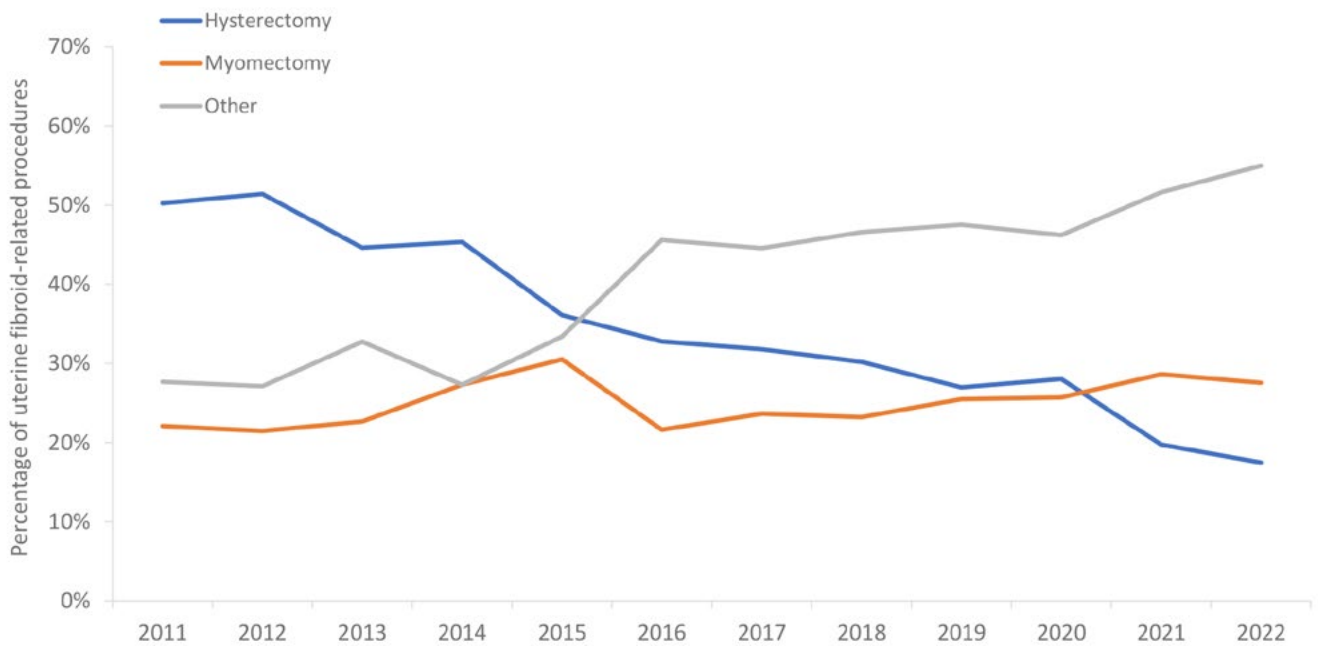

FIGURE 3. Percentages of Selected Medical or Surgical Procedures Among Uterine Fibroid Cases with First Listed Code as a Case-defining Code, 2011–2022

Potential associations between uterine fibroids and Black women include use of certain hair products, insufficient nutrition, vitamin D deficiency, obesity, life stressors, in addition to limited access to care.[7-9,15] While the chance of obesity in the military is low, and all service members have access to health care, individual lifestyle factors such as hair product use and fruit, vegetable and vitamin consumption among Black female service members is likely comparable to their civilian counterparts. Additionally, the military is regarded as a stressful work environment. These associated factors may contribute to similar patterns in the military population.

Among all incident cases identified from 2011 to 2022, 97% were outpatient cases, which was elevated from the 92% outpatient cases in the 2011 *MSMR* report.[17] This result could be attributed to increased public awareness of uterine fibroids[14-16] that resulted in more women with mild symptoms seeking medical diagnoses during outpatient visits.

During the surveillance period, both medical encounters and numbers of individuals affected increased gradually, following similar trends observed in the 2011 report.[17] The current report did observe a slight decrease, however, of medical encounters and individuals affected in 2020, followed by elevations in 2021 and 2022. That slight decrease could be attributed to the overall decline in primary care due to overwhelmed and strained health care systems during the COVID-19 pandemic.

Despite the increase of medical encounters and individuals affected over time, in this report hospital bed days showed a consistent downward trend, differing from the 2011 report.[17] This report also identified a significant decline in invasive procedures, and an increase in other procedures, which explain the reduction in hospital bed days. It is possible that early detection of uterine fibroid cases combined with access to non- or less invasive treatments such as UAE and D&C, hysteroscopy have reduced uterine fibroid-related hospital bed days over time. A more rapid decrease of hospital bed days was also observed in 2019-2020, which could be attributed to procedural delays or the preference of less invasive procedures during the COVID-19 pandemic.[18,20]

This report has some limitations. The severity of uterine fibroid cases could not be categorized due to lack of specific medical information such as tumor size, location, and numbers. Additionally, DOD Instruction 6130.03[21] defines history of chronic pelvic pain and abnormal uterine bleeding as accession-limiting. As a result, the data for those under 25 years old could be skewed. Lastly, the case definition did not include individuals with a diagnosis of abnormal uterine bleeding if there was no diagnosis of uterine fibroids in the primary or secondary diagnostic position. Consequently, use of this more specific case definition may have underestimated incidence of uterine fibroids within this population.

This report reassessed trends last reported in 2011, to provide an updated general assessment of the impact of uterine fibroids among female service members in the active component of the U.S. Armed Forces. Additionally, this report examined potential COVID-19-associated procedural delays in treatment. While the total number of cases during the surveillance period increased over time, a concurrent reduction of hospital bed days demonstrates a better approach for disease management, contributing to reduced costs of uterine fibroid-related medical care and lost work days.

Even with universal health care access, non-Hispanic Black service women continue to be disproportionally affected by uterine fibroids. This finding indicates that the higher incidence of uterine fibroids among non-Hispanic Black women are not primarily caused by health care accessibility. Additional, well-designed research is needed to further examine any genetic, behavioral, or environmental risk factors for uterine fibroids among this subpopulation.

Authors' Affiliation
Epidemiology and Analysis Section, Armed Forces Health Surveillance Division, Defense Health Agency, Silver Spring, MD: Dr. Nieh, Dr. Mabila

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Surveillance Snapshot

Demographics of the Space Force Active Component, U.S. Armed Forces, November 2023

Shauna L. Stahlman, PhD, MPH; Thomas G. Wilkerson, MPH

This Surveillance Snapshot provides the first summary of the demographic composition of active component Space Force service members, as of November 2023. This Snapshot is intended to inform future *MSMR* illness and injury surveillance reports about this population.

The U.S. Space Force was established in December 2019 to secure the United States' interests in, from, and to outer space.[1] The Space Force is a separate and distinct branch of the armed services, although it is organized under the Department of the Air Force. The Space Force provides space capabilities to the joint forces by managing space launch operations and maintaining a global satellite surveillance network that provides in-theater secure communications, as well as weather and navigation information, for military operations, in addition to threat warning.

The Armed Forces Health Surveillance Division began receiving personnel and demographic information about Space Force members from the Defense Manpower Data Center (DMDC) in 2023. As of November 2023, there were 8,938 active component members of the U.S. Space Force **(Table)**. The majority were male (81.1%), non-Hispanic White (62.3%), and possessed a bachelor's degree or higher (57.9%). The largest proportion of service members within 5-year age categories were classified as 25-29 years (23.8%) and 30-34 years (21.1%). There was a roughly even proportion of junior officers (25.9%) and senior officers (23.5%), while there were more senior enlisted (29.7%) than junior enlisted (20.9%) members.

The Space Force bases (SFBs) with the highest percentages of active component Space Force members assigned were Schriever SFB, CO (18.7%), Peterson SFB, CO (15.6%), Vandenberg SFB, CA (9.4%), Buckley SFB, CO (8.4%), and Los Angeles SFB, CA (7.4%). Roughly half of the 8,938 Space Force members were missing an occupation code as of November 2023. Of those with a valid occupation code, the most common occupations were Operations Staff Officers (42.3%) and Procurement and Production Officers (18.2%) **(data not shown)**.

TABLE. Demographics of the Space Force, Active Component, U.S. Armed Forces, November 2023

	No.	%
Total	8,938	100.0
Sex		
Male	7,245	81.1
Female	1,693	18.9
Age		
<20	235	2.6
20-24	1,669	18.7
25-29	2,131	23.8
30-34	1,882	21.1
35-39	1,642	18.4
40-44	939	10.5
45-49	301	3.4
50+	139	1.6
Race and ethnicity		
Non-Hispanic White	5,568	62.3
Non-Hispanic Black	672	7.5
Hispanic	1,300	14.5
Other	1,170	13.1
Unknown/missing	228	2.6
Rank		
Junior enlisted (E1-E4)	1,867	20.9
Senior enlisted (E5-E9)	2,656	29.7
Junior officer (O1-O3)	2,317	25.9
Senior officer (O4-O10)	2,098	23.5
Education level		
High school or less	2,589	29.0
Some college	819	9.2
Bachelor's degree or higher	5,178	57.9
Unknown/missing	352	3.9

Active component Space Force members are demographically similar to other active component service members (ACSM): The majority are males and non-Hispanic White.[2] The data presented in this report suggest, however, that Space Force members are, on average, older and more highly educated than the overall active component.[2] In 2022, 34.2% of all ACSM were aged 24 years or younger and 34.9% held a bachelor's degree or higher, compared to 21.3% of Space Force members aged 24 years or younger and 57.9% with a bachelor's degree or higher. These findings may be used to help interpret future *MSMR* illness and injury surveillance reports on the Space Force.

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Letter to the Editor

TRADOC Policy Does Not List Sickle Cell Trait as a Risk Factor for Cold Injury

Afton D. Seeley, PhD; John W. Castellani, PhD

We read with great interest the "Update: Cold Weather Injuries Among the Active and Reserve Components of the U.S. Armed Forced, July 2018-June 2023."[1] While the update provides valuable insight into the relative number of cold weather injuries incurred by military personnel across the last 5 years, the authors incorrectly stated that the latest 2023 update to Training and Doctrine Command (TRADOC) Regulation[2] recognizes sickle cell trait (SCT) as a risk factor for cold injury. Current TRADOC policy does suggest SCT screening, driven at least in part by an increased risk of exercise collapse associated with sickle cell trait (ECAST), exertional rhabdomyolysis, and blood clots in austere hot and hypoxic environments.[2] Yet, no specific policy language exists linking the presence of SCT to the risk or occurrence of cold weather injuries.

SCT is a condition that involves the presence of a mutation on 1 of 2 genes that form red blood cells, while the complementary gene remains unmutated. Because it is typically a benign carrier condition, SCT does not disqualify carriers from military service. Very little data currently exist to support a convincing link between cold weather injuries including hypothermia, freezing injury, or non-freezing cold injury and the presence of SCT. Data from the early 1950s suggests the incidence of frostbite in a small subset of African Americans, who present day tend to disproportionately carry SCT at a rate of 73.1 cases per 1,000 compared to 6.9 in Hispanics and 3.0 in non-Hsipanic Whites,[3] did not appear greater in those with SCT compared to non-SCT controls.[4] This very limited sample by no means speaks to a lack of association between SCT and cold injury or cold thermoregulatory adjustments. Undoubtedly there is a profound need to further leverage epidemiological data to improve our understanding of cold injury risk in those with SCT. Additionally, human experimental data is needed to determine if cold thermoregulation in those with SCT uniquely varies from those without SCT, perhaps predisposing them to vascular injury, neurally-mediated cold pain,[5] or diuresis-induced hypercoagulation.

Authors' Affiliation

Thermal Mountain Medicine Division, United States Army Research Institute of Environmental Medicine, Natick, MA

Disclaimer

The views, opinions, and findings contained in this article are those of the authors and should not be construed as an official United States Department of the Army position, or decision, unless so designated by other official documentation. This article is approved for public release, and distribution is unlimited.

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In Reply:

We thank Dr. Seeley and Dr. Castellani for their interest and careful review of the November 2023 *MSMR* article "Update: Cold Weather Injuries Among the Active and Reserve Components of the U.S. Armed Forces, July 2018–June 2023." The editorial team acknowledges the error in interpreting the addition of "sickle cell trait as a risk factor" as an explicit association with cold injuries in the June 2023 update of the TRADOC Regulation on Prevention of Heat and Cold Casualties. We appreciate Dr. Seeley and Dr. Castellani bringing this to our attention. A correction to the original report has been published.

Reportable Medical Events at Military Health System Facilities Through Week 1, Ending January 6, 2024

Matthew W. R. Allman, MPH; Anthony R. Marquez, MPH; Katherine S. Kotas, MPH

TOP 5 REPORTABLE MEDICAL EVENTS BY CALENDAR WEEK, ACTIVE COMPONENT (JANUARY 7, 2023 - JANUARY 6, 2024)

Top 5 RMEs, December 2023
Trends for Previous Year by Calendar Week
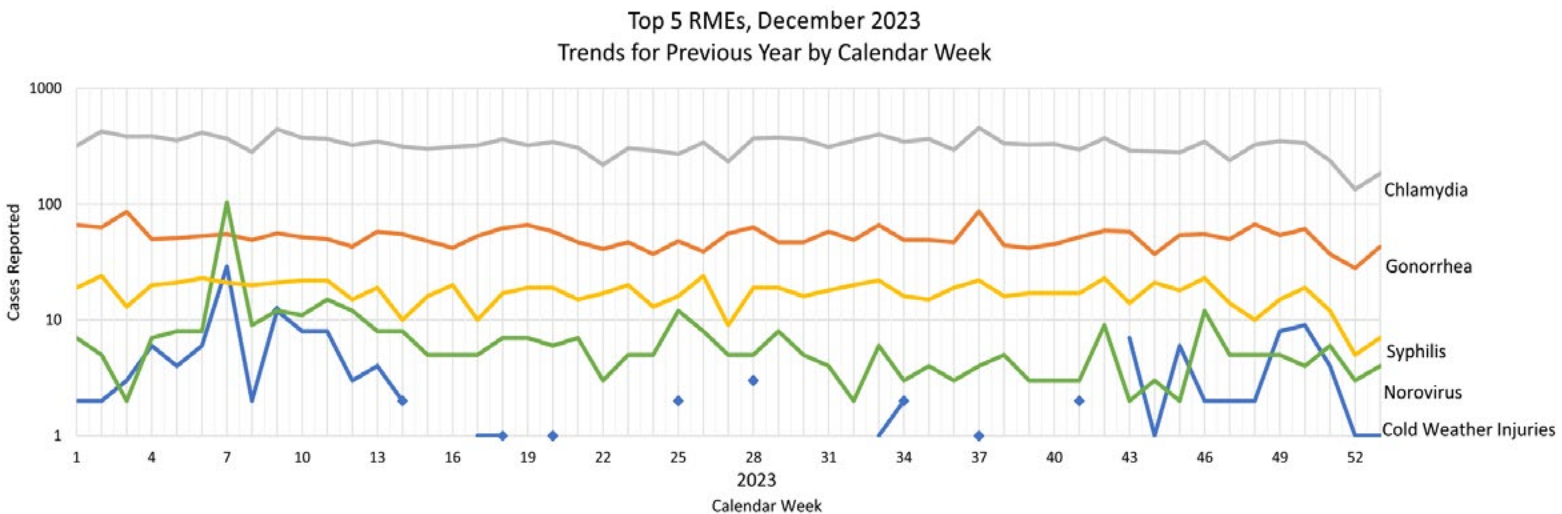
Abbreviation: No., number.

ᵃCases are shown on a logarithmic scale.

Note: There were 0 cold weather injuries cases in the following weeks in 2023: 15-16, 19, 21-24, 26-27, 29-32, 35-36, 38-42. Markers added to represent instances of cold weather injuries that were not visible on the log scale graph.

Reportable Medical Events (RMEs) are documented in the Disease Reporting System internet (DRSi) by health care providers and public health officials throughout the Military Health System (MHS) for monitoring, controlling, and preventing the occurrence and spread of diseases of public health interest or readiness importance. These reports are reviewed by each service's public health surveillance hub. The DRSi collects reports on over 70 different RMEs, including infectious and non-infectious conditions, outbreak reports, STI risk surveys, and tuberculosis contact investigation reports. A complete list of RMEs is available in the *2022 Armed Forces Reportable Medical Events Guidelines and Case Definitions*.[1] Data reported in these tables are considered provisional and do not represent conclusive evidence until case reports are fully validated.

Total active component cases reported per week are displayed for the top 5 RMEs for the previous year. Each month, the graph is updated with the top 5 RMEs, and is presented with the current month's (December 2023) top 5 RMEs, which may differ from previous months. COVID-19 is excluded from these graphs due to changes in reporting and case definition updates in 2023.

For questions about this report, please contact the Disease Epidemiology Branch at the Defense Centers for Public Health–Aberdeen. Email: dha.apg.pub-health-a.mbx.disease-epidemiologyprogram13@health.mil

Authors' Affiliation: Defense Health Agency, Disease Epidemiology Branch, Defense Centers for Public Health–Aberdeen

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TABLE. Reportable Medical Events, Military Health System Facilities, Week Ending January 6, 2024 (Week 1)[a]

Reportable Medical Event[b]	Active Component[c]					MHS Beneficiaries[d]
	November	December	YTD 2023	YTD 2022	Total, 2022	December
	no.	no.	no.	no.	no.	no.
Amebiasis	1	1	15	13	13	0
Arboviral diseases, neuroinvasive and non-neuroinvasive	0	0	2	1	1	0
Brucellosis	0	0	0	2	2	0
COVID-19-associated hospitalization and death[e]	6	12	114	7	7	95
Campylobacteriosis	18	11	265	230	230	13
Chikungunya virus disease	0	0	2	1	1	0
Chlamydia trachomatis	1,292	1,136	17,152	19,432	19,432	190
Cholera	0	0	4	2	2	0
Coccidioidomycosis	6	4	33	15	15	1
Cold weather injury[f]	12	23	147	151	151	1
Cryptosporidiosis	1	6	67	46	46	3
Cyclosporiasis	0	0	15	10	10	0
Dengue virus infection	0	0	7	1	1	0
E. coli, Shiga toxin-producing	3	5	70	67	67	2
Ehrlichiosis/anaplasmosis	0	0	29	3	3	0
Giardiasis	4	4	76	71	71	0
Gonorrhea	232	199	2,736	3,305	3,305	26
Haemophilus influenzae, invasive	0	0	1	1	1	2
Hantavirus disease	0	0	1	1	1	0
Heat illness[f]	35	2	1,256	1,214	1,214	0
Hepatitis A	1	0	8	16	16	0
Hepatitis B	11	14	150	119	119	8
Hepatitis C	4	4	51	57	57	6
Influenza-associated hospitalization[g]	3	9	28	148	148	43
Lead poisoning, pediatric[h]	0	0	0	0	0	6
Legionellosis	1	0	5	4	4	1
Leishmaniasis	0	0	1	1	1	0
Leprosy	0	0	2	1	1	0
Leptospirosis	0	0	4	1	1	0
Lyme disease	2	3	69	65	65	2
Malaria	4	2	27	26	26	0
Meningococcal disease	0	2	4	2	2	0
Mpox	1	1	4	93	93	0
Mumps	0	0	0	0	0	1
Norovirus	25	21	412	222	222	28
Pertussis	3	2	15	10	10	4
Post-exposure prophylaxis against Rabies	41	36	584	514	514	25
Q fever	0	0	2	3	3	0
Rubella	0	0	2	3	3	0
Salmonellosis	8	10	128	123	123	11
Schistosomiasis	0	0	0	1	1	0
Severe Acute Respiratory Syndrome (SARS)	0	0	0	1	1	0
Shigellosis	1	0	58	33	33	7
Spotted fever rickettsiosis	1	0	31	70	70	0
Syphilis (all)	74	53	912	1,048	1,048	20
Toxic Shock Syndrome	0	1	2	0	0	0
Trypanosomiasis	0	0	1	1	1	0
Tuberculosis	0	0	11	11	11	0
Tularemia	0	0	1	0	0	0
Typhoid fever	0	0	2	0	0	0
Typhus fever	0	0	2	1	1	0
Varicella	2	1	12	16	16	0
Total case counts	1,792	1,562	24,520	27,163	27,163	495

Abbreviations: MHS, Military Health System; YTD, year-to-date; no., number; RME, reportable medical event; DRSi, Disease Reporting System internet; ACSM, active component service member; FMP, Family Military Prefix.

[a] RMEs reported through DRSi as of Dec. 31, 2023 are included in this report. RMEs were classified by date of diagnosis, or where unavailable, date of onset. Monthly comparisons are displayed for the periods Nov. 1, 2023-Nov. 30, 2023 and Dec. 1, 2023-Dec. 31, 2023. YTD comparison is displayed for the period Jan. 1, 2023-Dec. 31, 2023 for MHS facilities. Previous year counts are provided as the following: previous year YTD, Jan. 1, 2022-Dec. 31, 2022; total 2022, Jan. 1, 2022-Dec. 31, 2022.

[b] RME categories with 0 cases among active component service members and MHS beneficiaries for the time periods covered were not included in this report.

[c] Services included in this report include Army, Navy, Air Force, Marine Corps, Coast Guard, and Space Force, including personnel classified as FMP 20 with Duty Status of AD, Recruit, or Cadet in DRSi.

[d] Beneficiaries included the following: individuals classified as FMP 20 with duty status of Retired and individuals with all other FMPs except 98 and 99. Civilians, contractors, and foreign nationals were excluded from these counts.

[e] Only cases reported after case definition update on May 4, 2023. Includes only cases resulting in hospitalization or death. Does not include cases of hospitalization/death reported under the previous COVID-19 case definition.

[f] Only reportable for active component service members.

[g] Influenza-associated hospitalization is reportable only for individuals aged 65 years or younger.

[h] Pediatric lead poisoning is reportable only for children aged 6 years or younger.

[h] Pediatric lead poisoning is reportable only for children aged 6 years or younger.