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Health Risk Behaviors of Afghanistan and Iraq War Veterans Attending College

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Abstract

Purpose—The population military veterans attending college is rapidly growing as veterans return from Operations Enduring Freedom and Iraqi Freedom (OEF/OIF). We sought to describe patterns of student veterans' health-related behaviors and how they might differ from their non-veteran peers.

Design—We analyzed data from the 2008 Boynton College Student Health Survey (CSHS).

Setting—CSHS participants completed an anonymous online survey.

Subjects—The CSHS sampled students (n=8,651) attending public, private, two-, and four-year postsecondary educational institutions in Minnesota.

Measures—The CSHS included items on substance use (including alcohol and tobacco), safety, nutrition, and physical activity.

Analysis—We described demographics of OEF/OIF veteran, non-OEF/OIF veteran, and non-veteran students and used poisson regression to compute adjusted relative risks (ARR) with 95% confidence intervals to characterize associations between veteran status and health behaviors.

Results—After controlling for demographics, veteran students reported more safety-, tobacco-, and alcohol-related risk behaviors compared to non-veteran students. For instance, compared to the non-veteran reference group, the ARR for past year smokeless tobacco use and physical fighting among for OEF/OIF veterans was 1.76 [CI: 1.31–2.35] and 1.48 [CI: 1.22–1.79] respectively. Veteran and non-veteran students display similar weight-related behaviors, though OEF/OIF veteran students were more likely to engage in strengthening exercises.

Conclusions—There are specific health risk behaviors which are particularly relevant for veterans attending postsecondary institutions. As veterans enroll in postsecondary education there is a unique window of opportunity for health promotion in this population.

Keywords

Veterans; Young Adult; Tobacco; Substance Abuse; Obesity; Safety

Purpose

Presently, the population of college students who are US military veterans is rapidly growing as military members return from the United States' conflicts in Afghanistan and Iraq (Operation Enduring Freedom / Operation Iraqi Freedom – OEF/OIF). Though the total number of veterans attending college is difficult to quantify, the anticipated number of veterans that will attend post-secondary institutions on the GI Bill in the Fall of 2009 is 460,000[1,2] and will likely increase in the coming years in part due to the recent introduction of the Post-9/11 GI Bill.[3] This influx of military veterans attending postsecondary institutions presents challenges for educational institutions to serve the potentially unique needs of this population. Unfortunately, little is known about patterns and prevalences of student veterans' health behaviors including tobacco, alcohol, and illicit substance use; weight-related behaviors, and how they might differ from their non-veteran peers.

Young adulthood may mark a critical age for examining various health risk behaviors. For example, most young smokers have not established their smoking pattern by the time they reach age 18; therefore young adulthood is a time when smoking patterns escalate, solidify, and/or cease.[4–6] For some time it has been observed that military service has been associated with a progression to heavier smoking patterns among those who already smoked before entry into the military and also smoking initiation among those who were non-smokers prior to joining the military.[7–11] And, the recently released Institute of Medicine report *Combating Tobacco Use in Military and Veteran Populations* concluded that tobacco use continues to threaten the health of veterans.[12] According to a Department of Defense study, approximately one-third of military personnel in 2005 were smokers and of those, 37.5% of current smokers indicated they started smoking after joining the military.[13] The prevalence of smoking is 50% higher among military members who have been deployed compared to those who have not.[12] Indeed, smoking rates are particularly high among those who served in OEF/OIF with published estimates ranging from 39%–56%.[14,15] Additionally, a substantial proportion (18.5%) of young adult military recruits report using alternative tobacco products (smokeless tobacco, cigars, etc.) prior to entering their military training.[16] Active military personal are about twice as likely to use smokeless tobacco compared to civilians and their use of smokeless tobacco may be increasing.[17]

In 2005, The Department of Veterans Affairs (VA) diagnosed approximately 800,000 military members with substance use disorders.[18] Population-based prevalence estimates from the 2000–2003 National Survey on Drug Use and Health show that veterans are more likely to report any use of alcohol when compared to non-veterans of similar age, gender, and geography, however the prevalence of illicit drug use among veterans appears to be similar to non-veterans.[19] For many veterans, alcohol misuse began before they deployed to OEF/OIF with approximately 45% reporting binge drinking prior to deployment.[20] Alcohol use is also known to amplify the likelihood of engaging in other health risk behaviors. For example, alcohol use is associated with risky sexual behaviors which can, in turn, lead to unintended pregnancy, sexually transmitted infections.[21,22] Research has also indicated that veterans are more likely than non-veterans to drive while under the influence of drugs or alcohol.[19]

The behavior of young adult veterans can be influenced by mental health issues and brain injuries that are a result of combat exposure. Recently returned veterans with psychiatric problems have a greater likelihood of engaging in sexual-risk-taking behaviors.[23] It is also known that veterans who have been exposed to violent combat are more likely to engage in behaviors such as driving too fast and perpetrating aggression upon returning home.[24] OEF/OIF veterans diagnosed with Post Traumatic Stress Disorder (PTSD) or Traumatic Brain Injury (TBI) are known to be at increased risk for suicide and for behaviors that compromise their safety.[23]

Furthermore, young adulthood is a period in the life course that is notorious for other health risks, such as weight gain.[25–32] The prevalence of obesity has grown rapidly in the young adult age group over the past 30 years.[33,34] Weight gain during the transitions of young adulthood is likely primarily due to both poor dietary patterns[35,36] and sedentary lifestyles.[37–39] Evidence from national survey data shows that the 20–39 year old group has the highest rates of fast food and sweetened beverage consumption[40,41] and most young adults aged 20–29 years consumed less than one serving of fruits/vegetables per day.[42] There are limited data on obesity rates in OEF/OIF veterans; and we can only speculate about weight behaviors and their influences in this population. However, despite spending a portion of their lives in a culture that selects for and values fitness, obesity rates in the older generations of veterans served by the VA are high. Two studies using nationally representative Behavioral Risk Factor Surveillance System (BRFSS) data have documented that about one quarter of veterans are obese.[43,44]

In summary, veterans in general, experience a wide range of elevated risk behaviors, however little is known about the prevalence of these behaviors specifically among today's young returning veterans, as well as effective avenues to address these issues. In that a majority of eligible veterans who served in OEF/OIF from October of 2002 through December 2008 have not sought care from the VA,[45] it is critical that the development of health promotion strategies targeting veterans consider a broad array of settings. Post-secondary institutions may be one viable setting for such health promotion efforts. Therefore, the aim of this study was to describe a variety of health related behaviors among veterans attending postsecondary institutions and compare the rates of self-reported risk behaviors between veterans and non-veteran students. We hypothesized that veterans would have higher rates of risk behaviors compared to their non-veteran peers and that veterans who served in OEF/OIF would be most likely to report engaging in risky behaviors. Our analyses focused on tobacco, alcohol, substance use, safety, and weight-related behaviors.

Methods

Design

Developed by Boynton Health Service at the University of Minnesota, the Boynton College Student Health Survey (CSHS) was designed to serve as a surveillance tool to monitor the health of college students. The schools included in the CSHS are not chosen at random. Any post-secondary educational institution in Minnesota that wishes to gather surveillance data on the health behaviors are welcome to participate. A random sample of students at the 14 participating colleges and universities in Minnesota was invited to complete the 2008 CSHS. The sample includes students attending both public and private, two- and four-year colleges and universities. Based on the size of the institution, random samples ranging from 25% to 66% of the student bodies were invited to participate at each school. In addition, all students identified by their institutions as US military veterans at these 14 schools were invited to take part in the study. To increase the veteran sample size, veteran students from an additional university were identified and invited to participate, non-veterans from this same institution were not included in the survey process. Demographically, veterans from this

additional school did not differ from the group of veterans from the 14 other schools on gender or ethnic/racial composition; however, they were significantly more likely to be older.

In February and March 2008, randomly selected students (and all student veterans) at participating schools received a postcard notifying them of their eligibility to participate. Students were then e-mailed a link to the on-line survey. After viewing a consent webpage, respondents could either continue to the survey if they indicated consent to participate or opt out. As an incentive for participation, all participants were entered into a drawing for gift certificates valued at $3,000 (one), $1,000 (one), and $500 (two) at a variety of stores. Surveys were completed anonymously. The University of Minnesota Institutional Review Board approved all procedures for this study. Permission to conduct the research was also obtained at the institutions the subjects attended.

Sample

A total of 26,400 students, 1,901 of whom identified as military veterans, were invited to complete the survey; and 8,651 completed the survey (32.8% overall response rate). Individual school response rates ranged from 24.5% to 49.2%. The veteran response rate was 42.8%. Within the veteran sample, 49.2% reported serving in OEF/OIF.

Measures

The CSHS included items covering a variety of issues germane to the health of college students. The primary exposure of interest, veteran status, was assessed by two items, “Are you currently or have you ever served in the United States Armed Forces?” and, “Are you an Operation Iraqi Freedom and/or Operation Enduring Freedom veteran?” with response options of ‘yes’ and ‘no’ for both questions.

Tobacco—Students responded to several survey items about personal tobacco use including whether they considered themselves a smoker (yes, no), average number of cigarettes smoked on weekdays and weekend days, whether they were “seriously planning to stop smoking” before graduation (yes, no, don’t know, N/A – I don’t smoke), and whether they stopped smoking for at least one day because they were trying to quit smoking (yes, no, N/A – I don’t smoke). Students were also asked how many hours in an average weekday and weekend day they are in the same room with someone who is smoking tobacco and how often they used smokeless tobacco in the past year (did not use, once/year, 6 times/year once/month, more than once/month).

Alcohol & other drugs—Beyond tobacco, students also reported on their other substance use behaviors. Participants responded to questions asking the number of times they had consumed five or more alcoholic drinks in one sitting in the previous two weeks and whether they rode in a car with a driver who was impaired by alcohol in the past year. They were also asked how often they used marijuana and other illicit drugs in the past year. Students reported whether they had driven a car while under the influence of any substance.

Safety—Students self-reported if they had been “in a physical fight” and if they “ever carried a weapon” in the past year (yes, no). Students were also asked if they wore a seatbelt when riding in a car, wore a helmet when riding bicycle and motorcycle with response options of ‘never’; ‘sometimes’; ‘most of the time’; ‘always’; and ‘N/A – didn’t do this activity within the last 12 months’. The CSHS assessed whether the student was intoxicated during their last sexual encounter (yes, no, not sure, N/A – I have not been sexually active). Students were asked to describe their most recent sexual partner with response options of ‘N/A – I am not sexually active’; ‘a stranger’; ‘a casual acquaintance’; ‘a close but not

exclusive dating partner'; 'an exclusive dating partner'; 'fiancé, spouse, or spousal equivalent'; and 'other'.

Weight-related behaviors—Body mass index (BMI, kg/m^2) was calculated from participants' self-reported height and weight. The BMI cutoffs of ≥ 25 and ≥ 30 kg/m^2 were used as they reflect national guidelines for defining overweight and obesity respectively.[46] Students were asked to report how many hours within the past seven days they spent doing any of the following: strenuous exercise, where "the heart beats rapidly"; moderate exercise, which was "not exhausting"; and exercises to "strengthen or tone muscles." For sedentary behaviors, respondents were asked to indicate how many hours on an average day they spend; "watching television" or "playing video or computer games or use a computer for something that is not work or school work." The total number of hours spent doing these sedentary behaviors was totaled. Similar to national surveillance systems,[47] students were asked how often in the past seven days they ate the following: 100% fruit juice, fruit, green salad, potatoes (not including fried potatoes), carrots, and other vegetables. These responses were totaled to reach the number of servings of fruits and vegetables students consumed within the past seven days. Participants were asked how frequently they ate fast food meals and used the unhealthy weight control behaviors of taking laxative, vomiting, taking diet pills, and binge eating with response options of 'never'; 'once a year or less'; 'a few times a year'; 'once or twice per month'; 'once per week'; 'several times per week'; 'daily'; and 'several times a day.'

Analysis

The first step in our analysis was to describe the demographics of OEF/OIF veteran, non-OEF/OIF veteran, and non-veteran students as well as the prevalence of risk behaviors for each of these three groups of students. Then, using poisson regression, we calculated adjusted relative risks (ARR) with 95% confidence intervals (95% CI) of reporting these select behaviors in each of the two groups of veteran students compared to non-veteran students. Although logistic regression is often used to model relationships among predictors and dichotomous outcomes in public health research, we chose to use poisson regression because odds ratios derived from logistic regression can overestimate associations when the outcome is not rare (when prevalence greater than approximately 10%).[48] Due to relatively small numbers of female veterans, we chose not to stratify by gender. All multivariable models were adjusted for gender, year in school, age (continuous), and race/ethnicity. In order to address the potential correlation of outcomes within institutions, we computed confidence intervals using Huber-White (robust) standard errors.[49] Analyses were conducted in STATA SE 10.0 (StataCorp, College Station, TX).

Results

Table 1 displays the demographic characteristics of students who are not military veterans, OEF/OIF veterans, and students who are veterans but did not serve in OEF/OIF. The non-veteran students were more likely to be female and younger compared to both groups of veterans. The distribution of students' year in school also differed significantly across groups.

Table 2 includes substance use and other risk behaviors. Nearly 29% OEF/OIF veterans reported smoking a cigarette in the past week, however.. The OEF/OIF veterans were also more likely than non-veterans to report smokeless tobacco use in the past year (ARR = 1.76; 95% CI = 1.31 – 2.35). OEF/OIF veterans who used tobacco were more likely to report planning to quit tobacco use before graduation compared to the two other groups. Being an OEF/OIF veteran was associated with recent high-risk drinking (five or more alcoholic

drinks in one sitting) and riding in a car with someone who was impaired by alcohol. Both types of veterans were less likely than non-veterans to report past month marijuana use.

Behaviors that increase risk of injury were common among all students, especially a lack of helmet use for bicycle and motorcycle riders (Table 2). OEF/OIF veterans were more likely to have been in a physical fight (ARR = 1.48; 95%; CI = 1.22 – 1.79), carried a weapon (ARR = 3.83; 95% CI = 3.28 – 4.47), and have ridden a motorcycle in the past year (ARR = 1.34; 95% CI = 1.10 – 1.64) compared to non-veterans. Non-OEF/OIF veterans were also more likely to have carried a weapon in the past year and were less likely to report wearing a seatbelt “most of the time” while in a car.

Across the three groups, the prevalence of unhealthy weight-related behaviors was generally high. Both types of veterans were more likely to have a BMI greater than 25; however, the estimates have only borderline statistical significance. OEF/OIF veterans were less likely than non-veterans to report not having engaged in any strengthening exercises in the past week (ARR = 0.78; 95% CI = 0.65–0.94) and less likely to report more than two hours of screen time per day (ARR = 0.84; 95% CI = 0.71–0.99).

Discussion

Our research shows that student veterans are a demographically distinct population within the student body, being older and more likely to be male. These findings also suggest that student veterans may be more likely than non-veterans to behave in ways that can put their health at risk, yet at the same time display health protective behaviors in other areas. Our findings did document several health issues of concern, particularly in that veterans tended to report more safety-, tobacco-, and alcohol-related risk behaviors compared to non-veterans. Notably, however, veterans were less likely to report marijuana use. In the area of tobacco use, OEF/OIF veteran smokers were more likely to report planning on quitting before graduation. In regard to weight-related behaviors, generally we found veterans and non-veterans behave similarly, with the exception of OEF/OIF veterans being more likely to engage in the positive behavior of doing strengthening exercises, and less likely to participate in more than two hours of screen time per day. Both types of veterans were more likely to report having carried a weapon in the past year; however, this may have been in relation to their military service. Some individuals in the study may have been on active duty in the past year or may be in the Reserves or National Guard and regular have trainings or duty where they carry weapons.

The higher rates of both cigarette smoking and smokeless tobacco use among veterans, compared to non-veterans, in this sample are of concern. Our smoking prevalence estimate is lower than other estimates of smoking among OEF/OIF veterans overall regardless of education, but it is closer to the 2005 Department of Defense survey estimate of smoking prevalence among active military members who have attended some college (32.5%).[50] Encouragingly, however, we found that the veteran smokers actually reported greater intentions to quit by graduation compared to the non-veteran smokers. Young adulthood appears to be the period where smoking patterns “lock in” as few individuals initiate or quit smoking in the decade following young adulthood.[51] Promoting motivation for cessation and access to cessation aids during the young adult years is critical as it has been estimated that most of the mortality associated with smoking can be avoided by quitting smoking by age 35.[52]

The increased risk of misusing alcohol among the veterans population has been previously reported.[19] A major concern with alcohol use and misuse is an increased risk for injury. In 2006, unintentional injury was the leading cause of death for young adults aged 18–44 in the

US.[53] By far, the most common type of injury death in this age group was motor vehicle accidents.[54] Our research suggests that students who are OEF/OIF veterans have a heightened risk for both driving intoxicated and riding in a car where the driver is drunk.

Emotional and mental health issues, in addition to being health concerns in and of themselves, may also contribute to the health risk behaviors we examined. Veterans returning from service and enrolling in college enter this critical period of young adulthood carrying unique experiences and challenges. Veterans are at risk for posttraumatic stress disorder (PTSD) from traumas directly related to combat or other violent events. A recent longitudinal study reported that among women, combat exposure was associated with an increased risk for an eating disorder over time.[55] The impact of PTSD on the health-related behaviors of OEF/OIF veterans remains an important area for future investigation.

We found that veterans were more likely to have BMIs that would place them in the overweight category, but were no more likely than non-veterans to be obese (and in the case of OEF/OIF veterans, their risk of obesity might be lower than that of non-veterans). This, coupled with our finding that OEF/OIF veterans were more likely to report strength training, suggests that the relatively high proportion of veterans with a BMI greater than or equal to 25, may be a an artifact of how BMI is computed whereby individuals with high muscle mass can sometimes be inappropriately categorized as overweight or obese.[56]

Veterans who attend college are likely very different from those who do not. Graduating from college is a protective factor for many risk behaviors in the general population. Veterans who attend college may have some additional protective resources prior to entering college, like being from a high socio-economic status group compared to those who do not attend college. They may also take on aspects of college culture that are protective while leaving behind aspects of military culture that reinforce unhealthy behaviors such as tobacco use.

This study is limited by its cross-sectional nature and thus we cannot know the temporality of the associations that were observed. Other limitations are the study's modest response rate and our lack of information on non-responders, which precludes us from assessing selection bias. However, our response rates are in the same range as other internet-based surveys in similar populations.[57–60] Additionally, this study is may not be generalizable to all young veterans since all participants attended school in Minnesota. For instance, Minnesota tends to have lower proportions of residents living below the poverty line and fewer people who are ethnic minorities compared to other states in the US. While the study was designed to specifically examine veterans attending college and inform health promotion efforts in college settings, it is possible that the veterans in greatest need are those who are not attending college. More research is needed in this area to use in the development of health promotion efforts that might address the needs of all young veterans. However, the study's unique strengths are that the population sampled from diverse types of educational institutions including public, private, two- and four-year colleges, and that veterans were oversampled. To our knowledge this is the first study to examine health risk behaviors in a population of student military veterans.

Young adulthood appears to be a particularly key stage for the establishment of long-lasting health behaviors and therefore it could be an opportune time to intervene.[61,62] It is important to work through not just VA clinics but also through other channels to promote veteran health as the majority of OEF/OIF from that are eligible for VA care have not obtained care from the VA.[45] Postsecondary educational institutions provide an ideal environment for health promotion efforts aimed at this population. Right now, as young veterans are returning from service in OEF/OIF and enrolling in college, a focus on veterans by college

health centers and partnerships between these centers and the VA could reduce the future burden of disease on the young returning veteran population.

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SO WHAT?

What is already known on this topic?

Both college students and veterans are populations known to be at risk for certain health risk behaviors. The population of college students who are US military veterans is rapidly growing as military members return from the conflicts in Afghanistan and Iraq.

What does this article add?

Our findings document several health issues of concern, particularly in that veterans tended to report more safety-, tobacco-, and alcohol-related risk behaviors compared to their non-veterans peers. Specifically, OEF/OIF veterans were 1.8 times more likely to report smokeless tobacco use, 1.3 times more like to be current smokers, and 1.5 times more likely to report involvement in a physical fight compared to their non-veteran peers.

What are the implications for health promotion practice or research?

Postsecondary educational institutions provide an ideal environment for health promotion efforts aimed at this population. Right now, as young veterans are returning from service and enrolling in college, there is a unique window opportunity to promote a path of lifelong health.

Table 1

Demographic characteristics of students by veteran status. Boynton CSHS, 2008.

	Non-veterans		OEF/OIF veterans		Non-OEF/OIF veterans	
	n	%	n	%	n	%
Gender**						
Male	2,295	29.4%	315	77.8%	289	70.5%
Female	5,513	70.6%	90	22.2%	121	29.5%
Transgender/other	5	0.1%	0	0.0%	0	0.0%
Total[a]	7,813		405		410	
Year in school **						
Undergraduate year 1	1,734	22.2%	57	14.1%	77	18.8%
Undergraduate year 2	1,653	21.2%	80	19.8%	73	17.8%
Undergraduate year 3	1,559	20.0%	105	26.0%	84	20.5%
Undergraduate year 4	1,173	15.0%	77	19.1%	66	16.1%
Undergraduate year >= 4	829	10.6%	56	13.9%	53	12.9%
Graduate	859	11.0%	29	7.2%	57	13.9%
Total[a]	7,807		404		410	
Age **						
< 25	4,815	61.6%	141	34.7%	117	28.5%
25 – 34.9	1,691	21.6%	226	55.7%	159	38.8%
35+	1,309	16.7%	39	9.6%	134	32.7%
Total[a]	7,815		406		410	
Race/Ethnicity[b]						
African American/Black	307	3.9%	18	4.4%	8	2.0%
American Indian/Alaskan Native	116	1.5%	4	1.0%	8	2.0%
Asian/Pacific Islander *	395	5.1%	15	3.7%	16	3.9%
Latino/Hispanic	162	2.1%	15	3.7%	13	3.2%
Middle Eastern	31	0.4%	0	0.0%	2	0.5%
White/Caucasian	6,947	88.9%	363	89.4%	374	91.2%
Other	104	1.3%	9	2.2%	6	1.5%

	Non-veterans		OEF/OIF veterans		Non-OEF/OIF veterans	
	n	%	n	%	n	%
Total[a]	7,815		406		410	

** Chi-square testing difference between groups, p < .001

* Chi-square testing difference between groups, = .037

[a] Totals vary due to missing data.

[b] Respondents could chose more than one race/ethnicity, so percentages total to more than 100%

Table 2

Adjusted associations between veteran status and health behaviors. All analyses adjusted for gender, year in school, age (continuous), and race/ethnicity. The Adjusted Risk Ratio (ARR) was estimated using poisson regression and is a ratio of prevalences. Non-veterans are the reference group. (Table continued on next page.) Boynton CSHS, 2008.

	Non-veterans n=7,815^		OEF/OIF veterans n= 406^		Non-OEF/OIF veterans n=410^	
	Crude prevalence (%)	**ARR**	**Crude prevalence (%)**	**ARR (95% CI)**	**Crude prevalence (%)**	**ARR (95% CI)**
Tobacco						
Consider self a smoker	14.1	1	15.2	1.26 (0.99–1.63)	17	1.01 (0.77–1.31)
Current smoker (average number of cigarettes smoked per week > 0)	22.2	1	28.8	1.30 (1.11–1.52) *	22	0.96 (0.82–1.11)
Not seriously planning to quit smoking before graduation[d]	46.1	1	33	0.70 (0.50–0.97) *	42.2	0.89 (0.67–1.19)
Stopped smoking for ≥ 1 day because trying to quit smoking[e]	58.4	1	61	1.08 (0.90–1.30)	59.8	1.11 (0.95–1.28)
Exposed to ≥1 hour secondhand smoke per day	49.1	1	47.5	0.97 (0.83–1.13)	41.7	0.95 (0.83–1.09)
Used smokeless tobacco ≥ once/month in past 12 months	3.8	1	14.3	1.76 (1.31–2.35) *	7.1	1.12 (0.73–1.70)
Alcohol & other drugs						
Report high risk drinking (≥ 5 drinks at one time) in past 2 weeks	32.5	1	48.3	1.25 (1.12–1.39) *	29.8	0.94 (0.84–1.06)
Past year, ride in a car with driver who was impaired by alcohol[f]	32.5	1	41.2	1.29(1.17–1.43) *	27.1	0.94 (0.75–1.19)
Drive ≥ once in the past month while intoxicated	19.3	1	26.4	1.20 (1.00–1.43)	18.1	0.94 (0.79–1.12)
Used marijuana ≥ once/month in past 12 months	8.4	1	6.4	0.61 (0.41–0.90) *	4.4	0.53 (0.30–0.93) *
Used any other illegal drugs in the past 12 months	10.7	1	11.6	0.94 (0.65–1.36)	11.2	0.98(0.71–1.35)
Was intoxicated the last time had sex[g]	10.4	1	12.4	0.97 (0.81–1.17)	9	0.87 (0.67–1.11)
Safety						
Been in a physical fight in the past 12 months	5.8	1	11.4	1.48 (1.22–1.79) *	8.5	1.38 (0.92–2.09)
Carried a weapon in the past year	7.3	1	41.5	3.83 (3.28–4.47) *	25.4	2.91 (2.31–3.67) *
Rode on motorcycle in last 12 months	22.5	1	30.1	1.34 (1.10–1.64) *	26.1	1.20 (1.00–1.43)
Wear a seatbelt < “most of the time” when in a car[a]	7	1	9.6	0.95 (0.71–1.27)	5.4	0.60 (0.44–0.84) *
Wear a bicycle helmet < “most of the time” while bicycling[b]	82	1	72.4	0.89 (0.84–0.95) *	72.3	0.94 (0.85–1.05)
Wear a motorcycle helmet < “most of the time” when riding a motorcycle[c]	31.7	1	35.5	1.05 (0.89–1.24)	26.2	0.78 (0.57–1.07)
Most recent sexual partner was a casual acquaintance or stranger	5.4	1	9.1	1.11 (0.92–1.35)	5.9	0.94 (0.65–1.35)

	Non-veterans n=7,815^		OEF/OIF veterans n= 406^		Non-OEF/OIF veterans n=410^	
	Crude prevalence (%)	ARR	Crude prevalence (%)	ARR (95% CI)	Crude prevalence (%)	ARR (95% CI)
Body mass						
BMI ≥ 25 kg/m^2	45.6	1	60	1.13(1.04–1.23) *	66.3	1.13 (1.06–1.21) *
BMI ≥ 30 kg/m^2	19.3	1	16.6	0.79 (0.61–1.04)	24.1	0.98 (0.86–1.11)
Physical activity / sedentary behavior						
0 hours/week of moderate activity	17.3	1	18	1.04 (0.89–1.21)	23.4	1.26 (1.00–1.44)
0 hours/week of vigorous activity	34.7	1	26.4	0.87 (0.76–1.00)	37.6	1.09 (0.98–1.22)
0 hours/week of strengthening exercises	37.9	1	27.1	0.78 (0.65–0.94) *	37.3	0.98 (0.86–1.12)
> 2 hours / day of TV, video, computer games	31.6	1	29.6	0.84 (0.71–0.99) *	30.2	1.00 (0.88–1.13)
Dietary patterns						
< 5 servings fruits and vegetables/day	84.4	1	84.8	1.00 (0.95–1.04)	84.1	1.00 (0.97–1.04)
Breakfast < 5 days in the pasts week	42	1	44.7	1.00 (0.88–1.14)	43.7	1.08 (0.94–1.23)
Eat fast food at least several times per week	16.5	1	22	1.04 (0.79–1.36)	21.5	1.10 (0.91–1.34)
Weight control behaviors						
≥ 1 unhealthy behavior in the past year	22.3	1	20.7	1.17 (0.98–1.40)	17.6	1.00 (0.76–1.31)

*Estimates are significant at $p \leq 0.05$

^Totals in each risk behavior category vary due to missing data on specific items.

[a]Among smokers only: n = 112 for OEF/OIF veterans; n = 83 for non-OEF/OIF veterans; n = 1,539 for non-veterans.

[b]Among smokers only: n = 123 for OEF/OIF veterans; n = 97 for non-OEF/OIF veterans; n = 1,770 for non-veterans.

[c]4.4%–4.5% of each group answered ‘not sure.’ For this analysis, these ‘not sure’ responses were grouped with ‘yes.’

[d]Among car riders only: n = 405 for OEF/OIF veterans; n = 409 for non-OEF/OIF veterans; n = 7,802 for non-veterans.

[e]Among bike riders only: n = 228 for OEF/OIF veterans; n = 242 for non-OEF/OIF veterans; 4,342 for non-veterans.

[f]Among motorcycle riders only: n = 121 for OEF/OIF veterans; n = 107 for non-OEF/OIF veterans; n = 1,752 for non-veterans.

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