Where one lives largely determines one's health status. Multiple ranking lists, report cards, and geospatial maps illustrate the prevalence of noncommunicable diseases by region, state, or county across the United States.[1] Reviewing these instruments over time shows 2 disturbing trends. First, the prevalence of noncommunicable disease, such as heart disease, diabetes, and cancer, continues to rise in the United States. Second, disparate prevalence of noncommunicable diseases among states exist, with many southern states having the highest prevalence of morbidity and mortality.[1,2] Many states with high noncommunicable disease prevalence, including those in the south, also have high physical inactivity and obesity prevalence.[3,4] Physical inactivity and obesity are well recognized among the most critical public health challenges of the 21st century.[5,6] As a result, southern states have been recognized for their disproportionate public health burden.[2]

Physical inactivity and obesity are often considered to be individual health behaviors over which the individual has complete control. However, decades of empirical studies unequivocally demonstrate how strongly physical inactivity and obesity are correlated with the policies, systems, and environments in which individuals live, work, play, commute, and learn.[7–10] Many of the most significant improvements in public health, such as decreased cancer rates as the result of limiting access to cigarettes and opportunities to smoke, have come as the result of policy change.[11] Therefore, favorably altering population levels of physical activity (PA), physical fitness, obesity, and chronic disease hinges upon the ability to successfully advocate for policy, systems, and environmental changes that allow and inspire people to move more.

Inactivity and obesity have also become increasingly burdensome for the US Department of Defense (DoD).[12] Physical inactivity and obesity have been shown to negatively impact military readiness, and therefore national security, in 2 important ways. First, the candidate pool of US military recruits is dwindling. It is estimated that 27% of Americans 17 to 24 years old are too overweight to qualify for military service, with obesity being the second highest disqualifying medical condition between 2010 and 2014.[13] Furthermore, upon entering basic training, 47% of males and 59% of females failed the Army's entry-level physical fitness test in 2010.[12] Second, among individuals who do meet basic requirements for military service, those with lower PA and/or physical fitness levels prior to military service are at increased risk for sustaining a training-related injury (TRI) during basic combat training.[14]

Rising incidence of TRIs among military recruits poses significant economic and tactical problems for the DoD.[14–16] The direct and indirect costs of treating TRIs, plus the additional costs associated with delayed graduation and higher rates of attrition resulting from TRIs, limit the DoD's ability to fund other critical defense needs,[16] with each recruit lost to attrition costing the DoD $31 000 (2005 US dollars).[16] In 2001, the Veterans Health Administration provided more than $5.5 billion in direct payments to military personnel with musculoskeletal injuries.[17] Tactically, TRIs have been characterized as the most significant medical impediment to military readiness.[18] Consequently, the DoD has allocated considerable resources toward preventing injuries, including injury prevention techniques and remedial physical fitness programs.[19] Despite these concerted efforts, high TRI incidence persists, likely due to declining PA and physical fitness levels of their candidate pool. The percentage of American youth meeting current Federal PA guidelines of 60 minutes of moderate-vigorous–intensity PA per day is 42.0%, 8.0%, and 7.6% for boys and girls aged 6 to 11 years, 12 to 15 years, and 16 to 19 years, respectively.[20] In addition, fitness levels of youth (aged 12-15 years) have steadily declined since the year 2000.[21]

Previous research on military recruits has demonstrated associations among sex, cardiorespiratory fitness (hereafter referred to as fitness), body mass index (BMI), and TRIs[15,17] and shows that after controlling for sex, fitness is the strongest predictor of TRIs, whereas the association between BMI and TRIs is equivocal.[17,22] No previous research has investigated relationships between fitness, BMI, and TRIs based on the states from which recruits were recruited. Given previously established associations between fitness, BMI, and TRIs in the military, and given the prevalence of low PA and fitness of American youth along with well-established state-level differences in prevalence of noncommunicable diseases, obesity, and physical inactivity, it is conceivable that state-level differences in fitness, BMI, and TRIs among Army recruits may also exist. Therefore, the current study had 2 aims. The first aim was to describe state-level distributions of accession fitness, BMI, and TRIs sustained during basic combat training among US Army recruits from 2010 to 2013. The second aim was to investigate possible associations between state-level BMI and state-level fitness with TRI incidence among recruits from each state.

Methods

Data source

Rosters of all recruits (aged 17-35 years) who entered basic combat training from 2010 to 2013 were obtained from Army data systems and included recruits' demographics, "home of record" state, height, and weight (n = 288 468). Height and weight were then used to calculate BMI (kg/m^2). Within the first 2 weeks of basic training, a subsample of recruits took a diagnostic Army Physical Fitness Test, which included a timed 2-mile run that was used to determine their entry-level fitness (n = 165 584). This subsample of recruits on whom fitness was assessed was retained for the current analyses. Incidence of injuries sustained during training was obtained through medical encounter data from the Defense Medical Surveillance System at the Armed Forces Health Surveillance Branch of the Defense Health Agency. The Army Public Health Center (APHC) has primary responsibility to conduct routine systematic injury surveillance for the Army, which was deemed by the APHC Review Board to be public health practice. Release of de-identified data from this surveillance to The Citadel was approved by the APHC Review Board after The Citadel's study protocol (IRB #1314-15) was approved by its institutional review board. Medical encounter data included visit date and diagnosis codes from the *International Classification of Disease*s, *Ninth Revision, Clinical Modification* (*ICD-9-CM*). Case definition for a TRI required a recruit to have experienced at least 1 medical encounter with a diagnosis code included in the predefined TRI index set of diagnosis codes developed by the APHC (eg, muscle strains, sprains, overuse injuries).

Statistical analysis

Individual-level data were aggregated within each state to create state-level variables separately for males and females including mean age, median fitness, median BMI, percentage of white recruits, and incidence of TRIs (number of recruits with at least 1 TRI/total number of recruits). State-level quartiles for fitness were created in each sex group based on median run times of recruits from that state. In addition, sex-specific state-level quartiles were created for TRI incidence. The relationship between median fitness and TRI incidence at the state level was examined using Spearman correlations. Two separate multivariable Poisson regression models were then used to test the association between the number of recruits experiencing a TRI within a state and state-level fitness: state-level fitness entered as (1) median fitness or (2) fitness quartile (with quartile 1 or most fit serving as the reference group). All models were stratified by sex and included median BMI, mean age, and race as covariates. SAS version 9.4 (SAS Institute Inc, Cary, North Carolina) was used for all statistical analyses. Data were analyzed in June 2017.

Results

Descriptive characteristics for male recruits entering basic training from 2010 to 2013 (n = 131 403) were as follows (values given as mean ± standard deviation or percent): age = 21.1 ± 3.6 years; BMI = 25.1 ± 3.7 kg/m^2; and 61.6% white. Descriptive characteristics for females (n = 34 181) were as follows: age = 20.8 ± 3.6 years; BMI = 23.3 ± 2.6 kg/m^2; and 47.3% white. On average, male recruits had significantly (*P* < .001) higher fitness levels (mean 2-mile run time: 15.9 ± 2.1 minutes) than female recruits (mean 2-mile run time: 19.3 ± 2.8 minutes), whereas TRI incidence was more than 2.5 times higher in females (39.4%) than in males (15.6%).

The distribution of median fitness levels of recruits across states is shown in the Figure (panels A and B). Of the 12 states (Alabama, Arkansas, Delaware, Florida, Georgia, Hawaii, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, and Tennessee) plus Washington, District of Columbia, whose male or female recruits had the lowest median fitness (ie, bottom 25% or fourth quartile), 10 of them (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, and Tennessee) were in the bottom quartile for both males and females, including 9 from the south/southeastern region (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee).

Differences in the TRI incidence of male and female recruits across states are shown in the Figure (panels C and D). Within the 15 states (Alabama, Arkansas, Connecticut, Florida, Georgia, Kansas, Louisiana, Massachusetts, Mississippi, New York, Oklahoma, South Carolina, Tennessee, Texas, West Virginia) plus Washington, District of Columbia in the bottom quartile for TRIs for males or females, 11 of these (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia) are located in the south/southeastern regions, with 7 states appearing in the bottom quartile for both sexes (Alabama, Arkansas, Florida, Louisiana, Mississippi, Tennessee, and Texas).

When comparing the distribution of entry-level fitness and TRIs across states, male and female recruits from 6 southern states (Alabama, Arkansas, Florida,
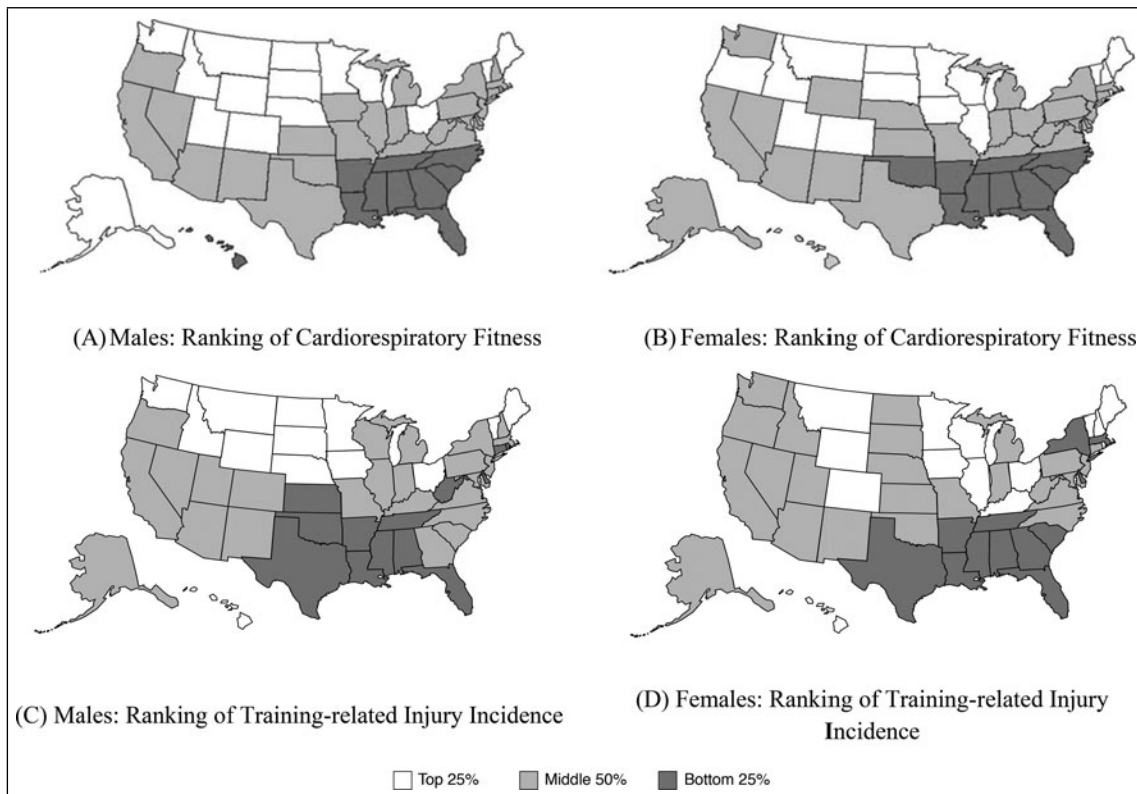
FIGURE States Ranked by Quartiles of Cardiorespiratory Fitness of Males (A) and Female (B) US Army Recruits and Training-Related Injury Incidence of Male (C) and Female (D) US Army Recruits Entering Basic Training From 2010 to 2013

Louisiana, Mississippi, and Tennessee) were in the bottom quartile for both TRI incidence and median fitness. The individual values for median fitness and TRI incidence for males and females from each state can be found in Table 1. Results from Spearman correlations showed state-level median fitness was strongly correlated ($P < .001$) with the incidence of TRIs in males ($\rho = 0.75$) and females ($\rho = 0.70$) (see Supplemental Figure S2A and S2B, available at http://links.lww.com/JPHMP/A440).

In multivariable Poisson regression models, state-level median 2-mile run time was positively associated with the incidence of TRIs. For every 1-minute increase in median 2-mile run time, TRI increased by 40% (incidence ratio: 1.4; 95% CI, 1.3-1.5) and 17% (incidence ratio: 1.17; 95% CI, 1.13-1.21) in males and females, respectively. Race and BMI were not associated with incidence of TRIs in either sex, whereas age was positively associated with TRIs only in females (incidence ratio: 1.07; 95% CI, 1.02-1.11). In multivariable Poisson regression models that examined state-level fitness quartiles by sex, we found that compared with the first quartile of fitness (ie, most fit), the incidence of TRIs increased respectively by 6% and 10% in the second quartile, by 15% and 16%

in the third quartile, and by 22% and 28% in the fourth quartile in male and female recruits (Table 2). The exponentiated parameter estimates and 95% CI for all variables in the Poisson models can be found in Supplementary Table S1 (available at http://links.lww.com/JPHMP/A441).

Discussion

The most significant finding from this study was that a cluster of 11 southern/southeastern states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia) were among 16 states to produce Army recruits who were significantly more likely to become injured during basic combat training. The second most important finding was that state-level fitness was highly correlated with state-level TRI incidence in both males and females and that low state-level fitness was the strongest predictor of state-level TRIs, even when controlling for BMI and race. To the best of our knowledge, this is the first study to have demonstrated state-level differences in TRI incidence and state-level fitness among Army basic training soldiers. Given the economic and tactical impact of

TABLE 1
Median Fitness and Training-Related Injury Rate by State in the Total Sample and by Sex

State	# Male Recruits	# Female Recruits	Median Fitness (2-Mile Run Time in Minutes)				Training-Related Injury Incidence			
			Males	Quartile—Males	Females	Quartile—Females	Males	Quartile—Males	Females	Quartile—Females
AK	356	112	15.39	1	18.78	2	0.1489	2	0.375	2
AL	3 286	931	16.00	4	20.07	4	0.1695	4	0.445	4
AR	1 829	463	15.98	4	19.72	4	0.1837	4	0.460	4
AZ	3 006	705	15.71	3	18.85	2	0.1527	3	0.393	3
CA	11 730	2 944	15.57	2	18.67	2	0.1517	3	0.374	2
CO	1 828	450	15.33	1	18.39	1	0.1422	2	0.351	1
CT	1 027	278	15.53	2	18.83	2	0.1646	4	0.378	2
DC	110	46	16.07	4	19.45	4	0.1727	4	0.413	4
DE	412	74	15.55	2	19.63	4	0.1481	2	0.392	3
FL	8 048	2 290	15.95	4	19.57	4	0.1726	4	0.443	4
GA	6 125	2 131	15.87	4	19.78	4	0.1642	3	0.432	4
HI	1 017	293	16.03	4	19.25	3	0.1150	1	0.321	1
IA	1 517	349	15.47	2	18.38	1	0.1391	1	0.332	1
ID	904	184	15.42	1	18.29	1	0.1394	1	0.375	2
IL	4 416	1 053	15.60	3	18.88	3	0.1587	3	0.358	1
IN	3 531	866	15.63	3	18.78	2	0.1560	3	0.366	2
KS	1 419	298	15.60	3	18.88	3	0.1663	4	0.383	2
KY	2 044	404	15.78	3	19.07	3	0.1443	2	0.347	1
LA	2 109	630	15.98	4	20.23	4	0.1878	4	0.437	4
MA	2 149	436	15.43	2	18.62	2	0.1410	2	0.431	4
MD	2 247	594	15.65	3	18.97	3	0.1589	3	0.384	3
ME	744	140	15.59	3	18.38	1	0.1331	1	0.329	1
MI	3 441	716	15.50	2	19.03	3	0.1502	2	0.390	3
MN	2 301	654	15.28	1	18.32	1	0.1273	1	0.304	1
MO	2 814	595	15.65	3	19.00	3	0.1510	2	0.388	3
MS	2 039	638	16.00	4	20.01	4	0.1815	4	0.423	4
MT	616	164	15.24	1	18.21	1	0.1331	1	0.348	1
NC	5 139	1 445	15.83	4	19.50	4	0.1629	3	0.403	3
ND	418	87	15.12	1	17.93	1	0.1364	1	0.391	3
NE	1 124	200	15.12	1	18.75	2	0.1299	1	0.405	3
NH	612	114	15.43	2	18.25	1	0.1520	3	0.246	1
NJ	2 569	730	15.53	2	18.88	3	0.1561	3	0.389	3
NM	814	214	15.56	2	18.48	2	0.1425	2	0.397	3
NV	1 352	388	15.63	3	19.10	3	0.1531	3	0.379	2
NY	5 433	1 499	15.62	3	19.12	3	0.1638	3	0.430	4
OH	4 739	1 049	15.42	1	18.78	2	0.1386	1	0.354	1
OK	1 901	453	15.77	3	19.33	4	0.1741	4	0.389	3
OR	1 483	357	15.43	2	18.43	1	0.1544	3	0.364	2
PA	4 770	1 237	15.47	2	18.87	2	0.1413	2	0.368	2
RI	419	76	15.50	2	18.49	2	0.1408	2	0.408	3
SC	3 182	1 094	15.87	4	19.77	4	0.1609	3	0.411	4
SD	490	137	15.32	1	18.43	1	0.1347	1	0.365	2
TN	3 019	647	15.95	4	19.58	4	0.1739	4	0.431	4
TX	10 465	3 018	15.78	3	19.23	3	0.1691	4	0.422	4

(*continues*)

TABLE 1

Median Fitness and Training-Related Injury Rate by State in the Total Sample and by Sex (*Continued*)

State	# Male Recruits	# Female Recruits	Median Fitness (2-Mile Run Time in Minutes)				Training-Related Injury Incidence			
			Males	Quartile—Males	Females	Quartile—Females	Males	Quartile—Males	Females	Quartile—Females
UT	1 829	254	15.33	1	18.45	1	0.1427	2	0.358	2
VA	4 141	1 187	15.67	3	19.17	3	0.1492	2	0.388	3
VT	288	89	15.13	1	17.97	1	0.1319	1	0.303	1
WA	2 766	607	15.40	1	18.58	2	0.1352	1	0.367	2
WI	2 249	651	15.32	1	18.33	1	0.1467	2	0.286	1
WV	831	146	15.68	3	18.88	3	0.1685	4	0.384	2
WY	305	64	15.18	1	18.73	2	0.1344	1	0.266	1

TRIs on military readiness,[17,18,23] results from this study demonstrate the disproportionate burden that certain states are having on national security.

These results are generally consistent with previous investigations of individual-level factors associated with TRIs in military populations. For example, previous research has shown sex and physical fitness to be the strongest predictors of TRIs among military recruits.[17,24,25] Previous studies have also shown that obese recruits, and recruits with lower PA levels prior to military service, were at increased risk for sustaining a TRI during basic combat training.[15,22] The current study found no state-level association between BMI and TRIs and was not able to investigate associations between PA levels of recruits and injuries, as prior PA data of recruits were not available.

Results from this study have important implications for public health policy as it relates to population levels of PA and fitness. Many of the states identified here as being in the highest quartile for TRI incidence and/or the highest quartile for low fitness level are also well recognized for their comparatively high prevalence of noncommunicable diseases,[1,2] obesity,[4] and physical inactivity[3] and subsequently their disproportionate public health burden. Low PA and cardiorespiratory fitness are among the most significant public health challenges of our time.[6] Numerous epidemiological studies have shown in both men and women that cardiorespiratory fitness, which was the fitness measure used in the current study, is a more powerful predictor of risk for adverse health outcomes and mortality than traditional risk factors such as smoking, hypertension, and diabetes.[26,27] Notably, small improvements in cardiorespiratory fitness, which can be achieved through modest increases in PA, have been associated with significant reductions in mortality.[26,28,29]

As a result, policy and environmental approaches aimed at increasing population levels of PA and fitness are recognized as critically important to public health.[10] Evidence suggests that implementation of active living policies in specific settings can yield improvements in PA. For example, policies affecting the frequency and quality of physical education in schools,[30] active transportation policies including Complete Streets, Safe Routes to School, and bike/pedestrian infrastructure,[31] and physicians prescribing PA to patients[32] have all been shown to increase activity levels. However, these policies are not consistently and fully implemented across the country. For example, there are significant regional differences in Complete Streets implementation, with lower rates in the deep south, likely due to historical development patterns, urban sprawl, and lower levels of funding for active transportation.

Some of the greatest public health achievements have come as the result of state-level policy change. State-level regulations around sanitation, fluoridated

TABLE 2

Poisson Regression Results for Incidence Ratio of Training-Related Injuries Across State-Level Quartiles of Fitness[a]

Sex	State Fitness Quartile			
	Q1 (Highest Fitness)	Q2	Q3	Q4 (Lowest Fitness)
Male injury incidence ratio	1.0 (reference)	**1.06** (1.01-1.12)	**1.15** (1.10-1.20)	**1.22** (1.17-1.28)
Female injury incidence ratio	1.0 (reference)	**1.10** (1.03-1.19)	**1.16** (1.08-1.24)	**1.28** (1.19-1.36)

[a]*Boldface indicates statistical significance (P < .001).*

water, and the use of safety belts have all yielded significant improvements in health outcomes.[33] However, state-level support for active living policies remains low in the United States.[34] This lack of support is likely due to framing physical inactivity and low fitness level predominantly as public health problems, which generally do not resonate with the agenda of lawmakers.[10] Evidence from the area of tobacco control demonstrates that the framing of tobacco as having economic, social, cultural, and geopolitical consequences provided the impetus for legislative policy interventions that have yielded significant changes in tobacco behavior across the population.[11] This is consistent with other public health issues and theories of the public policy process, which demonstrate the importance of framing issues in ways that resonate with policy makers.[35,36] Therefore, perhaps framing physical inactivity and low fitness level as matters of military readiness and national security, in addition to or instead of public health, could advance advocacy efforts aimed at increasing population levels of PA and physical fitness.

John Kingdon's "Multiple Streams Model" highlights the importance of appropriately framing problems to drive significant policy change forward.[37] In this well-accepted model of the policy process, Kingdon proposes that when a problem stream (eg, low physical fitness and PA as threats to public health) converges with a policy stream (eg, state governments providing incentives for adopting mixed-use zoning laws), and with the politics stream (eg, national mood or turnover in government), a "policy window" opens and significant policy change occurs. Public health researchers, practitioners, and advocates have little to no influence over the politics stream; however, they can directly influence the policy and problem streams. As described previously, public health researchers, practitioners, and advocates have primarily used the relationship between physical inactivity and low fitness level on public health as "the problem" and this has proven to have been insufficient for achieving state- and federal-level legislative policy changes.

Initiatives such as the National Physical Activity Plan, Healthy People 2020, and the Step it Up! The Surgeon General's Call to Action to Promote Walking, and Walkable Communities include state- and federal-level evidence-based policy recommendations aimed at increasing population levels of PA and fitness. However, the limited uptake of the policy recommendations contained within these initiatives suggests that the "policy window" has remained shut. According to Kingdon's theory, this implies that while the policy stream for PA and fitness may be robust, it has not yet meaningfully converged with the problem and politics streams.

Military readiness and national security have been cornerstones of American governmental policy since its inception.[38] Perhaps, now, more than ever, lawmakers and the general public (eg, the politics stream) are deeply concerned with military readiness and national security. The outcome of this study, which establishes state-level differences between fitness and TRIs in Army recruits, allows for the framing of low fitness level as problematic for military readiness and national security, not just public health. Consequently, this allows for the creation of a new problem stream for physical inactivity and low fitness level that aligns with the current politics and active living policy streams and for the 3 streams to converge. With that convergence, the policy window for state- and federal-level active living policies may open.

Limitations

This study has some limitations. The cross-sectional nature of our data precludes us from determining what policies, systems, and environments within the states identified here caused the observed differences in fitness and TRI incidence among recruits from those states. However, we controlled for likely confounders, such as age, race, and BMI, and were still able to demonstrate a strong association between state-level fitness and injury risk. Furthermore, we cannot account for temporality. However, it is plausible that either the absence or suboptimal nature of active living policies and environments within the states identified here may explain the lower fitness levels and increased injury risk of recruits coming from those states. Another potential limitation to the current study is its large sample size. Given a sample size of nearly 170 000 individuals, statistically significant differences are easily detectable and potentially not practically relevant. However, given the economic and tactical implications of a single TRI and that male recruits coming from states with the highest prevalence of low fitness level (fourth quartile) were 22%, 15%, and 6% more likely to become injured than males coming from states in the first, second, and third quartiles, respectively, the results are both statistically significant and practically relevant. Results from female recruits are similarly significant and relevant, given that female recruits coming from states in the fourth fitness quartile were 28%, 16%, and 10% more likely to become injured than females coming from states in the first, second, and third fitness quartiles, respectively.

Conclusions

We found that 11 of 16 states from which Army recruits were most likely to become injured were

Implications for Policy & Practice

■ Active living policies should be vigorously pursued to improve public health and national security outcomes in all states, but particularly in the states identified in the current study.

■ Individuals and organizations advocating for local-, state-, and/or federal-level active living policies may benefit from using results from this study to reframe low PA and low fitness level as national security concerns, in addition to being public health concerns.

clustered in the south/southeastern region of the United States. We also found that state-level fitness was the strongest predictor of state-level injury incidence and that 10 of 13 states in the lowest fitness quartile were also clustered in the south/southeastern region. Given the economic and tactical impact that TRIs have on military readiness, our results suggest that the states identified here pose a greater threat to military readiness than do other states. Furthermore, many of the states identified here have been previously identified for their disproportionate public health burden, given the high prevalence of noncommunicable diseases, obesity, and physical inactivity within those states.

References

1. Centers for Disease Control and Prevention. *Deaths, Percent of Total Deaths, and Death Rates for the 15 Leading Causes of Death: United States and Each State*. Rockville, MD: National Center for Health Statistics; 2014.

2. United Health Foundation. *America's Health Rankings Annual Report 2016*. Minnetonka, MN: United Health Foundation; 2016.

3. Centers for Disease Control and Prevention. *State Indicator Report on Physical Activity*. Atlanta, GA: US Department of Health and Human Services; 2014.

4. Centers for Disease Control and Prevention. Prevalence of self-reported obesity among U.S. adults by state and territory, BRFSS, 2015. https://www.cdc.gov/obesity/data/prevalence-maps.html. Accessed March 19, 2017.

5. Bipartisan Policy Center's Nutrition and Physical Activity Initiative. *Lots to Lose: How America's Health and Obesity Crisis Threatens Our Economic Future*. Washington, DC: Bipartisan Policy Center; 2012.

6. Lee IM, Shiroma EJ, Lobelo F, et al. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet*. 2012;380(9838): 219–229.

7. Frieden TR, Dietz W, Collins J. Reducing childhood obesity through policy change: acting now to prevent obesity. *Health Aff*. 2010;29(3):357–363.

8. Brug J, Lien N, Klepp KI, van Lenthe FJ. Exploring overweight, obesity and their behavioural correlates among children and adolescents: results from the Health-promotion through Obesity Prevention across Europe project. *Public Health Nutr*. 2010;13(10A): 1676–1679.

9. Brownson R, Baker E, Jouseman R, Brennan L, Bacak S. Environmental and policy determinants of physical activity in the United States. *Am J Public Health*. 2001;2001(91):1995–2003.

10. Brownson R, Kelly C, Eyler A, et al. Environmental and policy approaches for promoting physical activity in the United States: a research agenda. *J Phys Act Health*. 2008;5:488–503.

11. US National Cancer Institute and World Health Organization. *The Economics of Tobacco and Tobacco Control*. Bethesda, MD: National Institutes of Health; 2016.

12. Christeson W, Dawson Taggart A, Messner-Zidell S. *Too Fat to Fight: Retired Military Leaders Want Junk Food Out of America's Schools*. Washington, DC: Mission Readiness. 2010.

13. Boivin MR, Cowan DN, Packnett ER, et al. *Accession Medical Standards Analysis & Research Activity 2016 Annual Report*. Silver Spring, MD: Walter Reed Army Institute of Research; 2016.

14. Knapik JJ, Sharp MA, Canham-Chervak M, et al. Risk factors for training-related injuries among men and women in basic combat training. *Med Sci Sports Exerc*. 2001;33(6):946–954.

15. Jones BH, Canham-Chervak M, Sleet DA. An evidence-based public health approach to injury priorities and prevention recommendations for the U.S. Military. *Am J Prev Med*. 2010;38(1)(suppl): S1–S10.

16. Niebuhr D, Powers T, Li Y, Millikan A. Morbidity and attrition related to medical conditions in recruits. In: *Textbooks of Military Medicine: Recruit Medicine*. Washington, DC: Borden Institute; 2006:59–79.

17. Jones B, Canham-Chervak M, Canada S, Mitchener T. Medical surveillance of injuries in the U.S. Military descriptive epidemiology and recommendations for improvement. *Am J Prev Med*. 2010;38(1S):S42–S60.

18. Hauret KG, Jones BH, Bullock SH, Canham-Chervak M, Canada S. Musculoskeletal injuries description of an under-recognized injury problem among military personnel. *Am J Prev Med*. Jan 2010; 38(1)(suppl):S61–S70.

19. Molloy MM, Feltwell DN, Scott SJ, Niebuhr DW. Physical training injuries and interventions for military recruits. *Mil Med*. 2012; 177(5):553–558.

20. Troiano RP, Berrigan D, Dodd KW, et al. Physical activity in the United States measured by accelerometer. *Med Sci Sports Exerc*. 2008;40(1):181–188.

21. Gahche J, Fakhouri T, Carroll DD, et al. Cardiorespiratory fitness levels among U.S. youth aged 12-15 years: United States, 1999-2004 and 2012. *NCHS Data Brief*. 2014;(153):1–8.

22. Jones BH, Bovee MW, Harris JM, Cowan DN. Intrinsic risk factors for exercise-related injuries among male and female army trainees. *Am J Sports Med*. 1993;21(5):705–710.

23. Swedler DI, Knapik JJ, Williams KW, Grier TL, Jones BH. Risk factors for medical discharge from United States Army Basic Combat Training. *Mil Med*. 2011;176(10):1104–1110.

24. US Department of the Army. *Prevention and Control of Musculoskeletal Injuries Associated With Physical Training*. Washington, DC: Department of Defense; 2011. Technical Bulletin 592.

25. National Research Council. Physical fitness and musculoskeletal injury. In: Sackett P, Mavor S, eds. *Assessing Fitness for Military Enlistment: Physical, Medical, and Mental Health Standards*. Washington, DC: National Academies Press; 2006:66–108.

26. Kodama S, Saito K, Tanaka S, et al. Cardiorespiratory fitness as a quantitative predictor of all-cause mortality and cardiovascular events in healthy men and women: a meta-analysis. *JAMA*. 2009;301(19):2024–2035.

27. Blair SN, Kohl HW, Paffenbarger RS, et al. Physical fitness and all-cause mortality. A prospective study of healthy men and women. *JAMA*. 1989;262(17):2395–2401.

28. Kokkinos P, Myers J. Exercise and physical activity: clinical outcomes and applications. *Circulation*. 2010;122(16):1637–1648.

29. Blair SN, Kohl HW, Barlow CE, et al. Changes in physical fitness and all-cause mortality: a prospective study of healthy and unhealthy men. *JAMA*. 1995;273(14):1093–1098.

30. Siedentop DL. National plan for physical activity: education sector. *J Phys Act Health*. 2009;6(suppl 2):S168–S180.

31. Durand CP, Andalib M, Dunton GF, Wolch J, Pentz MA. A systematic review of built environment factors related to physical activity and obesity risk: implications for smart growth urban planning. *Obes Rev*. 2011;12(5):e173–e182.

32. Patrick K, Pratt M, Sallis R. The healthcare sector's role in the U.S. National Physical Activity Plan. *J Phys Act Health*. 2009;6(suppl 2): S211–S219.

33. Centers for Disease Control and Prevention. Ten great public health achievements—United States, 1900-1999. *MMWR Mortal Morb Wkly Rep*. 1999;48(12):241-243.
34. Eyler A, Zwald M. Governors' priorities for public health and chronic disease: a qualitative analysis of State of the State addresses. *Transl Behav Med*. 2015;15(5):347–353.
35. Weaver D. Thoughts on agenda setting, framing, and priming. *J Commun*. 2007;57:142–147.
36. Alvaro C, Jackson LA, Kirk S, et al. Moving Canadian governmental policies beyond a focus on individual lifestyle: some insights from complexity and critical theories. *Health Promot Int*. 2011;26(1): 91–99.
37. Zahariadis N. The multiple streams framework: structure, limitations, prospects. In: Sabatier P, ed. *Theories of the Policy Process*. 2nd ed. Boulder, CO: Westview Press; 2007:65–92.
38. Heineman R, Peterson S, Rasmussen T. *American Government*. 2nd ed. New York, NY: McGraw Hill; 1995.