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Military medicine and morale: Perceptions of inequities in triage impact national security

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Abstract

Introduction: There is an established relationship between military morale and battlefield effectiveness. Theoretically, better military medicine should increase morale leading to increased effectiveness as such we sought to investigate the relationship between military medicine and military morale.

Methods: We conducted a survey experiment of active-duty service members aged 18-62 years. The virtual survey was advertised in a social media campaign using Meta from July 23, 2022, through July 20, 2023. Service members were randomly assigned scenarios regarding a theoretical conflict. One set of scenarios included a triage protocol where mission-essential personnel would be prioritized for medical care even if not the most severely injured. The other set of scenarios did not mention triage. A Total Morale Index score was developed. Linear regression was used to test the relationship between military medicine and morale adjusting for treatment conditions and covariates of age, rank, and service years.

Results: The final sample was comprised of 1808 active-duty service members mean age of 25.28 years ± 7.7 standard deviation and 87.5% male. Respondents who received the triage treatment consistently reported lower morale compared to respondents who did not receive the triage treatment controlling for demographic and military-specific factors; this difference was statistically significant at the p=.05 level. Women, married respondents, and those with a longer time in their unit had lower morale scores.

Discussion: Respondents who received a randomly assigned prompt indicating that they would be less likely to receive medical care if injured on the battlefield report significantly lower levels of morale compared to respondents who did not receive this prompt. Given that prior research has demonstrated a relationship between military morale and military effectiveness, investments in military medicine can contribute to effectiveness by improving morale.

Take-home message: Military medicine is related to military morale which can impact effectiveness. Investments in military medicine can contribute to effectiveness by improving morale.

INTRODUCTION

Medicine has always been a part of war. But it is often not considered the most important part of war. As such, investment in military medicine can lag behind spending in other categories, such as weapons systems. However, military medicine can be a force multiplier by ensuring a healthy force. We suggest three pathways through which medicine can improve military effectiveness: (1) at the level of state militaries, militaries with better medicine should be better able to save lives and thus bring more personnel to the fight [1]; (2) at the level of military units, better military medicine will mean more stable units, which should increase unit cohesion (which itself has been shown to correlate with military effectiveness)[2]; (3) and, at the level of the individual, knowing that they and their comrades will receive better medical care should they fall ill or become injured should improve morale, another known correlate of military effectiveness [3,4].

We focus on the third pathway: the relationship between military medicine and military morale at the individual level. Knowing that they will be well-cared for in case of injury should improve soldiers' morale and will to follow orders and fight. Conversely, linkages have been found between soldiers' ill health and the defeat and disintegration of armies [5,6] and between illness and indiscipline [7]. Research affirms that there is a connection between health, discipline, and morale where undisciplined soldiers were less likely to follow hygiene and health guidelines increasing odds of disease and lowering morale [8]. Therefore, medicine and morale are mutually reinforcing. During combat, soldiers have several options, including fighting, desertion, and surrender – each involving potential risks and rewards. Here, the effects of military medicine are straightforward: by reducing the risk of death, better military medicine decreases the expected personal costs of fighting, thus making it more likely that a soldier will keep fighting. The relationship between military morale and effectiveness has been documented in contexts including psychosocial risk and occupational health settings. Such studies emphasize that addressing emotional well-being and mental health in high-stress environments can significantly impact performance and morale [9,10].

The relationship between military medicine, morale, and unit cohesion is more complex. There is a large body of research arguing group cohesion increases the effectiveness of troops and the lethality of the force, given that soldiers often fight for their "buddies" [11-19]. Shils and Janowitz (1948) argue that the key to why one fights or surrenders is the social cohesion of the primary group [7]. Cohesion, in turn, is affected by the existence of an ideological "hard core" of soldiers who are models to others, a community of shared experience among soldiers, constant spatial and interpersonal contact among soldiers, thoughts about one's family, the maintenance of basic physiological needs, and the relationship with superiors.

Military medicine can affect group cohesion in several ways. First, because better military medicine increases survivability, it preserves military units, ensuring prolonged contact and shared experiences. Second, military medicine prevents the erosion of soldiers' morale as a result of the death, illness, or injury of very close friends. Third, military medicine greatly improves the odds of physical survival as fear of death can sorely undermine the importance of the primary group [20]. This final point is consistent with Chacho's (2001) claim of the importance of survival [21] and echoes

Maslow's hierarchy of needs where people attempt to fulfill basic physiological needs first before addressing other requirements [7].

Considering that an effective military can keep soldiers in combat and fighting we evaluate the relationship between military medicine and morale on an individual basis, but with an eye toward the intersection of medicine, morale, and unit cohesion. We expect that military personnel who believe they may not be prioritized for medical care will report lower morale than those who are not exposed to any information regarding the likelihood of receiving medical care.

METHODS

Data source and study sample

To examine the relationship between military medicine and morale, we developed a survey that uses an adapted version of the Combat Readiness Morale Questionnaire (CRMQ), which has served as the basis for previous military morale research [22,23]. Our complete survey is in Supplemental Table 1. This approach aligns with existing health surveillance protocols that emphasize the importance of reliable and validated instruments for assessing health and well-being in high-stress occupations [24]. We used a survey experiment- an approach that embeds a randomly assigned treatment or control within a survey - to randomly assign respondents to one of two groups [25,26]. This method is common in the social sciences, including economics, political science, and psychology. Each group received a different prompt. One group received a prompt concerning a hypothetical conflict with North Korea; the other received the same initial prompt but also received additional information that triage protocols would be implemented in the event of armed conflict where most mission-essential personnel would be prioritized for medical care. The "triage protocol" prompt was based on a simulation conducted at Air University in 2017 [27].

Our target study population was United States active-duty service members between the ages of 18 and 62. Participants were recruited through an online advertisement campaign deployed through Meta's social media platforms (Facebook and Instagram). We targeted advertisement delivery to active-duty service members on the platform.

Ethical aspects

Participation in the survey was voluntary and respondents received no compensation of any kind. The Qualtrics tool was used for data collection and responses were collected from July 23, 2022, through July 20, 2023.

Ethical approval for this study was granted through the University of Minnesota and the Uniformed Services of the Health Sciences Institutional Review Boards. All participants provided consent prior to survey completion. This study was pre-registered at Open Science Framework (OSF) [28].

Study measures

Our main outcome variable was the Total Morale Index, which is based on our adapted CRMQ, and includes a series of questions prompting respondents to consider elements that contribute to military morale. Supplemental Table 2 reports questions that invite respondents to report their sentiment on six elements that compose military morale: cohesion, deployment willingness, confidence (in leadership and training preparedness), discipline, and motivation (Morale Components Index). Morale element responses were recorded using a Likert scale where each response was given a point value (Supplemental Table 2) used to calculate a morale score. The components of the morale score are unweighted; the total morale score is the sum of the scores on each dimension.

The Total Morale Index ranges from 5 to 113. These values correspond to possible extremes where respondents reported the lowest or highest levels of morale across the various categories. The Total Morale Index is our primary dependent variable operationalization. The Total Morale Index includes a self-reported morale measure that reflects respondent feelings about their morale as well as overall levels of morale within their unit. By constructing a measure of morale based on components we were able to capture more variation in different experiences among active-duty

personnel which would yield different reported measures of morale. Some service members, for example, felt confident in their training but did not report high levels of unit cohesion or vice versa.

The survey also collected demographic variables, including military rank, branch, years of service, previous deployment, previous combat experience, months in combat, months in their current unit, education level, marital status, age, sex, and if the respondent had children.

Statistical analysis

Given the continuous nature of our Total Morale Index, we evaluate the relationship between military morale and military medicine using difference-of-means testing between treatment (triage protocol) and control groups as well as with multivariate ordinary least squares (OLS) linear regression. Difference-of-means testing is appropriate for evaluating differences in a continuous outcome variable between two randomly assigned treatment groups. We implement difference-in-means using a bivariate linear regression, which is equivalent to running a two-sample t-test when the independent variable is a dichotomous treatment. Treatment (triage protocol) is independent of all other confounders as it is randomly assigned. However, even when treatment is randomly assigned, how someone reads and interprets the treatment is influenced by demographic and other variables. Therefore, we also run models that include statistical controls for likely confounding variables.

Multivariate OLS is a common statistical technique for estimating the effects of covariates on continuous dependent variables while including statistical controls for confounders. Accordingly, we use the OLS linear regression model controlling for age, gender, marital status, parental status, education, deployment status, combat experience, service branch, rank, time in the unit, and years of service to further assess the relationship between military medicine and morale. Statistical significance of the partial regression coefficients in the regression model was evaluated using the Wald Test and T-statistics with an alpha of 0.05. Respondents who did not respond to military morale questions necessary to generate the primary outcome indices were removed from the analysis. Analysis was conducted in R. (Version 4.1.0)

RESULTS

This study included 1,808 active-duty service members. The mean age of respondents was 25.28 years ±7.7 standard deviation. Most respondents were male (87.5%) and not married (63.3%). Half of the respondents served in the Army and 12% were officers. Most respondents had served 0-5 years (68.2%) and 23.2% had prior combat experience. Characteristics of the sample are shown in Table 1.

Table 1. Characteristics of survey respondents (N=1,808).

Characteristic	n(%)
Age (mean, standard deviation (SD))	Mean: 25.28, SD: 7.7
Sex	
Female	223 (12.5)
Male	1564 (87.5)
Education Level	
High School or GED	1281 (71.0)
College degree	319 (17.7)
Master's degree	85 (4.7)
Doctoral degree	58 (3.2)
Marital Status	
Married	662 (36.7)
Not married	1140 (63.3)
Had Children	
Children	455 (26.1)
No children	1291 (73.9)
Military Branch	
Air Force	135 (7.5)

Army	911 (50.5)
Coast Guard	18 (1.0)
Marine Corp	493 (27.3)
Navy	233 (12.9)
Space Force	15 (0.8)
Military Rank	
Officer	213 (12.0)
Enlisted	1564 (88.0)
Years of Service	
0-5 years	1220 (68.2)
6-10 years	282 (15.8)
11-15 years	140 (7.8)
16-20 years	110 (6.1)
21-25 years	24 (1.3)
30 + years	14 (0.8)
Previous Deployment	239 (13.3)
Previous Combat Experience	418 (23.2)
Months in Current Unit (mean, SD)	Mean: 23.6, SD: 31.1

Figure 1. Boxplot indicating the difference in medians/interquartile ranges of morale for triage and non-triage group.

Morale as a Function of Triage Treatment
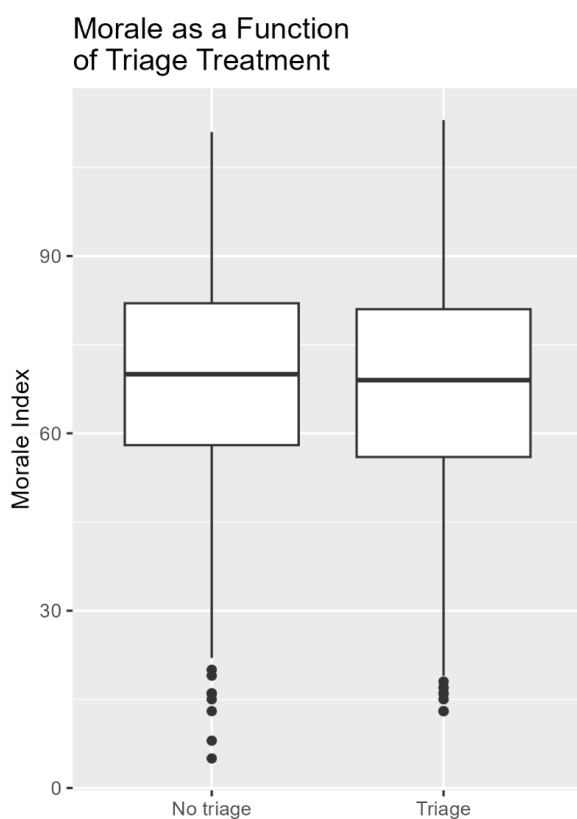
Note: Figure 1 is a boxplot. The thick horizontal black line is the median in each group, the lower and upper bounds of the box indicate the 25th and 75th percentiles of the distribution respectively, and dots indicate outliers.

As Figure 1 illustrates, at first pass there appears to be no difference in the Morale Index between the treatment (triage) and control groups: both groups have almost identical medians (70 in the no-triage group, 69 in the triage group) and nearly overlapping interquartile ranges (58-82 in no triage group, 56-81 in triage group).[1] However, ordinary least squares (OLS) regression indicates a difference in means that may be trending significant, if not at conventional levels. The mean in the control (no triage) group is 69.19 and the mean in the treatment (triage) group is 67.65 – a small difference, but with a p-value of p=0.078 (Table 2, Model 1). which falls short of conventional significance at p=0.05 but may be suggestive of a statistically meaningful difference.

Table 2. OLS Regressions on Total Morale Index.

	Dependent variable:		
	Morale Index		
	(1)	**(2)**	**(3)**
Triage	-1.539*	-1.952**	-1.976**
	(0.872)	(0.874)	(0.862)
Age		-0.035	-0.532***
		(0.084)	(0.121)
Female		-5.390***	-5.701***
		(1.381)	(1.375)
Married		-3.082***	-2.649**
		(1.082)	(1.074)
Parent		1.774	0.625
		(1.290)	(1.310)
College		2.082*	-0.094
		(1.221)	(1.382)
Years of service			2.612***
			(0.791)
Months in unit			-0.067***
			(0.026)
Officer			6.339***
			(1.746)
Deployed			0.363
			(1.286)
Combat			5.777***
			(1.287)
Army			-1.937
			(1.685)
Coast Guard			4.852
			(4.569)
Marines			2.811

			(1.782)
Navy			-1.081
			(1.988)
Constant	69.191***	71.454***	80.003***
	(0.613)	(1.967)	(2.782)
Observations	1,808	1,717	1,688
R^2	0.002	0.017	0.066
Adjusted R^2	0.001	0.014	0.058
Residual Std. Error	18.541 (df = 1806)	18.077 (df = 1710)	17.625 (df = 1672)
F Statistic	3.115* (df = 1; 1806)	5.073*** (df = 6; 1710)	7.862*** (df = 15; 1672)

Note: *p **pp p <0.01

Indeed, as Models 2 and 3 in Table 2 illustrate, adding controls to the model, moving beyond strictly a difference-in-means, does reveal an effect of treatment that is both larger in magnitude and statistically significant at conventional levels. Respondents who received the triage treatment consistently reported lower morale compared to respondents who did not receive the triage treatment, as seen in Table 2. Model 2 controls strictly for individual-level demographic variables: age, gender, marital status, parental status, and education. Model 3 adds variables related to an individual's experience in the military: years of service, months in the unit, whether the individual is an officer, whether they have been deployed, and whether they have seen combat and service branches [2]. It is Model 3 in which triage has the strongest and most significant negative effect. In addition to the treatment effect, we find that women on average have lower morale. Once we control for service variables, we find a statistically significant negative effect of age. In Model 2, it is likely this variable does not achieve significance because it is correlated with Years of Service (which is positive and statistically significant). In Model 3, we also find that months in the unit are associated with lower morale on average and combat experience is associated with higher morale on average. Figure 2 illustrates this difference in predicted morale by treatment group based on Model 3. While this result could in theory result from a selection effect, whereby service members with higher morale and combat experience select to continued employment with the military, existing scholarship on reenlistment points to economic factors such as salary, bonuses, and spousal employment as the most important predictors of reenlistment [29,30].

Figure 2. Substantive effects of triage treatment on predicted respondent morale.
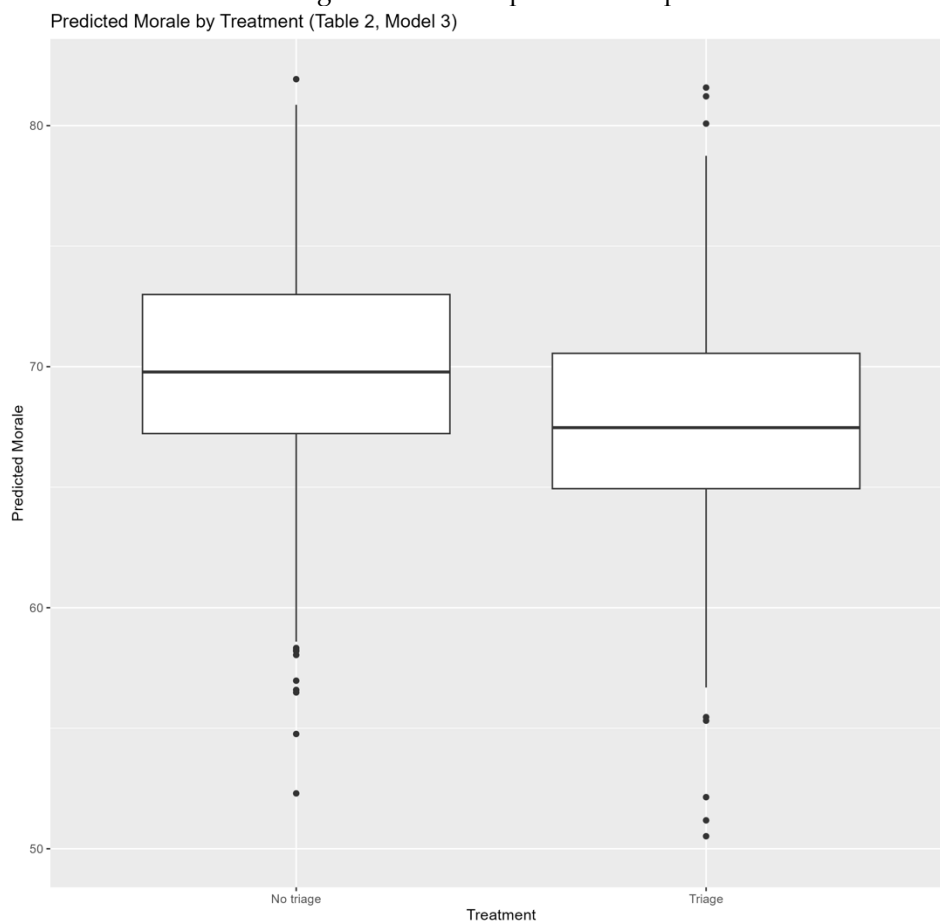

Predicted Morale by Treatment (Table 2, Model 3)

Table 3. OLS Regressions on Total Morale Index, minus unit cohesion.

	Dependent variable:		
	Morale index, minus unit cohesion		
	(1)	(2)	(3)
Triage	-1.410*	-1.795**	-1.802**
	(0.813)	(0.815)	(0.804)
Age		-0.030	-0.495***
		(0.078)	(0.113)
Female		-4.996***	-5.223***
		(1.288)	(1.282)
Married		-2.847***	-2.436**
		(1.009)	(1.002)
Parent		1.641	0.526
		(1.204)	(1.222)
College		1.949*	0.105
		(1.139)	(1.289)
Years of service			2.469***

439

			(0.738)
Months in unit			-0.060**
			(0.024)
Officer			5.463***
			(1.629)
Deployed			0.473
			(1.200)
Combat			5.479***
			(1.201)
Army			-1.934
			(1.572)
Coast Guard			4.106
			(4.262)
Marines			2.733
			(1.663)
Navy			-1.300
			(1.855)
Constant	64.682***	66.710***	74.681***
	(0.572)	(1.835)	(2.596)
Observations	1,808	1,717	1,688
R²	0.002	0.017	0.066
Adjusted R²	0.001	0.014	0.058
Residual Std. Error	17.289 (df = 1806)	16.867 (df = 1710)	16.442 (df = 1672)
F Statistic	3.005* (df = 1; 1806)	4.978*** (df = 6; 1710)	7.924*** (df = 15; 1672)

*Note: *p **p* ***p< 0.01*

In Table 3, we estimate the same specifications, but substituting the overall morale index for a measure of the morale index that omits the cohesion sub-index. We make this alteration because cohesion can be both a cause and consequence of morale; indeed, the Combat Readiness Morale Questionnaire was initially designed to measure the relationship between morale and unit cohesion. As we saw in the first set of models (reported in Table 2), we see in Table 3 a consistent negative effect of the triage treatment, which becomes both stronger and more significant in the models with controls. The results reported in Table 3 closely mirror those reported in Table 2, indicating that the cohesion sub-index is not consequential for our overall findings. Again, we find that women and people who are married have lower morale. In Model 2, which has only demographic covariates, we again find a marginally significant positive effect of having graduated from college, which disappears when we control for service-related covariates. In Model 3, with all the controls, we also find that older respondents have lower morale, after accounting for the cross-cutting positive effect of having more years of service. Again, respondents who have seen combat have higher morale, and people who have been in their unit longer have lower morale. We also find that officers report higher morale. Figure 3 illustrates the difference in predicted morale by treatment group based on this model.

Figure 3. Substantive effects of triage treatment on predicted respondent morale, omitting cohesion sub-index.
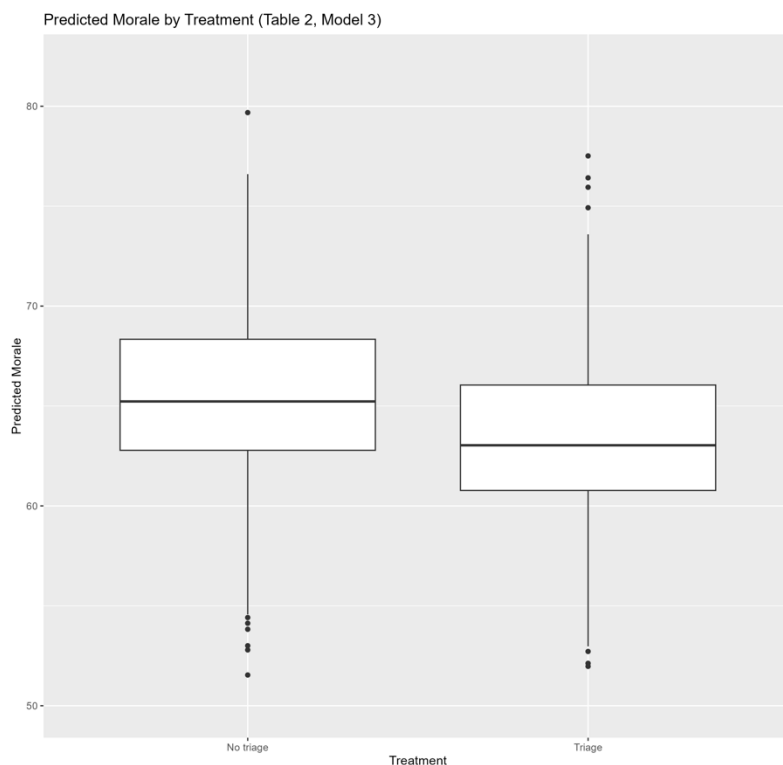
DISCUSSION

The results of this survey experiment demonstrated that respondents given a triage protocol, where mission-critical personnel are prioritized for medical care, reported lower morale. Our findings are in line with historical narratives that describe the importance of medical care, and the fear soldiers have of being wounded [31]. Likewise, the Assistant Secretary of Defense for Health Affairs in 2014 described the importance of soldiers knowing they will be taken care of if injured on the battlefield [32]. Throughout history, tremendous advances have been made to improve military medical care, such as embedding medical personnel within units, improving evacuation, and providing a point of injury care [32-34]. These improvements have led to historically low combat injury deaths during Operation Enduring Freedom/Operation Iraqi Freedom and reflect the development of trauma guidelines including the Golden Hour and the importance of air superiority in delivering healthcare [35,36]. Future warfare without this assuredness of air dominion could challenge current expectations. Our results confirm these historical narratives and viewpoints with statistical evidence showing the importance of medicine for a service members' morale and suggest that future research is to test the hypothesis that individual service members' beliefs that they will receive better [worse] medical care will generate higher [lower] morale.

Service member morale is crucial to maintain as many Services struggle to meet recruitment requirements each year [37]. One potential cause of this shortfall is the increasing prevalence of obesity in the United States which, in turn, increases the number of ineligible prospective recruits [38]. Additionally, the Department of the Army Career Engagement Survey found that soldiers are leaving military service primarily for concerns of family wellbeing [39]. More worrying is that an increasing number of military children, who have a higher propensity to serve in the military, are not

eligible for service based on behavioral health conditions or high body mass index [40]. Likewise, an increasing number of service members are gaining weight which could make them ineligible to continue serving [41]. These factors make preserving the morale and willingness of service members to serve of high import.

Our results showed that some demographic groups had lower morale – specifically, women and parents. These findings are in line with literature describing the challenges of serving in the military for both parents and children, including uncertainty about safety and separation time, disruptions in communication, and adjustment difficulties upon reunification [42,43]. Lower morale for female service members has also been described in the literature. Women report higher levels of life stressors and sexual harassment during deployments compared to their male peers. Female service members have also reported needing higher levels of social support to maintain their psychological well-being [44]. These findings are consistent with existing literature on gender-specific stressors in healthcare settings, where female workers often experience higher levels of burnout [45]. Likewise, studies on mental health in high-stress environments, such as military or healthcare settings, underline the importance of adequate support systems in mitigating the negative effects of occupational stress [46].

Our sample is representative of the broader active-duty military population on the dimensions of gender, education, and the breakdown between officers and enlisted personnel. In two key respects, however, the sample is less representative of the broader active-duty military population: our sample skews younger (perhaps not surprisingly, given our social media recruitment strategy) and the Army and Marines are overrepresented in our sample [47]. While having more young respondents and more respondents from the Army and Marines does make the sample less representative, it makes the sample more useful for our purposes of assessing the relationship between military medicine and morale. This is due to service members in the Army and Marine Corps gaining more combat experience [48].

Policymakers and military leadership desire to maximize the effectiveness of military forces while contending with resource limitations. Despite the importance of military medicine, the healthcare budget of the military continues to be less than 10 % of the Department of Defense budget, which is far below the healthcare expenditures of the nation [49]. Additionally, budget cuts could reduce the capacity of military healthcare facilities to receive patients which can limit the exposure of military physicians to train and care for patients [50]. Military personnel need to know they will receive medical support if injured or harmed while carrying out their duties. Our results suggest that military effectiveness and lowering costs are not mutually exclusive goals; rather, investments in military medical capacity may serve as a cost-effective force multiplier.

Study limitations

This study has certain limitations. Relying on self-reported data introduces potential for respondent bias. The use of social media platforms for recruiting introduces the chance of survey fraud; however, we attempted to mitigate this risk by adding questions to the survey that only active-duty service members would be able to answer. Additionally, the use of web-based surveys and social media for recruitment limits our sample to individuals with social media accounts and internet access. There is also potential sampling bias in our study as a result of our recruitment method; our sample skews younger than the active-duty force as a whole. For this reason, it is important to note that our findings hold for the sample from which we estimated them, but due to the sampling procedures, we are not able to generalize beyond this sample to the broader population. Finally, as this is a cross-sectional sample, our results capture the sample at a particular moment in time. Thus, we are not able to comment on changes that may occur over time, and our results may not generalize beyond the period in which the data were collected.

CONCLUSION

There is a statistically significant relationship between military medicine and military morale. Respondents who received a randomly assigned prompt indicating that they would be less likely to receive medical care if injured on the battlefield report significantly lower levels of morale compared to respondents who did not receive this prompt. Given that prior research has demonstrated a

relationship between military morale and military effectiveness, investments in military medicine can contribute to effectiveness by improving morale. Similar approaches have been used in occupational health where improving employee well-being can improve organizational effectiveness [51]. Maintaining morale and confidence in military healthcare is paramount in ensuring the strength of the nation's military force.

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Supplementary Materials:

SUPPLEMENTAL MATERIALS 1: SURVEY

Demographic Questions

1. What is your military rank?

2. How many years in service are you?

3. Have you had previous experience in combat?

    a. Yes
    b. No

4. If yes, how many months?

5. How many months have you been in your present unit?

6. In what branch of the US military do you serve?
    a. Army
    b. Navy
    c. Air Force
    d. Marines
    e. Coast Guard
    f. Space Force

7. What has been your favorite duty station?

8. What is the highest level of education you have completed?
    a. High School
    b. GED
    c. College
    d. Masters
    e. Ph.D.

9. What is your marital status?
    a. Single
    b. Married
    c. Divorced/separated
    d. Other [please specify]

10. If you are currently married, is this your first marriage?
    a. Yes
    b. No

11. How many children do you have?

12. What was your age at your last birthday?

13. What was your sex at birth?
    a. Male

      b.   Female

Survey Experiment

We will now ask a series of questions based on your military unit. If you have ever deployed as part of a combat or operational unit, please answer with respect to that unit. If you have not deployed with a combat or operational unit, please answer with respect to the unit where you served the longest.

[SURVEY EXPERIMENT: RESPONDENTS WERE RANDOMLY ASSIGNED TO ONE OF THE FOLLOWING LETTERED QUESTIONS]

      A.   As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. Please consider the following questions in light of a possible war between the US and North Korea.

      B.   As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. Of particular concern is the stress on the military's medical capabilities, given limited resupply and air evacuation capabilities in the event of an attack. Please consider the following questions in light of a possible war between the US and North Korea.

      C.   As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. As a result of these concerns, the US military has taken important steps to ensure high-quality medical care for any US military personnel injured in such an attack. Please consider the following questions in light of a possible war between the US and North Korea.

      D.   As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. Of particular concern is the fact that the military medical community has not dealt with a major chemical, biological, radiological or nuclear attack against US forces. Please consider the following questions in light of a possible war between the US and North Korea.

      E.   As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about

potential North Korean attacks on US military bases in South Korea. As a result of these concerns, the US military has taken important steps to ensure high-quality medical care for any US military personnel injured in such an attack, including an attack using chemical, biological, radiological, or nuclear weapons. Please consider the following questions in light of a possible war between the US and North Korea.

F. As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. Military medical personnel expect that they would have to prioritize mission-essential personnel under these conditions, even if they were not the most severely injured. Please consider the following questions in light of a possible war between the US and North Korea.

G. As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. Of particular concern is the stress on the military's medical capabilities, given limited resupply and air evacuation capabilities in the event of an attack. Military medical personnel expect that they would have to prioritize mission-essential personnel under these conditions, even if they were not the most severely injured. Please consider the following questions in light of a possible war between the US and North Korea.

H. As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. As a result of these concerns, the US military has taken important steps to ensure high-quality medical care for any US military personnel injured in such an attack. Military medical personnel expect that they would have to prioritize mission-essential personnel under these conditions, even if they were not the most severely injured. Please consider the following questions in light of a possible war between the US and North Korea.

I. As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests and are especially concerned about potential North Korean attacks on US military bases in South Korea. Of particular concern is the fact that the military medical community has not dealt with a major chemical, biological, radiological or nuclear attack against US forces. Military medical personnel expect that they would have to prioritize mission-essential personnel under these conditions, even if they were not the most severely injured. Please consider the following questions in light of a possible war between the US and North Korea.

J. As you know, the relationship between the United States and North Korea is extremely tense. Experts agree that North Korea represents a significant threat to US interests, and are especially concerned about potential North Korean attacks on US military bases in South Korea. As a result of these concerns, the US military has taken important steps to ensure high-quality medical care for any US military personnel injured in such an attack, including an attack using chemical, biological, radiological, or nuclear weapons. Military medical personnel expect that they would have to prioritize mission-essential personnel under these conditions, even if they were not the most severely injured. Please consider the following questions in light of a possible war between the US and North Korea.

Combat Readiness Morale Questionnaire

14. What is the level of morale in your unit?
    a. Very high
    b. High
    c. Moderate
    d. A little low
    e. Low

15. How would you describe your unit's readiness for combat?
    a. Very high
    b. High
    c. Moderate
    d. A little low
    e. Low

16. How would you describe the condition of your unit's major weapon or equipment systems (Tanks, APCs, etc)? What kind of shape are they in?
    a. Very good
    b. Good
    c. Not so good
    d. Poor/unworkable

17. How would you describe your friends' readiness to fight, if and when it is necessary?
    a. Very high
    b. High
    c. Moderate
    d. A little low
    e. Very low

18. In the event of combat – how would you describe your confidence in:

	Very high	High	Moderate	A little low	Low
a. Your unit commander			1	2	3	4	5
b. Your unit leader	1	2	3	4	5	
c. Your crew/squad/team members	1	2	3	4	5	
d. Yourself	1	2	3	4	5	

19. How would you describe your confidence in the decisions of your higher chain of command?

	Very high	High	Moderate	A little low	Low
a. Your Division Commander	1	2	3	4	5
b. Your Battalion Commander	1	2	3	4	5
c. Your Brigade Commander	1	2	3	4	5
d. Your Corps Commander	1	2	3	4	5
e. The Army General Staff	1	2	3	4	5

20. How much of the time does your unit spend on useful training?
    a. Nearly all the time
    b. Most of the time
    c. Part of the time
    d. Very little

21. How familiar are you usually with the general defense plan of your:

	Very Familiar	Familiar	Moderately familiar	Not so familiar	Not familiar at all
a. Terrain	1	2	3	4	5
b. Location of friendly forces	1	2	3	4	5
c. Location of Enemy Force	1	2	3	4	5
d. Expected missions	1	2	3	4	5

22. How much confidence do you have in your unit's self-defense weapons?
    a. Very high
    b. High
    c. Moderate
    d. A little low
    e. Very low

23. How much confidence do you have in your unit's major equipment system?
    a. Very high
    b. High
    c. Moderate
    d. A little low
    e. Very low

24. How would you rate your own skills and abilities as a soldier/airman/sailor/marine (using your weapons, operating and maintaining your equipment, etc.)?
    a. Very high
    b. High
    c. Moderate
    d. A little low
    e. Very low

25. In general, how would you rate yourself as a soldier/airman/sailor/marine?
    a. Very high
    b. High

    c.   Moderate
    d.   A little low
    e.   Very low

26. How would you describe your unit togetherness in terms of the relationship among its members?
    a.   Very high
    b.   High
    c.   Moderate
    d.   A little low
    e.   Very low

27. The relationships between the officers and the men and women in your unit are:
    a.   Very good
    b.   Good
    c.   Not so good
    d.   Poor

28. In your opinion, what is the probability that your unit will be in combat during the next year?
    a.   Very high
    b.   High
    c.   Moderate
    d.   A little low
    e.   Very low

29. To what extent do you worry about what might happen to you if and when your unit goes into combat?
    a.   Very often
    b.   Often
    c.   Occasionally
    d.   Hardly ever
    e.   Never

30. How often do soldiers/airmen/sailors/marines talk to each other about these worries?
    a.   Very often
    b.   Often
    c.   Occasionally
    d.   Hardly ever
    e.   Never

31. How often do your leaders talk to their troops about possible wartime issues?
    a.   Very often
    b.   Often
    c.   Occasionally
    d.   Hardly ever
    e.   Never

32. How much stress do you typically undergo because of separation from family/spouse/friend due to field training?
    a.   None

      b.   Minimal
      c.   Average
      d.   Moderate
      e.   Extreme

33. How much of a contribution do you feel you are making to the security of the United States by serving in the Armed Forces?
      a.   Very great contribution
      b.   Great contribution
      c.   Sole contribution
      d.   Little contribution
      e.   Very little contribution

34. What is the level of your personal morale?
      a.   Very high
      b.   High
      c.   Moderate
      d.   A little low
      e.   Very low

35. How much morale is there in your unit?
      a.   Extremely high morale
      b.   High morale
      c.   Moderately high morale
      d.   Average morale
      e.   Moderately low morale
      f.   Low morale
      g.   Extremely low morale

36. How much organization/disorganization is there in your unit?
      a.   Extremely well organized
      b.   High level of organization
      c.   Moderately well organized
      d.   Average level of organization
      e.   Moderately disorganized
      f.   Very disorganized
      g.   Extremely disorganized

37. If there is anything you would like to add with regard to the above subjects, please do so in the space below:

38. Please contact the principal investigator of this study, Tanisha Fazal, at fazal007@umn.edu if you are interested in receiving a list of resources regarding post-traumatic stress disorder.
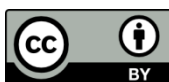
Supplemental Materials 2.

Sub-Index	Question	Coding	Notes
Cohesion (Min: 0, Max: 7)	How would you describe your unit togetherness in terms of the relationship among its members?	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	The relationships between the officers and the men and women in your unit were:	Very good (3), Good (2), Not so good (1), Poor (0)	
Deployment Willingness (Min: 0, Max: 12)	How often did you worry about what might happen to you if your unit went into combat?	Very often (4), Often (3), Occasionally (2), Hardly ever (1), Never (0)	Reversed
	How often did soldiers/airmen/sailors/marines talk to each other about these worries?	Very often (4), Often (3), Occasionally (2), Hardly ever (1), Never (0)	Reversed
	How often did your leaders talk to their troops about possible wartime issues?	Very often (4), Often (3), Occasionally (2), Hardly ever (1), Never (0)	Reversed
Confidence in Leadership (Min: 0, Max: 42)	In the event of combat, how would you describe your confidence in your unit commander	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	In the event of combat, how would you describe your confidence in your unit leader	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	In the event of combat, how would you describe your confidence in your crew / squad / team	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	In the event of combat, how would you describe your confidence in yourself	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	How would you describe your confidence in the decisions of your division commander	Very high (4), High (3), Moderate (2), A	

		little low (1), Very low (0)	
	How would you describe your confidence in the decisions of your battalion commander	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	How would you describe your confidence in the decisions of your brigade commander	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	How would you describe your confidence in the decisions of your corps commander	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	How would you describe your confidence in the decisions of gender staff of your service	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	How would you describe the level of organization/disorganization in your unit?	Extremely well organized (6), High level of organization (5), Moderately well organized (4), Average level of organization (3), Moderately disorganized (2), Very disorganized (1), Extremely disorganized (0)	
Confidence in Training (Min: 0, Max: 35)	How much of the time did your unit spend on useful training?	Nearly all of the time (3), Most of the time (2), Part of the time (1), Very little (0)	
	How familiar were you usually with the general defense plan regarding your terrain	Very familiar (4), Familiar (3), Moderately familiar (2), Not so familiar (1), Not familiar at all (0)	
	How familiar were you usually with the general defense plan regarding location of friendly forces	Very familiar (4), Familiar (3), Moderately	

		familiar (2), Not so familiar (1), Not familiar at all (0)	
	How familiar were you usually with the general defense plan regarding location of enemy forces	Very familiar (4), Familiar (3), Moderately familiar (2), Not so familiar (1), Not familiar at all (0)	
	How familiar were you usually with the general defense plan regarding location of expected missions	Very familiar (4), Familiar (3), Moderately familiar (2), Not so familiar (1), Not familiar at all (0)	
	How much confidence did you have in your unit's self-defense weapons?	A great deal (4), A lot (3), A moderate amount (2), A little (1), None at all (0)	
	How much confidence did you have in your unit's major equipment systems?	A great deal (4), A lot (3), A moderate amount (2), A little (1), None at all (0)	
	How would you have rated your own skills and abilities as a soldier/airman/sailor/marine (using your weapons, operating and maintaining your equipment, etc.)?	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	In general, how would you have rated yourself as a soldier/airman/sailor/marine?	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
Discipline (Min: 0, Max: 11)	How would you describe your unit's readiness for combat?	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
	How would you describe the condition of your unit's major weapon or equipment systems (Tanks, APCs, etc.)? What kind of shape were they in?	Very good (3), Good (2), Not so good (1), Poor/unworkable (0)	

	How would you describe your friends' readiness to fight, if and when it might have been necessary?	Very high (4), High (3), Moderate (2), A little low (1), Very low (0)	
Motivation (Min: 0, Max: 8)	How much of a contribution did you feel you were making to the security of the United States by serving in the Armed Forces?	Very great contribution (4), Great contribution (3), Some contribution (2), Little contribution (1), Very little contribution (0)	
	How much stress did you typically undergo because of separation from family/spouse/friend due to field training?	A great deal (4), A lot (3), A moderate amount (2), A little (1), None at all (0)	Reversed
Total Morale Index (TMI)	Theoretical Minimum: 0, Theoretical Maximum: 115 Observed Minimum: 5, Observed Maximum: 113		
Total Moral Index Minus Cohesion (TMIMC)	Theoretical Minimum: 0, Theoretical Maximum: 108 Observed Minimum: 5, Observed Maximum: 106		