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Comparison of General Population vs. U.S. Military Veterans Eating Disorder Prevalence

by

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Eating disorders are classified in the DSM-V as persistent disordered eating behaviors that can interfere with the psychological and daily functioning of an individual (Santomauro et al., 2021). DSM -V eating disorders are more prevalent in industries that focus on body size or Body Mass Index (BMI), this can include modeling (Hildesheimer & Gur-Arie, 2015), ballet (Leonkiewicz & Wawrzyniak, 2022) and gymnastics (Kontele et al., 2022). One industry that is overlooked in the context of disordered eating is the Military, which mandates that members must uphold certain body measurement standards to maintain enrollment (Friedl, 2012).

All branches test a Military members' endurance and strength (Cuddy et al., 2011), but without first passing a strict Height and Weight test to find BMI, members will automatically fail the fitness test. These stringent requirements put members under extreme pressure because without passing the rigorous fitness test or BMI measurement, they can face repercussions such as loss of rank, ineligibility for promotion, or even be discharged (Vanderburgh & Crowder, 2006, Peterson et al., 1995). Although the Military uses this as an indicator of the health of a member, there is doubt cast on how accurate or useful BMI is. The intention behind this test is to screen for possible at-risk weight categories such as high cholesterol or heart disease, but does not accurately account for where or how much fat is stored or the general health of the individual in its assessment (Rothman, 2008, *Centers for Disease Control and Prevention*, 2019). In order to meet requirements, service members resort to extreme measures such as water fasting, using the sauna for long periods of time (Peterson et al., 1995) and harmful behaviors such as disordered eating.

It can be hypothesized that the pressures of these standards may lead to an increase in eating disorders. Although current research has not compared the incidences of eating disorders

in the Military versus the general public, two studies providing data for the prevalence of eating disorders in the general population (Qian et al., 2013) and of Iraq and Afghanistan veterans (Masheb et al., 2021) can be analyzed for significant differences in prevalence. Due to the strict fitness and weight standards for Military personnel with severe consequences, it can be predicted that this comparison will reveal a greater incidence of eating disorders in Military members as compared to the general public.

### **Methods**

Percent prevalence of DSM-V eating disorders for the Military population (Masheb et al., 2021) and for the general population (Qian et al., 2013) were used as the basis of comparison. These studies separate their data by sex, as well as incidence within the lifetime or the last twelve months. For the purpose of this study, the data will be compared by sex for total incidence of DSM-V eating disorders as well as by the individual overlapping classifications of DSM-V eating disorders present in both studies: Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Binge Eating Disorder (BED).

In order to test for a significant difference, the frequency of incidence of DSM-V eating disorders was determined by taking the percent prevalence and multiplying it by the sample size (Table 1). To further analyze the data, sixteen two-proportion Z tests were conducted on the software SPSS to determine if the proportions of DSM-V eating disorders differed within and between sex for total incidence and sub-category incidence for specific types of eating disorders (Tables 1 and 2).

## Results

The results find a significant difference between the prevalence of DSM-V eating disorders in the Military population compared to the general population, with the Military population having a higher incidence (Eating disorder general male p-value =  $<0.001$ , female p-value =  $<0.001$ ; BN female p-value =  $<0.001$ ; BED male p-value =  $<0.001$ , female p-value =  $<0.001$ ). Furthermore, when comparing both the general population and the Military members focusing on sex differences, in all cases females show a higher incidence of overall DSM-V eating disorders than males based on the sample proportion (Table 2).

Although incidences are higher in women than men, that gap closes when looking at particular DSM-V eating disorders in the Military population (BN general population p-value =  $<0.001$ , BN Military population p-value = 0.004, BED general population p-value =  $<0.001$ , BED Military population p-value = 0.072). The incidence of DSM-V eating disorders for both males and females is higher in the Military population (shown in general eating disorders with both p-values =  $<0.001$ ). In the Military population, there is a lower incidence of AN compared to the general population (p-value = 0.198 males, p-value = 0.053 females), neither value shows a statistically significant difference. In BN, both sexes in the Military population have a statistically significant difference compared to the general population (male p-value =  $<0.001$ , female p-value =  $<0.001$ ). For both males and females in the Military population the increase in eating disorders occurs within the BED category (male p-value = 0.040, female p-value =  $<0.001$ ). Military males in BED have a p-value = 0.04 which is not statistically significant, but females have a p-value =  $<0.001$ , which is significant.

		General Population			Military Members			p-value
		N	% Prev.	Freq.	N	% Prev.	Freq.	
Eating Disorder General	Male	17,370	0.38	66	1,121	18.8	211	<0.001
	Female	17,877	1.59	284		32.8	368	<0.001
AN	Male	18,935	0.15	28		0.0	0	0.198
	Female	19,573	0.33	65		0.0	0	0.053
BN	Male	16,886	0.27	46		3.5	39	<0.001
	Female	17,173	1.05	180		6.1	68	<0.001
BED	Male	2962	1.19	56		2.9	33	0.040
	Female	4157	2.53	11		4.4	49	<0.001

**Table 1.** Comparing the general population versus the Military population categorized by eating disorders and sex.

		General Population		Military Population	
		Freq.	p-value	Freq.	p-value
General Eating Disorders	Male	66	<0.001	211	<0.001
	Female	284		368	
AN	Male	28	<0.001	0	1.000
	Female	65		0	

BN	Male	46	<0.001	39	0.004
	Female	180		68	
BED	Male	56	<0.001	33	0.072
	Female	11		49	

**Table 2.** Comparison of eating disorders in each population categorized by sex.

### Discussion

Eating disorders disrupt the psychological wellbeing, work ability, and daily functioning of many individuals (Santomauro et al., 2021), and have been used as a coping mechanism when in a high stress environment where the individuals feel they have no control (Bartlett & Mitchell, 2015). Due to their high stress and rigorous environments, in certain industries such as modeling (Hildesheimer & Gur-Arie, 2015), ballet (Leonkiewicz & Wawrzyniak, 2022), and gymnasts (Kontele et al., 2022), there is already a higher chance of developing an eating disorder. It's reasonable to assume that this could also be true in the Military due to the stringent fitness and body fat composition standards. In order to have a career in the Military, Height and Weight requirements, measured by BMI, must be met on a regular basis. Failure to meet these standards will result in the inability for individual career advancement and limited opportunities which can cause immense financial and emotional strain on an already stressful work environment as service member attempt to maintain their position.

There is currently no data to compare the prevalence of DSM-5 eating disorders in the general public compared to the Military population, which this study attempts to rectify by

comparing existing data. It was hypothesized that the Military population would be significantly higher in prevalence of DSM-5 eating disorders as compared to the general population, and that that this trend would be seen within the total, as well as within the sub-categories Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder. On average, the incidence of DSM-5 eating disorders is significantly higher in females than males (Qian et al., 2013), so it was also predicted that the gap would be smaller in the Military population.

Based on the results from the analysis, the data shows that in comparison to the general population, there was a significant increase in prevalence of eating disorders in Military members, supporting the original hypothesis.

Furthermore, examining the variation in prevalence by eating disorder classification provides more context for the distributions and the potential reasoning behind these differences. Examining the rates of BN, it is important to understand that the DSM-V classifies BN as an individual who experiences recurrent binge eating episodes and responds with compensatory behaviors that try to counteract the binge eating episodes (misusing diuretics, laxatives or medications, fasting or excessive exercise (Peterson et al., 1995)) in order to avoid gaining weight. The impact of Height and Weight tests can potentially contribute to the development of DSM-V eating disorders due to the worry of gaining additional weight after a meal. Gaining weight after a meal right before a Height and Weight exam can impact the individual's BMI and interfere with their future because it is based on the weight of the individual. This reasoning can be understood in the findings that indicate that the Military population has a higher incidence of BN, supporting the original hypothesis.



In reference to the BED results, the DSM-V classifies BED as recurrent episodes of binge eating but does not include any compensatory behaviors in response to the episode, and is associated with feelings of disgust towards oneself, and depression. This may impact a Military member by causing serious weight gain and psychological strain. For some individuals, BED is a way to gain weight in order to pass the minimum standards for Height and Weight; however, this method is still a poor option for an individual's health and can create a multitude of negative mental and emotional impacts such as leaving service members with feelings of self hatred, despair, and that they will never be good enough to meet the standards.

Due to the culture of the military and higher fitness standards for males, it follows that the results wouldn't show a significant difference, which contradicts the hypothesis. There wouldn't be a significant difference among the male population due to the fact that a male and female can be at the same height but males still have a higher fitness standard compared to their female counterparts. Although the context of this result goes beyond the scope of this study, because women overall are more likely to have an eating disorder in general and BED in particular, it can be assumed that female rates would additionally be compounded by being in the Military, as is proven in the original findings.

Lastly, in reviewing the AN results, there is a higher prevalence in the general population which contradicts the hypothesis. Although, considering the Military lifestyle makes it clear why the difference is not significant. According to DSM-V, it is an eating disorder where the individual restricts the energy intake (skipping meals, choosing very low calorie foods or creating a large calorie deficit) often leading to an extremely low body weight in the context of age, sex, developmental trajectory, and physical health. Due to the intensity of Military work, it

would be difficult to sustain working long, laboring days and conducting physical fitness daily without eating the appropriate type and amount of food to maintain energy levels and physical strength. Behaviors associated with AN can lead to fainting or extreme weakness, making the work in the Military physically impossible due to the relatively high caloric intake requirements demanded by the lifestyle.

Moreover, in the general population, there is a significantly higher prevalence across all eating disorders, BN, AN, and BED, in females as compared to males (Table 2), which is similarly reflected in findings for the Military population. However, the difference in eating disorder incidence between males and females in the Military is not nearly as significant, which points to the unique nature of Military conditions contributing to these results. From this it can be concluded that sex isn't as strong of a factor in disordered eating in the Military as it is in the general population, pointing to Military lifestyle as the underlying cause.

For further direction, there is no way to remove the general stress of everyday life in the Military, but reevaluating the strict Height and Weight standards along with changing the way we measure for these standards could decrease eating disorder incidents. Even without knowing the individual's or organizational causation of the heightened eating disorders, there can still be predictions made about what may be causing a higher rate of eating disorders in the incidence population. Individuals will take extreme measures in order to stay within Height and Weight standards. This can be done by forcing oneself to vomit after eating, water fasting, or through excessively exercising or going on extreme diets that lack nutrients and fuel but create a caloric deficit to maintain or lose weight (Peterson et al., 1995). Using eating disorders to stay within standards is a dangerous practice as this can have extremely harmful effects on an individual's

health long term (A & S, 2016). The Military is a high stress environment, riddled with combat, long trainings and a large number of cases of sexual assault (Bartlett & Mitchell, 2015). This lifestyle creates life long impacts in veterans lives and creates additional stress on top of the standards that are currently in place.

BMI standards are using a method that is out of date and no longer considered accurate by the CDC (Centers for Disease Control and Prevention, 2019). By reducing or changing the standard to use more accurate methods, such as DEXA scans (Stevens et al., 2008), it is possible that future and current Military members would have a significantly lower prevalence of eating disorders.

Limitations to this research are based on the nature of both studies as they were conducted outside of the scope of this study, with different sample sizes and populations. As a result, any limitations that the other research may contain are uncontrollable, and since these studies were conducted separately, inconsistencies between the two can limit reliability. However, this study was necessary in order to fill the research gap regarding eating disorder prevalence in the military and call upon more research to be done in order to reduce the incredible amount of impact eating disorders have on veterans. In the future, additional studies should be conducted to establish direct causation between Military physical standards and eating disorders across sex and age. Removing the strict standards and conducting long term studies could showcase precisely what may be causing higher rates of DSM-V eating disorders among Military members and helping those who are at higher risk for eating disorders.

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