

A Systematic Review: Investigating Factors associated with Female Active Duty Service
Members with an Eating Disorder and Concurrent Diagnoses of Anxiety and Depressive
Disorders

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A Systematic Review: Investigating Factors associated with Substantial Rates of Female Active
Duty Service Members with an Eating Disorder and Concurrent Diagnoses of Anxiety and
Depressive Disorders

by

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Abstract

Many individual factors contribute to the development of mental health disorders and feeding and eating disorders (FEDs) (Martin et al, 2019). FEDs may have an affect on the mental and physical health of those impacted. In raw data from the Psychological Health Center of Excellence (PHCOE), the prevalence of anxiety and depressive disorders in female active duty service members (ADSMs) who also meet the criteria for FEDs was significantly higher than the general ADSM population, 36% and 45% respectively (PHCOE, 2019). The aim of this review is to evaluate factors involving higher prevalence of coincident mental health disorders among female ADSMs in comparison to the general Active Duty population. A systematic review was conducted using a source deemed reliable for the completion of this project (Boland, Cherry, & Dickson, 2017). Articles focusing on female ADSMs, FEDs, disordered eating, and anxiety and depressive disorders were considered. The data strongly suggests that there are significant correlations between FEDs and coincident mental health conditions but female ADSMs with FEDs are experiencing higher rates of coincident mental health disorders (PHCOE, 2019). Risk factors such as a history of trauma or adverse life events are factors in the development of mental health disorders. Elements of military life such as the focus on weight and shape, fitness testing, and standard uniforms may also contribute (Bakalar et al., 2017; Blinder et al., 2006; Bodell et al, 2014; Fisher McNulty, 2001; Harned and Fitzgerland, 2002; Hilbert, Pike, Golschmidt, et. al, 2014; Hudson et al., 2007; Martin et al, 2019; Swinbourne, Hunt, Abbott, et.al, 2012). With high rates of coincident mental health disorders amongst people with FEDs, factors, including environmental and cultural factors that affect the development of FEDs and other mental health disorders should be researched further.

Keywords: Feeding and Eating Disorders, Mental Health Disorders, Anxiety Disorders, Depressive Disorders, Active Duty Service Members

Introduction

“The prevalence of eating disorders among service women on active duty is staggering. Eating disorders exist among all ranks and ages and in all services” (Fisher McNulty, 2001, p. 57). Feeding and eating disorders (FEDs) not only have serious medical implications but are also associated with high levels of psychiatric comorbidity, including anxiety and depressive disorders (Blinder et al., 2006; Martín et al., 2019). The etiology of Feeding and Eating Disorders (FED) has not been clearly identified but specific biological, psychological, developmental, and socio-cultural factors have been identified as contributing to the development of FEDs (Rikani et al., 2013). While medical comorbidities are the primary cause of premature death in FEDs (Rikani et al., 2013), the rates of psychiatric comorbidity are also significant as FEDs have been positively associated in the majority of impulse-control, substance use disorders, specifically citing mood and anxiety disorders (Hudson et al., 2007; Martín et al., 2019).

The Psychological Health Center of Excellence, a research focused center that falls under the Defense Health Agency (PHCOE, 2019) identified a significantly higher prevalence of coincident anxiety disorders and depressive disorders in the identified group of female Active Duty Service Members (ADSMs) who met the case criteria for eating disorders in comparison to the rest of the general active duty population (PHCOE, 2019). Among the female ADSMs who met the case criteria for a FED, 36% also met the case criteria for a coincident anxiety disorder in that year compared to the 3.5% prevalence rate of anxiety disorders in the general ADSM

population in 2017 (PHCOE, 2019). Additionally, among the female ADSMs who met the case criteria for an FED, 45% met the case criteria for a depressive disorder in the same year compared to a rate of 3.3% prevalence rate of depressive disorders in the general ADSM population in 2017 (PHCOE, 2019).

In 2017, female ADSMs made up 68% of all diagnosed FEDs while female ADSMs only accounted for 16.2% of the ADSM population in 2017 (DOD, 2017; Williams, Stahlman, & Taubman, 2018), highlighting not only the significant prevalence of eating disorders within the female ADSM population but also high rates of co-occurring anxiety and depressive disorders in this population (PHCOE, 2019).

It has been well established that there is a connection between FEDs and co-occurring mental health disorders (Hudson et al., 2007; Martin et al, 2019). Additionally, adverse life events, stressors, and trauma have been identified as factors in the development of mental health disorders, FEDs, and disordered eating in military and non military populations. Given this information, certain elements of military life and culture as well as a history of adverse life events, stressors, and trauma may contribute to not only the development of FEDs but also may affect the occurrence of anxiety and depressive disorders (Bakalar et al., 2017; Blinder et al., 2006).

There are clear correlations between eating disorders and concurrent anxiety and depressive disorder diagnoses have been clearly identified in non-military populations. However, based on data from the PHCOE causation behind the high rates of coincident anxiety and depressive disorders in this population compared to the general ADSM population must be further investigated (PHCOE, 2019; Hudson et al., 2007; Martín et al., 2019).

Methods

Study Selection

A systematic review was conducted using a source deemed reliable for the completion of this project (Boland, Cherry, & Dickson, 2017). Relevant articles were identified through online databases including EBSCO Host, CINAHL Plus with Full Text, ProQuest Nursing and Allied Health Database, MEDLINE with Full Text, PsycINFO, PsycARTICLES, and Google Scholar. Search terms included “eating disorder,” “military,” “soldiers,” “armed forces,” “mental health,” “mental illness,” “mental disorder,” “psychiatric illness,” “anxiety,” and “depression”. Parameters used to limit these searches included only viewing academic journals, journals, magazines, and reviews. Additionally, these searches were limited by age (adolescent and non adult populations were not included), gender (male focused studies were not included), and language that the article was written in (non-English articles were not included). Articles were initially reviewed based on their titles, then screens of each abstract before full text reviews were completed. Additionally, reference lists of the selected articles were reviewed for relevant studies. Unpublished data referring to rates of anxiety and depression in female ADSMs who met the case criteria for FEDs from the PHCOE served as a foundation piece of evidence in this project. Although the focus of this review is on the US military population, additional searches for articles focusing on eating disorders and the connection between anxiety and depression were conducted, allowing for supplemental and supporting articles to be included. Supplemental information was drawn from military community demographic reports published by the Department of Defense (DOD) as well as reports of prevalence and incidence of mental health disorders in the ADSM population from the PHCOE. Searches continued through April of 2020.

Articles that were included focused on eating disorders amongst the female ADSM population with eating disorders and disordered eating behaviors as well as the general connection between eating disorders and anxiety and depressive disorders. While much of the literature was quantitative, the designs of the literature were mixed, including multiple survey based studies and reviews of literature. Over half of the literature included were research studies with varying levels of evidence from level II to level VI, based on the Level of Evidence for Nursing Research table from Ackley et al. (2008). Data extracted included factors associated with having an eating disorder, eating disorders related to mental health disorders, specifically anxiety and depression, and military culture related to mental health and FEDs. Common themes throughout the literature focused on feeding and eating disorders. Eating disorders will be referred to as FEDs in alignment with changes to the DSM-V and American Psychiatric Association (2013). Quality assessments were performed on included articles that were appropriate, not including a Clinical and Policy Recommendation and a Critique of Literature. See Appendix A for the literature selection process.

Inclusion and Exclusion Criteria

Based on the search protocol and selection parameters, articles were excluded if they focused on one specific type of eating disorder, Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder, Other Specified Feeding or Eating Disorder, and Unspecified Feeding or Eating Disorder (AN, BN, BED, OSFED, UFED), included a US veteran, an only male, or an adolescent population, was written before 1995, or was not related to eating disorders and the US military population with connections to mental health disorders. Multiple study designs as well as supplemental/informational resources were included. Eleven of the included articles included

in the final review were published between 1997 and 2009. These older articles were considered and ultimately included in the final review as their focus on specific active duty military populations in connection to eating disorder behaviors, symptomatology, incidence, and prevalence was still pertinent and valuable in relation to this project. Additionally, two of the eleven articles focused on mental health comorbidity in a non military population and the other focused on the connection between sexual harassment and FEDs in a mixed military and non military population, making both of these relevant to this systematic review. Information about these articles is included in Appendix B, ordered chronologically.

Results

Risk Factors for Feeding and Eating Disorders

Risk factors for all mental health disorders, including feeding and eating disorders (FED), anxiety disorders, and depressive disorders include exposure to stressful life events, physical and/or sexual abuse, elements of family dynamics such as problematic parenting (Hilbert, Pike, Golschmidt, et al., 2014). Among the five specified types of eating disorders in the DSM-5, there are specific factors, symptomatology, and criteria that are unique to each type. Anorexia Nervosa (AN) is defined as patterns of restrictive intake significantly low body weight, the fear of gaining weight or becoming fat, and disturbances in how the body is experienced while Bulimia Nervosa (BN) is defined as by repeating episodes of binge eating and following behaviors to compensate such as the misuse of laxatives, diuretics, induced vomiting, medications, excessive exercise, and/or fasting. Binge Eating Disorder (BED) is defined as repeated episodes of binge eating and Other Specified Feeding or Eating Disorder (OSFED) applies to specific elements of feeding and eating disorders with associated feelings distress or impairment that do not meet the full criteria

for a disorder in the FED class. Lastly, an Unspecified Feeding or Eating Disorder (UFED) is defined as symptoms classically related to a feeding and eating disorder, causing some level of distress or impairment, but does not meet the full criteria for any disorders within the FED class, and is often utilized by practitioners in situations where a specific FED criteria is not met and or not enough information is present, such as an emergency setting (American Psychiatric Association, 2013).

Risk factors for FEDs are often biologically, psychologically, developmentally, and socio-culturally based. These risk factors may include genetic and neurobiology factors, body image disturbances, having certain personality traits, and exposure to western cultural influences (Rikani et al., 2013). Hudson et al (2007) found that the median age of onset of a FED (AN, BN, BED, Subthreshold Binge Eating Disorder, or any binge eating disorder) was 18-21 years old. The estimated lifetime prevalence of AN, BN, and BED were found to be higher in women than in males in a population based survey of American households (Hudson et al., 2007). However, FEDs can affect people of all ages, genders, or backgrounds (NIMH, 2016). Life altering events such as having experienced trauma, including childhood adverse life events and exposure to abuse as well as a family history of eating disturbances and challenges, concerns surrounding weight and shape, and dietary restraint may contribute (Hilbert et al., 2014; Bakalar et al., 2017).

Additionally, activities that require a weight standard such as gymnastics, diving, wrestling, body building, dancing, and military service (cite original source-hard to track down) (Rikani et al., 2013; Antczak & Brininger, 2008) also may play a role in the development of FEDs. In a in a random longitudinal study, personality traits such as perfectionism was identified as a factor that predicted the onset of a FED and was the only factor that predicted the

maintenance of an eating disorder (Antczak & Brininger, 2008; Holland et al., 2013) as well as western cultural influences such as a focus on thinness and desire to be thin (Antczak & Brininger, 2008).

Feeding and Eating Disorders, Anxiety, and Depression

In a random, longitudinal study evaluating etiological factors that may predict FEDS, it was found that psychological factors were significant to eating pathology (Holland et al., 2013). Martín et al. found that 42.96% of the sample from an outpatient eating disorder unit had symptoms of anxiety compared to 10.4% seen in the general community while 17.96% had symptoms of depression compared to the 8% seen in the general community. This suggests that symptoms of anxiety and depression are occurring more in patients with FEDs (Martin et al., 2019; Brody et al., 2018; Alonso et al., 2018). In addition, the subtype of ED, medical comorbidities, ED symptoms, and age may be related to how anxiety and depression present, suggesting that females with FEDs had higher rates of anxiety and depressive disorder symptoms than the general community (Martín et al., 2019). In a non-military population, a high correlation of comorbid anxiety disorders was seen, with 65% of the study population meeting the criteria for an anxiety disorder. Of those meeting the criteria for an anxiety disorder, 69% reported that the anxiety disorder preceded the onset of the eating disorder (Swinbourne, Hunt, Abbott, et al., 2012). In a sample of female's with FEDs in an inpatient setting, 97% of the population had one or more comorbid mental health diagnoses while 94% were diagnosed with unipolar depression and 56% were diagnosed with anxiety disorders, regardless of type of eating disorder (Blinder et al., 2006).

Possible Risk Factors for Developing a FED Related to the Military

Based on a review in a clinical policy recommendation for military health care providers, leaders, and policy makers, heightened rates of psychiatric comorbidity within the population of military members with eating disorders were suggested (Johnson, Davis, & Gonzalez, 2014). In fact, it has been suggested that among female ADSMs "...many of the salient risk factors for eating disorders are not only present, but in some cases intensified in military settings" (Johnson, Davis, & Gonzalez, 2014, p.2). Williams, Stahlman, and Taubman found that the incidence and prevalence of eating disorder diagnoses in active duty service members, amongst the study population, rates of diagnosed eating disorders were higher in young, non-hispanic, white women, in the United States Marine Corps (USMC), junior enlisted or officers, and those in combat specific positions. Additionally, within this study, the FED incidence rate in female USMC members was nearly twice the incidence amongst female Army members (Williams, Stahlman, and Taubman, 2018).

Research has shown that the increased focus on shape and weight within the US military, including weigh-ins, weight requirements, fitness testing, standard uniforms, and required meal attendance proved to be factors that may influence eating behaviors and put the ADSM population at higher risk for developing a FED, especially during periods of fitness testing (Beekley, et al., 2009; Bodell et al., 2014). While assessing the prevalence of abnormal eating behaviors in female Army ADSMs Lauder et al. found that those who had been identified as having a FED had a higher Drive for Thinness and bulimia scores. Also, members who had been categorized as at risk for or had a FED had significantly higher scores concerning body dissatisfaction than the group who was not at risk or did not have a FED (Lauder et al., 1999). In

a similar study that focused on female Reserve Officer Training Corps (ROTC) cadets, Lauder and Campbell found that those identified as at risk for developing a FED has scored higher in prevalence of weight dissatisfaction, drive for thinness, bulimia, and BD scores, and higher frequency of engaging in pathologic eating behaviors. Indicating that weight dissatisfaction, possibly driven by fitness testing and standardized uniforms, may put ADSMs at a higher risk of taking part in abnormal eating behaviors (Lauder and Campbell, 2001). In a descriptive, correlational study looking at FED behaviors in US Navy nurses McNulty found that past and present behaviors including binge eating, missing meals, exercising excessively, and the use of diuretics were significant predictors for AN, BN, NOS while poor body perception/satisfaction was also significant. Significant factors for repeated episodes of FED behaviors in these female US Navy nurses were not working in their desired area, working in the ICU, rotating shifts, and being a staff nurse. Additional significant reasons for these episodes occurring were personal reasons, command morale, being overweight, shift rotation, and maintenance of Navy fitness standards (McNulty, 1997). Additionally, Lauder and Campbell (2001) suggested that when a female enters active duty military service, pressures leading to abnormal eating behaviors may continue (Lauder and Campbell, 2001). Stigma and focus on general appearance are suggested to influence the development of disordered eating and eating disorder symptoms (Bodell et al., 2014).

During periods of fitness testing, "...satisfaction with body image was inversely correlated with abnormal eating behaviors and worry about the Physical Fitness Assessment" allowing for the following conclusion to be drawn, the more worried a service member was

about passing the PFA the more likely they would be to engage in more abnormal eating behaviors (Carlton, Manos & Slyke, 2005, p. 665). According to Fisher McNulty's correlational study about prevalence and contributing factors to eat disorder behaviors in female ADSMs, weight loss and maintenance efforts such as bingeing and purging, the use of vomiting, diuretics, diet pills, fasting and exercising, and laxatives were used more frequently during Physical Readiness Test seasons (Fisher McNulty, 2001). External pressures identified by females with abnormal eating behaviors including Army weight requirements, gender challenges, lack of autonomy, a coming deployment, and Army physical testing requirements. Lastly, Eating Disorders Not Other Specified (EDNOS) or referred to as situational eating disorders behaviors were associated with events in which they felt pressure, such as periods of fitness testing (Lauder et al., 1999). Fisher McNulty stated "military personnel who practice unhealthy methods of weight reduction are at a great risk physically, mentally, and operationally" (Fisher McNulty, 2001, p. 54). If assigned to complete remedial fitness trainings, ADSMs may be grouped together, not based on age, gender, or ability (Carlton, Manos & Slyke, 2005), which puts all parties at a disadvantage of either not being able to keep up with training or not training hard enough to meet physical and body composition requirements.

In a Mediation Analysis, Harned and Fitzgerald found an association between sexual harassment and eating disorder symptoms among military women and class action members. Also, sexual assault and eating disorders were directly connected in the sample of military women while an indirect relationship between sexual harassment and disordered eating was also proved significant, separating how both sexual harassment and sexual assault affect FED

symptoms. Finally, within the military women and class action member samples, levels of psychological distress were found to be a mediators between sexual harassment and FED symptoms, suggesting that FED behaviors may help victims "alleviate, numb, or soothe negative emotional states and to dissociate from traumatic memories" (Harned and Fitzgerald, 2002, p. 1178). "Abnormal eating behaviors increase the risks for serious physical and emotional disorders and adversely affect work performance" (Carlton et al., 2005, p. 666). This statement by Carlton et al. suggests that not only can FEDs or abnormal eating behaviors put people at a higher risk for medical comorbidities but can affect all other areas of a person's life.

Abnormal Eating Behaviors/Disordered Eating

Disordered eating is a pattern of disturbed and harmful eating patterns that does not fall into or meet a set of FED criteria but can share many of the same symptoms, possibly indicating the development of an FED (NEDC, 2020). In a cross-sectional survey focused on determining the prevalence and risk factors for disordered eating in "an entry level" US Army population, Warner et. al found that members were at an increased risk of partaking in disordered eating behaviors if they were female, had a BMI over 25, victims of abuse, and a history of psychiatric treatment (Warner et al., 2007). Additionally, higher proportions of ADSMs with a new onset of disordered eating were people who had been deployed and been exposed to combat, were born after 1980, were white, non-Hispanic, in the USMC, active duty, enlisted, reported past major life stressors, a diagnosis of a mental health disorder, the misuse of alcohol, or were on a special diet for weight loss. It was also found to be significant that combat exposures put female members at a significantly increased risk of developing a new disordered eating habits and

extreme weight loss compared to deployed members who had not been exposed to combat (Jacobson et al., 2008).

In a survey based study by Bakalar et al. assessing the link between childhood adverse life events (CLEs), disordered eating, and body mass index (BMI) in ADSMs, similar to general risk factors for developing an FED, total childhood, traumatic, interpersonally perpetrated adverse life events (ALEs), and the subjective impact of these ALEs were associated with disordered eating. Additionally, the connection between traumatic ALEs and subjective impact of said ALEs was associated with higher BMI, all associations being mediated by patterns of disordered eating. Increased risk of exposure to trauma such as combat exposure, sexual trauma, or other adverse events are not only shared risk factors for disordered eating but developing a FED itself (Bakalar et al., 2017; Jacobson et al., 2008).

Discussion

Based on the established connection between FEDs and mental health disorders, including anxiety and depressive disorders, (Martín et al., 2019; Swinbourne, Hunt, Abbott, et.al, 2012) as well as data from the PHCOE, which highlights the high rates of psychiatric comorbidity within the ADSM population with FEDs, there may be a connection between certain elements of military service that affect FEDs (Beekley, et al., 2009; Bodell et al, 2014; PHCOE, 2019). Additionally, high rates of psychiatric comorbidity with FEDs, specifically anxiety and depressive disorders have been proven significant (Blinder et al., 2006; Hudson et al., 2007; Martin et al, 2019; Swinbourne, Hunt, Abbott, et.al, 2012). The data suggests that history of trauma, stressful, and adverse life events, certain elements of military culture, and generally high

rates of coincident mental health conditions (anxiety and depressive disorders) associated with eating disorders, military involvement aside, may contribute to the substantially higher rates of coincident mental health conditions in the 462 ADSMs identified by the PHCOE. This review highlights general risk factors for developing a FED, the connection between FEDs and anxiety and depressive disorders, possible risk factors for developing a FED related to military involvement, and abnormal eating behaviors connected to these risk factors (Bakalar et al., 2017; Bodell et al, 2014; Fisher McNulty, 2001; Harned and Fitzgerald, 2002; Hilbert, Pike, Golschmidt, et. al, 2014).

Strengths of this review include the use of unpublished data from the PHCOE, the use of articles focusing on military and non-military populations, and the use of a reliable source as a guide to completing this systematic review. Limitations for this study includes the use of studies that focused on multiple FED types only, articles written in 1995 and later, written only in English, and only focusing on anxiety and depressive disorders as well as being based on multiple types of studies. Additionally, one person undertook this review.

Discussions for Further Research

Further research on FED populations, specifically within the US military and how FEDs are affecting mental, physical, and emotional health is necessary. Also, when assessing patients for mental health complaints, practitioners should ask about eating behaviors if indicated as there was a lower rate of treatment for FEDs and higher rates of treatment for co-morbid mental health conditions, even if eating related issues were not a part of the present complaint (Hudson et al., 2007). Additionally, within the US military, nutritional education (Carlton et al., 2005) as well as

effects of age and gender specific remedial physical training should be researched.

Recommendations for further research as identified by this systematic review and other related research include explorations into the etiology of FEDs and the many possible affecting factors.

Stigma around mental health disorders and FEDs as well as focused efforts towards the mental, physical, and emotional health of military populations should also continue to be researched.

Additionally, research regarding the origin of both FEDs and mental health disorders, specifically anxiety and depressive disorders should be done.

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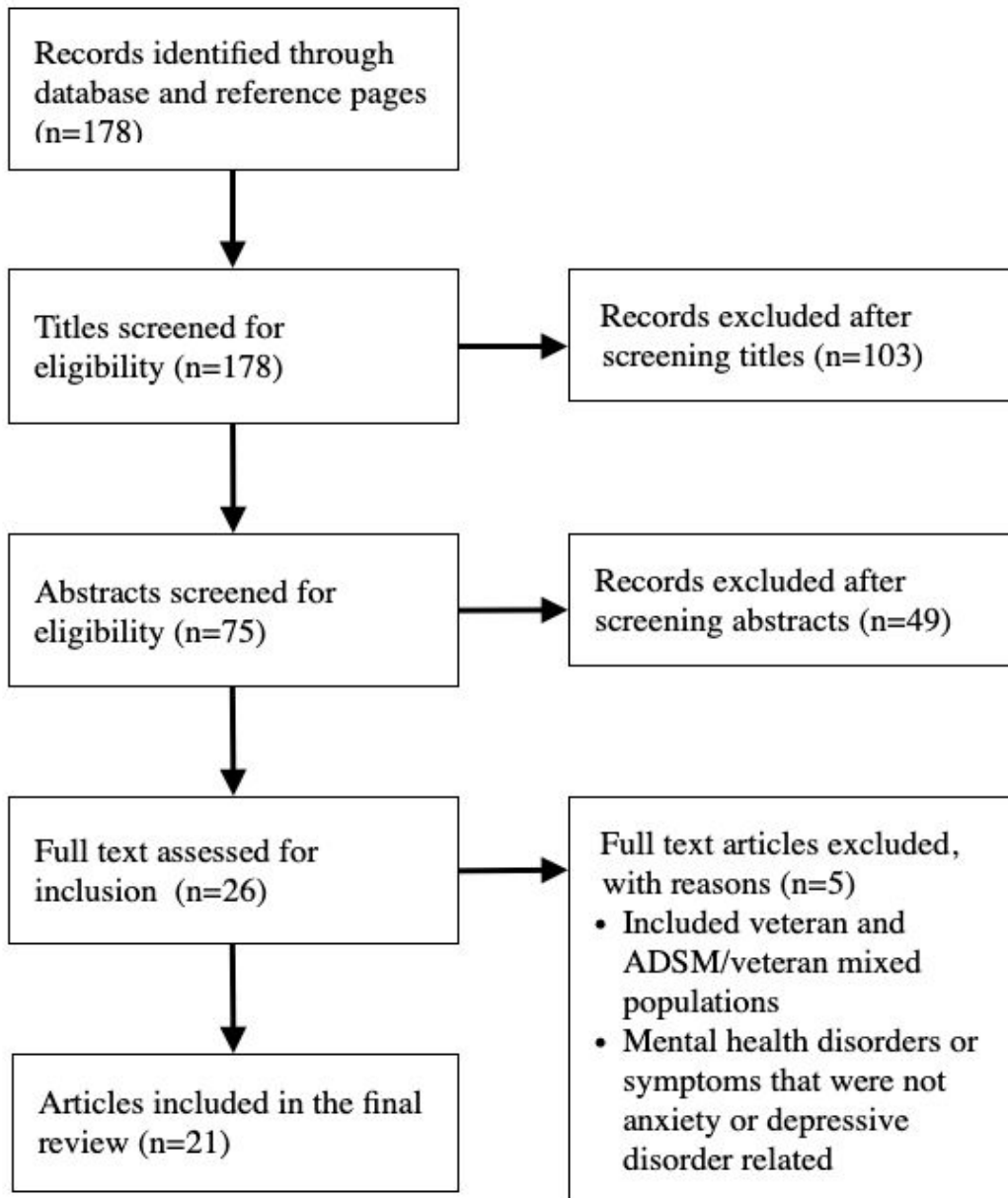
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Appendix A



Appendix B

Appendix B				
Literature Information Table				
Article Name	Citation	Type	Aims	Findings
Anxiety and depressive symptoms are related to core symptoms, general health outcome, and medical comorbidities in eating disorders	(Martin et al, 2019)	Cross Sectional Study	To identify potential factors that have a significant effect on anxiety and depression of patients with eating disorders	247 out of 520 (52.44%) of these patients had high psychiatric comorbidities. Suggests that females with EDs had higher rates of symptomatology of anxiety disorders as well as depressive disorders than the general community. High level of anxiety associated with restrictive subtypes, a high level of ED symptomatology, or not living alone. A high level of depression was associated with older age
Diagnoses of eating disorders, active component service members, U.S. Armed Forces, 2013-2017	(Williams, Stahlman, and Taubman, 2018)	Quantitative - Review of military medical data over a 5 year period	To identify FED diagnoses in the US ADsM population	Younger ADsMs, non hispanic, white women, members of the USMC, junior enlisted or junior officer, & those in combat specific occupations had higher rates of FEDs. The incidence rate in female USMC members was nearly twice the incidence amongst female Army members. Within the military, female service members made up 68% of all diagnosed EDs while females only account for 15.9% of ADsMs.
Childhood adverse life events, disordered eating, and body mass index in US Military service members	(Bakalar et al., 2017)	Quantitative - Online Survey Study of ADsMs	To assess the connection between ALEs and eating or weight disorders	In an online survey of ADsMs, total childhood, traumatic, interpersonally perpetrated ALEs, and the subjective impact of these ALEs were associated with disordered eating. Additionally, the connection between traumatic ALEs and subjective impact of said ALEs was associated with higher BMI, all associations being mediated by patterns of disordered eating
Consequences of Making Weight: A Review of Eating Disorder Symptoms and Diagnoses in the United States Military	(Bodell et al, 2014)	Qualitative Review	To review studies examining the prevalence of eating disorder symptoms and diagnoses in military samples	It was suggested that increased focus on shape and weight within the US military "...may influence eating behavior or development of eating disorders", especially during periods of fitness testing. In addition, stigma and focus on general appearance are suggested to influence the development of disordered eating and eating disorder symptoms
Risk factors across the eating disorders	(Hilbert, Pike, Golschmidt, et al, 2014)	Retrospective case-control study design	To assess risk and initial patterns in developing AN, BN, and BED	General risk factors for all mental health disorders, including feeding and eating disorders (FED), anxiety disorders, and depressive disorders include exposure to stressful life events, physical and/or sexual abuse, elements of family dynamics such as problematic parenting
Military Accession and Disordered Eating Among Women: Clinical and Policy Recommendations	(Johnson, Davis, & Gonzalez, 2014)	Clinical and Policy Recommendations	To provide clinical and policy recommendations	Recommendations: Medical providers should be aware of the clinical signs of disordered eating, eating disorders, and comorbid psychiatric conditions, make treatment referrals as soon as possible. Policy makers and leaders should improve screening during accession processes, change body assessment practices, focus on prevention, and address the stigma associated with mental health challenges.
Psychological Factors Predict Eating Disorder Onset and Maintenance at 10-year Follow-up	(Holland et al., 2013)	Random selection with 10 year follow up survey	To identify psychological factors that may predict the "onset and maintenance of FEDs"	"that perfectionism predicted both eating disorder onset and maintenance, targeting high perfectionism in both eating disorder prevention and treatment may be crucial to averting the occurrence and chronic nature of these disorders. "
A critique of the literature on etiology of eating disorders	(Rikani et al., 2013)	Critique of Literature	To discuss the etiology of and risk factors for developing FEDS	Biological, psychological, developmental, and sociocultural are areas of origin for FEDS
The comorbidity between eating disorders and anxiety disorders: Prevalence in an eating disorder sample and anxiety disorder sample	Swinbourne, Hunt, Abbott, et al, 2012)	Assessment of comorbid anxiety disorders and FED in outpatient eating disorder and anxiety disorder populations	To investigate the prevalence of comorbid eating and anxiety disorders in women presenting for inpatient and outpatient treatment of an eating disorder and women presenting for outpatient treatment of an anxiety disorder.	Of those presenting for an ED, 65% met criteria for at least 1 comorbid anxiety disorder, 69% of these reported the anxiety to precede the ED. 13.5% of women presenting for ED met criteria for a comorbid ED
Incidence, Prevalence, and Risk of Eating Disorder Behaviors in Military Academy Cadets	(Beckley, et al., 2009)	Quantitative - Survey, Interview	To identify incidence, prevalence, and risk of ED behaviors in USMA cadets	Weight ins, weight requirements, fitness testing, standard uniforms, and required meal attendance proved to be factors that may put this population at higher risk for developing an ED
Diagnosed eating disorders in the U.S. military: a nine year review.	(Antzack & Brininger, 2008)	Retrospective review	To determine Incidence of ED in US Military	The desire to be thin, participating in modeling, gymnastics, diving, body building, wrestling, dancing, and military service as well as experiencing a life altering event may be risk factors for developing an FED. Additionally, being a white female, not in a specific branch, weight standards, stigma related to remedial fitness program, and stress levels, stress from combat trauma/sit
Disordered Eating and Weight Changes After Deployment: Longitudinal Assessment of a Large US Military Cohort	(Jacobson et al., 2008)	Longitudinal Assessment	To assess the effects that deployment to combat areas have on weight changes and disordered eating	Higher proportion with new onset disordered eating were people who had been deployed with combat exposure, born after 1980, white, non hispanic, in the USMC, enlisted, active duty, reported past major life stress, dx mental disorder, misuse of alcohol or a special diet for weight loss. In addition, it was found to be significant that combat exposures put female members at a significantly increased risk of developing a new onset of disordered eating and extreme weight loss compared to deployed members who had not been exposed to combat.
The Prevalence and Correlates of Eating Disorders in the National Comorbidity Survey Replication	(Hudson et al., 2007)	Quantitative - Data pulled from the National Comorbidity Replication assessing prevalence and correlates	To assess the prevalence and correlates of FEDs	Found a positive relationship between eating disorders and the majority of DSM-5 disorders including mood, anxiety, impulse control, and substance use disorders, which were found to be associated with role impairment (define:
Disordered Eating in Entry-Level Military Personnel	(Warner et al., 2007)	Cross-sectional, self-report survey of a convenience sample.	To determine the prevalence of and risk factors for disordered eating in an entry-level U.S. Army population.	Members were at an increased risk of partaking in disordered eating behaviors if they were female, had a BMI over 25, victims of abuse, and a history of psychiatric treatment
Comorbidities of Female Inpatients With Eating Disorders	(Blinder et al., 2006)	Quantitative - Analysis of female inpatients treated for FEDs	ca	97% of female inpatients had one or more comorbid mental health diagnoses while 94% were diagnosed with unipolar depression and 56% were diagnosed with anxiety disorders, regardless of type of eating disorder
Anxiety and Abnormal Eating Behaviors Associated with Cyclical Readiness Testing in a Naval Hospital Active Duty Population	(Carlton, Manos & Slyke, 2005)	Quantitative - Anonymous Survey to all ADsMs at NMCP	To obtain additional data regarding the prevalence of abnormal eating behaviors in a heterogeneous military population; to gather further information on how cyclic weight measurements, fitness testing, and the associated anxiety affect eating behaviors; and to assess motivation for healthy treatment alternatives.	Higher BMI was associated with body satisfaction, impacting eating behavior and concern about physical testing and standards
Understanding a Link Between Sexual Harassment and Eating Disorder Symptoms: A Mediation Analysis	(Hamed and Fitzgerland, 2002)	Mediation Analysis	To assess connection between sexual harassment and FEDs	Association found between sexual harassment and eating disorder symptoms among military women and class action members. Additionally, sexual assault and eating disorders were directly connected in the sample of military women while an indirect relationship between sexual harassment and disordered eating was proved significant, separating how sexual harassment and sexual assault affect ED symptoms. Finally, within the military women and class action member samples, levels of psychological distress was found to be a mediator between sexual harassment and ED symptoms, suggesting that ED behaviors may help victims "alleviate, numb, or soothe negative emotional states and to dissociate from traumatic memories".
Prevalence and contributing factors of eating disorder behaviors in active duty service women in the Army, Navy, Air Force, and Marines	(Fisher McNulty, 2001).	Descriptive, correlational study	To assess the prevalence and associated factors with ED behaviors in female ADsMs.	Weight loss and maintenance such as bingeing and purging, the use of vomiting, diuretics, diet pills, fasting and exercising, and laxatives, often used more frequently during Physical Readiness Test seasons, putting ADsMs at a higher risk "psychically, mentally, and operationally"
Abnormal Eating behaviors in female ROTC Cadets	(Lauder and Campbell, 2001)	Prospective, cross sectional study	To assess the prevalence of abnormal eating behaviors of female ROTC cadets	Those identified as at risk for developing a FED has scored higher in prevalence of weight dissatisfaction, drive for thinness, bulimia, and body dissatisfaction scores, and higher frequency of engaging in pathologic eating behaviors. Additionally, the authors suggested that when a female enters active duty military service, pressures leading to abnormal eating behaviors may continue.
Abnormal Eating Behaviors In military women	(Lauder et al., 1999)	Quantitative - Volunteer based Self Report Questionnaire and Clinical Interview	To assess the prevalence of abnormal eating behaviors of female, Army ADsMs	Subjects within this study who had been identified as having a FED had a higher Drive for Thinness and Bulimia scores, members who had been categorized as having a FED and or categorized as being at risk also had significantly higher scores in regards to body dissatisfaction than the negative groups. External pressures identified by females with abnormal eating behaviors includes army weight requirements, "the military environment (including but not limited to gender issues, lack of autonomy, and impending deployment) and: 3) Army Physical Fitness Test (APFT) requirements". Lastly, EDNOS, or referred to as situational eating disorders behaviors were associated with events in which they felt pressure, such as periods of fitness testing.
Prevalence and contributing factors of ed behaviors of female navy nurses	(McNulty, 1997)	Quantitative - Anonymous, mailed survey to active duty, female Navy nurses	To connect elements military and professional variables with past and current eating disorder behaviors	"Current and past behaviors of binge eating, skipping meals, excessively exercising, and using diuretics were significant predictors for AN, BN, NOS while poor body perception/satisfaction were also significant. Significant factors for repeated episodes of FED behaviors in these female ADsM nurses were not working in desired area, working the ICU, working rotating shifts, and being a staff nurse. Additional significant reasons for these episodes occurring were personal reasons, command morale, being overweight, shift rotation, maintaining Navy fitness standards.