Transgender Health
Volume 5, Number 3, 2020
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DOI: 10.1089/trgh.2019.0044

ORIGINAL ARTICLE

A Descriptive Study of Transgender Active Duty Service Members in the U.S. Military

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Abstract

Purpose: Department of Defense policy prohibits, with limited exceptions, transgender individuals from serving in their affirmed gender in the U.S. Military, citing potential impact on unit cohesion and military readiness. To date, however, little is known about the sociodemographic profile and health of transgender military personnel.

Methods: U.S. Military personnel who self-identified as transgender completed anonymous online measures of demographics and military service. Participants also completed measures of health, mood, eating pathology, and risk behaviors.

Results: One hundred ninety-five service members (mean age: 28.9 ± 7.2 years, 48.7% transmale, 70.3% non-Hispanic White, 7.83 ± 5.9 years in service) completed the survey. The majority of respondents first identified as transgender before military accession. Most had disclosed their gender identity to their command and providers, and had undertaken steps toward gender affirmation. The sample as a whole reported above average physical health, with mood symptoms within normal ranges and few reported risk behaviors. Analyses of covariance indicated that transmales reported significantly better mental health and psychosocial functioning compared with transfemales.

Conclusion: In light of current policy that precludes, with limited exceptions, transgender individuals from serving in the U.S. Military in their affirmed gender, the current study provides an initial sociodemographic profile of this understudied population and indicates that transgender service members report above average physical health and few risk behaviors. Preliminary analyses indicated that transfemales in the military may be at higher risk for mental health concerns, compared with transmales. Additional research is needed to elucidate risk and protective factors among transgender service members.

Keywords: active duty; gender dysphoria; military; transgender

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Implications and Contribution

The current study provides descriptive and psychosocial information about transgender active duty service members in the U.S. Military. In light of Department of Defense policy that prohibits, except under limited circumstances, transgender individuals with a diagnosis or history of gender dysphoria from serving in the military in their affirmed gender, these data may be useful in better understanding this understudied population.

Introduction

In 2019, the Department of Defense issued a policy stipulating that, with limited exceptions, transgender individuals are ineligible for accession and retention in the U.S. Military unless they serve in their biological sex.[1] It is estimated, however, that up to 8000 transgender individuals currently serve on active duty in the U.S. military[2,3]; although the actual number may be greater[4,5] due to insufficient study of this population and potential fear of disclosure of one's gender identity, which may reduce willingness to seek gender-affirming care or self-identify as transgender in surveys. Notably, transgender persons appear twice as likely as members of the general population to serve in the military; 20% of respondents from the National Transgender Discrimination Survey had

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Portions of this study were presented at the 2019 Society for Behavioral Medicine Annual Conference (Washington, DC).

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served in the military, compared to 10% of the general population.[6]

Despite the possible overrepresentation of transgender individuals in the U.S. Military, there is a paucity of data about the demographic characteristics, military service, and psychosocial functioning of these individuals. To our knowledge, only two studies[7,8] have been conducted that specifically examined transgender active duty service members. Given the potential vulnerabilities of both active duty service members[9–12] and transgender individuals[13–18] to mental health concerns, such as depression, anxiety, stress, substance use, and eating disorders, the risks facing transgender service members may be multi-fold. Additional information about transgender service members is necessary, as the policy pertaining to these individuals continues to evolve. The present study, therefore, aimed to elucidate the sociodemographic profile, psychosocial functioning, health, and military service of active duty service members who self-identify as transgender. As few studies have conducted subgroup analyses by affirmed gender among samples of transgender persons, we also aimed to compare affirmed men and affirmed women on relevant psychosocial factors.

Materials and Methods

Participants and procedures

Participants were active duty service members ($\geq$18 years) who self-identified as transgender. The study was advertised through flyers around military installations in the Washington Metropolitan Area and electronic advertisements disseminated via relevant social media pages. Participants completed all questionnaires anonymously through an online data gathering website (SurveyMonkey) between July and December, 2017. More information on recruitment and data collection may be found elsewhere.[19] Written informed consent was waived and no personal identifying information was collected. This study received approval from the authors' Institutional Review Board.

Measures

Demographic data were collected using a 26-item questionnaire designed for the present study that assessed standard demographic characteristics and military service, along with height and weight (from which body mass index [BMI, kg/m^2] was determined). Gender identity was assessed using the two-question method[20] wherein individuals were asked: "What sex were you assigned at birth, on your original birth certificate?" from which individuals could select *male*, *female*, or *intersex*. Intersex refers broadly to individuals born with sex characteristics or anatomy (e.g., chromosomes, gonads, genitals) that do not fit the traditional definitions of male or female.[21] Participants were then asked "What is your current gender identity (check all that apply)"; individuals could select: *male*, *female*, *intersex*, *transmale/trans man*, *transfemale/trans woman*, *genderqueer/gender nonconforming*, and/or *other*. Individuals were determined to be transgender by the research team if their current gender identity differed from their birth-assigned sex.

The Short-Form 36 Health Survey (SF-36)[22] is a widely used self-report measure of emotional and physical health and functioning, comprising two summary scales: Physical Component Summary (PCS) and Mental Health Component Summary (MCS). Scales are calculated using established SF-36 scoring algorithms.[23] Final component scores range from 0 to 100, with higher scores indicating better health and functioning.[23]

The Depression, Anxiety, and Stress Scale (DASS-21)[24,25] is a 21-item self-report measure assessing symptoms of depression, anxiety, and stress. The three subscales (Depression, Anxiety, Stress) demonstrated good reliability in the present sample (α's = 0.83–0.95). Higher scores indicate greater symptomatology. In accordance with prior convention,[26,27] scores were also dichotomized to indicate "normal" vs. "positive" screen for moderate and severe symptomatology.

Given that social norms and positive expectancies around alcohol and drug use may differ among sexual and gender minorities,[28,29] a 9-item Risk Behaviors Questionnaire developed for the present study was administered to assess recent and lifetime alcohol, tobacco, and drug use.

As service members and gender minorities both appear to be at increased risk for body dissatisfaction and eating pathology,[30–33] the Eating Disorder Examination Questionnaire (EDE-Q),[34] a 28-item instrument that assesses diagnostic criteria for eating disorders and related symptomatology in the past 28 days, was administered. The EDE-Q captures the frequency of "binge-eating episodes" defined by the DSM-5[35] as the consumption of an unambiguously large amount of food accompanied by the subjective experience of loss of control while eating. The episodes are assessed with the following queries: *In the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)? On how many of these times did*

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you have a sense of having lost control over your eating (at the time that you were eating)?. Participants also indicate the frequency of compensatory behaviors in the past 28 days (e.g., *How many times have you made yourself sick [vomit] as a means of controlling your shape or weight?*). The EDE-Q generates four subscales: dietary restraint, eating concern, weight concern, and shape concern, in addition to a global eating pathology score, all of which range from 1 to 6. Higher scores indicated more severe pathology. The EDE-Q subscales demonstrated good reliability in the current sample (α's = 0.83–0.89).

Data analytic plan

All analyses were conducted using SPSS for Windows version 25 (SPSS, Inc., Chicago, IL). Descriptive statistics (percentages, central tendencies) were calculated for demographic, military, and psychosocial characteristics. Multiple analyses of covariance were conducted to assess for gender differences (transmale vs. transfemale) adjusting for age, race (White vs. NonWhite), and service rank (Enlisted vs. Officer). For analyses utilizing the EDE-Q, BMI was also included as a covariate. For analyses comparing groups based on affirmed gender, participants identifying as intersex ($n = 1$) or gender nonbinary/other ($n = 12$) were excluded due to the small sample size of these groups. These individuals were retained for all other analyses.

Results

Participant characteristics

Two hundred twenty-nine individuals consented to the survey; of those, 85% ($n = 195$) provided information pertaining to birth-assigned sex and current gender identity. For the purposes of this study, only data from these 195 individuals will be presented. Average age of participants was 28.9 ± 7.2 years. The racial distribution of the sample was 70.3% White, 13.3% Multiracial, 6.2% Black, and 2.6% Asian; 9.2% of the sample was Hispanic.

Of those who currently had a partner or spouse (74%), the majority (77%) were in relationships with cisgender women (individuals assigned female at birth who identify as female) and 16% were in relationships with transgender individuals (See Table 1 for additional demographic information).

Table 1. Demographic and Psychosocial Characteristics

	Total sample ($n = 195$)	
Measure	**M ± SD**	***N***
Age (years)	28.8 ± 7.2	177
Years in service	7.9 ± 5.9	195
Body mass index (kg/m^2)	25.5 ± 3.8	190
	Valid %	*N*
Transmale	48.7	95
Transfemale	44.6	87
Other gender identity	6.7	13
Race		
White	70.3	137
Multiracial	13.3	26
Black	6.2	12
Asian	2.6	5
Other/missing	7.7	15
Hispanic ethnicity	9.2	18
Service		
Army	44.1	86
Air Force	28.2	55
Navy	13.3	26
Marine Corps	6.7	13
Coast Guard	1.5	3
Reserves	6.2	12
Rank		
Enlisted	86.6	168
Officer	13.4	26
Marital status		
Unmarried	59.6	115
Married	40.4	78
One or more child	27.7	54
Highest degree		
Some college or less	70.3	137
Bachelor's degree or more	29.7	58
Transition status		
No transition/living as birth sex	16.4	32
Any transition	83.6	163

Gender identity

Nearly half (48.7%) of participants identified as transmale, 44.6% identified as transfemale, 6.2% identified as nonbinary, genderqueer, or "other," and 0.5% ($n = 1$) identified as intersex. Half of the sample first self-identified as transgender before the age of 11, 15% during adolescence, and 29.5% between 18 and 29 years. Less than 4% of the sample was older than 30 at the time they first self-identified as transgender.

Gender affirmation

The majority of respondents ($n = 163$) reported undergoing at least some measure of gender affirmation (e.g., gender affirming surgery, hormone therapy, legal name/sex change, and/or dressing in accordance with chosen gender). The majority of the sample (79%) reported dressing in accordance with their affirmed gender. Seventy percent have undergone or are undergoing gender-affirming hormone therapy (Testosterone: 35%,

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Estrogen: 25%, Progestin: 5%, Anti-Androgens: 21%, "Other" [e.g., Finasteride for hair loss, gonadotropin-releasing hormone agonist]: 2%). Thirty-one percent have undergone gender-affirming surgery (chest reconstruction or breast augmentation [27%] and/or gonadectomy and/or genital reconstruction [10%]). Forty-eight percent have legally changed their names and 43% have changed their gender marker on legal documents. Sixteen percent ($n=32$) reported that they have not undertaken any measures of transition and are living as their birth-assigned sex.

Nearly all participants (99.5%) indicated that at least one person is aware of their gender identity. The majority reported that their mother (74%), father (65%), and/or significant others (64%) are aware. The majority also indicated that their primary care physician (79%), chain of command (74%), and/or supervisor (69%) know of their gender identity. Sixty-three percent reported that "almost everyone" in their lives is aware of their gender identity.

Military service

Most (86.6%) respondents were enlisted (vs. officers). Forty-four percent of respondents were serving on active duty in the Army, 28% Air Force, 13% Navy, 6.7% Marine Corps, and 1.5% Coast Guard. Six percent were in the Reserves (any service). On average, participants had served $\sim$8 years (7.8 ± 5.9) in the military; nearly a third (29%) had served 10 years or more. Sixty-eight percent reported at least one deployment with 40% having deployed to a combat zone (e.g., Afghanistan, Iraq).

Mood symptoms

Mean scores for depression (10.2 ± 10.9), anxiety (6.6 ± 7.3), and stress (12.2 ± 8.9) subscales of the DASS-21 indicated minimal levels of symptomatology (Table 2). Using recommended cutoff scores,[27] 34.1% of respondents screened positive for moderate to severe depression, 28.3% for moderate to severe anxiety, and 21.7% for moderate to severe stress.

Health indices and behaviors

Participants' mean PCS score was 55.5 ± 8.3 and mean MCS score was 43.4 ± 14.1 (wherein 100 indicates perfect health). The mean BMI of the sample was 25.5 (indicating the presence of overweight); over half (56%) of the sample had overweight (BMI ≥25) and 11% had obesity (BMI ≥30).

Table 2. Subgroup Analyses for Psychological Variables by Gender Identity

		Transmales ($n=95$)		Transfemales ($n=87$)		
Measure	**Range[a]**	***M*** **±** ***SD***	***N***	***M*** **±** ***SD***	***N***	***F***
Depression	0–40	7.8±10.2	71	12.7±10.9	57	6.8*
Anxiety	0–40	5.5±7.0	71	7.4±7.6	57	2.0
Stress	0–40	10.6±9.4	71	13.3±7.9	57	3.1
Eating disorder examination						
Restraint	0–6.0	1.2±1.5	53	2.8±1.8	48	21.7***
Eating concern	0–5.8	0.24±0.60	52	1.1±1.4	46	15.1***
Shape concern	0–5.5	1.6±1.5	52	2.7±1.7	46	11.7**
Weight concern	0–5.4	0.91±1.2	52	2.0±1.7	46	13.1***
Global eating Pathology	0–6.0	0.97±1.0	53	2.2±1.5	48	23.3***
Physical health	0–100	55.1±7.4	79	56.1±9.2	69	0.58
Mental health	0–100	48.5±12.2	79	39.0±14.1	69	19.2***

Statistical test conducted: one-way analysis of variance.

[a]Higher scores indicate greater pathology, except for SF-36 scales (Physical Health and Mental Health), wherein higher scores indicate better health.

*$p<0.05$, **$p<0.01$, ***$p<0.001$.

SF-36, Short-Form 36 Health Survey.

Utilizing a cutoff of ≥4 as a marker of clinical significance on the EDE-Q,[36] 15% of respondents scored in the clinically significant range on the Restraint subscale, 3% on the Eating Concern subscale, 16% on the Shape Concern subscale, 7% on the Weight Concern subscale, and 9% on the Global score. Over one quarter (25.8%) reported a binge-eating episode (consuming an objectively large amount of food while experiencing a subjective feeling of loss of control) in the past month, and over one-third (34%) reported engaging in compulsive exercise as a means of controlling their shape/weight. Few ($n=4$) reported purging or laxative misuse.

Twenty-nine percent of respondents reported ever smoking; 22% of the sample were current smokers (defined as smoking ≥100 cigarettes in their lifetime and currently smoking at least once/week), and 7% were current daily smokers. Among those who had ever smoked, the mean age of initiation was 17.5 ± 4.0 years. The majority (70.4%) of participants reported drinking alcoholic beverages no more than three times per month. Twenty-eight percent of respondents reported drinking alcoholic beverages between one and six times per week. The majority (80%) of respondents consume between one and four drinks per drinking occasion, with 7% consuming five or more drinks per drinking occasion. The majority (81.5%) denied any lifetime drug use. Among those who reported any lifetime drug use ($n=25$), the most common substances were: marijuana (100%), prescription narcotics (32%),

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prescription sedatives (32%), psychedelics (28%), cocaine (24%), and ecstasy (24%).

Subgroup analyses by gender identity

Those identifying as transfemale were significantly more likely to be non-Hispanic White (86% vs. 68%; Pearson's $\chi^2 = 9.2$, $p = 0.03$) and were significantly more likely to have children (56% vs. 17%; Pearson's $\chi^2 = 23.89$, $p < 0.001$) when compared with transmales. Transfemales were less likely to have undertaken steps toward affirmation than transmales (76% vs. 92%; Pearson's $\chi^2 = 8.37$, $p < 0.004$). Transfemales were also older (30.06 ± 7.30 years vs. 27.06 ± 5.91 years; $p = 0.004$), had served longer in the military (9.70 ± 6.75 years vs. 5.97 ± 3.93 years; $p < 0.001$), and had significantly lower BMI (24.88 ± 3.97 vs. 26.16 ± 3.52, $p = 0.02$) compared with transmales.

Adjusting for age, race (White vs. NonWhite), and rank (Enlisted vs. Officer), transfemales had significantly better physical health [SF-PCS: 56.11 vs. 55.07; F (1, 120) = 5.40, $p = 0.022$], whereas transmales had significantly better mental health [SF-MCS: 48.49 vs. 39.01; F (1, 120) = 11.88, $p = 0.001$] and fewer depressive symptoms [DASS Depression: 7.77 vs. 12.67; F(1, 103) = 4.92, $p = 0.029$]. Compared with transmales, transfemales were over two and a half times more likely to report moderate to severe depression (odds ratio: 2.57, 95% confidence interval 1.06–6.23). Adjusting for age, race, service rank, and BMI, transfemales had significantly greater dietary restraint, eating, shape, and weight concerns, and global eating pathology (p's ≤ 0.004) (Table 2 and Fig. 1). There were no significant gender differences for anxiety, stress, smoking status, or any other risk behavior or demographic variable (p's > 0.05).

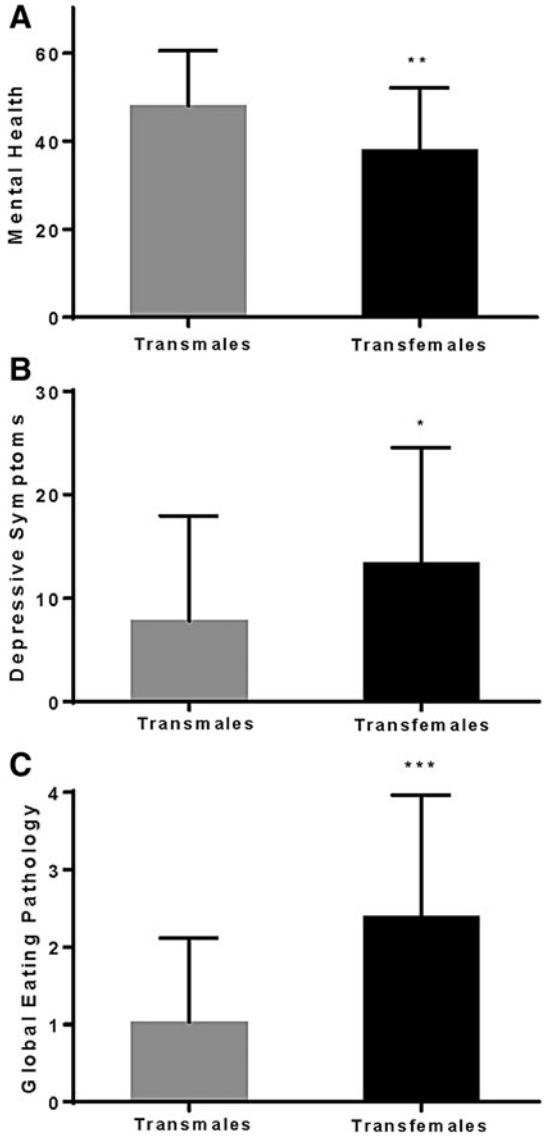

FIG. 1. Significant differences in **(A)** mental health, **(B)** depressive symptoms, and **(C)** global eating pathology by gender identity (p's ≤ 0.029), after adjusting for covariates.

Discussion

This study is among the first to provide a sociodemographic and psychosocial profile of transgender active duty personnel in the U.S. Military. Findings indicated that participants, on average, had spent nearly 8 years in the military, and that the majority had deployed at least once, including to combat zones. The majority of the sample first identified as transgender before joining the military, and most reported that they are currently living as their affirmed gender. To that end, most reported use of gender-affirming hormone therapy and wearing clothing consistent with their affirmed gender to achieve transition, whereas a significant minority reported gender-affirming surgery. Nearly all respondents reported that at least one person is aware of their gender identity, and most reported that multiple individuals, including fellow service members, are aware. In addition, most reported that their chains of command, military supervisors, and primary care physicians are aware of their gender identity.

The sample as a whole was largely healthy, with unadjusted physical health scores (as assessed by the SF-36) comparable to those observed in a sample of over

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75,000 active duty military service members.[37] Scores on the mental health component of the SF-36, however, were 10 points lower than this same reference group,[37] and both transmales and transfemales in the current sample scored lower than their respective cisgender counterparts.[37] The decrement in emotional well-being may be partially attributable to the chronic stress associated with gender minority status and stigma.[19,38–40]

The prevalence of depression in the current sample was considerably higher than that reported in a meta-analysis of major depression among active duty service members (34% in the current sample compared to 13.1% of previously deployed service members observed in the meta-analysis).[41] Participants' mean depression scores were lower, however, than a sample of older (mean age 57 years) military veterans.[42]

The current sample largely denied the use of prescription and illicit drugs and few reported problematic drinking behaviors. A greater proportion of the sample currently smoked cigarettes when compared with the general population (22% vs. 15.5%[43]), though rates were considerably lower than those observed among military veterans of a similar age (37%).[44]

Over half of the sample had overweight, which is comparable to larger studies of active duty service members.[45] Overall, the present sample endorsed disordered eating pathology that was greater than non-clinical community samples of young men,[46] roughly equivalent to samples of young adult women,[47,48] but less severe than clinical eating disorder-treatment-seeking samples.[49] Norms on the EDE-Q for military samples have not yet been established; therefore, it is unknown whether transgender service members are at increased risk for eating pathology compared to the broader population of military personnel. As both service members[50–57]and gender minorities[30,58–60] may independently be at high-risk for eating disorders, it is possible that transgender service members' vulnerability may be compounded by membership in two high-risk groups.

Extant studies of transgender service members typically do not include subgroup analyses by affirmed gender;[3,8] the current study, in contrast, included exploratory analyses to examine differences by gender identity. The physical health of transfemales exceeded that of transmales in the current study. Further, the physical health score of transmales in the current sample approximated the physical health score of a large age-matched sample of cisgender male military personnel (55.1 and 54.2, respectively), while the physical health score for transfemales in the current study exceeded that observed in an age-matched sample of cisgender female military personnel (56.1 and 53.5, respectively).

Findings from the current study indicated that transfemales had significantly greater mental health, depressive and eating disorder symptoms compared with transmales, even after adjusting for relevant covariates. These data corroborate previous studies of both active duty[61] and veteran[62–64] populations indicating that cisgender females report greater symptoms of mood and eating disorders than cisgender males. Transfemales in the current sample had higher rates of clinically significant anxiety on the DASS compared with a cisgender sample of female veterans (27.6% vs. 24.1%). In contrast, transmales in the current study had lower rates of clinically significant anxiety on the DASS compared with their cisgender male veteran counterparts (20.0% vs. 23.1%).[65] Prior studies have also found higher rates of post traumatic stress disorder (PTSD) among male service members when compared with women; however, PTSD symptoms were not assessed in the current study, therefore we are unable to determine whether these gender differences manifest among transgender service members. Though direct comparisons with previously published data should be interpreted cautiously, these preliminary comparisons suggest that the psychosocial risk profile of transgender service members may most closely resemble that of their affirmed gender. Specifically, with regard to mental health characteristics, transfemales in the current sample seem to more closely match cisgender females from prior studies, while transmales seem to most closely match cisgender males.

Of note, far more transfemales were living as their birth-assigned sex when compared with transmales. This may be due to cultural norms that encourage a broader spectrum of gender presentations among those born female while penalizing those born male for gender expressions that deviate from societal expectations. Further, the traditionally male culture and emphasis on hypermasculinity within the military[66–68] may contribute to feelings of alienation and subsequent negative affect among transfemales. The finding that transmales, who were significantly more likely to have taken steps toward gender affirmation, presented with better mental health may provide further evidence supporting the effectiveness of gender-affirming treatments in ameliorating distress and improving quality of life.[69,70]

Further gender disparities were observed among indices of eating- and weight-related pathology. More

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specifically, similar to the gender differences observed in cisgender samples that largely indicate that females are disproportionately affected by eating disorders,[71] transfemales in the current sample reported significantly greater eating- and weight-related concerns when compared with transmales. These disparities are in contrast to a prior study finding no gender differences in eating pathology in a sample of transgender adolescents.[72] However, these differences are consistent with prior research demonstrating that sexual and gender minority natal males may be at greater risk for body dissatisfaction and eating pathology compared with sexual and gender minority natal females.[31,73–76] The pursuit of a conventionally feminine shape may contribute to the increased eating- and weight-related pathology observed among transfemales in the current study. In contrast, body ideals for transmales may be more lenient or encouraging of a larger body size.[77] Overall, findings indicate that transgender military members closely match or exceed physical health scores observed in a large, age-matched cisgender military sample. Furthermore, we observed differences in psychosocial risk profiles, indicating that transfemales were more likely than transmales to experience mental health symptomatology, including eating and weight concerns.

The present study is limited by its reliance on self-reported, cross-sectional survey data, which precludes causal interpretations. The lack of a cisgender military or transgender civilian control group also precludes direct comparisons and the ability to isolate the unique effects of gender identity on health and functioning among service members. Previous research using similar psychological assessments enables preliminary comparisons with norms from military and civilian samples; however, given differences in methodologies, demographics, and cohorts, comparisons with previously published research should be interpreted conservatively.

Finally, all data were collected after notification in July 2017 of a possible policy change impacting transgender military personnel.[1] Therefore, it is possible that specific factors unique to the data collection time period exist that further limit generalizability. Despite these limitations, this study provides novel sociodemographic and psychosocial information about an understudied and highly vulnerable group.

This study is an important first step in better understanding the sociodemographic and health profile of transgender active duty service members. However, more research is needed. Specifically, future research should include matched cisgender controls to elucidate possible health disparities based on gender identity, while controlling for military-specific factors. In addition, analyses should be undertaken in adequately powered studies to ascertain differences based on other sociodemographic factors, such as race, ethnicity, extent of affirmation, and the effects of intersectionality on outcomes. In addition, prospective research is needed to understand the health trajectories of transgender individuals over the course of their military careers, the potential impact of current Department of Defense policy on health and functioning, and to elucidate protective factors, such as social support, that might affect outcomes.

Acknowledgements

The authors wish to thank the study participants for their contributions to the current research and their military service.

Disclaimer

The opinions and assertions expressed herein are those of the authors and are not to be construed as reflecting the views of USU, the U.S. Air Force, U.S. Army, U.S. Navy, U.S. Military at large, or U.S. Department of Defense.

Author Disclosure Statement

No competing financial interests exist.

Funding Information

This study was funded by an American Psychological Foundation Visionary Grant (awarded to N.A.S.). Funding sources had no involvement in the study design, data collection and analysis, preparation of the article, or decision to submit the article for publication.

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Cite this article as: Schvey NA, Klein DA, Pearlman AT, Riggs DS (2020) A descriptive study of transgender active duty service members in the U.S. Military, *Transgender Health* 5:3, 149–157, DOI: 10.1089/trgh.2019.0044.

Abbreviations Used

BMI = Body Mass Index
DASS-21 = Depression, Anxiety, and Stress Scale
EDE-Q = Eating Disorder Examination Questionnaire
SF-36 = Short-Form 36 Health Survey
MCS = Mental Health Component Summary
PCS = Physical Component Summary
PTSD = Post-Traumatic Stress Disorder

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