Personality Traits That Distinguish Special Operations Female Aircrew

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INTRODUCTION: U.S. Air Force Special Operations Command (AFSOC) female aircrew represent a small group of military personnel in challenging high-risk, high-demand professions. Personality characteristics may play a key role in distinguishing those women who pursue a career as a special operations aircrew member and succeed in this pursuit. Having access to normative personality data can potentially support psychologists in assessing AFSOC female aircrew and subsequently making informed recommendations to leadership.

METHODS: A total of 586 AFSOC aircrew trainees—58 (9.9%) women and 528 (90.1%) men—completed a series of computer-based psychological tests to assess cognitive ability and personality traits.

RESULTS: Results indicated significant differences between female AFSOC aircrew and female civilians on four of the five NEO Personality Inventory domains: Neuroticism ($M = 74.9$ vs. $M = 87.1$), Extraversion ($M = 123.7$ vs. $M = 112.8$), Openness to Experience ($M = 122.6$ vs. $M = 111.0$), and Conscientiousness ($M = 136.0$ vs. $M = 120.6$), respectively. The comparison between female AFSOC aircrew and male AFSOC aircrew revealed significant differences across three of the five domains: Neuroticism ($M = 74.9$ vs. $M = 65.1$), Openness to Experience ($M = 122.6$ vs. $M = 115.0$), and Agreeableness ($M = 119.6$ vs. $M = 112.7$), respectively.

DISCUSSION: Implications for assessment and interpretation of psychological testing are discussed. This paper provides a unique perspective and insight into those who pursue and excel in this career field. Identifying specific personality traits in our AFSOC female aircrew allows for tailored care and support when evaluating readiness in special operations aircrew for optimizing performance.

KEYWORDS: U.S. Air Force, Special Operations Command, gender, personality, assessment.

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U.S. Air Force Special Operations Command (AFSOC) female aircrew represent a small, but significant, group of military personnel in challenging high-risk, high-demand professions. Several studies have assessed the personality traits of military personnel across a range of diverse communities,[2,5,6] including a comparison of U.S. Air Force (USAF) female pilots to the female civilian population.[7] However, to our knowledge, there is no published literature investigating how female AFSOC aircrew members, specifically, differ personality-wise from their female civilian counterparts, as well as potential differences between female and male AFSOC aircrew members. Aside from skillset and the ability to perform their duties, personality characteristics may play a key role in distinguishing those women who pursue a career as a special operations aircrew member and succeed in this pursuit. AFSOC aircrew operate in a wide array of combat and noncombat conditions and operational missions across the globe. These missions are often conducted in hostile, denied, or politically sensitive environments over brief, as well as extended, periods of time.[11] Furthermore, such missions often present many unknown and uncontrollable factors in which an individual's success in

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preventing disaster and/or failure depends on a combination of unique physical and psychological abilities and traits.

A review of relevant literature regarding the personality traits of military personnel who desire and are selected for special operations has found that such individuals possess high levels of emotional stamina and composure, self-confidence, initiative, cooperation, motivational drive, self-discipline, integrity, moral courage, dependability, and perseverance.[17,18] Such traits are considered critical for adapting to the general rigors of performing in high-demand and dangerous conditions. Given the implications and sensitivity to minimal error in special operations, it is necessary that characteristics suggesting optimal or higher level functioning are selected in. It is equally important that pathological traits or inadequate scores suggesting lower or impaired functioning are identified and selected out.

Studies examining the personality characteristics within the general population have shown that gender differences do exist in personality. However, the extent and contrast of these differences vary across cultures and groups.[10] Results showed that, in general, women tend to be more susceptible to negative emotional states and report higher levels of tendermindedness. Men, on the other hand, report higher levels of assertiveness and risk-taking.[3,4,19] Research with USAF male and female pilots has examined gender differences in personality.[12–14] Chappelle et al.[7] reported that female USAF pilots' personality scores were more similar to those of their male pilot counterparts than the normative female civilian population. Female USAF pilots were more extroverted, gregarious, assertive, excitement-seeking, and expressive of positive emotions when compared to the female civilian population. Compared to male USAF pilots, female USAF pilots were more expressive of positive emotions, had greater appreciation for art and beauty, and were more open to reconsidering their values.

Because of the implications on performance and adaptation, the assessment of personality is key to the aeromedical training of USAF special operations aircrew. In addition, aeromedical clinical psychologists are called upon to assess the readiness of military personnel in aviation-related occupations. If a military or civilian aeromedical clinical psychologist discovers or perceives a special operations aircrew member or candidate has personality traits that elevate the risk for adaptation problems (e.g., including interference with flight safety, crew resource management), then the psychologist can recommend medical and administrative action that involves restriction or removal of the person from special operations aviation missions. Embedded psychologists can also use this information to help shape general training or provide personalized training to help enhance performance and the aircrew member's ability to adapt to the challenges of training in the operational environment. The focus for comparing an individual's baseline assessment to scores when reassessing helps explain any deviation in performance or intra/interpersonal functioning, as well as assists in determining when individuals are ready to return to flight status. Personality testing can also be used to identify or mitigate potential vulnerabilities before they manifest behaviorally, which may cause an aircrew member to be put on duties not involving/including flying. Having access to normative personality data and tools to support standard-of-care interventions for specific military populations can potentially support psychologists in assessing, interpreting, and making informed recommendations to leadership for those same military populations.

Over the last decade, AFSOC aircrew have been predominantly men (92.6–94.6%); however, female AFSOC aircrew members have maintained a steady presence (5.4–7.4%) (Miner J. Personal communication; 2019 Nov. 21). Similar to their male colleagues, female AFSOC aircrew members operate in a diverse number of positions (i.e., pilot, flight engineer, special missions aviator, gunner, sensor operator, loadmaster, combat systems officer, weapon systems officer, etc.) and have extensive combat experience. Additionally, they have served in key leadership roles across flight, squadron, group, and headquarter levels. Although such studies referenced in the Picano et al. review provide insight into the psychological areas of functioning that delineate special operations military personnel, these studies typically included primarily men and thus did not allow for exploration of potential meaningful gender differences that may delineate some of the unique features and qualities of women who are selected and succeed in the special operations environment. Considering the stable female presence in AFSOC, it becomes imperative to better understand the specific qualities this high-functioning group of women brings to special operations and, ultimately, mission success. Furthermore, having an accurate assessment of the personality traits of such women is important to medical and mental health providers who are tasked with evaluating readiness in special operations aircrew for optimizing performance and adaptation in various missions.[12]

The purpose of this study was to fill a gap in the literature by identifying personality differences that distinguish AFSOC female aircrew trainees from women in the civilian, nonmilitary normative sample, and investigating personality differences that distinguish AFSOC female aircrew trainees from male aircrew trainees.

METHODS

Subjects

Subjects included 586 U.S. AFSOC trainees. Of the total subjects, 51.9% were pilots ($N = 304$), 19.1% were special missions aviators ($N = 112$), 5.8% were sensor operators ($N = 34$), 5.8% were combat system officers ($N = 34$), 3.9% were flight engineers ($N = 23$), 3.8% were loadmasters ($N = 22$), 3.1% were electronic warfare operators ($N = 18$), 2.6% were navigators ($N = 15$), 1.5% were direct support operators ($N = 9$), 2.4% were classified as other personnel ($N = 14$), and $< 1\%$ had data missing ($N = 1$). **Table I** presents demographics for subjects by gender—58 (9.9%) women and 528 (90.1%) men. Gender was self-reported by subjects. The average age of female trainees was 25.72 (SD = 4.06) years as compared to 26.87 (SD = 5.49) years for male trainees. Split by rank range, 37 (63.8%) women and 346 (65.7%) men were officers. Men reported a longer time in service (5.27 yr, SD = 4.82) than women (4.19 yr, SD = 3.64),

Table I. Summary of Demographic and Military Service Variables for Female and Male AFSOC Trainees.

	FEMALES		MALES		TEST STATISTICS		
VARIABLE	***N***	**% (*N*)**	***N***	**% (*N*)**	**STATISTIC**	***P*-VALUE**	**EFFECT SIZE**
Age	58	25.7 (4.1)	528	26.9 (5.5)	-1.5	0.126	-0.21
Married	58	29.3 (17)	525	42.1 (221)	3.5	0.060	0.57
Bachelor/Master	58	67.2 (39)	523	67.5 (353)	0.0	0.969	0.99
Time in Service	54	4.2 (3.6)	509	5.3 (4.8)	-1.6	0.109	-0.23
Officer	58	63.8 (37)	527	65.7 (346)	0.1	0.777	0.92
Pilot	58	44.8 (26)	528	52.7 (278)	1.3	0.258	0.73

Percentages and counts are presented for all variables except for age and time-in-service where means and standard deviations are presented. Pearson's χ^2-statistics and odds ratios are presented for the statistic and effect size of categorical variables, while *t*-tests and Hedges' g standardized mean differences are presented for continuous variables.

$P < 0.01$. A higher proportion of men ($N = 221$, 42.1%) were married compared to women ($N = 17$, 29.3%), $P < 0.05$. Male pilots accounted for 278 (52.7%) of the total male trainees as compared to 26 (44.8%) of the total female trainees. Ethnicity and race data were not available. The present study was reviewed by the Air Force Research Laboratory Institutional Review Board at Wright-Patterson Air Force Base and granted approval as nonhuman use research (assigned protocol number FWR20110056N, 1.01).

Materials

The NEO Personality Inventory Revised (NEO PI-R) and the NEO Personality Inventory-3rd Edition (NEO PI-3) were used to measure noncognitive aptitudes.[9,15,16] A majority of the subjects (92%) completed the PI-3, and the remainder (8%) completed the PI-R. The NEO PI-R and the NEO PI-3 meet professional psychometric reliability and validity standards for use as a personality assessment instrument.[9,15,16] Normative NEO PI-R and NEO PI-3 domain scores for the general population have a standard mean score of 50 with an SD of 10. The computerized version of the NEO PI was used; administration followed a standardized set of instructions, and participant completion was self-paced. Responses were automatically scored and stored via computer.

Both versions of the NEO PI measure five basic personality dimensions: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). There are six facets within each domain, yielding a total of 30 different measurements of emotional, social, intellectual, and behavioral functioning. Both the NEO PI-R and the NEO PI-3 take approximately 30–40 min to complete and consist of 240 statements. The tests utilize a 5-point scale with a response set ranging from "strongly disagree" to "strongly agree." The NEO PI underwent a revision from the PI-R to the PI-3 that included revising 37 items for improved readability and updating normative data.[15] The NEO PI-3 retains the intended factor structure and has been found to have better psychometric properties, including internal consistency, cross-observer agreement, and readability.[1,20]

The NEO PI-3 is not used for selection purposes. Rather, it is used to provide additional information to assess for psychological strengths, vulnerabilities, and risk for adaptation problems. The NEO PI-3 is not used in isolation but in conjunction with multiple sources of information such as interviews, observations, performance reports, and record reviews. It is crucial to identify maladaptive personality traits or a pattern of maladaptive behavior that could interfere with flight safety.

NEO PI-R and PI-3 scores were compared to determine which female normative sample to use to compare with AFSOC female trainees. The NEO PI-3 adult normative sample consisted of $N = 356$ women ages 21 to 90 yr old. No other details regarding the age distribution of this cohort is provided in the NEO PI-3 inventories manual. According to Cohen, absolute effect sizes between 0.2 and 0.5 are considered to be small to moderate in size.[8] Only one domain and four facets had absolute effect sizes greater than 0.3 and, of these, only one facet (A4: compliance) was greater than 0.4. This suggests that the two normative samples are similar enough that either can be used without loss of fidelity. For the current study, the NEO PI-3 normative sample was used because it was administered to 90% of our AFSOC sample, making it the logical choice. For the purposes of the current study, "NEO PI" represents both the NEO PI-3 and NEO PI-R.

Procedures

AFSOC aircrew trainees at the 19th Special Operations Squadron at Hurlburt Field, FL, were scheduled to complete a series of computer-based psychological tests to assess cognitive ability and personality traits. Trainees met for 30 min in a separate classroom to discuss purpose, consent, and overview of the specific assessments. Trainees were informed that the information gathered during the psychological evaluation would be primarily used for the following purposes: 1) to provide individual and/or group feedback on cognitive and personality traits and characteristics; and 2) as part of individual training support and evaluation. The assessments were administered in the 19th Special Operations Squadron Learning Center. Each trainee had a sectioned-off computer station and the assessments were proctored. The assessment took approximately 30–45 min to complete. Trainees received their results individually and/or in group feedback sessions (depending on individual preferences) with an operational psychologist. Data collected from the NEO PI (PI-R and PI-3) were uploaded into the medical flight screening psychological testing baseline database.

Statistical Analyses

Descriptive statistics were used to characterize AFSOC female and male trainees with respect to demographic, military

experience, and NEO PI domain and facet scores. Specifically, means and standard deviations were calculated for continuous variables, and counts and percentages were reported for categorical variables. When statistical testing of continuous variables was performed, two-sample *t*-tests were used, while Pearson's χ^2 tests were used to analyze categorical variables. For all comparisons, *P*-values, corresponding test statistics, and effect sizes were reported. Hedges' g standardized mean differences were reported for continuous variables and odds ratios were reported for dichotomous categorical variables. *P*-values less than 0.01 were considered statistically significant.

RESULTS

Cronbach's α is presented to assess the internal consistency, for each gender, of the six facet scores that compose each NEO PI domain (**Table II**).

Differences Between Female AFSOC Trainees and Female Normative Sample

The means and standard deviations for the NEO PI domain and facet scores (see McCrae & Costa, Table B3)[15] for the total sample of USAF AFSOC female trainees and female civilians, normative sample are shown in **Table III**.

Results revealed multiple significant differences in NEO PI domain and facet scores between female AFSOC trainees and female civilians. Across NEO PI domains, results indicated statistically significant differences between female AFSOC trainees and female civilians on four of the five domains: Neuroticism [$t(402) = -3.81$, $P < 0.001$], Extraversion [$t(402) = 4.00$, $P < 0.001$], Openness to Experience [$t(402) = 4.52$, $P < 0.001$], and Conscientiousness [$t(402) = 5.34$, $P < 0.001$]. There was not a statistically significant difference between female AFSOC trainees and female civilians on the fifth domain, Agreeableness, overall [$t(402) = -1.77$, $P = 0.08$].

Neuroticism. Female AFSOC trainees exhibited significantly lower levels of overall Neuroticism than their female civilian counterparts [$t(402) = -3.81$, $P < 0.001$]. Considering facets within Neuroticism, statistically significant differences emerged within facets of anxiety [$t(402) = -3.59$, $P < 0.001$], vulnerability [$t(402) = -5.63$, $P < 0.001$], and depression [$t(402) = -3.06$, $P = 0.002$], with female AFSOC trainees exhibiting lower levels, on average, than female civilians. Female AFSOC trainees also trended lower on the angry hostility [$t(402) = -2.00$, $P = 0.046$] and impulsiveness (-2.18, $P = 0.030$) facets.

Table II. Internal Consistency for Each Gender of the NEO PI Domains.

	CRONBACH'S α (SE)	
NEO PI DOMAINS	FEMALES (*N* = 58)	MALES (*N* = 528)
N: Neuroticism	0.83 (0.03)	0.86 (0.01)
E: Extraversion	0.80 (0.04)	0.84 (0.01)
O: Openness to Experience	0.75 (0.05)	0.69 (0.02)
A: Agreeableness	0.59 (0.08)	0.73 (0.02)
C: Conscientiousness	0.84 (0.03)	0.85 (0.01)

SE = standard error.

Extraversion. Female AFSOC trainees exhibited significantly higher levels of overall Extraversion than female civilians [$t(402) = 4.00$, $P < 0.001$]. Namely, female AFSOC trainees demonstrated higher levels of assertiveness [$t(402) = 4.78$, $P < 0.001$] and excitement-seeking [$t(402) = 7.79$, $P < 0.001$], on average. In addition, self-reported levels of activity [$t(402) = 2.12$, $P = 0.035$] trended higher for female AFSOC trainees than female civilians.

Openness to Experience. Female AFSOC trainees exhibited significantly higher levels of overall Openness to Experience than female civilians [$t(402) = 4.52$, $P < 0.001$]. Results indicated that statistically significant differences emerged in three facets—actions [$t(402) = 4.81$, $P < 0.001$], ideas [$t(402) = 6.21$, $P < 0.001$], and values [$t(402) = 4.93$, $P < 0.001$]—with female AFSOC trainees, on average, reporting higher levels on all three.

Conscientiousness. Female AFSOC trainees exhibited significantly higher levels of overall Conscientiousness than female civilians [$t(402) = 5.34$, $P < 0.001$]. Notably, results indicated that female AFSOC trainees had statistically significant higher levels of competence [$t(402) = 3.28$, $P < 0.001$], order [$t(402) = 3.46$, $P < 0.001$], dutifulness [$t(402) = 2.97$, $P = 0.003$], achievement-striving [$t(402) = 8.16$, $P < 0.001$], and self-discipline [$t(402) = 3.81$, $P < 0.001$] compared to female civilians. The remaining facet—deliberation [$t(402) = 2.15$, $P = 0.032$]—demonstrated a similar positive trend.

Agreeableness. Although the overarching domain ([$t(402) = -1.77$, $P = 0.078$] did not indicate significant differences between female AFSOC trainees and female civilians, one facet within the domain emerged as statistically significant: compliance [$t(402) = -4.02$, $P < 0.001$]. Female AFSOC trainees exhibited lower levels of compliance in comparison with their female civilian counterparts.

Gender Differences Between Female and Male USAF AFSOC Trainees

The means and standard deviations for the NEO PI domain and facet scores (McCrae & Costa, Table B3)[15] for the total sample of USAF AFSOC female and male trainees are shown in Table III. The comparison between USAF AFSOC female and male trainees revealed fewer significant differences than the comparison between AFSOC female trainees and female civilians.

Across NEO PI domains, the results demonstrated statistically significant differences across three domains—Neuroticism [$t(584) = 3.35$, $P < 0.001$], Openness to Experience [$t(584) = 2.92$, $P = 0.004$], and Agreeableness [$t(584) = 2.89$, $P = 0.004$]. Female AFSOC trainees, on average, exhibited significantly higher levels of overall Neuroticism, Openness to Experience, and Agreeableness than male AFSOC trainees. Within the Neuroticism domain, female AFSOC trainees scored higher on

Table III. Comparison of AFSOC Female Trainees vs. Adult Female NEO PI Normative Sample and AFSOC Male Trainees.

	DESCRIPTIVE STATISTICS			COMPARATIVE TESTS					
				AFSOC FEMALE TRAINEES vs. FEMALE NORMS			AFSOC FEMALE vs. MALE TRAINEES		
DOMAIN/FACET	AFSOC FEMALE TRAINEES MEAN (SD)	PI-3 FEMALE NORMS MEAN (SD)	AFSOC MALE TRAINEES MEAN (SD)	*t*	*P*	EFFECT SIZE	*t*	*P*	EFFECT SIZE
N: Neuroticism	**74.9 (20.4)**	**87.1 (22.9)**	**65.1 (20.8)**	**3.81**	**<0.001**	**-0.54**	**3.35**	**0.001**	**0.47**
N1: Anxiety	14.4 (4.7)	17.2 (5.7)	12.0 (4.8)	3.59	<0.001	-0.51	3.53	0.001	0.50
N2: Angry Hostility	12.2 (5.2)	13.6 (4.8)	11.2 (4.5)	2.00	0.046	-0.28	1.61	0.109	0.23
N3: Depression	11.4 (4.9)	13.8 (5.7)	9.9 (4.9)	3.06	0.002	-0.43	2.10	0.037	0.30
N4: Self-Consciousness	13.1 (5.1)	14.1 (5.3)	11.9 (5.0)	1.29	0.198	-0.18	1.85	0.066	0.26
N5: Impulsiveness	15.0 (4.5)	16.3 (4.1)	13.1 (4.3)	2.18	0.030	-0.31	3.11	0.002	0.44
N6: Vulnerability	8.8 (3.3)	12.1 (4.3)	7.0 (3.7)	5.63	<0.001	-0.80	3.42	<0.001	0.48
E: Extraversion	**123.7 (20.1)**	**112.8 (19.1)**	**119.8 (21.1)**	**4.00**	**<0.001**	**0.57**	**1.32**	**0.186**	**0.19**
E1: Warmth	23.6 (5.1)	23.4 (4.1)	22.7 (4.5)	0.28	0.779	0.04	1.44	0.150	0.20
E2: Gregariousness	17.4 (5.1)	18.1 (5.0)	17.1 (5.4)	0.94	0.346	-0.13	0.48	0.629	0.07
E3: Assertiveness	18.9 (4.4)	15.6 (5.0)	19.4 (4.5)	4.78	<0.001	0.68	0.74	0.459	-0.10
E4: Activity	19.1 (4.2)	17.8 (4.5)	18.4 (3.9)	2.12	0.035	0.30	1.34	0.182	0.19
E5: Excitement-Seeking	22.0 (3.5)	16.5 (5.2)	22.2 (4.4)	7.79	<0.001	1.10	0.33	0.743	-0.05
E6: Positive Emotions	22.6 (5.7)	21.4 (4.8)	20.1 (5.5)	1.75	0.081	0.25	3.28	0.001	0.46
O: Openness to Experience	**122.6 (19.8)**	**111 (17.8)**	**115.0 (18.4)**	**4.52**	<0.001	**0.64**	**2.92**	**0.004**	**0.410**
O1: Fantasy	17.9 (5.0)	17.5 (4.8)	18.1 (4.8)	0.53	0.597	0.08	0.32	0.750	-0.05
O2: Aesthetics	18.6 (5.9)	17.7 (5.6)	15.5 (5.9)	1.07	0.2876	0.15	3.62	<0.001	0.51
O3: Feelings	22.0 (4.1)	21.6 (3.8)	19.3 (4.6)	0.74	0.4628	0.10	4.26	<0.001	0.60
O4: Actions	18.4 (4.0)	16 (3.4)	17.7 (4.1)	4.81	<0.001	0.68	1.22	0.223	0.17
O5: Ideas	22.2 (6.1)	17.6 (5.1)	23.1 (5.3)	6.21	<0.001	0.88	1.09	0.275	-0.15
O6: Values	23.6 (4.0)	20.7 (4.1)	21.3 (4.3)	4.93	<0.001	0.70	3.71	<0.001	0.52
A: Agreeableness	**119.6 (14.6)**	**123.8 (17.1)**	**112.7 (17.5)**	**1.77**	**0.078**	**-0.25**	**2.89**	**0.004**	**0.41**
A1: Trust	19.0 (4.7)	20.1 (4.4)	18.8 (5.0)	1.69	0.091	-0.24	0.28	0.779	0.04
A2: Straightforwardness	20.0 (4.7)	21.2 (4.6)	18.7 (4.6)	1.92	0.056	-0.27	2.02	0.044	0.28
A3: Altruism	25.3 (3.3)	24.4 (3.7)	23.4 (3.7)	1.66	0.097	0.24	3.67	<0.001	0.52
A4: Compliance	14.5 (4.2)	17.0 (4.5)	15.0 (4.2)	4.02	<0.001	-0.57	0.99	0.325	-0.14
A5: Modesty	20.1 (4.7)	19.8 (4.3)	18.2 (4.9)	0.55	0.584	0.08	2.79	0.006	0.39
A6: Tendermindedness	20.8 (3.8)	21.4 (3.4)	18.5 (4.1)	1.31	0.192	-0.19	3.89	<0.001	0.55
C: Conscientiousness	**136.0 (19.1)**	**120.6 (20.6)**	**131.9 (18.8)**	**5.34**	<0.001	**0.76**	**1.56**	**0.121**	**0.22**
C1: Competence	23.0 (4.0)	21.2 (3.9)	23.3 (3.7)	3.28	0.001	0.46	0.55	0.582	-0.08
C2: Order	22.1 (5.3)	19.5 (5.4)	19.8 (4.8)	3.46	<0.001	0.49	3.37	<0.001	0.47
C3: Dutifulness	24.3 (3.3)	22.7 (4.0)	24.1 (3.4)	2.97	0.003	0.42	0.52	0.606	0.07
C4: Achievement-Striving	24.6 (4.4)	19.3 (4.6)	23.6 (4.0)	8.16	<0.001	1.16	1.74	0.083	0.24
C5: Self-Discipline	22.8 (4.4)	20.2 (4.8)	22.5 (4.1)	3.81	<0.001	0.54	0.40	0.687	0.06
C6: Deliberation	19.2 (3.9)	17.8 (4.6)	18.6 (4.5)	2.15	0.032	0.30	0.99	0.322	0.14

Bolded text represents NEO PI domain scores. The NEO PI-3 female normative information was derived from a sample of size $N = 356$.

anxiety [$t(584) = 3.53$, $P < 0.001$], impulsiveness [$t(584) = 3.11$, $P = 0.002$] and vulnerability [$t(584) = 3.42$, $P < 0.001$] compared to male AFSOC trainees. The overall Extraversion domain was not statistically significant, however, positive emotions [$t(584) = 3.28$, $P = 0.001$] emerged as statistically significant with female AFSOC trainees scoring higher, on average, than their male counterparts. Within the Openness to Experience domain, statistically significant differences emerged on aesthetics [$t(584) = 3.62$, $P < 0.001$], feelings [$t(584) = 4.26$, $P < 0.001$], and values [$t(584) = 3.71$, $P < 0.001$] between female and male AFSOC trainees. That is, female AFSOC trainees reported higher levels of aesthetics, feelings, and values than their male AFSOC counterparts. A couple of statistically significant differences also emerged within the Agreeableness domain, such that female AFSOC trainees exhibited higher levels of altruism [$t(584) = 3.67$, $P < 0.001$], tendermindedness [$t(584) = 3.89$, $P < 0.001$], and modesty [$t(584) = 2.79$, $P < 0.006$]. In the final domain of Consciousness, the order facet emerged as significant with female AFSOC trainees scoring higher than male AFSOC trainees [$t(584) = 3.37$, $P < 0.001$].

DISCUSSION

Overall findings of this study highlight the unique personality traits of USAF AFSOC female trainees, especially in comparison to the female population norm as evaluated by the NEO PI. Female AFSOC trainees differed from the female normative population in distinct and important ways, which are discussed below. While female AFOSC trainees differed from male AFSOC trainees in a few ways, they shared more in common with their male counterparts than they did the female civilian, normative population.

The findings suggest that female AFSOC trainees, and other women in special operations, may have greater levels of emotional stamina and stability when compared to the female

normative population. These traits may help them better adjust to and manage the ebb and flow of day-to-day AFSOC operations and stressors, as compared to the general female population, and will theoretically help them feel less drained by the highly demanding situations that may unexpectedly present at any time. Study findings imply that female AFSOC trainees are less likely to feel fear, apprehension, and nervousness (anxiety). They are also less likely to experience sadness, hopelessness, and loneliness, as well as other negative emotional states (vulnerability) than their general population female counterparts. Given the challenging and high-risk nature of AFSOC operations, these traits may help female AFSOC trainees engage more effectively and reliably, regardless of the task at hand. A lower likelihood of experiencing anxiety and vulnerability is also considered a critical attribute when facing emergency situations. Maintaining composure amid potential chaos is a positive trait and suggests reliability in situations that may have uncontrollable factors, and in which they might be responsible for preventing accidents or disasters.

Socially, results suggest that they tend to be more assertive and speak without hesitation (assertiveness) as well as more interpersonally competitive (compliance) in a group setting. In the high operations tempo world of AFSOC, where decisions might have to be made quickly and with limited information, it is essential that personnel feel comfortable communicating concerns rapidly and without apprehension, as this may be critical to safety and completing the mission. If operating in a leadership position, this trait will also be beneficial in commanding and directing subordinates during operations. Behaviorally, female AFSOC trainees tend to seek out excitement and stimulation (excitement-seeking) yet demonstrate high levels of control over their actions (self-discipline). Both traits are also critical to success in AFSOC operations; as excitement seekers, they are more likely to move toward a risky situation than to avoid it, are less likely to be intimidated by a hostile environment, and are able to maintain composure that will allow them to make logical, objective decisions at critical moments.

In addition, female AFSOC trainees appear to be more open to trying new things (actions) and thinking in new and unconventional ways (ideas). They also appear to be more likely to engage in thought processes that challenge traditional roles and beliefs (values). These traits suggest they will not be overwhelmed by novel situations or nontraditional events, will not be distracted by politically sensitive problems, and may offer innovative solutions to ongoing obstacles within their team or operations. They may be better equipped than the average female civilian to "think outside the box," which may be a particularly valuable trait in situations requiring quick actions or solutions. Finally, AFSOC female aircrew trainees feel prepared to deal with life (competence), have a need for organization (order), and are dependable in fulfilling their obligations (dutifulness). They also have a greater drive to pursue and achieve their goals (achievement-striving) while also having the self-motivation and focus to carry out tasks to completion (self-discipline). These results are not surprising, as the demands of an AFSOC career are significant, and likely more formidable than the challenges of the typical job stressors experienced by their female civilian counterparts in non-high-demand professions. Furthermore, pursuing a career in a specialty area largely dominated by men may contribute to a sense of having to "prove oneself," thus appealing to women who are particularly resilient to negative emotional states, goal driven, competitive, and hard working.

Chappelle et al. found similar results with a study on USAF female pilots.[7] They found that USAF female pilots differed from the female civilian, normative population not only in being more extraverted and assertive, but also more outgoing, social, excitement-seeking, and more expressive of positive emotion. The current study investigated another unique population of women who go through intense training preparing them to do their job in unusually demanding conditions. Findings of the current study on the personality differences between AFSOC female aircrew and the female civilian, normative population highlight the characteristics that set female AFSOC aircrew (and other female special operations agents) apart, likely enhancing their ability to adapt to the unique atmosphere of military special operations and successfully perform the necessary duties in their career field.

Of note, these findings have professional implications for adequately interpreting personality test scores, suggesting that nonmilitary female samples do not provide representative bases for comparison. For assessment and interpretation of personality data, psychologists should rely on normative personality data that directly reflect the population of the person being assessed. Otherwise, incorrect interpretations regarding low, average, or high specific traits of an aircrew member may influence recommendations regarding what is normal or abnormal for a specific population. For example, an AFSOC trainee's level of emotional susceptibility may appear average when compared with the general population norm; however, compared with successful trainees and experienced aircrew, what looks like an average score on this trait by general population standards may be well below average and expectations for special operations aircrew.

When comparing AFSOC female aircrew to their male counterparts in the aviation special operations community, findings revealed that female aircrew had more in common than there were differences. The observed differences that do exist suggest that female AFSOC aircrew trainees, in comparison to male trainees, are more likely to feel worry, apprehension, and nervousness (anxiety); have lower levels of impulse control (impulsiveness); and experience negative emotional states (vulnerability). On the other hand, female AFSOC trainees are more likely to experience and express positive emotions such as joy, happiness, love, and excitement (positive emotions) compared to male AFSOC trainees. This finding suggests that female AFSOC trainees experience a greater range of emotions, both positive and negative. Female AFSOC trainees show a greater appreciation for beauty in their surroundings (aesthetics) and a greater range of emotions (feelings). They also may be more willing than their male counterparts to reexamine social, political, and religious ideals (values). Female AFSOC trainees

also showed greater levels of compassion (altruism), higher levels of sympathy and concern for others (tendermindedness), and higher levels of humility (modesty). Finally, female AFSOC trainees may have a higher preference to be well-organized (order) compared to male AFSOC trainees. These traits may have positive implications for female aircrew members' ability to think flexibly when attempting to analyze or assimilate new or competing information related to values and emotions. Such traits may help them process more quickly and maintain composure in the context of a stressful event that presents such ideal-based challenges.

One important note is that this study did not measure or examine how specific differences in personality impact one's job performance or team cohesion. We can only speculate how these personality differences may or may not impact the job of working in high-risk environments. However, as a whole, female AFSOC trainees were highly similar to their male counterparts on most personality traits. The lack of differences between AFSOC female and male trainees implies that there are certain personality traits associated with the career field, and gender plays a minimal role once trainees are on the career field path.

Picano et al.'s review examined the unique personality traits of military personnel who are selected for special operations.[16,17] Gender differences were not specifically assessed in their review, but across both men and women, they identified essential attributes such as high levels of emotional stamina and composure, self-confidence, initiative, cooperation, motivational drive, self-discipline, integrity, moral courage, dependability, and perseverance that distinguish military special operations aircrew from the normative population. Findings from the current study support previous work highlighting certain personality characteristics that set military personnel apart from the normative population and expand on prior research demonstrating that gender differences diminish once selected into special operations such as AFSOC. That is, AFSOC aviators have a unique set of personality traits that likely increase their ability to adapt and likelihood of success in the special operations community. The limited observed differences that do exist between male and female trainees suggest that female trainees may be more likely to benefit from greater cognitive and emotional flexibility when confronted with situations that challenge their values or beliefs.

One study limitation is that the findings may not generalize to women in other military branches. Further exploration of differences between women in various high-demand, high-risk military career fields may corroborate these findings as well as lend additional insight into what sets high-performing women apart from their male counterparts and the normative population. The female PI-3 normative group used as a comparison sample may also have come from women who were much older than AFSOC female trainees. The study sample included a relatively small sample of female special operations aircrew within a restricted access environment, and additional studies are needed to validate the results and to fully understand the personality traits of those who adapt and succeed in this unique environment. With larger sample sizes, statistical analyses can explore the effects of demographics (e.g., age, education, race) and other individual characteristics on personality differences. Investigating specific differences between male AFSOC trainees and male civilians was beyond the scope of the current effort. However, this is an area of interest for future exploration.

In conclusion, a valid and reliable psychological instrument appropriate for assessing high-risk, high-demand career fields, such as AFSOC aircrew, is vital to delivering psychological services. The results of this study provide military and civilian psychologists with up-to-date personality data for AFSOC aircrew to support accurate assessment and interpretation of psychological tests assessing various facets of personality (e.g., Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness) and identify traits associated with those female airmen who pursue and succeed in AFSOC aircrew career fields. Having accurate information about the personality traits and characteristics helps support psychologists tasked with evaluating and informing leadership regarding readiness in special operations aircrew for optimizing performance and adaptation in various missions.

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