

# Sources of Stress and Psychological Health Outcomes Among U.S. Air Force Total Force Distributed Common Ground System Operators

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**ABSTRACT** U.S. Air Force Distributed Common Ground Station (DCGS) intelligence (Intel) operators sustain 24/7 battlefield situational awareness and facilitate precision-strike operations. DCGS operations are global, synergistic, Total Force (TF) endeavors by active duty, Air National Guard (ANG) and Reserve units, providing combatant commanders with critical real-time intelligence and shaping operational and tactical decisions. Continual surveillance of this community's psychological health is important to its military leaders. This study re-examines the most frequently reported occupational stressors, as well as the prevalence of occupational burnout (i.e., high-emotional exhaustion and cynicism, and low professional efficacy), and psychological distress within this population. Active duty ( $n = 1717$ ), ANG ( $n = 139$ ), and Reserve ( $n = 173$ ) Intel operators participated in a comprehensive, online, occupational health assessment. Results reveal that occupational stressors contributing to elevated rates of distress, regardless of TF status (i.e., low manning, long work hours, excessive workload, and organizational communication concerns) are consistent with previous research. The prevalence of high-emotional exhaustion (AD: 29%/ANG: 25%/RES: 14%) and psychological distress (AD: 19%/ANG: 17%/RES: 5%) are above estimates for other military communities. These findings combined with demographic and occupational risk factors lay the foundation for improving psychological health within this Total Force community.

## INTRODUCTION

The distributed common ground system (DCGS) is a globally distributed organization providing and analyzing around-the-clock real-time visual and auditory intelligence data from various regions of conflict.<sup>1,2</sup> The DCGS organization is largely comprised of active duty (AD), Air National Guard (ANG) and Reserve intelligence (Intel) operators who gather and exploit visual and technical information to support strategic efforts and combat operations around the globe.<sup>2,3</sup> The DCGS Intel operators are commonly referred to as “remote warriors.” Although they are physically removed from the hazards of the battle space by operating within the protective borders of military installations, they are nonetheless, psychologically engaged in combat operations, in a manner similar to the remotely piloted aircraft (RPA) community.<sup>3,4</sup>

Although these Intel operators are not engaged in hand-to-hand combat, they are immersed in a perpetual “deployed-in-

garrison” lifestyle, witnessing and making decisions that contribute to the elimination of enemy combatants and assets. They must balance the psychological challenges of battlefield operations with the demands of their personal lives on a daily basis, without revealing their warfighting role to the public. Like their counterparts in the RPA community, DCGS Intel operators may experience grief from the loss of allied members on the ground and when missions involve collateral damage or fratricide.<sup>4</sup>

The DCGS operations tempo has steadily increased since 2012 as a Total Force endeavor.<sup>2,5</sup> The community of DCGS intel operators underwent comprehensive occupational psychological health assessments in 2011 and 2013 due to concerns with regards to their perpetual, 24/7 participation in intelligence, surveillance, and reconnaissance (ISR) and combat-related activities while simultaneously juggling their domestic roles. The results of such studies revealed that Intel operators were at an elevated risk for emotional, social, and behavioral health problems.<sup>3,4,6</sup> Previous research identified approximately 26–27% of the DCGS Intel operator population experienced high levels of emotional exhaustion, and 14–16% reported medically significant psychological distress impairing both social and occupational functioning.<sup>3,4</sup> Additionally, this population reported an array of negative health behaviors and outcomes, largely attributed to work-related stress. These included but were not limited to elevated alcohol use (16–20%), problematic caffeine use (34–35%), inadequate amounts of physical exercise (38–40%), increasing prescription (14–17%) and over the counter medication (10–17%) usage, problematic headaches (28–37%) and musculoskeletal

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The views expressed in this article are those of the authors and do not necessarily represent the official position or policy of the U.S. Government, the Department of Defense, or the U.S. Air Force.

doi: 10.1093/milmed/usy398

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pain (22–30%), work-related anxiety (9–14%) and depression (4–11%), and insufficient sleep (55–63%).<sup>6,7</sup>

As a result, military leadership have diligently pursued strategies to provide operational health care and resiliency support options based on these previous U.S. Air Force School of Aerospace Medicine (USAFSAM) studies. Chief among these is the establishment of embedded health care teams among AD units, officially termed Operational Medical Elements (OMEs).<sup>8</sup> These teams are composed of AD licensed operational psychologists, mental health technicians, physicians, and medical technicians. OME teams have security clearances, receive specialty training in DCGS operations, and are embedded within operational groups to promote resiliency and address stress-related concerns. These teams have focused on multiple educational and consultative strategies promoting adaptation to occupational stressors (i.e., shift work, long work hours, real-time exposure to and engagement in combat operations), domestic issues related to a “deployed in garrison lifestyle” (i.e., marital and family distress), as well as unit functioning (i.e., adapting to shift work, sustaining effective communication, team functioning, and morale within high impact/ high stress units). However, ANG and Reserve units do not have OMEs. Although ANG and Reserve units also sustain around-the-clock missions, the strategies for providing embedded mental health support is not as robust as AD units. As a result, ANG units do not have the benefit of routine access to specialty trained military medical and mental health providers and must rely on traditional and often uncleared access to mental health services within the local, civilian community.

Even so, questions continue to be raised by medical and operational leadership regarding the psychological health of DCGS Intel operators across the Total Force (TF) community. As a result, this study was conducted to assess the following, since the last occupational health studies: Do primary sources of self-reported occupational stress remain the same? Has the prevalence of high levels of emotional exhaustion, cynicism, and psychological distress changed? Do newly embedded OMEs teams help reduce elevated rates of distress when compared with outcomes from previous studies (i.e., 2011 and 2013), and when compared with ANG and Reserve units that do not have OME teams? Are there demographic and occupational risk factors for high levels of emotional exhaustion, and psychological distress? By more thoroughly understanding the psychological health implications of the DCGS Intel operators, the USAF may better posture to sustain and optimize resiliency strategies for this unique TF community.

## METHODS

The purpose, methods, and research protocol of this study were reviewed by the Air Force Research Lab Institutional Review Board and granted exemption.

### Participants

A total of 2,252 DCGS Intel operators from Active Duty (AD) ( $n = 1,717$ ), ANG ( $n = 139$ ) and Reserve ( $n = 173$ )

units across the globe participated in the study. Based on the number of military personnel from the assigned units that took part, the overall participation rate was approximately 33%. This rate is well above those of unit climate assessments and web-based annual health assessments. Participant demographics are shown in Table I.

## Instruments

### Demographic Questionnaire

The initial portion of the survey consisted of demographic (i.e., gender, age range, marital status, whether respondents had children and dependents living at home, etc.) and operational (i.e., unit of assignment, duty position, rank range, length of time in their current duties, average number of hours worked per week, and current work schedule) items.

### Sources of Occupational Stress

Participants were asked to rate sources of occupational stress, using a 0 (none) to 10 (extreme) stress scale. There were 14 categories of occupational stressors, as seen on Table II. Participants were also able to list and rate on the same scale additional sources of stress that were not included in the provided categories. Open responses were coded into existing categories where applicable, and new categories were created to account for additional written responses. An established cut off of 8 or higher was used to identify those stressors identified as a “high” source of stress. This methodology is consistent with previously published studies with DCGS Intel operators.<sup>3,4</sup>

### Maslach Burnout Inventory (MBI-GS)

The MBI-GS is a 16-item self-report measure assessing occupational burnout. The measure is composed of three separate subscales assessing: emotional exhaustion, cynicism and professional efficacy.<sup>9</sup> Each item is rated on a Likert scale that assesses the frequency with which the respondent experiences a specific symptom of burnout. Item scores range from 0 (never) to 6 (daily). The exhaustion and cynicism subscales have five items each, whereas the professional efficacy subscale consists of six items. Established cutoff scores for each subscale were: 20 or more for the exhaustion and cynicism scales and 12 or less for the professional efficacy subscale. The cut off scores are consistent with previously published studies with DCGS intel operators.<sup>3,4</sup> Support for construct validity of the MBI-GS is reported in the MBI Manual.<sup>9</sup> Stability coefficients range from 0.65 to 0.67. Reliability coefficient in the current study, using Cronbach’s alpha is 0.92 for Exhaustion, 0.88 for Cynicism, and 0.83 for Professional Efficacy. An endorsement of overall burnout was coded as meeting thresholds for all three facets.<sup>9</sup>

### Outcome Questionnaire (OQ-45.2)

The OQ-45.2 is a self-report measure assessing cognitive, emotional, behavioral, and social symptoms of psychological distress over the last week, including difficulties in

**TABLE I.** Demographic and Occupational Descriptive Variables for Total Force Distributed Common Ground Station Intel Operators

	AD Intel		ANG Intel		Reserves Intel	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Demographics and Occupational Variables						
Gender						
Male	1,221	71.40	113	83.09	105	61.40
Female	489	28.60	23	16.91	66	38.60
Age range (years)						
18–25	536	31.25	11	7.91	15	8.72
26–35	915	53.35	54	38.85	76	44.19
36+	264	15.39	74	53.24	81	47.09
Marital status						
Single	708	42.19	28	20.59	58	34.12
Married	970	57.81	108	79.41	112	65.88
Dependents at home						
Yes	696	40.99	83	59.71	94	54.97
No	1002	59.01	56	40.29	77	45.03
Rank range						
Enlisted	1558	90.95	114	82.61	122	71.35
Officer	155	9.05	24	17.39	49	28.65
Time on station (months)						
≤24	1,325	78.45	63	45.32	102	61.08
>24	364	21.55	76	54.68	65	38.92
Shift schedule						
Standard day	646	38.54	65	46.76	111	66.47
Shift work	1,030	61.46	74	53.24	56	33.53
Shift rotation frequency (days)						
≤30	59	3.65	9	6.92	5	3.09
31–60	114	7.05	17	13.08	2	1.23
61+	547	33.81	20	15.38	11	6.79
Fixed shift	310	19.16	29	22.31	29	17.90
N/A	588	36.34	55	42.31	115	70.99
Hours worked per week						
30–50	1317	80.75	115	85.19	124	82.67
51+	314	19.25	20	14.81	26	17.33

interpersonal relationships and social roles.<sup>10–13</sup> The OQ-45.2 is commonly used in USAF mental health clinics to assess clinical psychological distress, and to track progress among personnel seeking mental health care. There are 45 items on a 5-point Likert scale with potential responses ranging from *never*, *rarely*, *sometimes*, *frequently*, and *always*. Several items are reverse-scored to reduce random responding. The total score range on the OQ-45.2 is zero to 180, with higher scores representing elevated levels of psychological distress.<sup>11,13</sup> A total score of 63 or more is considered indicative of high psychological distress.<sup>11,13</sup> Reliability coefficient in current study, using Cronbach's alpha, is 0.94 and concurrent validity estimates range from 0.64 to 0.88.<sup>12</sup>

#### Embedded Care Provider Assessment

Participants were asked if they had interaction with operational medical element (OME) embedded health care and airman resiliency resources. They were then given the opportunity to respond to a series of questions assessing the quality and benefits of this interaction, with specific focus on consultation with mental/behavioral health providers (i.e.,

“Have you ever sought assistance for a mental/behavioral health concern or relational problem?” “To what extent does having embedded resiliency personnel within your unit help you manage operational and mission demands?” “How effective was the provider in helping you with your concerns?”). Survey items allowed participants to identify types of providers seen, and to rate the quality and satisfaction of care, using a 5-point scale, ranging from “Not at All” to “Extremely.”

#### Procedure

The DCGS commanders solicited participation via e-mail and informed operators that survey participation was voluntary and anonymous. The anonymous nature of the survey was to promote participation and self-disclosure. Leadership and researchers informed potential participants that results of the survey would identify the main sources of high occupational stress and current levels of distress in their units. Findings were reported in aggregate, focused on the squadron level or higher, with no identification of individual responses.

**TABLE II.** Self-Reported Sources of High Occupational Stress

Categorical Sources of High Stress	AD		ANG		Reserve		Sig. Proportion Comparison <i>p</i> < 0.05
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
<b>Low unit manning/ long hours</b> (e.g., not enough qualified manpower with adequate experience & expertise; some units still working 12 hour shift duration).	465	27.08	48	34.53	44	25.43	ns
<b>Extra admin duties/ excessive workload</b> (e.g., too much work, combined operational & administrative, during the work day or week; workload compounded by ancillary & proficiency training and prof military education.)	590	34.36	36	25.90	33	19.08	AC
<b>Organizational communication/concerns</b> (e.g., difficulties with interpersonal comm at various levels; greater need for transparent comms through the leadership chain; apprehension about up-channeling concerns.)	431	25.10	29	20.86	39	22.54	ns
<b>Sleep issues/shift schedule</b> (e.g., long-term shift work with poor energy management & work-life challenges contribute to poor quantity & quality of sleep; disrupted sleep due to thoughts of mission events & work not yet done; shift work considerations: difficulty switching shifts, mandatory events during down time from shift, 12-hour shift duration; shift schedule stability (too rigid, too flexible, permanent night shift.))	386	22.48	33	23.74	20	11.56	BC; AC
<b>Leadership/management</b> (e.g., need for greater leadership transparency, visibility & engagement with the unit personnel; need for follow-through on organizational issues; need for reduced micromanagement; inefficient tasking processes; not capitalizing on people's strengths; assessment of supervisors to ensure adequacy in staffing & capability in the role.)	359	20.91	27	19.42	34	19.65	ns
<b>Training issues</b> (e.g., continual training requirements (i.e., ancillary training, Course 15 requirement & no deferral option; concern about cultivating proficiency & expertise within junior workforce; mission demands inconsistent with core duty training; sustaining qualifications that are not required for current duties; concern about career progression & professional development.)	301	17.53	15	10.79	24	13.87	ns

Note. Proportion comparisons: AD Intel = A, ANG Intel = B, Reserves Intel = C. *ns* = not significant at *p* < 0.05. Group *ns* used as denominators: AD Intel *n* = 1717, ANG Intel *n* = 139, Reserves Intel *n* = 173.

The survey was distributed electronically through a DoD approved electronic survey tool and was open to all DCGS Intel operators for a 6-week period. In general, it took participants 20–30 minutes to complete the survey. Participants who completed the survey were instructed on how to obtain the results, and when that information would be available. Of the individuals initiating the survey, less than 3% declined participation after reading the instructions regarding anonymity and informed consent.

### Data Analysis

Descriptive statistics were run for the categorical sources of high stress, and categories were rank ordered for those most-to least- commonly reported. See Table II. Dichotomous threshold variables were created for the overall burnout, high exhaustion, high cynicism, low professional efficacy, and high psychological distress variables, using established cut-off scores. Descriptive analyses were run, and independent proportions were calculated, with a correction for multiple comparison tests for proportions, as seen in Tables III and V.

Contingency tables were run to obtain participant frequency and proportion within each group that met the established cut-offs for each variable. Chi-square tests and risk analyses were also run, to obtain the relative risk for the 2 × 2 contingency tables. The relative risk value indicates how likely that level

of the predictor variable is to meet a threshold than the comparison level. While the percentage/proportion reported in the tables is across the row, the relative risk is reported per column of interest (or for the “meets threshold” column). Additional analysis was run in instances with more than 2 levels in the predictor variable. Proc Logistic in SAS 9.3 (SAS Institute Inc., Cary, NC, USA) was run with the glogit link option to provide effect sizes, or relative risks, and confidence intervals for age ranges and shift work rotation frequency variables, as shown in Tables IV and V.

## RESULTS

### Sources of Stress

Top sources of stress common among DCGS Intel operators regardless of component, included excessive workload and extra administrative duties, low manning and long work hours, organizational communication concerns, and leadership/management strategies (i.e., shift work, distribution and assignment of workload). Excessive workload and extra administrative duties were more commonly reported by AD and ANG operators than the Reserves. Sleep issues and shift schedule were also commonly reported, but were more frequent among AD and ANG operators as compared to the Reserves. Frequencies and proportions of endorsements for each group are shown in Table II.

**TABLE III.** Percentage Meeting Overall Burnout and Subscale Cutoffs

MBI Thresholds	AD Intel		ANG Intel		Reserves Intel		Sig. Proportion Comparison <i>p</i> < 0.05
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Overall burnout	38	2.65	1	0.88	2	1.67	ns
High exhaustion	410	28.55	28	24.56	17	14.17	AC
High cynicism	337	23.47	12	10.53	11	9.17	AB; AC
Low professional efficacy	101	7.03	8	7.02	6	5.00	ns

Note: Proportion comparisons: AD Intel = A, ANG Intel = B, Reserves Intel = C. ns = not significant at *p* < 0.05. Denominators based on responses to MBI section of the survey: AD Intel *n* = 1436, ANG Intel *n* = 114, Reserve Intel *n* = 120. Proportion Comparisons: AD Intel = A, ANG Intel = B, Reserve Intel = C. ns = not significant at *p* < 0.05.

**TABLE IV.** Proportions of Total Force Distributed Common Ground Station Intel With Univariate Associations of Demographic, Occupational, and Psychological Distress Variables for Burnout Subscales

AD Intel	High Exhaustion			High Cynicism			Low Professional Efficacy		
	<i>n</i> (%)	RR	95% CI	<i>n</i> (%)	RR	95% CI	<i>n</i> (%)	RR	95% CI
<b>Demographics and occupational variables</b>									
Gender									
Male <sup>a</sup>	303 (25.19)			248 (20.62)			70 (5.82)		
Female	152 (33.19)	1.32*	1.12–1.55	110 (24.02)	1.17	0.96–1.42	45 (9.83)	1.69*	1.18–2.42
Age range, years									
18–25	132 (27.97)	1.02	0.82–1.28	120 (25.42)	1.25	0.99–1.58	38 (8.05)	1.32	0.92–1.89
26–35 <sup>a</sup>	235 (27.39)			191 (22.26)			59 (6.88)		
36+	88 (25.96)	0.79	0.62–1.01	48 (14.16)	0.48* <sup>b</sup>	0.36–0.66	18 (5.31)	0.76	0.49–1.18
Marital status									
Single	170 (26.36)	0.95	0.81–1.12	173 (26.83)	1.51*	1.26–1.82	52 (8.06)	1.34	0.94–1.91
Married <sup>a</sup>	277 (27.81)			177 (17.77)			60 (6.02)		
Dependents									
Yes	203 (28.31)	1.08	0.92–1.26	125 (17.43)	0.71* <sup>c</sup>	0.58–0.86	45 (6.28)	0.85	0.59–1.22
No <sup>a</sup>	249 (26.27)			234 (24.68)			70 (7.38)		
Rank range									
Enlisted rank	413 (27.87)	1.23	0.93–1.62	330 (22.27)	1.47*	1.03–2.10	108 (7.29)	1.93	0.91–4.07
Officer rank <sup>a</sup>	42 (22.70)			28 (15.14)			7 (3.78)		
Time in current duties									
25+ mo in current duties	139 (33.25)	1.32*	1.11–1.55	117 (27.99)	1.44*	1.19–1.74	37 (8.85)	1.42	0.98–2.06
0–24 mo in current duties <sup>a</sup>	316 (25.28)			243 (19.44)			78 (6.24)		
Supervisor									
Yes	268 (27.86)	1.05	0.90–1.24	185 (19.23)	0.79* <sup>d</sup>	0.65–0.94	52 (5.41)	0.61* <sup>e</sup>	0.43–0.88
No <sup>a</sup>	186 (26.46)			172 (24.47)			62 (8.82)		
Works shift work									
Yes	322 (32.56)	1.67*	1.40–1.99	263 (26.59)	1.91*	1.54–2.37	75 (7.58)	1.28	0.88–1.86
No <sup>a</sup>	132 (19.53)			94 (13.91)			40 (5.92)		
Shift rotation frequency									
≤30	28 (50.00)	4.07*	2.48–6.65	20 (35.72)	3.47*	2.03–5.92	3 (5.36)	1.14	0.44–2.93
31–60	33 (29.73)	2.04*	1.34–3.09	26 (23.42)	2.02*	1.27–3.20	11 (9.91)	1.43	0.73–2.78
61+	156 (31.77)	2.13*	1.68–2.70	129 (26.27)	2.38*	1.83–3.08	38 (7.74)	1.15	0.77–1.71
Fixed shift	96 (30.38)	1.65*	1.26–2.15	85 (26.90)	2.07*	1.56–2.76	23 (7.28)	1.23	0.80–1.89
N/A <sup>a</sup>	122 (19.09)			92 (14.40)			37 (5.79)		
Hours worked per week									
51+ hours	122 (40.00)	1.63*	1.38–1.93	69 (22.62)	1.06	0.84–1.33	17 (5.57)	0.77	0.47–1.28
30–50 hours <sup>a</sup>	333 (24.49)			291 (21.40)			98 (7.21)		

Note: \**p* < 0.05.

<sup>a</sup>Comparison category.

<sup>b</sup>Inverse *p* < 0.05. Age range 26–35. RR = 2.07, 95% CI = 1.52–2.80.

<sup>c</sup>Inverse *p* < 0.05. No dependents at home. RR = 1.42, 95% CI = 1.17–1.72.

<sup>d</sup>Inverse *p* < 0.05. Not a supervisor. RR = 1.27, 95% CI = 1.06–1.53.

<sup>e</sup>Inverse *p* < 0.05. Not a supervisor. RR = 1.63, 95% CI = 1.14–2.33.



**TABLE V.** Proportions of Total Force Distributed Common Ground Station Intel With Univariate Associations of Demographic, and Occupational Variables for Psychological Distress

	High Psychological Distress		
	<i>n</i> (%)	RR	95% CI
<b>Demographics and occupational variables</b>			
Gender			
Male <sup>a</sup>	186 (15.92)		
Female	98 (21.97)	1.38	1.11–1.72
Age range, years			
18–25	88 (19.17)	1.08	0.83–1.41
26–35 <sup>a</sup>	145 (17.62)		
36+	53 (15.63)	0.81	0.61–1.10
Marital status			
Single	133 (21.42)	1.44*	1.16–1.78
Married <sup>a</sup>	145 (14.87)		
Dependents			
Yes	118 (16.81)	0.91	0.74–1.13
No <sup>a</sup>	169 (18.45)		
Rank range			
Enlisted rank	262 (18.17)	1.41	0.95–2.09
Officer rank <sup>a</sup>	23 (12.92)		
Time in current duties			
25+ months in current duties	88 (21.46)	1.31*	1.04–1.63
0–24 months in current duties <sup>a</sup>	199 (16.45)		
Supervisor			
Yes	168 (17.97)	1.04	0.84–1.29
No <sup>a</sup>	118 (17.30)		
Works shift work			
Yes	190 (19.79)	1.35*	1.08–1.70
No <sup>a</sup>	96 (14.61)		
Shift rotation frequency			
≤ 30 days	14 (26.42)	2.52*	1.39–4.59
31–60 days	18 (16.36)	1.50	0.89–2.51
61+ days	98 (20.76)	1.79*	1.35–2.39
Fixed shift	65 (20.90)	1.71*	1.25–2.34
N/A <sup>a</sup>	81 (13.09)		
Hours worked per week			
51+ hours	72 (24.24)	1.50*	1.19–1.90
30–50 hours <sup>a</sup>	213 (16.15)		

Note: \* $p < 0.05$ . <sup>a</sup>Comparison category.

### MBI-GS

The proportion of Intel operators endorsing overall burnout, defined as meeting threshold criteria for all three of the subscales, was similar among the three groups. Since responses to this section were not required, Ns are reduced from the overall sample size. Denominators based on response to the MBI section are as follows: AD Intel  $n = 1436$ ; ANG Intel  $n = 114$ ; Reserve Intel  $n = 120$ . Overall burnout was reported by 2.65% of AD, 0.88% of ANG, and 1.67% of Reserve operators. Frequencies and proportions of endorsement by group for overall burnout and subscale thresholds are shown in Table III, with proportion comparisons. Demographic and occupational risk factors for the facets of occupational burnout (high-emotional exhaustion, high cynicism, and low professional efficacy) are shown in Table IV.

### High Exhaustion

High exhaustion was reported by 28.55% of AD, 24.56% of ANG, and 14.17% of Reserve operators, with independent proportion comparisons revealing a significant difference at  $p < 0.05$  when comparing AD to Reserve operators. Risk factors for high exhaustion included being female, 25+ months in their current duties, shift work (regardless of shift rotation), and working 51+ hours per week, as reported in Table IV.

### High Cynicism

High cynicism was reported by 23.47% of AD, 10.53% of ANG, and 9.17% of Reserve operators. Independent proportion comparisons revealed a significant difference at  $p < 0.05$  for AD operators when compared to ANG and Reserve operators. Risk factors for high cynicism, as shown in Table IV, included being single, enlisted, less than 36 years of age, having no dependents at home, 25+ months in current duties, shift work (with varying shift rotations) and not being a supervisor.

### Low Professional Efficacy

The percentage reporting low professional efficacy was similar among the three groups, with low professional efficacy reported by 7.03% of AD, 7.02% of ANG, and 5.00% of Reserve operators. There were no significant between group differences. Risk factors for low professional efficacy, as shown in Table IV, included being female and not being a supervisor.

### Outcome Questionnaire (OQ-45.2)

High psychological distress was reported by 18.81% of AD, 16.67% of ANG, and 5.22% of Reserve operators. Since participants were not required to respond to all survey items, ns for OQ-45.2 were reduced from the overall survey sample size. Denominators based on OQ-45 response are as follows: AD Intel  $n = 1393$ , ANG Intel  $n = 114$ , Reserves Intel  $n = 115$ . Independent proportion comparisons revealed a significant difference at  $p < 0.05$  for AD and ANG groups when compared to the Reserve operators. Risk factors for high psychological distress include being single, 25+ months in current duties, working shift work (in varying shift rotations) and working 51+ hours per week. Demographic and occupational risk factors are shown in Table V.

### Embedded Care Provider Assessment

Approximately 9% ( $n = 155$ ) of overall Active Duty sample reported having sought assistance from an OME embedded mental/behavioral care provider. These interactions included assistance with depression, anxiety, sleep, stress, and relational problems (i.e., marital stress or family discord). Among the DCGS operators who sought care from an embedded mental/behavioral health provider, 89.1% of reported moderate to extreme satisfaction with their consultation, 83.4% reported

that their concerns were moderately to extremely helped by the mental health provider, 97.0% reported they would return to the embedded provider for additional care if required, and 89.0% reported consultation with their embedded mental/behavioral health provider helped them better manage operational and mission demands.

## DISCUSSION

The DCGS Intel operations have rapidly become a Total Force endeavor. The ANG and Reserve units now augment AD units in order to meet the combatant commander demand for around-the-clock DCGS capability. Such operators provide real-time situational awareness through visual and technical intelligence that is necessary for strategic, operational and tactical battlefield decisions. Although previous studies focused on AD units, this study augments the existing literature by including ANG and Reserve operators.

### Sources of Stress

Previous studies assessing psychological health among AD operators identified occupational stressors as significant issues contributing to elevated rates of exhaustion, cynicism, and psychological distress.<sup>3,4</sup> The most prevalent self-reported sources of occupational stress continue to be excessive workload, extra duties, low manning, long work hours, organizational communication and leadership management strategies. Results of the current study are consistent with previous studies among DCGS and RPA operators.<sup>14-16</sup> This suggests that sustaining DCGS intel operations for the long-term will likely require additional human resources and resiliency efforts. Strategies aimed at improving less than ideal organizational factors may help mitigate negative occupational stress outcomes. Specific efforts may include, but are not limited to (a) addressing manpower needs, (b) pursuing a more optimized, if not sun-synchronous, approach to scheduling mission, in order to minimize the need for 24/7 shift work, (c) streamlining task management processes to make administrative and extra duties more feasible for operators, and (d) enhancing leadership strategies to maximize transparency, improve communication, and foster cohesion within units. Additionally, OMEs and others tasked with improving unit resiliency may seek to designate specific efforts for optimizing organizational health (i.e., effective communication, conflict resolution, team building), as well as addressing individual resiliency concerns.

### Facets of Occupational Burnout

#### Emotional Exhaustion

Emotional exhaustion entails feeling emotionally overextended by one's work, and the sense that one's job is physically and psychologically draining. The importance of mitigating emotional exhaustion cannot be emphasized enough, as it is a risk factor for suicide ideation among DCGS intelligence operators.<sup>17</sup> Despite the significant increase in operational

tempo between 2013 and 2016, study findings reflect a similar rate of high-emotional exhaustion among AD and ANG operators, approximately twice the rate of Reserve operators (AD: 29% / ANG: 25%/RES: 14%). The notably lower Reserve rate illustrates seemingly protective aspects of part-time operational duty when compared with ANG and AD units that perform their duties full-time for extended periods.

Nearly one in every three AD operators self-reported high levels of emotional exhaustion, similar to the rates (26–27%) from studies conducted in 2011 and 2013.<sup>3,4,6</sup> That said, the DCGS operational tempo has increased significantly since 2011 among AD units. As a result of this increase, many of the stressors associated with sustaining 24/7 operations are chronic (i.e., shift work, long hours, sleep-related issues, etc). As a result, one could expect the rate of exhaustion to subsequently increase. However, because the rate has not substantively increased, OME teams may be serving as protective agent, helping operators adapt to the challenges of their environment. This is consistent with anecdotal data collected from AD DCGS line commanders who praise the value and impact of OME teams on the health and morale of their personnel. However, the results also suggest that there is room for improvement with regard to OME impact. The OME construct is relatively new and not all AD units had embedded medical and mental health providers at the time of this study. OME outreach efforts across units may need refinement in order to optimize their impact within operational units.

The similar ANG rate of high exhaustion suggests they too might benefit from mitigation strategies. ANG units are increasingly critical as DCGS operations surge beyond the capabilities of AD units. Although the rate of high exhaustion for ANG operators is similar to the AD, the operational tempo for ANG units is not as high. It is possible that if ANG units had OME teams, their exhaustion rates would be lower. Overall, results suggest that any unit conducting DCGS operations full-time, for extended periods, is at risk for elevated levels of exhaustion (affecting operational readiness and performance) and may therefore benefit from engagement with OME teams. Reserve operators may be the exception, as they typically perform their duties for limited periods (i.e., a few days to a few months at a time) and do not share the same level of risk when compared with AD and ANG personnel on extended orders.

Additionally, demographic and operational risk factors emerged for high exhaustion and included being female, conducting current duties for longer than two years, working on average more than 50 hours a week, and engaging in shift (with rotating shifts every 30 days elevating the risk for exhaustion most, when compared with other rotation schedules). This finding is consistent with the self-report of an excessive workload as significant occupational stressor. The finding of no significant difference based on rank, age, and marital status suggests strategies to mitigate exhaustion should address all unit members working excessive hours, engaged

in shift work, and who have engaged in intelligence duties for an extended period of time. This finding also suggests that leadership/management strategies play a key role in mitigating exhaustion and may be more effective than palliative and reactive efforts by medical and mental health providers.

### Cynicism

Cynicism refers to the state of having a distant and negative attitude toward work, and has also been identified as a significant risk factor for suicide ideation among DCGS intelligence operators.<sup>17</sup> The results of this study reveal approximately one in every four AD operators endorse high levels of cynicism, similar to the previously reported rate (21%).<sup>3,4</sup> By comparison, ANG and Reserve operators reported high cynicism at nearly half the AD rate (AD: 23%/11% ANG/9% Reserve). There are several possible explanations for this finding, including differences between AD and ANG/Reserve units with regard to demographic and operational factors (ANG/Reserve tended to be older, married with dependents at home, and more likely to be engaged in a part-time or non-shift work schedule, with more control over the amount of DCGS intel operations they participate in). Additionally, ANG and Reserve personnel are more likely than AD to continue military service out of choice, not strictly out of necessity, or contractual obligation. It is likely that a combination of such variables contributes to the lower levels of cynicism, within the ANG and Reserve. Recognizing where ANG/Reserve factors differ from AD can highlight how experience, sense of choice, support structure, and the opportunity to intermittently disengage, through part time duty, can mitigate cynicism. Understanding these dynamics may help line and medical leaders as they seek to shape overall resiliency strategies.

Additionally, demographic and operational risk factors emerged for high cynicism. Results suggest that young, single, enlisted DCGS operators may have greater difficulty with sustaining a positive outlook and perspective, and could benefit from mentorship from older (36+ years of age), more experienced supervisors, who appear less likely to struggle with cynicism.

### Low Professional Efficacy

Professional efficacy equates to one's sense of perceived self-competence, accomplishment and effectiveness at work. DCGS Intel operators have a critical role in precision combat and combat support activities. Understanding the value of this role sustains their sense of purpose, contribution, and dedication to DCGS operations. The results of this study found the prevalence of low professional efficacy among DCGS AD units to be scarce, and consistent with ANG and Reserve units (AD: 7%/ANG: 7%/Reserve: 5%). These rates are consistent with those from previous studies (6%).<sup>3</sup> With no statistical differences between groups, findings suggest DCGS Intel operators fully recognize the significance of their work, despite mission challenges they face. While rate is low, findings reveal that females

and those not in supervisory positions are at higher risk for this concern. Although reasons may differ between TF groups, all appear to benefit from outreach efforts to strengthen their sense of confidence and effectiveness at work.

### Medically Significant Psychological Distress

#### Psychological Distress

The phrase "significant" psychological distress represents a condition in which a person has endorsed multiple emotional, social, behavioral, and cognitive symptoms representing a high state of distress, and negatively impacting/impairing their social and occupational functioning. Such distress equates to meeting criteria for an adjustment, depressive or anxiety disorder, and usually benefits from some form of mental health assistance.<sup>10,11</sup> The results of this study revealed 19% of AD DCGS operators self-report high levels psychological distress. This finding is higher than the rates (14–16%) reported in previous studies assessing prevalence within DCGS AD units.<sup>3,4</sup> Since 2013 has been a significant increase in the frequency and level of exposure among DCGS AD Intel operators to real-time, graphic and traumatic battlefield imagery. The increase in exposure and active participation in graphic combat, combined with chronic operational stressors of low manning, long hours, and shift work, are likely contributing to the higher levels of distress. And it is possible that without embedded OME teams the prevalence of high psychological distress could have been higher. It is also possible, that familiarity and interaction with OME teams contribute to greater self-disclosure and reporting of distress.

The results of this study also revealed that AD and ANG operator psychological distress rates are similar, while the Reserve rate is notably lower (AD: 19%/ANG: 17%/RES: 5%). Similarity between ANG and AD rates highlights a trend in the ANG toward more full-time operations, and suggests the ANG might also benefit from OME-like resiliency strategies. Again, the lower Reserve rate points to protective aspects of part-time Intel duties.

Findings also reveal that those who have been in their current duties for longer than 2 years, engaged in shiftwork, routinely working 51+ hours per week, and/or are single, are at greatest risk for high levels of distress. Risk factors for distress are consistent with those for exhaustion, with the exception of being single. Single Intel operators may not have the benefit of a significant supportive relationship (i.e., significant other) to help mitigate occupational and domestic life stressors. At-risk operators might benefit from medical or mental health interventions.

### Embedded Care Provider Assessment

Considering the relative newness of the OME construct within the DCGS enterprise, preliminary findings suggest that the embedded providers are having a positive impact. The time-frame during which data were collected was after the initial phase of embedding OME mental/behavioral health providers



across the DCGS enterprise, with some being fairly new to their positions. Providers appear to be helping in the management of negative stress impacts of mission, playing a key role in stabilizing exhaustion and psychological distress rates despite extremely dynamic operations involving combat and violence, which took place leading into, and during, the data collection period. As USAF efforts to strengthen and formalize the embedded provider program continue (e.g., standardizing processes, formalizing the training course for mental health providers, establishing formal guidance), consideration should be given to the potential need for increased OME manning at certain locations, in order to ensure full access to care by all in need.

### **Additional Recommendations**

Findings in this study shed light on stressors inherent to the DCGS community and can be utilized in shaping intervention efforts on the part of both line and medical leaders. Demographic and occupational risk factors may focus embedded care strategies for mitigating and addressing exhaustion, depression, anxiety and other psychological distress impacts among those most at-risk. Line leaders and OME providers may also tailor resiliency training geared toward improving formal and interpersonal relationship health, conflict resolution, effective communication, and workforce mentorship. Findings also support efforts to adjust shift durations to sub-12-hour thresholds, with sun-synchronous scheduling recommended whenever possible. Finally, DCGS career management strategies may also be improved to benefit resiliency and retention of the workforce, using intermittent career broadening and/or standard day-work assignments to deliberately control time served in a shift work capacity.

### **Limitations of the Study**

The current study, while effective, has certain limitations. These include:

(a) the descriptive nature of the study precludes definitive cause-effect conclusions between sources and levels of emotional exhaustion and other burnout facets and psychological distress; (b) results should not be automatically generalized to other intelligence personnel within the DoD, due to the differences in mission operations tempo and inter-organizational dynamics that may exist; (c) caution should be taken when comparing previous with current results due to variance in sample size for each study and potential differences in operational stressors based on the timeframes during which psychological health assessments took place; and (e) self-report assessment are subject to response bias with a self-selected sample that might affect generalization of results. Sampling bias may occur when those who are experiencing critical concerns and want to expose them, are perceived to be more likely to participate in the survey. This can be viewed as negative sampling bias, however it may also help to identify those at greatest risk for negative psychological health outcomes and who are the topic of the study. While the presence of sample bias could reduce broader

generalizability, it may also render benefit by exposing exactly what the survey was designed to assess.

### **CONCLUSION**

DCGS Intel operators sustain global, 24/7 battlefield situational awareness and facilitate precision-strike operations in multiple regions of conflict. An increasingly Total Force endeavor, DCGS Intel operators are subject to elevated levels of occupational stress associated with operational and combat-related factors.<sup>3,4</sup> Negative psychological health outcomes such as high-emotional exhaustion and distress can tax an individual's ability to effectively meet the challenges of work and domestic life. Diminished capacities such as these can significantly reduce overall performance and mission effectiveness in a unit. Findings from this study may elucidate the stressors inherent to the DCGS community, and reveal the degree to which stressors impact the health of Intel operators as they face exposure to complex world events, combat operations, and acts of terrorism. These findings may also be useful to line and medical leadership initiatives for improving overall well-being within this unique military community.

### **PREVIOUS PRESENTATION**

Presented as an oral talk at the 2017 Military Health System Research Symposium, August 2017, Kissimmee, FL; abstract # MHSRS-17-1210.

### **FUNDING**

Funded in part by Defense Health Program O & M funds. This supplement was sponsored by the Office of the Secretary of Defense for Health Affairs.

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