Magnitude of Problematic Anger and its Predictors in the Millennium Cohort

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Abstract

Background In military personnel and veterans, problematic anger is associated with heightened risk of mental health problems and difficulty functioning, although previous studies have been limited by sample size and cross-sectional data.

Methods The current study used Millennium Cohort survey data (N = 90,266) from two time points (2013 and 2016 surveys) to assess the association of baseline demographics, military factors, mental health, self-mastery, and posttraumatic growth with problematic anger levels reported several years later.

ResultsOverall, 17.3% of respondents reported problematic anger. In the fully adjusted logistic regression model, greater risk of problematic anger was predicted by male sex, younger age, current or formerly marital status, being black non-Hispanic or other (vs. white), less educational attainment, childhood trauma, and financial problems. Service members who were in the Army or Marines, active duty (vs. reserve), and previously deployed with high levels of combat had increased risk for problematic anger. Veterans were also more likely to report problematic anger. Mental health predictors included major depressive disorder (MDD), posttraumatic stress disorder (PTSD) and comorbid PTSD/MDD. Higher levels of self-mastery and post-traumatic growth were associated with decreased risk of problematic anger.

Conclusion Not only did 1 in 6 respondents report problematic anger, but risk factors were significant even after adjusting for MDD and PTSD, suggesting that problematic anger is more than an expression of these mental health problems. Results identify potential points of early intervention and clinical treatment for addressing problematic anger.

Background

Anger, like any other emotion, is a normal human experience. In certain contexts, and when expressed appropriately, it may be helpful. However, depending on its frequency, intensity, and duration, anger can become problematic and, particularly when expressed outwardly toward others it can impede interpersonal relationships and functioning (1). For military personnel, problematic anger is a gateway to major disruption, both personally and professionally. In military and veteran personnel, problematic anger has been associated with mental health conditions, including post-traumatic stress disorder (PTSD;(2, 3)), unhealthy habits and unnecessary risk taking (4), as well as relationship dysfunction (5). Problematic anger and aggression are also risk factors for intent to harm others (3), interpersonal violence (6) and suicide (7, 8). While there is evidence that problematic anger is a significant concern in the civilian community (8, 9), it is particularly important to understand the extent of problematic anger in military personnel and veterans and the key factors that contribute to its development and expression. The importance of this issue is heightened given the elevated risk of mental health difficulties in military personnel and veterans compared to civilians (10) and indications in meta-analyses that anger in veterans with PTSD is greater than that in civilians with PTSD (11).

Anger may be particularly relevant to the military in several ways. Not only does more problematic anger appear to be associated with combat exposure over time (4, 12), but anger frequently persists over the course of the post-deployment period (12), negatively impacting service members' ability to adjust following deployment and increasing their risk of developing PTSD (13). Besides this increased risk, problematic anger, has important implications for clinical treatment, including that evidence-based treatment of PTSD may be less effective for veterans reporting high levels of co-occurring anger (14). In addition, anger weakens PTSD treatment response in military veterans whether they have deployed to combat or peacekeeping missions (15). In addition, anger has negative implications for job performance; anger-related reactions have been associated with unethical behavior during combat (16), poor decision making (17), and blaming and retaliation (17). Finally, it is important to consider the degree to which anger is a relatively acceptable emotion in the culture of the military (2), and thus may be reinforced in that occupational context.

Despite the evidence documenting the impact that problematic anger may have on individual health, relationships, and occupational functioning, the previous studies have been limited by small samples, cross-sectional designs, and/or absence of psychometrically valid measures of anger. While the Spielberger State Trait Anger Expression Inventory (STAXI-2; (18) is considered the gold standard for measuring anger, it is often too long for inclusion in studies designed to target a wide range of concerns. Therefore, in the present study, the five-item Dimension of Anger scale (DAR-5; (19, 20)) was selected; the DAR-5 has been validated against the STAXI-2 and has an established cut-off to identify problematic anger in both military and civilian populations.

The present study leveraged data from the Department of Defense's largest and longest ongoing prospective study of service members and veterans, the Millennium Cohort Study (21). This first investigation of anger in the Millennium Cohort Study provides a unique opportunity to describe the magnitude of problematic anger in a large sample of service members and veterans, and to determine which individual and occupational factors are associated with problematic anger.

Methods

Study Population

The Millennium Cohort Study is a longitudinal cohort study investigating the long term health effects related to military service both during service and after separation from the military (21). Service members were enrolled into four panels between 2001 and 2013, resulting in a total of 201,619 participants across all service branches, including both active duty and Reserves and National Guard (Reserve/Guard) members. After enrollment, participants were requested to complete follow-up surveys that are accessed online or via postal mail approximately every three to five years, even after they leave military service. These surveys collected information about behavioral, physical, and mental health, as well as service-related experiences. A detailed description of the Millennium Cohort has been previously published (21).

Inclusion Criteria

Cohort members who completed both the 2011–2013 and 2014–2016 surveys, referred to as "baseline" and "follow-up" respectively for this study, were eligible (n = 92,614) for the current study. Of these participants, those who were missing 3 or more of the items (n = 2,348) from the 5-item Dimension of Anger scale (DAR-5) (19, 20) were excluded from this study (N = 90,266, 97.5% of the eligible sample).

Measures

Problematic Anger

Problematic anger was assessed from the DAR-5, a validated instrument introduced on the follow-up survey (Cronbach's alpha = 0.91). Participants responded to the question "Indicate the degree to which each statement describes your feelings or behavior:" with a 5-point Likert scale ranging from 1 (Not at all) to 5 (Very Much) for each of the five items (e.g., when I get angry, I get really mad; when I get angry at someone, I want to hit or clobber the person). Responses were summed and problematic anger (no/yes) was determined using the established cut-off of 12 points or higher (20).

Predictors of Anger

Demographics and military experiences

Marital status and educational attainment were assessed using self-reported baseline data. The other demographic and military characteristics were obtained at baseline from Defense Manpower Data Center (DMDC) personnel files including age, sex, race/ethnicity, military service branch, military component, pay grade, and military separation status. Recent combat deployment experience (between baseline and follow-up) was assessed using electronic deployment data from DMDC and participants' responses to 13 self-reported combat experiences (e.g., "being attacked or ambushed", "receiving small arms fire") at follow-up. Individuals were classified as nondeployed, deployed with no combat, deployed with low combat (endorsing 1–3 combat items), or deployed with high combat (reporting more than 3 combat items).

Life stressors

Childhood traumatic experiences were determined by summing the number of events that were endorsed as happening at least once of four self-reported items (e.g., childhood sexual abuse, childhood physical abuse), which are from the Juvenile Victim Questionnaire (JVQ), assessed at follow-up (22). Sexual assault was ascertained at baseline based on positive endorsement to one self-reported item (i.e., suffered forced sexual relations or sexual assault within the last 3 years). Financial problems were ascertained at baseline based on endorsement to one self-reported item (i.e., financial problems or worries within the last 4 weeks).

Psychological health/well-being

Probable posttraumatic stress disorder (PTSD) was assessed using the PTSD Checklist – Civilian Version (PCL-C) at baseline, used to rate the severity of 17 PTSD symptoms (23). Based on criteria from the Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV), participants were classified as having probable PTSD if they reported a moderate or greater level of at least one intrusion symptom, three avoidance symptoms, and two hyperarousal symptoms (24). Probable major depressive disorder (MDD) was assessed using eight PHQ items at baseline, which correspond to a depression diagnosis in the DSM-IV (24). Probable MDD was defined as 1) endorsement of depressed mood or anhedonia and 2) response of "more than half the days" or "nearly every day" to five or more items (25). Participants with probable PTSD and MDD at baseline were classified as having comorbid PTSD and MDD. A version of the Posttraumatic Growth Inventory-Short Form (PTGI-SF)(26) was also included. Unlike the original PTGI-SF, which asks for retrospective assessment of changes in personal perception following a traumatic event, the 11-item version used in the present study assesses current perspectives and does not reference a specific trauma. This current standing version of the PTGI-SF (C-PTGI-SF) was assessed at baseline (27). An additional item about compassion for others was also included. Mean scores were calculated based on participant responses to each item (e.g., "I know that I can handle difficulties," "I have a religious faith," "I have a sense of closeness with others") on a 6-point Likert scale from 0 (Not at all) to 5 (To a very great degree). Self-mastery was ascertained at baseline using 3 items (e.g., I can do just about anything I really set my mind to do) from Pearlin and Schooler's Self-Mastery Scale (SMS) (28). Mean scores were calculated based on responses on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree).

Statistical Analysis

Descriptive analyses and chi-square tests were used to compare demographic, military, life stressors, and psychological health/well-being characteristics by problematic anger status. Bivariate logistic regression analyses were performed to assess the relationship between each factor (e.g., sex, age, marital status, educational attainment, race/ethnicity, military service branch, military service component, military separation status, recent combat severity, childhood traumatic experiences, sexual assault, financial problems or worries, mental health status, C-PTGI-SF, and self-mastery) and problematic anger. A multivariable logistic regression model was performed to determine which factors were significantly associated with problematic anger. Multicollinearity was assessed using a variance inflation factor of four or higher. All analyses were completed using SAS statistical software, version 9.4 (SAS Institute, Inc., Cary, NC).

Missing Data

Among the study participants (n = 90,266), each DAR-5 item had less than 0.4% missing. All model predictors had less than 2.8% missing with the exception of the childhood trauma items, which each had approximately 3% missing and an additional 3% who responded "prefer not to answer." These responses were therefore classified into their own category to maintain these participants in analyses. For all other items, we used multiple imputation to maintain participants. Discriminant functions estimated

categorical variables to ensure imputed data were integers within the range of possible values. A total of 50 imputed datasets were generated (29).

Results

Of the 90,266 study participants, the population was predominantly male (70.6%), 26 to 39 years of age (50.3%), non-Hispanic whites (76.9%), and married (66.5%). The largest proportion of participants had at least some college education (91.4%), served in the Army (44.4%), served on active duty (55.1%), had separated from service by follow-up (62.4%), and had not deployed between baseline and follow-up (88.4%). Baseline characteristics are presented in Table 1. Overall, 15,600 (17.3%) reported levels of problematic anger at follow-up. Notably, participants w problematic anger, compared with those who did not, were proportionally more likely to be younger (<40 years old); less educated (high school or less); and in the Army or Marines. In addition, participants who experienced any type of life stressor or had a probable mental disorder were proportionally more likely to report problematic anger (Table 1). Participants with problematic anger had lower mean scores for both C-PTGI-SF and self-mastery compared to those without problematic anger.

Item responses for the DAR-5 are presented in Table 2. In calculating appreciable endorsement of an item as any response from "moderately" to "a lot", the most commonly endorsed item (24.3%) was "I often find myself getting angry at people or situations" while the least endorsed item (9.1%) was "My anger prevents me from getting along with people as well as I'd like to". The other items were endorsed as follows: "when I get angry, I get really mad" (endorsed by 22.0%), "When I get angry, I stay angry" (endorsed by 14.7%), and "When I get angry at someone, I want to hit or clobber the person" (endorsed by 10.8%).

Table 3 provides odds ratios for problematic anger at follow-up, after adjusting for all variables in the table. Given that there was no meaningful difference between results with and without multiple imputation, the imputed results are displayed. After adjustment, demographic factors found to be significantly associated with problematic anger included male sex, younger age, less educational attainment, black non-Hispanic and other race/ethnicities (compared with white non-Hispanic), and marital status. During the model building process a significant interaction between marital status and age was discovered (p=.01), which indicated that married and formerly married participants were significantly more likely to have problematic anger in the younger age groups (17-39 years old), but that marital status was not associated with problematic anger among the oldest participants (40+ years old). For military factors, Navy/Coast Guard [AOR=0.65; 95% CI: 0.61, 0.69] and Air Force [AOR=0.51, 95% CI: 0.48, 0.54] members were significantly less likely than Army personnel to have problematic anger. Active duty service members were significantly more likely to have problematic anger [AOR=1.27; 95% CI 1.22, 1.33] compared with Reservists and National Guardsmen. Separation from military service was also associated with higher odds of problematic anger [AOR=1.46; 95% CI 1.39, 1.54], as was deployment with high combat severity between baseline and follow-up [AOR=1.34; 95% CI 1.16, 1.54].

All life stressors were significantly associated with problematic anger except for sexual assault. As the number of reported childhood traumatic experiences increased, so did the magnitude of the association with problematic anger, such that the strongest association was observed for those reporting 3 or more experiences [AOR=2.72; 95% CI 2.44, 3.03] compared with those reporting no childhood trauma. A similar pattern was observed among those that reported financial problems or worries, with those reporting being "bothered a lot" having the strongest association [AOR=1.99, 95% CI 1. 87, 2.11] with problematic anger compared with those who were not bothered. Significant associations were observed for all psychological health/well-being factors; the strongest magnitude of association was among those with comorbid PTSD and MDD [AOR=4.57; 95% CI 4.22, 4.95]. As mean scores for C-PTG-SF and self-mastery increased, odds for problematic anger significantly decreased. Specifically, each one-unit *increase* in mean score for C-PTGI-SF and self-mastery was associated with a 43% and 18% decreased odds for problematic anger, respectively.

Discussion

The present study documents that more than one in six responders to the 2016 Millennium Cohort Study survey reported levels of problematic anger, providing an unprecedented examination of the scope of problematic anger in a robust sample of service members and veterans. Further, correlates of anger that can impede mental health, relationships, and functioning were identified. In addition to supporting previous work that has found factors such as male gender, younger age, childhood trauma to be associated with anger, this study identified that lower education levels and financial problems, and military-specific factors significantly associated with higher odds for problematic anger, including serving on active duty, deployment with high levels of combat experience, and separation from military service. Importantly, these relationships remained significant after adjusting for baseline mental health disorders, including PTSD and MDD, suggesting that problematic anger appears to be more than simply an expression of PTSD and MDD. Instead, problematic anger appears to manifest in individuals with a constellation of variables reflecting personal background, aspects of the military experience, current circumstances, particularly financial concerns and mental health problems.

Developing interventions that target problematic anger in the military is critical given its high prevalence, distinction from other mental disorders, role in impeding effective PTSD treatment, and impact on vocational and interpersonal functioning. Results also suggest that directly targeting problematic anger may reduce the risk for interpersonal aggression and family violence, given research indicating that elevations on the DAR5 conferred at 13 fold risk of aggression (30) and further reinforced here in the finding that over one in 10 respondents endorsed that when they get angry at someone, they wanted "to hit or clobber the person". That financial concerns also doubled the risk of reporting problematic anger paints a picture of a constellation, of financial stress, anger and aggression. Direct targeting of anger also potentially opens the gateway to improved outcomes in co-occurring conditions such as military-related PTSD. Although there has been little empirical attention paid to the development and testing of direct interventions for problematic anger in military populations, approaches to the management and treatment of problematic anger in military populations have been recently developed and pilot tested in

both the US (31) and Australia (32). Implementing these kinds of specific interventions may also help mitigate the poorer treatment outcomes found with military veterans with PTSD relative to their civilian counterparts (33).

As noted, there were an array of significant predictors of problematic anger over time. Perhaps one benefit of having so many predictors is that there is a multitude of potential points for targeting interventions, from programs for lower intensity expressions of anger to clinical treatment for pathological responses. Such interventions should be developed for military-specific application given the unique occupational context in which service members operate which can potentially exacerbate anger, including being trained to maintain vigilance to threat, and to consider confrontational strategies in the face of threat (32). Furthermore such adaptation can be particularly beneficial since service members are more likely to engage in an intervention they regard as tailored for their needs (34).

Early intervention strategies could also be inserted into nontraditional contexts such as preparing financial counselors to reinforce military-specific anger management techniques with service members bothered by financial problems (34). Early interventions could also include training counselors who focus on the pivotal process of transitioning from military to veteran status in targeted anger management. Such initiatives like the US Army's Soldier for Life-Transition Assistance Program could integrate these techniques into their formal courses. Early interventions could also be adapted for military leaders, given the importance of leaders in establishing unit culture and influencing soldier health and wellbeing (35). Results also highlight potential candidates for screening efforts and mental health treatments that are adapted to target anger as a primary goal.

The findings of the present study also point to another area of potential intervention, currently untapped in the conceptualization of anger responses and intervention. Specifically, findings indicate that individual endorsement of posttraumatic growth and self-mastery concepts are associated with reduced odds of problematic anger years later. These attitudes reflect the ability to use coping skills (36) that place challenges into perspective and that reflect the importance of finding meaning in one's life and work. Skills related to these concepts could be strengthened in service members directly through training (36, 37), and indirectly through institutional messaging about the importance of meaning and self-mastery, and through leaders who set an example and reinforce these attitudes. By supporting these kinds of adaptive skills and perceptions, studies could examine whether the risk of problematic anger years later may be lowered.

While the present study examines factors associated with problematic anger over a 3–4 year follow-up period using a large sample, there are limitations. These data are correlational and there was no measure of DAR-5 on the baseline (2013) survey, which prevented the analysis of modeling the emergence of problematic anger. In addition, self-reported survey data may be subject to recall and reporting biases. Finally, while the Millennium Cohort Study includes participants from all branches of service, active and Reserve components, and veterans, it may not necessarily be representative of the entire U.S. military or

those who deploy. However, investigations of the Millennium Cohort Study have not demonstrated systematic sampling bias (38, 39).

Results from this prospective study underscore the relatively high prevalence of problematic anger in a large military sample and the markers of risk and resilience that can potentially influence problematic anger over a period of time. By reducing the risk of problematic anger, individuals and organizations like the military may be able to benefit in terms of improved employee health, relationships with family, friends and coworkers, occupational functioning and reduced risks for aggression and violence.

Declarations

Ethics approval and consent to participate

The study was approved by the Naval Health Research Center institutional review board (protocol number NHRC.2000.0007). All participants provided voluntary, informed consent.

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Disclaimer: I am a military service member or employee of the U.S. Government. This work was prepared as part of my official duties. Title 17, U.S.C. §105 provides that copyright protection under this title is not available for any work of the U.S. Government. Title 17, U.S.C. §101 defines a U.S. Government work as work prepared by a military service member or employee of the U.S. Government as part of that person's official duties. Report Number 19-77 was supported by the Military Operational Medicine Research Program, Defense Health Program, and Veterans Affairs under work unit no. 60002. The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, Uniformed Services University of the Health Sciences, nor the U.S. Government. The study protocol was approved by the Naval Health Research Center Institutional Review Board in compliance with all applicable Federal regulations governing the protection of human subjects. Research data were derived from an approved Naval Health Research Center, Institutional Review Board protocol number NHRC.2000.0007.

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Availability of data and materials

The data that support the findings of this study are not currently publicly available due institutional regulations protecting service member survey responses but are available from the corresponding author on reasonable request (may require data use agreements to be developed)

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Tables

TABLE 1. Frequencies and Percentage of Baseline Characteristics by Problematic Anger Status

Baseline Characteristics*	Study Sample	No Problematic Anger		Problematic Anger	
	n	n	%	n	%
Sample	90,226	74,626	82.7	15,600	17.3
Demographics					
Sex					
Male	63,650	52,643	70.5	11,007	70.6
Female	26,576	21,983	29.5	4,593	29.4
Age					
17-25 years	9,682	7,438	10.0	2,244	14.4
26-39 years	45,395	36,369	48.7	9,026	57.9
40 years or more	35,149	3,0819	41.3	4,330	27.8
Educational attainment					
High school or less	7,776	5,673	7.6	2,103	13.5
Some college/Associate's degree	41,244	32,394	43.4	8,850	56.7
Bachelor's degree	23,132	20,030	26.8	3,102	19.9
Graduate degree	18,071	16,526	22.1	1,545	9.9
Race/ethnicity					
White, non-Hispanic	69,361	57,973	77.7	11,388	73.0
Black, non-Hispanic	8,693	7,059	9.5	1,634	10.5
Other	12,122	9,549	12.8	2,573	16.5
Marital status					
Never married	17,362	14,134	18.9	3,228	20.7
Married	59,961	50,415	67.6	9,546	61.2
Formerly married	12,903	10,077	13.5	2,826	18.1
Military service					
Service branch					
Army	40,022	31,119	41.7	8,903	57.1
Navy/Coast Guard	16,581	14,120	18.9	2,461	15.8
Marine Corps	6,622	4,834	6.5	1,788	11.5
Air Force	27,001	24,553	32.9	2,448	15.7
Service component					
Reserves/National Guard	40,540	33,897	45.4	6,643	42.6
Active duty	49,686	40,729	54.6	8,957	57.4
Military separation status at 2016					
Not separated	33,974	33,897	45.4	6,643	42.6
Separated	56,252	40,729	54.6	8,957	57.4
Combat severity 2013-2016 [1]					
Not deployed	79,718	65,203	87.4	14,515	93.0
Deployed, no combat	3,178	2,982	4.0	196	1.3
Deployed, low combat	3,130	2,764	3.7	366	2.3
Deployed, high combat	1,739	1,416	1.9	323	2.1
Life stressors					
Childhood traumatic experiences[2]					
None	49,179	43,560	58.4	5619	36.0

1 experience	18,311	14,899	20.0	3412	21.9
2 experiences	11,336	8,404	11.3	2932	18.8
3 or more experiences	2,275	1,394	1.9	881	5.6
Missing/prefer not to answer	9,125	6,369	8.5	2,756	17.7
Sexual Assault					
No	85,908	71,441	95.7	14,467	92.7
Yes	2,057	1,388	1.9	669	4.3
Financial problems					
Not bothered	49,001	44,009	59.0	4,992	32.0
Bothered a little	29,351	23,441	31.4	5,910	37.9
Bothered a lot	10,942	6,420	8.6	4,522	29.0
Psychological health/well-being					
Mental health status[3]					
None	79,553	69,699	93.4	9,854	63.2
MDD only	1,152	671	0.9	481	3.1
PTSD only	4,928	2,315	3.1	2,613	16.8
Comorbid PTSD/MDD	3,588	1,166	1.6	2,422	15.5
C-PTGI-SF[4] (Mean ± SD)	3.7 ± 0.9	3.8 ± 0.8		3.1 ± 1.0	
Self-Mastery[5] (Mean ± SD)	4.0 ± 0.7	4.0 ± 0.7		3.7 ± 0.8	

*Characteristics are assessed at 2013 unless noted otherwise

[1]Combat deployment assessed from combination of in- and out-of-theatre dates obtained from DMDC, along with self-reported combat experience reported at follow-up.

[2]Based on 4 items assessed at follow-up: childhood sexual abuse, neglect, verbal abuse, and physical abuse.

[3]Mental health status based on probable MDD and/or PTSD at any survey between 2001 and 2013

[4]Assessed from the mean score of all 11 items from the Current State - Posttraumatic Growth Index – Short Form (C-PTGI-SF)

[5]Assessed from the mean score of 3 self-mastery items from the Pearlin and Schooler's Self Mastery Scale (SMS)

LE 2. Frequencies and Percentages[1] for the Items of the Dimensions of Anger

	Response Options									
	Not at all		A little bit		Moderately		Very much		A lot	
	n	%	n	%	n	%	n	%	n	%
en find myself ing angry at ole or situations	34,096	37.8	34,106	37.8	11,587	12.8	6,775	7.5	3,563	4.0
n I get angry, I really mad	46,079	51.1	24,092	26.7	10,082	11.2	5,875	6.5	3,848	4.3
n I get angry, I angry	58,375	64.7	18,266	20.2	7,054	7.8	3,955	4.4	2,257	2.5
n I get angry at eone, I want to or clobber the on	67,032	74.3	13,154	14.6	4,411	4.9	2,819	3.1	2,534	2.8
anger prevents from getting g with people as as I'd like to	69,882	77.5	11,895	13.2	4,036	4.5	2,184	2.4	1,949	2.2

rcentages may not sum to 100 due to missing data

TABLE 3. Adjusted Odds Ratios of Problematic Anger

Characteristic	OR (95%CI)
Demographics	
Sex (ref: female)	
Male	1.10 (1.05, 1.15)
Age (ref: 40+ years old)	
17-25 years old	1.85 (1.71, 1.99)
26-39 years old	1.73 (1.64, 1.81)
Educational attainment (ref: graduate degree)	
High school or less	1.96 (1.80, 2.13)
Some college or Associate's degree	1.66 (1.56, 1.77)
Bachelor's degree	1.25 (1.17, 1.35)
Race/ethnicity (ref: white, non-Hispanic)	
Black, non-Hispanic	1.20 (1.12, 1.29)
Other	1.19 (1.17, 1.35)
Marital status[1] (ref: never married)	
Married	1.17 (1.11, 1.23)
Formerly married	1.10 (1.02, 1.17)
Military service	
Service branch (ref: Army)	
Air Force	0.51 (0.48, 0.54)
Navy/Coast Guard	0.65 (0.61, 0.69)
Marine Corps	1.04 (0.97, 1.11)
Service component (ref: Reserves/National Guard)	
Active duty	1.27 (1.22, 1.33)
Military separation status at 2016 (ref: not separated)	
Separated	1.46 (1.39, 1.54)
Combat severity 2013-2016[2] (ref: not deployed)	
Deployed, no combat	0.57 (0.48, 0.66)
Deployed with low combat	1.00 (0.89, 1.14)
Deployed with high combat	1.34 (1.16, 1.54)
Life stressors	
Childhood traumatic experiences[3] (ref: none)	
1 experience	1.47 (1.40, 1.55)
2 experiences	1.99 (1.88, 2.11)
3 or more experiences	2.72 (2.44, 3.03)
Missing/prefer not to answer	2.13 (2.01, 2.27)
Sexual assault (ref: no)	
Yes	1.10 (0.98, 1.23)
Financial problems (ref: not bothered)	
Bothered a little	1.45 (1.39, 1.52)
Bothered a lot	1.99 (1.87, 2.11)
Psychological health/well-being	
Mental health status[4] (ref: none)	
MDD only	2.15 (1.88, 2.45)
PTSD only	3.62 (3.37, 3.88)
Comorbid PTSD/MDD	4.57 (4.22, 4.95)

C-PTGI-SF[5]	0.71 (0.69, 0.73)
Self-Mastery[6]	0.85 (0.82, 0.88)

[1]A significant interaction with age and marital status was found, which indicated that marital status was not significantly associated with problematic anger among the 40+ year olds.

[2]Combat deployment assessed from combination of in- and out-of-theatre dates obtained from DMDC, along with self-reported combat experience reported at follow-up.

[3]Based on 4 items assessed at follow-up: childhood sexual abuse, neglect, verbal abuse, and physical abuse.

[4]Mental health status based on probable MDD and/or PTSD at any survey between 2001 and 2013

[5]Assessed from the mean score of all 11 items from the Current State- Posttraumatic Growth Index – Short Form (C-PTGI-SF)

[6]Assessed from the mean score of 3 self-mastery items from the Pearlin and Schooler's Self Mastery Scale (SMS)