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Well-Being and Suicidal Ideation of Secondary School Students From Military Families

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 A B S T R A C T

Background: The mental health of children is a primary public health concern; adolescents of military personnel may be at increased risk of experiencing poorer well-being overall and depressive symptoms specifically. These adolescents experience individual and intrafamilial stressors of parental deployment and reintegration, which are directly and indirectly associated with internalizing behaviors.

Purpose: The present study sought to better understand the influence of parental military connectedness and parental deployment on adolescent mental health.

Methods: Data from the 2011 California Healthy Kids Survey examined feeling sad or hopeless, suicidal ideation, well-being, and depressive symptoms by military connectedness in a subsample ($n = 14,299$) of seventh-, ninth-, and 11th-grade California adolescents. Cross-classification tables and multiple logistic regression analyses were used.

Results: More than 13% of the sample had a parent or sibling in the military. Those with military connections were more likely to report depressive symptoms and suicidal ideation. Controlling for grade, gender, and race/ethnicity, reporting any familial deployment compared with no deployments was associated with increasing odds of experiencing sadness or hopelessness, depressive symptoms, and suicidal ideation.

Conclusions: Findings emphasize the increased risk of mental health issues among youth with parents (and siblings) in the military. Although deployment-related mental health stressors are less likely during peace, during times of war there is a need for increased screening in primary care and school settings. Systematic referral systems and collaboration with community-based mental health centers will bolster screening and services.

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 IMPLICATIONS AND
 CONTRIBUTION

This study's findings indicate an increased risk of mental health issues among youth with a parent or sibling in the military and a need for screening and referral systems in primary care and school settings.

The mental health of adolescents (specifically, reducing teen suicide attempts and the prevalence of major depression) is a major public health issue and a priority of Healthy People

2020 [1]. These mental health issues may be more prevalent among adolescents with parents in the military [2,3]. Since the initiation of the wars in Iraq and Afghanistan, many families have experienced an increasing number of deployments (and reintegration) [4,5] influencing adolescents' individual and intra-familial stress, which are directly and indirectly associated with externalizing [4,6] and internalizing [3] behaviors. There

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is little survey research on the mental health of adolescents with military-connected parents compared with their non-military-connected peers. Even less is known about the influence on adolescent mental health of having a sibling in the military. To better understand the relationship between military-connectedness and adolescent mental health, this study examined how having a parent or sibling in the military and military-related deployment influence adolescent mental health.

Mental health of adolescents with a military parent

It is estimated that 11.2% of all United States youth experience clinical depression [7]. Up to 28.5% reported feeling sad or hopeless almost every day for two or more consecutive weeks during the past 12 months [8]. Depression can be associated with social isolation, poor communication, difficulty with relationships, absence, and poor school performance, and may be expressed as thoughts of suicide or other self-destructive behavior [9]. More than 15% of adolescents reported seriously considering attempting suicide during the past 12 months [8]. Beyond general stressors in adolescence, deployment of a parent during a time of war is known to have direct negative consequences on adolescent mental health [3,10,11]. Youth with a parent in the military have higher levels of psychosocial distress compared with their non-military peers [12], including symptoms of psychopathology [13].

Compared with younger children, adolescents may have a better understanding of the consequences of war and its effects on their families. Although they are proud of deployed parents, youth perceive deployment as challenging (having a negative impact on their family and life) and sad [14]. Adolescents may support their deployed parents but also perceive deployment as a burden on them and on non-deployed parents [15,16]. Length of deployment is also associated with emotional challenges [17] and clinical mental health diagnoses [18]. These youth can experience separation and generalized anxiety, grief, secondary posttraumatic stress disorder, and depression [4,19].

Adolescents with parents in the military may also experience instability in the home, such as frequent relocation, the stress of the left-behind parent, the reintegration of the deployed parent, and connectedness to other military families (mental health may be exacerbated by collective stress) [11]. Adolescent well-being may be somewhat dependent on how well non-deployed parents cope with the deployment of their spouse. Caregivers' emotional well-being contributes to both the caregiver's and youth's ability to cope with a military parent's deployment; girls and older youth experience greater difficulties [17]. The deployed parent's well-being is also linked to youths' well-being [20–23].

Changes in family climate and roles, including awareness of parental distress, have also been found when a sibling is deployed [24]. Although less is known about the influence of sibling deployment on an adolescent, the emotional nature of sibling relationships (feelings, both positive and negative, are generally more freely expressed) may help maintain connections with family during a developmental period when adolescents are striving for independence from parents. This increases the potential of siblings to influence one another [25,26], particularly in terms of psychosocial adjustment [27].

All of these studies indicate that children of military personnel are at increased risk of developing symptoms of depression among other mental health issues. Most samples within the described studies have been derived from clinical

settings and summer camps focused on reducing the stressors of deployment. Few studies have been able to compare adolescents who have a military-connected parent with non-military peers from the same classes, schools, neighborhoods, and communities [3,28]. This work examined the influence of military connectedness on adolescents in a population-based sample in California. These school districts and communities included bases from multiple branches of the military, increasing the density of military-connected adolescents in the region. Specifically, feeling sad or hopeless, suicidal ideation, well-being, and depressive symptoms were assessed with the goal of identifying key differences by military connectedness and correlates of mental health issues among adolescents. We hypothesized that (1) adolescents with a connection to the military would be more likely to report feeling sad or hopeless, suicidal ideation, and depressive symptoms, and to have poorer well-being compared with their non-military-connected peers and (2) more parental or sibling deployments would negatively influence adolescent well-being and increase depressive symptoms.

Methods

Data for these analyses were collected as part of the California Healthy Kids Survey (CHKS), a statewide survey of public school students. The CHKS is administered biennially by schools receiving Title IV funding to meet student data collection requirements of the Elementary and Secondary Education Act of 2001. A representative district-wide, grade-level sample of students in the fifth, seventh, ninth, and 11th grades must be surveyed [29]. The CHKS includes a core survey as well as supplemental, topic-specific surveys administered at the discretion of the school district. The military module is one such supplement. All districts in this study had students complete the military supplement. Surveys were given in both English and Spanish. Student participants completed a paper-and-pencil survey during one class session. Student participation was voluntary, anonymous, and confidential. The parental consent rate was 96.7% and the final completion rate of students present in class was 86.5%. Appropriate institutional, district, and state permissions and reviews were completed. In these analyses, fifth-grade students are excluded because their CHKS core did not include the outcome variables of interest.

Survey items

All demographics and single-item mental health measures are derived from the core CHKS survey; deployment experience, and the depressive symptoms and well-being scales were derived from the military supplement (completed by all students regardless of military connectivity). Each measure is described below.

Independent variables

Self-reported descriptive variables included in analyses were gender (male/female), grade (seventh, ninth, and 11th), and race/ethnicity (Asian/Pacific Islander, black, Hispanic, mixed race, and white). We also collected data on the respondent's current military connectedness (whether the student had a family member currently serving in the military: no one, parent, or sibling) and familial deployment history (number of times a family member was deployed overseas during the past 10 years: none, once,

twice or more). Because these variables did not share the same time frame, it was possible for a participant to be in the “no one in the military” category (which would be current) and still report experiencing one or more deployments if their parents or siblings were not currently in the military but had served within the past decade.

We separated parental from sibling deployments because child–parent and sibling relationships are functionally different. Combining the two could make interpretation of findings about the influences of military connectedness on the mental health of youth difficult. To create categories, we first explored whether there were bivariate differences in outcomes by military parent compared with military sibling (there were). We included participants in the sibling category only if they reported not also having a parent in the military. A number of students reported having both a parent and a sibling in the military ($n = 65$), a figure too small to allow for further analyses. We opted to reclassify these 65 individuals into the category of having a parent in the military because of broader literature supporting the influence of parental military connectivity on adolescent mental health [12,13]. Missing data were handled via pairwise deletion to maximize the number of complete cases in each model. Missing data patterns were examined; no indication of patterns of missing data was identified.

Dependent variables

Sad or hopeless. A single-item measure (mirroring a measure in the Youth Risk Behavior Surveillance System [YRBS] [8]) in the CHKS core module was used to assess feeling sad or hopeless: “During the past 12 months, did you ever feel so sad or hopeless almost every day for 2 weeks or more that you stopped doing some usual activities?” Response categories were yes/no.

Suicidal ideation. A single-item measure from the CHKS core module (mirroring a YRBS measure) was also used to identify youth who had considered harming themselves: “During the past 12 months, did you ever seriously consider attempting suicide?” However, only high school students were asked this question (ninth and 11th grades). Seventh-grade students were not asked about suicidal ideation and therefore were not included in analyses related to this outcome measure. Response categories were yes/no.

Well-being and depressive symptoms. Participants answered 12 items related to well-being and depressive symptoms. The scale featured two subscales created by adapting the Positive and Negative Affect Schedule–Expanded Form (labeled “well-being”) [30] and the Kessler 6 (labeled “depressive symptoms”) [31]. All questions began with the lead-in, “In the past 30 days, have you experienced ...” Answers were on a 5-point Likert scale (0 = “none of the time” to 5 = “all of the time”). Examples from the well-being scales include feeling “proud,” “strong,” and “excited”; the depressive symptoms scale included items such as feeling “nervous,” “restless,” and “like everything is an effort.” Minor modifications were made to scales to account for colloquial language to increase understanding of the constructs. The measures were pilot-tested with 50 youth in the districts via focus groups in November 2010. A factor analysis was completed; a two-factor solution showed a total explained variance of 56%. For each dimension, the appropriate items were summed and a

75th percentile cutoff was used to identify high levels of either positive well-being or depressive symptoms. The internal reliabilities of the well-being and depressive symptoms subscales were $\alpha = .894$ and $\alpha = .848$, respectively.

Data analysis

We used SAS, version 9.3 (SAS Institute, Inc, Cary, NC) in the analysis. Frequency distributions and cross-classification tables (chi-square analysis) were developed to compare sociodemographic characteristics and key variables related to military connectedness. We first ran unadjusted logistic models for deployments and type of military connection to provide a baseline assessment of the associations between these variables and the measures of mental health/mental health outcomes. Multiple logistic regression was employed to predict the probability of reporting feeling sad or hopeless (experienced for a period of at least two consecutive weeks during the previous 12 months), suicidal ideation (past 12 months; ninth and 11th graders only), and well-being and depressive symptoms (experienced during the past 30 days). The analyses controlled for the study design, which involved clustering in schools using proc surveyfreq for chi-square estimates and proc surveylogistic in SAS 9.3.

Results

Descriptive statistics

Overall, 86.5% of youth reported not being connected with the military ($n = 12,385$); approximately 9% ($n = 1,305$) had a military-connected parent and 4.3% ($n = 609$) had a military-connected sibling. Approximately 52% were female; students were fairly evenly distributed, with approximately a third in each grade level. Almost half (49.6%) self-identified as Hispanic; 28.3% were white, 7.3% Asian/Pacific Islander (PI), 11.9% mixed race, and 3.0% black.

Asian/Pacific Islanders, those self-identified as mixed race, and blacks reported having a parent or sibling currently serving, at disproportionately higher rates; Hispanics had a lower proportion of military connection. Approximately 31% of participants reported feeling sad or hopeless almost every day for 2 weeks during the past 12 months, and more than 19% indicated that they had seriously thought about ending their own life during the past year. Approximately 28% reported positive well-being, whereas 22.9% were characterized as expressing depressive symptoms (Table 1).

Bivariate results

There were significant differences in current military connection by number of family member deployments ($\chi^2 = 340.3$, degrees of freedom [df] = 6, $p < .001$), grade ($\chi^2 = 10.5$, $df = 4$, $p = .03$), race/ethnicity ($\chi^2 = 198.31$, $df = 8$, $p < .0001$), suicidal ideation ($\chi^2 = 24.93$, $df = 2$, $p < .0001$), and depressive symptoms ($\chi^2 = 20.84$, $df = 2$, $p < .0001$). Respondents in seventh grade were most likely to have a parent in the military (40.2% vs. 33.9% and 25.9% in ninth and 11th grades, respectively) (Table 1). Although they only represented 11% of the total sample, mixed-race adolescents accounted for 19.4% of those with a parent serving. Similarly, blacks only accounted for 3% of the sample but comprised 7% of those with a parent serving. Rates of

Table 1
Percentages of military-connected youth, by demographic and mental health

	Total, n (%)	None in military, %	Parent, %	Sibling, %
Deployment*				
None	7,725 (72.8)	81.6	16.6	37.3
One	1,018 (9.6)	7.9	16.5	23.8
Two or more	1,874 (17.6)	10.5	66.9	38.9
Gender				
Female	7,277 (51.9)	51.9	51.8	51.3
Male	6,747 (48.1)	48.1	48.2	48.7
Grade*				
7	4,494 (32.7)	32.1	40.2	27.8
9	4,858 (35.3)	35.5	33.9	34.3
11	4,405 (32.0)	32.4	25.9	37.9
Race/ethnicity*				
Asian/Pacific Islander/ Native Hawaiian	1,010 (7.3)	7.0	10.5	6.2
Black	419 (3.0)	2.5	7.1	4.2
Hispanic	6,887 (49.6)	51.3	36.3	43.8
Mixed race	1,651 (11.96)	11.0	19.4	13.8
White	3,929 (28.3)	28.2	26.8	32.1
Mental health				
Sad or hopeless ^a	4,230 (31.5)	31.0	33.7	35.3
Suicidal ideation ^{a,b}	1,801 (21.6)	19.1	24.8	26.1
Well-being ^c	2,700 (21.6)	21.8	19.6	20.9
Depressive symptoms ^d	2,909 (23.3)	22.9	23.9	29.7

^a During the past 12 months.^b Ninth and 11th graders only.^c During the past 30 days; mean = 20.1, standard deviation = 5.9.^d During the past 30 days; mean = 13.2, standard deviation = 5.3.* $p < .05$.

suicidal ideation were highest among youth who reported having a sibling (26.1%) currently serving, followed by those with a parent serving (24.8%). Those with a sibling currently serving were most likely to report feeling sad or hopeless (29.7%).

Table 2
Logistic regression of mental health factors

Variable	Sad or hopeless (n = 10,086) OR (95% CI) ^b Adjusted OR (95% CI)	Suicidal ideation ^a (n = 7,065) OR (95% CI) ^b Adjusted OR (95% CI)	Well-being (n = 10,116) OR (95% CI) ^b Adjusted OR (95% CI)	Depressive symptoms (n = 10,100) OR (95% CI) ^b Adjusted OR (95% CI)
Grade ^b				
9	1.38 (1.19–1.60)*		.67 (.58–.77)*	1.34 (1.16–1.55)*
11	1.53 (1.33–1.76)*	.94 (.85–1.04)	.51 (.44–.59)*	1.50 (1.34–1.68)*
Gender ^b				
Male	.53 (.48–.58)*	.60 (.53–.69)*	1.43 (1.27–1.61)*	.79 (.72–.86)*
Race/ethnicity				
Asian/Pacific Islander/Native Hawaiian ^b	1.16 (1.02–1.32)*	1.37 (1.06–1.77)*	.72 (.56–.92)*	1.60 (1.35–1.90)*
Black	.94 (.69–1.27)	1.31 (.98–1.77)	1.18 (.85–1.65)	1.02 (.76–1.37)
Hispanic	1.17 (1.05–1.30)*	1.08 (.95–1.22)	.94 (.84–1.02)	1.15 (1.03–1.29)*
Mixed race	1.39 (1.22–1.59)*	1.30 (1.13–1.51)*	.91 (.82–1.00)	1.27 (1.09–1.49)*
Deployments ^b				
One	1.33 (1.15–1.52)*	1.34 (1.10–1.62)*	.92 (.78–1.08)	1.09 (.94–1.28)
Two or more	1.40 (1.24–1.59)*	1.24 (.98–1.56)	.90 (.76–1.08)	1.15 (1.00–1.33)*
Two or more	1.46 (1.31–1.62)*	1.51 (1.30–1.74)*	1.06 (.94–1.20)	1.36 (1.22–1.53)*
Two or more	1.56 (1.34–1.83)*	1.34 (1.12–1.60)*	1.13 (1.00–1.27)	1.41 (1.26–1.58)*
Current military connection ^b				
Parent	1.12 (.99–1.27)	1.40 (1.17–1.66)*	.87 (.75–1.01)	1.06 (.93–1.23)
Sibling	.88 (.76–1.01)	1.10 (.88–1.38)	.79 (.67–.94)*	.90 (.81–1.01)
Sibling	1.22 (1.03–1.45)*	1.50 (1.20–1.87)*	.97 (.80–1.19)	1.45 (1.21–1.74)*
Sibling	.99 (.75–1.31)	1.21 (.98–1.48)	.91 (.68–1.21)	1.13 (.94–1.36)

CI = confidence interval; OR = odds ratio; OR (italicized) = unadjusted odds ratio.

^a Ninth and 11th graders only.^b Reference categories were seventh grade (and 9th grade for suicidal ideation), female gender, white race/ethnicity, no deployments, and no current military connection.* $p < .05$.

Multivariate associations

Unadjusted odds ratios are presented in Table 2 above the adjusted odds ratio (OR) for deployments and type of military connection. In general, the associations between mental health and deployments or military connection were modestly reduced in the multivariate models. One exception is that the association with sibling military connection and negative mental health were all significant in the simple logistic regressions. None were statistically significant in the multivariate models. Military connectivity was only associated with well-being; there was a 21% (OR, .79; 95% confidence interval [CI], .67–.94) decrease in the odds of positive well-being among adolescents who reported having a parent in the military. However, deployment was associated with three of the four outcomes of interest. Compared with those who had experienced no deployments, there was an increased likelihood of feeling sad or hopeless for those experiencing one deployment of a family member (OR, 1.40; CI, 1.24–1.59) and two or more deployments of a family member (OR, 1.56; CI, 1.34–1.83). Among ninth and 11th graders, reporting two or more family member deployments was associated with a 34% increase in the odds of suicidal ideation (OR, 1.34; 95% CI, 1.12–1.60) compared with those with no deployment experience. Finally, there was an increased likelihood of depressive symptoms among adolescents who reported one family member deployment (OR, 1.15; CI, 1.00–1.33) and two or more family member deployments (OR, 1.41; CI, 1.26–1.58) compared with those who reported experiencing no deployments.

Discussion

This study is one of few that used a community-based sample to understand the depressive symptoms, suicidal ideation, and

well-being of military-connected youth [3]. Previous studies have most often used data on children and adolescents from clinical or site-specific (camp) populations, which makes it difficult to generalize the results [15,17]. This inquiry compared adolescents who have a military-connected parent or sibling with their non-military-connected peers; the samples came from the same grades, schools, classrooms, and communities. Building on the work of others [3,28], these findings from non-clinical normative settings increase current epidemiological awareness of the strengths and risks of military-connected youth in the midst of a decade-long war.

The findings in this study suggest that military-connected adolescents have much higher rates of feeling sad or hopeless than found in other national studies. For example, in the 2011 YRBS, 28.5% of adolescents reported feeling sad or hopeless [8]. In our study, 33.7% of adolescents with a parent and 35.3% with a sibling in the military reported feeling sad or hopeless for more than 2 weeks in the past 12 months. In this work, being older, female, or a racial/ethnic minority was also associated with reporting sad or hopeless. Findings related to age, gender, and race were consistent with prior work [32–34].

Rates of suicidal ideation in our sample were also higher than reported in other studies. Whereas the 2011 YRBS data reported a rate of 15% [8], we found that 24.8% (parent in military) and 26.1% (sibling in the military) of youth reported seriously considered attempting suicide. Our reported rates of suicidal ideation were also slightly higher than those found among youth in another study of military-connected adolescents [35]. Similar to prior work, we found that girls were more likely than boys to report suicidal ideation; however, unlike others, we did not see changes by age [36]. Although white youth have traditionally been more likely to commit suicide, rates are growing for ethnic minority groups [37], which may explain our findings that Asian/Pacific Islanders and mixed-race adolescents were more likely to report ideation.

Military-connected youth reported poorer well-being compared with their non-military-connected peers. Similar to other studies [3,17], girls were more likely to report poorer well-being compared with their male counterparts. Older age is often associated with increased familial responsibility; girls and boys may also differ in their roles and responsibilities based on societal norms related to coping and support [38]. For adolescents with a parent in the military, girls may experience more responsibilities in the home, in their relationship with the non-deployed parent, and in their response to reintegration [4,17], contributing to their sense of well-being.

Parental separation has also been linked to increased responsibility and, in turn, behavioral and emotional issues [39]. As hypothesized, deployment was the strongest predictor of adolescent mental health issues. Adolescents who experienced more familial deployments were more likely to report symptoms of depression and suicidal ideation. Children have complex responses to the deployment cycle [4] that can lead to increased risk of emotional and behavioral problems [17,40]. This may be further exacerbated by prolonged deployment [10,17,18,21]. Because of the link between separation and emotional issues [39], it is not surprising that adolescents experiencing deployment were more likely to report feeling sad or hopeless, depressive symptoms, and increased suicidal ideation, and that more deployments further exacerbated these experiences.

Findings suggest the need to increase mental health screening among all adolescents, particularly among those in military-connected families and experiencing deployment. Along with

teachers and mental health providers in schools settings, physicians in primary care settings are in a unique position (e.g., during annual visits) to screen for and identify these issues. Screening and identification may be particularly important in less traditional settings (such as pediatric offices and schools) because of the number of families who use health care providers outside a military-specific setting (particularly families of reservists and National Guard members). Supporting the mental health needs of military-connected youth can be accomplished in several ways. Providers can be trained to identify warning signs that an adolescent may be experiencing problems and should be supported with referrals to evidence-based interventions that can reduce the long-term consequences of deployment-related stressors. Furthermore, clear procedures can be established so that adolescents are appropriately referred to mental health service providers within their communities. Increasing capacity of support personnel (e.g., counselors, social workers) in medical and school settings can help identify the mental health risks and needs of adolescents with military-connected parents.

Although this study was among the first to use a community-based sample of youth to examine differences in mental distress by military connectedness, there were noted limitations. First, these data were self-reported and cross-sectional, which limits inference of causation. Future work should examine mental health at multiple points during the deployment and reintegration process to examine trends over time. Furthermore, two of our dependent variables were measured with a single item and our measures of well-being did not have the specificity (i.e., clinical cut points) important for a more nuanced understanding of the mental health of adolescents with a military-connected parent. More, although we did not have the statistical power to do so with this sample, further exploration of whether having more military-connected family members exacerbates mental health issues among military-connected youth is needed. These data also lacked a proxy for socioeconomic status, which should be considered and controlled for in future studies. Finally, we were unable to examine the influence of deployment on youth by deployment length, location, or type (e.g., combat mission, peacekeeping, military installation training); this is particularly important because military branches have widely varying types of deployments and deployments to war zones have become prolonged (≥ 12 months) and reoccur more frequently than in the past. These are important characteristics to account for in future work. Despite these limitations, these data emphasize the increased risk of depressive symptoms and suicidal ideation among adolescents with a military-connected parent. These are important because the non-military samples are from the same classes, communities, and schools as the military-connected students. These findings highlight the need for physicians, clinical service providers, and public school teachers to be sensitive and proactive with this group, particularly with youth experiencing multiple family deployments. Furthermore, more nuanced analyses of potential mediators such as family discord, socioeconomic status, and social support would help to elucidate these relationships.

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