

Substance Use Among Military-Connected Youth The California Healthy Kids Survey

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Background: Young people in military-connected families may be exposed to deleterious stressors, related to family member deployment, that have been associated with externalizing behaviors such as substance use. Substance use predisposes youth to myriad health and social problems across the life span.

Purpose: This study examined the prevalence and correlates of lifetime and recent substance use in a normative sample of youth who were either connected or not connected to the military.

Methods: Data are from a subsample of the 2011 California Healthy Kids Survey (N=14,149). Items in the present analyses included present familial military affiliation (no one, parent, sibling); number of deployments (none, one, two or more); gender; grade; and race/ethnicity. Substance use items assessed whether the youth reported lifetime use of alcohol, tobacco, marijuana, other drugs, or prescription drugs; and recent (past 30 days) use of alcohol, tobacco, marijuana, and other drugs.

Results: Multivariate analysis conducted in 2012 revealed that an increase in the number of deployments was associated with a higher likelihood of lifetime and recent use, with the exception of lifetime smoking.

Conclusions: These results indicate that experiences associated with deployment of a family member may increase the likelihood of substance use.

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Background

There is concern that the wars in Afghanistan and Iraq are associated with negative psychological and behavioral outcomes for children in military families.^{1–3} The increased number and longer duration of deployments for those serving exceed those during any other point in the modern history of the U.S. military.^{4,5} The stressors associated with being connected to the military can predispose youth to both internalizing and externalizing behaviors, such as substance use, that have negative health and social consequences.⁴ Parental deployment, in particular, is theorized to affect adolescent well-being and behavior through the disruption of family

routines, increased distress of the remaining parent, and increased familial responsibility for the adolescent.^{1–3}

Although there is research into the influence of parental military service, only one study has addressed sibling service, and no studies have examined the influence of sibling military service on adolescent substance use.⁶ Research in the general adolescent substance use literature has suggested that siblings potentially provide access to drugs and/or serve as role models of drug use behavior.^{7–10} Thus, having a sibling in the military may expose an adolescent to the stress of having that sibling deployed, role-modeling of substance use behaviors, and a direct or inadvertent increase in access to alcohol and other substances, due to that sibling's use. The present study explores the associations of being connected to the military with adolescent substance use.

Study Hypotheses

To our knowledge, to date, there are no large-scale normative studies published of adolescent substance use that

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focus on a comparison between those who are connected (via either parent or sibling service) versus unconnected to the military. Given the extant literature and theories of stress and coping, it is anticipated that those youth with parents or siblings who are actively serving in the military will have a higher lifetime prevalence of and recent substance use compared to those who are not connected to the military. A higher number of familial deployments was expected also to be related to a higher likelihood of substance use.

Methods

The present study uses the California Healthy Kids Survey (CHKS), which consists of a core survey module that gathers demographic background data (e.g., grade, gender, and race/ethnicity) and inquires about students' health-related behaviors, tobacco use, alcohol use, drug use, violence behaviors, and school safety. A 39-item "military module" was developed to identify the needs and experiences of military children and was administered to 21,740 students in the 5th, 7th, 9th, and 11th grades during late February and early March 2011. The present analysis focuses on students in schools in southern California (N=14,149). These schools are in military-connected (average daily attendance of more than 400 military students or 10%) public school districts.

Appropriate institutional and district- and state-level permissions and reviews were completed. Review board approval was obtained from the University of Southern California Human Subjects Review Board. Parent/guardian consent was obtained for all participants where required. Data collection involved the student participants completing a voluntary, anonymous, and confidential paper-and-pencil survey during one class session. The consent rate was 96.7%, and the completion rate of students present in class was 86.5%.

Dependent Variables

Lifetime and recent (past 30 days) levels of use of alcohol, tobacco, or marijuana were used in separate models as dichotomized outcomes. Lifetime substance use was examined given the likelihood that there may be a substantial portion of seventh-graders and some ninth-graders who, although they may have "ever" tried alcohol, tobacco, or marijuana, had not used them within the past 30 days. Additional outcomes included lifetime and recent use of "other" drugs. This included any reported use of inhalants, cocaine/crack, methamphetamine, or LSD. Lifetime use of prescription drugs also was assessed as a dichotomy. The substances of interest included painkillers, barbiturates, tranquilizers, cold medicine, and Ritalin® or Adderall®.

Independent Variables

The independent variables included grade, gender, race/ethnicity, whether the student had a family member currently serving in the military (no one, parent, or sibling) and deployment of a family member in the past 10 years. Race/ethnicity categories were Asian American/Pacific Islander, black, white, multiple races, and Hispanic ethnicity.

Data Analysis

The analysis was completed using SAS, version 9.2. Frequency distributions and cross-classification tables (chi-square analysis) were performed to compare sociodemographic characteristics and key variables related to military connection. Multiple logistic regression (MLR) was used to predict the probability of lifetime versus never use (separately for alcohol, tobacco,

Table 1. Overall sample characteristics

	Total n (%)
Military connection	
No one	12,555 (86.5)
Parent	1,338 (9.2)
Sibling	619 (4.3)
Deployment	
None	7692 (73)
One	1005 (9.5)
Two or more	1851 (17.5)
Gender	
Female	7235 (52.1)
Male	6641 (47.9)
Grade	
7	4508 (33.1)
9	4781 (35.1)
11	4341 (31.8)
Race/ethnicity	
Asian/AI/PI/AN	1184 (8.6)
Black	390 (2.8)
White	3876 (28.2)
Mixed race	1617 (11.8)
Hispanic	6688 (48.6)
Lifetime drug use (yes)	
Alcohol	5686 (41.1)
Tobacco	2397 (17.3)
Marijuana	3680 (26.6)
Other drugs	2116 (15)
Prescription drugs	2520 (17.8)
Past-30-day drug use (yes)	
Alcohol	2895 (21)
Tobacco	1035 (7.6)
Marijuana	1956 (14.2)
Other drugs	955 (6.75)

AI, American Indian; AN, Alaska Native; PI, Pacific Islander

marijuana, other drugs, and prescription drugs); recent versus nonrecent use (separately for alcohol, tobacco, marijuana, and other drugs; Table 1).

Results

Alcohol and Other Drug Use

Those youth who reported having a sibling in the military had the highest prevalence of all lifetime substance use (Table 2). There were several associations between substance use prevalence and military connection. Specifically, lifetime alcohol (chi-square=12.2, *p*=0.002); marijuana (chi-square=9.7; *p*=0.008); and prescription (chi-square=6.5; *p*=0.04) drug use showed variation according to military-connection status. No differences were found in prevalence of recent drug use.

Youth who reported either one, or two or more, familial deployments had the highest prevalence of substance use (Table 2). Higher numbers of deployments were associated with higher levels of lifetime tobacco use (chi-square=8.6; *p*=0.01) and other drug use (chi-square=22.6 *p*<0.0001). There were also differences in the number of deployments and the likelihood of recent use of alcohol, tobacco, marijuana, and other drugs.

Lifetime and Recent Drug Use Models

Controlling for grade, gender, race, and familial deployments, current military connection was not a predictor in any of the lifetime or recent substance use models. A higher number of family member deployments was, however, associated with increased likeli-

Table 2. Military-connected youth and family member deployments by demographic and substance use information, %

	Military connection			Number of deployments		
	No one in the military	Parent	Sibling	None	One	Two or more
Gender						
Female	52.1	52.6	52	52.5	50.5	54.6
Male	47.9	47.4	48	47.5	49.5	45.4
Grade***						
7	32.4	41.3	28.6	27.4	35.1	35.1
9	35.4	33	33.5	35.5	34.3	34
11	32.2	25.8	37.9	37.1	30.6	30.9
Race/ethnicity***						
Asian/AI/PI/AN	8.2	12.9	7.9	7.3	9.6	13.3
Black	2.4	6.8	4.1	2.2	4.3	4.2
White	28.1	26.6	32.5	31.7	25.7	29.4
Mixed race	10.9	19.2	13.6	9.9	18.1	16.4
Hispanic	50.4	34.5	41.9	48.8	42.3	36.7
Lifetime drug use (yes)						
Alcohol*	41.3	37.5	45.8	40.5	42.3	43.2
Tobacco**	17	17.4	20.9	16.4	18.5	19
Marijuana*	26.7	23.6	30.1	25.5	27.6	26.8
Other drugs**	14.7	15.9	17.3	13.4	16.6	17.2
Prescription drugs*	17.7	17.2	21.7	17.6	19.5	18.7
Past-30-day drug use (yes)**						
Alcohol	21	19.4	23.9	19.7	22.8	22.3
Tobacco	7.5	7.8	8.8	6.5	8.6	8.3
Marijuana	14.2	13.7	15.3	13.2	16.1	14.3
Other drugs	6.6	8.3	6.6	5.5	7.5	8.5

Note: Boldface indicates significance.
 *Significant χ^2 for differences by military-connected status, *p*<0.05
 **Significant χ^2 for differences by number of deployments, *p*<0.05
 AI, American Indian; AN, Alaska Native; PI, Pacific Islander

hood of use in all of the models. Among the lifetime substance use models, it contributed at least a 14% increase in likelihood of drug use (prescription drugs; OR=1.14, 95% CI=1.06, 1.24) to a maximum of a 25% increase (other drugs; OR=1.25, 95% CI=1.15, 1.35). Within the recent (past 30 days) drug use models, an increase in the number of deployments contributed at least an 18% increase in likelihood of drug use (marijuana: OR=1.18, 95% CI=1.08, 1.28) to a maximum of a 34% increase (other drugs: OR=1.34, 95% CI=1.20, 1.50).

Discussion

To our knowledge, the present study is the first to examine the prevalence of substance use among youth in families connected versus not connected to the military, in normative settings such as schools. Further, this study is one of the first to examine the impact of military connection via both parental and sibling service. The results show that overall, military-connected youth have a higher prevalence of substance use. The prevalence of lifetime use of alcohol, tobacco, marijuana, other drugs, and prescription drugs was consistently highest among those with a sibling in the military. Recent drug use was the only category of use found to be highest among those who reported having a parent serving in the military.

The multivariate analyses revealed that after controlling for demographics, being from a military family alone was not associated with lifetime or recent substance use. However, a higher number of family member deployments was associated with all substance use categories except for lifetime smoking. These findings indicate that it may be the experiences associated with prolonged war that increase behavioral health stresses on military-connected youth and their families.

The results raise the question of why having a sibling in the military was associated with higher rates of substance use than was having a parent in the military. Much of the literature focuses on parent–child relationships⁴ and the impact of parental deployment¹¹ and/or injury on youth mental health.¹² The immense number of adolescents potentially affected by close family member deployment has been documented,^{6,11,13} but few studies have explored the experiences of the many families affected by having a close family member serve in the armed forces.⁶

In a qualitative study⁶ of individual and family systems, findings showed that reactions to sibling deployment were similar to those resulting from having a parent deploy. Theories of uncertainty (e.g., injury or death, changes in duration of deployment/service) and ambiguous loss indicate that a loss (lack of physical presence of a loved one) combined with uncertainty or ambiguity greatly slows the ability to cope or grieve. Thus, losing the physical presence of a close loved one is likely stressful both because of the ambiguity of the loss and the stress related to changes in interpersonal dynamics and shifts in responsibilities within a familial unit.

The increased use of reservists and national guardsmen means that more families exposed to stressors associated with deployment are using non-military-affiliated public resources (e.g., schools or clinics) that are less likely to take into account the special considerations per-

tinent to military families. Additional school-based social-emotional supports around deployment and reintegration can be offered to youth and their family members to cope with their loved ones' absence and other deployment-related stressors. Schools with a high density of students whose family members are already known to have deployed multiple times may decide to provide universal substance use education curricula and added internal referrals for parents and students. Finally, these findings support making other community-based medical care providers cognizant of the need to screen for possible substance use and abuse problems among youth who are identified to be experiencing familial deployment.

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