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Identifying cross-cutting risk and protective factors and prevention principles for multiple harmful behaviors

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Abstract

This study identifies and describes cross-cutting (common) risk and protective factors associated with multiple harmful behaviors: suicide, substance misuse, domestic violence, sexual harassment/assault, discrimination, and extremism. Risk and protective factors were organized into an Army-specific socio-ecological model (SEM) that displays 40 cross-cutting risk factors and 15 cross-cutting protective factors that influence behavior at six levels: individual, interpersonal, unit, installation/local community, Army, and society. This report also identifies and describes 11 principles of effective prevention that apply to two or more of the target behaviors. The cross-cutting risk and protective factors and principles of effective prevention will provide a framework for examining existing Army prevention programs and developing an evidence-based integrated prevention model.

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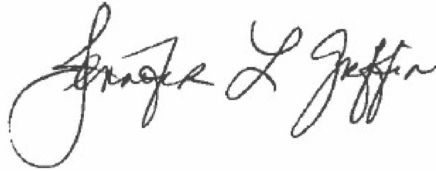

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Executive Summary

Background

The Army Resilience Directorate (ARD) asked CNA to assist the Army in better understanding cross-cutting (shared) risk and protective factors associated with multiple harmful behaviors: suicide, substance misuse, domestic violence, sexual harassment and assault, discrimination, and extremism. Specifically, ARD wants us to identify cross-cutting risk and protective factors at each level of a socio-ecological model (SEM) that considers influences on behavior at the individual, interpersonal, community, and society levels. This study supports ARD initiatives to develop integrated prevention strategies that enhance the protective factors and mitigate the risk factors at appropriate touchpoints across Soldiers' careers. This integrated prevention approach aligns with recommendations from the Centers for Disease Control and Prevention and recent efforts within the Department of Defense (DOD) and the Army.

Several questions guide the effort to develop an evidence-based integrated prevention program model that addresses cross-cutting risk and protective factors at the optimal points in Soldiers' careers. This report, the first for this project, addresses two key questions. First, what risk and protective factors are associated with the target harmful behaviors at each level of an Army-specific SEM? Second, what evidence-based prevention principles and strategies address these cross-cutting risk and protective factors? Subsequent reports will examine existing Army prevention programs for their alignment with the Army SEM and effective prevention principles, identify gaps, and make recommendations for developing an integrated prevention approach.

To develop the Army SEM and effective prevention principles, we conducted an extensive review of the military, government, and civilian literature on best practices in the field of prevention, as well as risk and protective factors and effective prevention of the specific harmful behaviors of interest. We analyzed the data from this literature to identify risk and protective factors and related prevention principles that apply to two or more of the target behaviors.

Target harmful behaviors

We drew on DOD sources and other government and expert sources to define the harmful behaviors of interest. These definitions are summarized below:

- **Suicide.** Behaviors on a continuum of harm that include suicidal ideation (including suicide planning), suicide attempt, and death caused by injury to oneself with the intent to die.
- **Substance misuse.** Use of illegal substances and misuse of legal substances.
- **Domestic violence.** Abuse or aggression by a current or former intimate partner; can include physical or sexual violence, stalking, and psychological aggression.
- **Sexual harassment and assault.** Behaviors on a continuum of harm that range from unwelcome sexual advances to intentional, forceful sexual contact without consent.
- **Discrimination.** Unfair, unnecessarily harsh, or derogatory treatment of an individual because of their characteristics (e.g., race/ethnicity, gender, sexual orientation).
- **Extremism.** Radicalization and actual violence against members of an outgroup or symbolic targets with the intent to achieve behavioral change or further political goals**.**

Social-ecological models and the Army SEM

SEMs of prevention are based on the concept that individual behavior and experiences are shaped by multiple levels of influence, including individual characteristics, interpersonal relationships, and organizational, community, and societal influences. SEM frameworks are widely used in the health promotion field and are based on the belief that prevention and intervention efforts should address all levels. To develop an Army-specific SEM, we first identified six relevant levels of influence in the Army context, as defined below:

- **Individual.** Includes personality traits, skills and abilities, circumstances, and personal history.
- **Interpersonal.** Includes factors associated with close relationships (e.g., intimate partners, family members, friends, acquaintances that one interacts with frequently).
- **Unit.** Includes factors within the military unit that influence a person's behavior, such as leadership approaches, unit-level policies, operational tempo, nature of unit occupations, peer interactions and support, and unit cultural norms and expectations.
- **Installation or local community.** Includes factors at the military base and surrounding community like access to resources and characteristics, policies, and practices in the community.

- **Army.** Includes factors related to Army culture, policies, and practices as well as practices and values espoused and modeled by senior leaders.
- **Society.** Includes state and federal policies as well as broader US culture, subcultures, and political trends and movements.

Next, we identified risk and protective factors for each harmful behavior at each level. We then combined similar factors, assigned new labels, and developed definitions for each factor. The resulting Army SEM includes 40 cross-cutting risk factors and 15 cross-cutting protective factors, which are provided in the body of the report (Table 1 and Table 3). As indicated by the higher number of risk factors, the evidence base is much stronger for risk factors than for protective factors. The same is true for factors at the individual level compared to other levels. Consequently, 31 individual-level risk and protective factors were identified, compared to 24 factors at all other levels combined. In addition to cross-cutting risk and protective factors, we identified several key factors associated with only one behavior that may be important to address in prevention programs aimed at that behavior; these key factors are provided in the body of the report (Table 5).

Principles of effective prevention

To develop principles of effective prevention, we reviewed the general prevention literature as well as the literature on effective prevention of each of the target harmful behaviors. The final set of principles, listed below, encompasses principles that have been shown to be effective in preventing two or more of the target behaviors.

Prevention program content

1. **Socio-culturally relevant.** Programs address the cultural and social norms of the target audience, respecting their values, beliefs, and language while acknowledging grievances, correcting misconceptions, and promoting positive norms that protect against harmful behaviors.
2. **Theory-driven.** Programs are based on well-established empirically supported theory about the causes of the behavior and related risk and protective factors a program should address to influence the desired outcomes.
3. **Comprehensive.** Programs encompass multiple components from awareness to skill building to resource support and include universal and targeted interventions at multiple SEM levels (e.g., individual, relationships, work environment, community, society).
4. **Skills-oriented.** Programs develop social and emotional skills that protect against harmful behaviors, including communication, self-efficacy and empowerment, self-

regulation, healthy relationships, critical thinking, problem-solving, stress management, coping, empathy, risk avoidance, and conflict resolution.

5. **Fosters positive relationships.** Programs foster safe, trusting relationships within the training context and in participants' social and work environment, including promoting social connectedness, bystander strategies, peer organizations, and mentoring.

Prevention program delivery

6. **Delivered by well-trained, qualified, committed, and supported staff.** Program staff are sufficiently trained and qualified, supported by the administration, and committed to program goals. Peer facilitators are included in program development and implementation.
7. **Appropriately timed.** Programs are timed to reach participants as early in life as possible, when they are most receptive to change, at key transition points, or when they are at potentially heightened risk.
8. **Of sufficient dosage and intensity.** Programs are of sufficient depth, length, and frequency (including refreshers) to support sustained changes in attitudes and behavior.
9. **Actively engaging.** Programs use varied teaching methods (e.g., small group discussion, role-playing, skill practice) that actively engage participants and allow them to learn and practice new skills.

Prevention program policies

10. **Incorporates systematic evaluation and refinement.** Programs have clear goals and objectives, results are systemically evaluated relative to the goals (including gathering participant feedback), and refinements are made to improve effectiveness.
11. **Accompanied by victim-centered response efforts.** Response efforts ensure support for victims, including ensuring privacy and confidentiality, providing advocacy and counseling, ensuring safety, maintaining zero tolerance for retaliation, and offering amnesty for collateral misconduct.

Discussion and implications

This report details the creation of an Army-specific SEM that identifies cross-cutting risk and protective factors that influence six harmful behaviors at various levels appropriate to the Army context. It also identifies and describes 11 principles of effective prevention that apply to one or more of the target behaviors. These 11 principles will provide a framework for later phases of the project.

As this project moves into the next phases, ultimately producing a model for an evidence-based integrated prevention program, several issues and challenges may need to be addressed, including the following:

- **Immutable characteristics.** Some risk and protective factors are immutable personal or background characteristics (e.g., age, gender, history before joining the military) but may be addressed through targeted intervention strategies or supportive services for Soldiers who are potentially at higher risk.
- **Conflicting norms.** In addressing the Army SEM, conflicting norms associated with the military culture may arise (e.g., conflicting messages from unit-level and senior leadership about the repercussions of reporting mental health challenges).
- **Integrated versus targeted prevention.** Identifying risk and protective factors shared across harmful behaviors does not suggest that all prevention efforts should be incorporated into an integrated prevention program. Key factors associated with specific behaviors may need to be addressed in behavior-specific programming.
- **Resource constraints.** Because the Army is constrained by time and money, this research can help prioritize high-value, evidence-based prevention efforts that address the greatest number of risk or protective factors across behaviors.

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Introduction

Background

Many factors affect the likelihood that people will experience or engage in various harmful behaviors [1]. Factors that make it more likely that a person will experience or engage in a harmful behavior are called *risk factors,* and factors associated with a reduced likelihood of experiencing or engaging in a harmful behavior are called *protective factors* [1]. For example, healthy relationships and a sense of belonging are protective factors for both interpersonal violence and suicidal ideation [2]. The Army Resilience Directorate (ARD) would like to better understand cross-cutting (shared) risk and protective factors associated with multiple harmful behaviors: suicide, substance misuse, domestic violence, sexual harassment and assault, discrimination, and extremism. Furthermore, ARD would like to develop integrated prevention strategies that enhance protective factors and mitigate risk factors at appropriate touchpoints across Soldiers' careers.

This integrated prevention approach aligns with the recommendation of the Centers for Disease Control and Prevention (CDC) that prevention programs should address cross-cutting (shared) risk and protective factors associated with multiple forms of violence [3]. The CDC further recommends using a social-ecological model (SEM) that addresses risk and protective factors at multiple levels (i.e., individual, interpersonal, community, and society) [4]. For the Army context, ARD is especially interested in developing a SEM that identifies cross-cutting risk and protective factors at the individual, interpersonal, unit, and Army (organizational) levels.

Furthermore, this approach aligns with other recent efforts within the Department of Defense (DOD) and the Army. In 2019, the Office of the Undersecretary of Defense for Personnel and Readiness published *Prevention Plan of Action 2019-2023*, which describes a comprehensive approach to sexual assault prevention that involves policies, programs, and practices and continuous evaluation [5]. Elements of the prevention system include equipping leadership with the right tools, training and resourcing a prevention workforce, building collaborative relationships with other stakeholders, collecting and analyzing data, and reviewing and revising policies. A 2020 instruction titled *DOD Policy on Integrated Primary Prevention of Self-Directed Harm and Prohibited Abuse or Harm* calls for an integrated approach to preventing suicide, harassment, sexual assault, domestic abuse (including child abuse), and problematic sexual behavior in children and youth. The policy's purposes include integrating policies and

responsibilities to mitigate the targeted harmful behaviors across the career cycle; focusing prevention efforts on research-based programs, policies, and practices; and adapting the CDC's framework for sexual violence prevention to include specific risk and protective factors for a broader range of harmful behaviors in the military context [6].

In addition, although not described as a prevention strategy, a brigade-centric, integrated behavioral health approach to increasing readiness that could help prevent harmful behaviors can be found in a 2020 field manual from the Army Training and Doctrine Command titled *Holistic Health and Fitness*. This field manual replaces the Army's previous physical readiness training doctrine with a comprehensive approach that develops Soldiers' physical, nutritional, mental, spiritual, and sleep readiness across the career cycle [7]. These Army initiatives will likely fit into the integrated prevention strategies that ARD seeks by, for example, reducing barriers to help seeking. This research effort seeks to expand on these policies by specifying the risk and protective factors and related prevention approaches associated with the specific harmful behaviors of interest. By identifying shared factors and best practices across multiple harmful behaviors, this effort will lay the scientific groundwork for an integrated Army prevention strategy.

Issues

ARD asked CNA to help the Army develop a model for an integrated prevention program that addresses cross-cutting risk and protective factors at the optimal points in Soldiers' careers. Several key issues must be addressed in developing this model, including both identifying cross-cutting factors and assessing the ability of existing Army prevention programs to address these factors effectively. The following questions will guide this effort:

- What risk and protective factors are associated with two or more of the target harmful behaviors at each level of an Army-specific SEM?
- What evidence-based prevention principles and strategies address these cross-cutting risk and protective factors?
- What prevention programs are currently available to Army units, how widely are they used, who participates, and when? To what extent do the programs address the cross-cutting factors in the Army SEM and align with evidence-based prevention approaches?
- What are the barriers to developing and implementing an integrated prevention program?
- How can the Army build on current prevention programs to prevent the target harmful behaviors more efficiently and effectively through an integrated approach that addresses all levels of the Army SEM?

This first report addresses the first two issues listed above (i.e., identifying risk and protective factors across an Army-specific SEM and evidence-based prevention principles for addressing these factors in an integrated program). This project will include two additional reports that address the remaining issues.

Approach

To identify cross-cutting risk and protective factors and preventive approaches that address Army-specific SEM levels, we conducted a comprehensive review of existing CNA reports, peer-reviewed literature, military literature, and government reports. We began with a literature search that included CNA databases and reports as well as other sources, such as the Defense Technical Information Center for military literature and ProQuest, American Psychological Association PsycNet, Taylor & Francis, and Google Scholar for civilian literature. We also reviewed other government sources, including the Government Accountability Office and Congressional Research Service, and public websites. We derived search terms for each harmful behavior and included other terms, such as *risk factors*, *protective factors*, *shared risk and protective factors*, *best practices*, and *effective prevention*. The search was an iterative process of testing several combinations of search terms, identifying additional keywords and subject headings from the results, and modifying the search to incorporate those terms. We also used Google Scholar's citation mapping feature to identify additional papers cited in seminal sources.

Detailed descriptions of the methods used to develop the SEM and prevention principles are provided in the appropriate sections of this report and summarized here. To develop the cross-cutting Army-specific SEM, we first analyzed the literature on each harmful behavior to identify risk and protective factors. Once factors were identified for each behavior, we conducted rigorous qualitative analysis to combine similar factors, assign new labels if appropriate, and identify and define those that were associated with more than one harmful behavior. The resulting SEM should be considered a working model that will be revised as new information and data become available, including during later phases of this project as we review Army programs and talk with Army subject matter experts.

We focused on factors that create risk for or protect against *experiencing or perpetrating* the behaviors—not factors associated with the *adverse effects* of the harmful behavior. For example, support from peers and family does not protect an individual from being the victim of discrimination, but it can protect the individual from experiencing adverse effects such as poor self-esteem or disengagement from school. These kinds of secondary effects (e.g., effects on mental health, behavior, or recovery) *after* experiencing a harmful behavior are beyond the scope of this study. Further research could be done to develop a SEM that includes risk and protective factors related to the adverse effects of harmful behaviors.

To develop principles of effective prevention that apply to the target harmful behaviors, we began with seminal sources from the general prevention literature and then reviewed leading sources on effective prevention of each of the target harmful behaviors, as well as the literature on effective integrated prevention programs. The final set of principles encompasses those principles that have been shown to be effective in preventing two or more of the target behaviors.

Organization of this report

In the next section, we define the harmful behaviors that were the focus of this research. We then describe SEMs for addressing behavior change and present an Army-specific SEM of cross-cutting risk and protective factors derived from the literature. Next, we summarize the literature on principles of effective prevention programs and present a set of principles that apply to the target behaviors and the Army context. A final section discusses the implications of these findings for our remaining work going forward. This report also includes an appendix that defines and describes each of the risk and protective factors in the Army SEM.

Harmful Behaviors Addressed

ARD scoped this study to focus on six harmful behaviors: suicide, substance misuse, domestic violence, sexual harassment and assault, discrimination, and extremism. We developed definitions for each behavior based on DOD definitions (when available) and the civilian prevention literature. These definitions helped focus the literature review and ensured that we identified appropriate risk and protective factors. Below, we summarize how we defined each behavior for this study.

Suicide

Suicide-related behaviors fall along a continuum of harm and include the following:

- **Suicide.** Defined by the CDC as "death caused by injuring oneself with the intent to die" [8].
- **Suicide attempt.** Defined by the CDC as "when someone harms themselves with any intent to end their life, but they do not die as a result of their actions" [8].
- **Suicidal ideation.** Defined by the World Health Organization (WHO) as "thoughts, ideas, or ruminations about the possibility of ending one's life, ranging from thinking that one would be better off dead to formulation of elaborate plans" [9].

Substance misuse

Substance misuse encompasses misuse of a broad array of substances, including alcohol, cannabis or marijuana, prescription medications, illegal drugs, and tobacco. Drawing on definitions used by the National Institute on Alcohol Abuse and Alcoholism and the National Institute on Drug Abuse, we developed the following definition [10-11].

Substance misuse is defined as the misuse of legal substances, including underage drinking, binge drinking (e.g., consuming 4 or more drinks in a few hours), and heavy alcohol use (e.g., consuming more than 3 to 4 drinks per day or 7 to 14 drinks per week), and the use of illegal substances, including use of any drug that cannot be purchased legally by the target population as well as prescription drug misuse (taking a medication in a manner or dose other than that prescribed).

Domestic violence

In developing a definition of domestic violence, we incorporated elements of DOD's definition of domestic violence and the CDC's definition of intimate partner violence (IPV) so that our definition encompasses the full range of both types of violence. Our definition is as follows.

Domestic violence is defined as physical violence, sexual violence, stalking, psychological aggression, attempted or threatened use of force, or violation of a lawful order issued for the protection of a person who is a current or former intimate partner (i.e., spouse, boyfriend or girlfriend, dating partner, ongoing sexual partner, or a person with whom the abuser shares a child in common) [6, 12].

Sexual harassment and assault

Sexual harassment and sexual assault are related—but distinct—forms of unwanted sexual behavior. Accordingly, DOD conceptualizes unwanted sexual behaviors, including sexual assault and sexual harassment, along a "continuum of harm," but defines each behavior [13]. We adopt those DOD definitions, which are shown below:

- **Sexual harassment.** Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature used to threaten employment, interfere with a person's work performance, or otherwise create a hostile or offensive working or social environment [14].
- **Sexual assault.** Intentional sexual contact, characterized by use of force, threats, intimidation, abuse of authority, or a situation in which the victim does not or cannot consent [15].

We identified sets of sources that pertain to sexual assault and sexual harassment, and to domestic violence and intimate partner violence, respectively. We used these sources to develop literature reviews for domestic violence and sexual harassment/assault. When sources used the broader term *sexual violence,* we discerned from the content of each source whether the literature pertained to sexual violence in the context of an intimate partner relationship or to sexual harassment and assault more generally. In addition, because of scoping and resource constraints, these definitions do not encompass hazing and harassment that do not have a sexual connotation. However, when the literature explicitly connected these related behaviors with a focal harmful behavior (e.g., male-on-male hazing described in relation to sexual assault), we incorporated that literature into our analysis.

Discrimination

Discrimination refers to the unfair treatment of people or groups based on their personal characteristics [16]. Various kinds of discrimination (e.g., discrimination based on age, disability, race, sex) are prohibited by laws enforced by the Equal Employment Opportunity Commission [17]. Much of the peer-reviewed literature also addresses interpersonal discrimination that includes harmful words or actions directed at members of a minority group outside of employment situations. The definition developed for this study encompasses both these ideas as well as the specific types of discrimination we reviewed in the literature (race/ethnicity, gender, and sexual orientation).

Discrimination is defined as illegal, unnecessarily harsh, mean, or derogatory treatment of an individual because of their race/ethnicity, gender, or sexual orientation.

Extremism

Extremism is defined as a process through which people become increasingly motivated to engage in violent actions against members of an outgroup or symbolic targets to achieve behavioral change and political goals [18-19]. Although discrimination and extremism are sometimes grouped together because of a perceived connection of both behaviors with racist beliefs, they are distinct behaviors with different sets of risk and protective factors.

Continuum of harm for each harmful behavior

Each of the harmful behaviors can be considered along a continuum of harm whereby tolerance of behaviors at the lower end of the continuum contributes to tolerance of more egregious behaviors at the upper end [20]. Given that the primary purpose of this research is to determine integrated approaches to addressing harmful behaviors, our literature review broadly considered the spectrum of behaviors related to each harmful behavior:

- Suicidal ideation through completed suicide
- Misuse of legal substances through overdose of illegal substances
- Intimate or close partner conflict through physical assault
- Tolerance of sexual content in the workplace through sexual harassment and assault
- Discriminatory attitudes through overt discrimination
- Radicalization through violent extremism

Social-Ecological Model of Prevention

Overview

SEMs of prevention are based on the concept that individual behavior and experiences are shaped by multiple levels of influence. Individuals are influenced by their own past experiences, beliefs, and skills. They are also influenced by their close relationships as well as the larger groups, communities, and societies to which they belong. Considering influences on individual behavior from a SEM perspective allows researchers and practitioners to consider the "whole picture" and explore interactions between the multiple levels of influences on behavior. Using SEMs also provides multiple entry points for prevention strategies, as opposed to, for example, focusing on only individual-level factors. Furthermore, SEMs are based on the assumption that multiple levels of influence exist and that these levels are interactive and reinforcing [21]. When designing prevention strategies to reduce harmful behaviors using SEM frameworks, primary prevention efforts must address all levels [22].

The CDC uses a four-level SEM, depicted in Figure 1, to describe influences related to interpersonal violence: individual, relationship, community, and society[1] [4]. Within the CDC's four-level SEM, individual factors include biological and personal history factors (e.g., age, gender, history of abuse). Relationship factors include influences of close peers, partners, and family members. Community factors include influences from school, work, or neighborhoods. Societal factors include influences from widespread policies and practices (e.g., education, health, economic conditions). As noted above, SEM frameworks can be used to identify multiple entry points for prevention. For example, a person's decision to misuse alcohol (e.g., binge drink) might be influenced by their age or gender (individual), alcohol use behavior in their peer group (relationship), access to bars that do not set strict serving limits (community), and the larger culture that glorifies "being drunk" (society). A prevention strategy to preempt alcohol misuse might, therefore, target high-risk populations, group norms around drinking, serving limits at bars in the local community, and military norms relative to alcohol consumption.

[1] This same SEM structure has been used by other researchers when describing research on the primary prevention of sexual violence[22].

Figure 1. CDC SEM for violence prevention

Source: CDC, 2021 [4].

SEMs (or multilevel influences on behavior) have been used in the health promotion community since at least the 1970s. In a review of 20 years of health promotion research, Golden and Earp (2012) categorized approximately 130 studies into five SEM levels: intrapersonal, interpersonal, institution, community, and policy—although the review found that most interventions were focused on intrapersonal and interpersonal levels [23].

In the military, a three-level SEM was used to explore factors that deter or support tobacco use by Airmen during training. Porter et al. (2021) identified influences of tobacco use at the personal, interpersonal, and environmental (e.g., socio-cultural or policy) levels and recommended considering the interaction of influences at multiple levels when designing prevention strategies [24]. SEMs have also been used to understand complex influences on behavior for peacekeeping and stability operations [25].

When using a SEM prevention framework, it is important to understand whether the influences associated with the behavior increase risk for or protect against the harmful behaviors of interest. Risk factors are characteristics of individuals, relationships, organizations, and communities that make it more likely that a person will experience or engage in a harmful behavior. Examples include history of trauma or abuse and weak policies to discourage interpersonal violence. Protective factors, on the other hand, are characteristics of individuals, relationships, organizations, and communities that make it less likely that a person will experience or engage in a harmful behavior. Examples include having strong social support networks and engaged leadership that create a climate of trust and respect within a group. Once these factors are identified, prevention efforts can be designed to mitigate risk factors and promote protective factors [1].

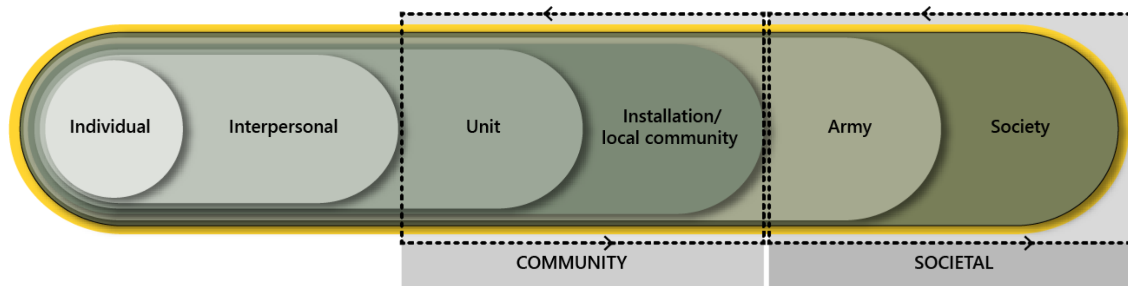
Creating an Army-specific SEM

To develop an Army-specific SEM, we determined relevant levels of influence in the Army context and then identified risk and protective factors for each harmful behavior at each level. Details on these processes are provided below.

Determining relevant SEM levels

The CDC's four-level SEM was the starting point in developing an Army-specific SEM, and our definitions of the individual and interpersonal levels are similar to the CDC definitions. However, the Army-specific SEM differs from the CDC model in that we defined two community and two society levels. The Army-specific SEM is depicted in Figure 2. Definitions of each level are provided below the figure.

Figure 2. Army-specific social-ecological model



Source: CNA.

- **Individual.** Includes personality traits, skills and abilities, circumstances, and personal history.
- **Interpersonal.** Includes factors associated with close relationships (e.g., intimate partners, family members, friends, acquaintances with whom one interacts frequently).
- **Unit.** Includes factors within the military unit that influence a person's behavior, such as leadership approaches, unit-level policies, operational tempo, nature of unit occupations, peer interactions and support, and unit cultural norms and expectations.
- **Installation or local community.** Includes factors at the military base and surrounding community that influence individual behavior, including access to resources and characteristics, policies, and practices in the community.

- **Army.** Includes factors related to Army culture, policies, and practices as well as practices and values espoused and modeled by senior leaders.
- **Society.** Includes state and federal policies as well as broader culture, subcultures, and political trends and movements.

Consistent with the literature on SEMs, each level has distinct influences on individual behavior. In the Army context, community-level influences on Soldiers differ depending on the unit as well as the installation (and associated local community) to which they are assigned. For example, two Soldiers assigned to different units within the same installation will experience different unit-level influences (e.g., leadership, workload) but similar installation or local community influences (e.g., access to supportive resources, prevalence of alcohol-related establishments). For this reason, we considered unit and installation or local community as separate community levels in the Army-specific SEM.

Similarly, Soldiers are influenced by two kinds of societies. Like civilians, they are influenced by the laws, norms, customs, and practices of the larger society in which they reside (e.g., state, country). As Soldiers, they are also influenced by the rules, norms, customs, policies, and practices of the Army as a society. Although factors at these two levels influence all Soldiers, the nature of the factors and the degree to which Army policies and programs can address them is distinct at each society level (e.g., Army and Society). For example, the Army cannot change American norms regarding drinking at social or sporting events, but it can create policies restricting Soldiers' access to and consumption of alcohol at specific events.

Approach to identifying cross-cutting risk and protective factors

We identified cross-cutting risk and protective factors based on a thorough literature review and rigorous qualitative analysis that included triangulation and frequent peer debriefing to ensure the credibility of findings [26-27]. The process involved the following steps:

- **Initial identification:** The first step to identifying factors was for individual team members to review the literature related to one of the six identified harmful behaviors, with the goal of defining each behavior and its associated risk and protective factors at all SEM levels. We also explored three multifaceted cross-cutting protective factors without regard to any specific harmful behavior: resiliency, life skills, and connectedness. We considered these factors in a global sense (not tied to a specific harmful behavior) to ensure that we identified relevant literature beyond that associated with a specific harmful behavior. To ensure that we captured all potentially relevant factors, we identified a factor as linked to a specific behavior if the association was established by at least one credible source (i.e., based on statistical analysis of linkage or on peer-reviewed research or theory).

- **Combining factors**: Next, the research team split into two groups that focused on either risk or protective factors. Within each group, team members individually examined factors for each behavior at each level of the SEM and then met as a group to discuss factors that were conceptually similar enough to combine. For example, individual studies discussed age as a risk factor related to multiple harmful behaviors, but the literature was not always consistent in defining age (e.g., some studies referred to young adults 18 to 25 years of age and some referred to a college-aged population). The risk factors group discussed the evidence and determined that a risk factor labeled "age: young adult" adequately represented the literature and was associated with all six harmful behaviors. These risk and protective factor labels created through consensus became the labels used in the draft cross-cutting SEM. For the behaviors of sexual assault and harassment, domestic violence, and discrimination, descriptions of factors at the individual and interpersonal levels specify whether the factor relates to victims, perpetrators, or both. For SEM levels above "interpersonal," this distinction is not made because group-level factors (e.g., unit) that are associated with increased risk for, or that protect against, perpetrating harmful behaviors within the group context will result in increased or reduced victimization in that same context. For instance, a toxic or permissive unit climate may lead to the increased perpetration of sexual harassment, which would result in heightened risk of being a victim of harassment.
- **Internal review:** Once each group reached consensus on cross-cutting factors, the other group reviewed the factors and recommended changes based on the literature. The original group met to resolve discrepancies and produce an Army SEM of cross-cutting factors, defined as factors associated with two or more of the six harmful behaviors in our scope.
- **Developing definitions:** Finally, individual team members confirmed the connections between the risk or protective factors and the harmful behaviors by writing literature-informed definitions and descriptions of each factor (provided in the appendix). In some cases, a deeper dive into the literature to develop the definitions resulted in revisions to the draft Army SEM.

The Army SEM is a working model based on our review of the literature that may be revised in later phases of the study based on review of prevention programs and discussions with subject matter experts.

Although the primary focus of this analysis was to identify cross-cutting risk and protective factors, we also recognize the importance of documenting the key risk and protective factors for each harmful behavior, regardless of whether they are cross-cutting. In the next section, we describe the Army SEM of cross-cutting risk and protective factors as well as key factors that apply to only one behavior.

The Army SEM of Cross-Cutting Risk and Protective Factors

This section depicts the Army-specific SEM of cross-cutting risk and protective factors related to the six harmful behaviors in this study. To reiterate, although based on an extensive literature review, the Army SEM is a working model that may be revised as additional cross-cutting factors emerge in later phases of the project. In the sections below, we first provide contextual information to better understand the cross-cutting risk and protective factors. We then provide the Army-specific SEM for cross-cutting factors along with a brief description of issues unique to each type of factor (risk or protective) that we considered in developing the SEM. Finally, we conclude with a brief discussion of key factors associated with only one behavior.

Contextual information regarding risk and protective factors

In our review of the literature, several issues emerged that are important in understanding the SEM: robustness of evidence, intersectionality, factors that appear at multiple levels, and discrimination-related factors.

Robustness of evidence

Two issues arose related to robustness of evidence: establishing criteria for initial inclusion of factors and unevenness of the literature. Regarding inclusion criteria, this project was not scoped to permit a rigorous meta-analysis of the evidence supporting the linkage of each factor to each behavior, given that we were identifying factors at six SEM levels for six behaviors. To ensure we captured all potentially relevant factors, we initially identified a factor as linked to a specific behavior if the association was established by at least one credible source (i.e., based on statistical analysis of linkage or on peer-reviewed research or theory). These linkages underwent additional review internally as factors were combined, and later by the sponsor, resulting in some adjustments to the Army SEM. The SEM will likely be revised in later phases of the project based on information provided by SMEs. In short, the Army SEM should be considered a working framework that will be adjusted as additional research is conducted both within this project and beyond.

Our research identified many more risk factors at the individual level than at other SEM levels. This unevenness is because the literature on individual-level risk factors is considerably more robust than that at other levels, likely because individual-level risk factors are the easiest to empirically evaluate and link with harmful behaviors. For instance, empirical data can definitively establish that women are more likely than men to experience and report sexual assault. These kinds of linkages are more difficult to establish empirically for factors at the interpersonal level and beyond. Similarly, our research identified many more risk factors than protective factors in the literature, likely because many protective factors, particularly those beyond the individual level, are difficult to observe and document (e.g., it is difficult to document that an individual who has strong problem-solving skills is less likely to engage in substance misuse or domestic violence). Nevertheless, the limited research that theoretically or empirically associates these factors with the harmful behaviors of interest, as well as the prevention literature, indicates the importance of addressing these factors in related prevention programs.

Intersectionality

Some recent literature indicates that risks may be heightened when individuals possess a combination of characteristics that put them at risk. This confluence of factors, referred to as *intersectionality*, is most often discussed in the research on discrimination. For example, Black females are thought to experience heightened racism because of the intersectionality of race and gender [28]. Presumably, this phenomenon could come into play relative to risk and protective factors (e.g., someone who is married and employed is less likely to engage in extremist behavior). Because each of the individual-level risk and protective factors we identified is defined very differently, we did not list "combination" factors on the SEM. However, future research should explore ways in which the risk of harmful behaviors increases or decreases when a constellation of risk and protective factors intersect both within and across SEM levels. For example, does the risk of sexual assault and harassment increase exponentially for young female servicemembers assigned to a unit with a permissive climate and weak leadership?

Factors that appear at multiple levels

In identifying both risk and protective factors, a few factors emerged that appear at more than one SEM level. For example, the risk factor "stigma associated with reporting or seeking help" appears at both the unit and Army levels because the factor can influence behavior at both levels (i.e., the unit culture may support help seeking, but a larger Army cultural stigma may prevent a person from seeking help). Similarly, some form of "connectedness" appears as a protective factor at the interpersonal, unit, and installation or local community levels because

being connected to other people and institutions can help prevent harmful behaviors at all these levels.

Discrimination risk and protective factors

Identifying risk and protective factors for discrimination was more complex than for the other behaviors because of the many types of discrimination. For this study and in consultation with ARD, we identified the risk and protective factors for three specific forms of discrimination: race/ethnicity, gender, and sexual orientation. Factors associated with any of the three forms of discrimination are displayed in the Army SEM (Table 1 and Table 3), and factors associated with the specific forms of discrimination are shown in Table 2 and Table 4. Although there are differences in risk and protective factors for specific types of discrimination, it is important to understand the shared factors that increase the risk of or protect against perpetrating discrimination, and that increase the risk of or protect against being a victim of discrimination. In particular, if there are shared protective factors that are mutable, ARD could devise a comprehensive policy, training, or education against discrimination. If there are mutable protective factors for some, but not all, types of discrimination, ARD might design separate policies, training, or education for each type of discrimination.

Risk factors

As shown in Table 1, we substantiated 40 cross-cutting risk factors for the harmful behaviors: 25 at the individual level, 3 at the interpersonal level, 3 at the unit level, 4 at the installation or local community level, 3 at the Army level, and 2 at the society level. Although the threshold for inclusion on the cross-cutting SEM was a literature-based connection to at least two harmful behaviors, half of the risk factors (across the SEM) were related to at least four harmful behaviors. Twenty risk factors had four or more connections. This finding supports the idea of developing an integrated prevention program that addresses shared risk factors. Additional analysis should explore the extent to which prevention efforts should be integrated into or tailored to single behaviors.

In the following tables, “P” indicates that the connection is a risk factor for perpetrating a harmful behavior, whereas “V” indicates a risk factor for victimization. Therefore, “VP” indicates a risk factor for both victimization and perpetration. “X” is used for harmful behaviors that do not have both a victim and perpetrator. The colors in the following tables are used to visually signify factors that are connected to the same total number of harmful behaviors. For example, risk factors that are connected to all six behaviors are colored purple.

Table 1. Cross-cutting risk factors across the Army SEM

SEM Level	Risk Factor Label	Suicide	Substance Misuse	Domestic Violence	Sexual Harassment/ Assault	Discrim.	Extremism	Total
Individual	Gender: male	X	X	P	P	P	X	6
	Poor mental health	X	X	VP	VP	V	X	6
	Marital status: unmarried	X	X	V	V	V	X	6
	Age: young adult	X	X	VP	V	P		5
	Low education attainment	X	X	VP	V	P		5
	Financial stress	X	X	VP		V	X	5
	Rank: enlisted	X	X	VP	VP	P		5
	Antisocial and aggressive behavior	X	X	P	P			4
	Impulsivity	X	X	P	P			4
	Past exposure to trauma/abuse	X	X	VP	VP			4
	Alcohol misuse	X	X	VP	VP			4
	Unhealthy or dysfunctional parenting		X	P	VP			3
	Deployment		X	VP	V			3
	Non-heterosexual orientation	X			V	V		3
	Gender: female			V	V	V		3
	Lower rank: junior enlisted or junior officer	X	X		V			3
	Combat exposure	X	X		V			3
	Hostile gender attitudes and beliefs			P	P	P		3
	Previously committed the harmful behavior	X	X		P			3
	Low SES			VP	V			2

	Race/ethnicity: Non-Hispanic white	X	X					2
	Combat arms occupation	X	X					2
	Sexual identity crisis	X				V		2
	Poor physical health or recent medical issue	X	X					2
	Low self-esteem			P		V		2
Interpersonal	Association with unhealthy dysfunctional peer groups		X	VP	P	P	X	5
	Isolation/lack of social support	X		VP	VP		X	4
	Close-relationship stressors	X	X	P	P			4
Unit	Stigma associated with reporting/seeking help	X	X	VP	VP			4
	Toxic/permissive unit climate	X	X		VP	VP		4
	Toxic/ineffective or weak leadership				VP	VP		2
Installation/ local community	Availability of alcohol		X	VP	VP			3
	Access to location or methods	X	X		VP			3
	Social/community disorganization			VP	VP			2
	Low community SES			VP		VP		2
Army	Stigma associated with reporting/seeking help	X	X	VP	VP			4

	Harmful norms (gender, violence, drinking)		X	VP	VP	VP		4
	Structural barriers to accessing help/resolution	X			VP	VP		3
Society	Weak policy/law	X	X	VP		VP	X	5
	Weak economic conditions	X	X	VP		VP		4

Source: CNA. SES = socio-economic status.
Note: "V" indicates a risk factor for victimization, and "P" indicates a risk factor for perpetration of a harmful behavior. Suicide, substance misuse, and extremism do not have Vs or Ps because those harmful behaviors involve a single actor.

Risk factors for specific types of discrimination

The cross-cutting Army SEM identifies risk factors that apply to any of the three forms of discrimination: race, gender, and sexual orientation. However, not all risk factors apply equally to all types of discrimination. Table 2 depicts the risk factors associated with each type of discrimination.

Table 2. Cross-cutting risk factors mapped to specific types of discrimination in the Army SEM

SEM Level	Risk Factor Label	Race	Gender	Sexual Orientation	Total
Individual	Gender: male	P	P	P	3
	Poor mental health		V		1
	Marital status: unmarried		V		1
	Age: young adult	V	V	V	3
	Low education attainment			P	1
	Financial stress	V			1
	Rank: enlisted		P		1
	Antisocial and aggressive behavior				0
	Impulsivity				0
	Past exposure to trauma/abuse				0
	Alcohol misuse				0

SEM Level	Risk Factor Label	Race	Gender	Sexual Orientation	Total
	Unhealthy or dysfunctional parenting				0
	Deployment				0
	Non-heterosexual orientation			V	1
	Gender: female		V	V	2
	Lower rank: junior enlisted or junior officer				0
	Combat exposure				0
	Hostile gender attitudes and beliefs		P		1
	Previously committed the harmful behavior				0
	Low SES				0
	Race/ethnicity: Non-Hispanic white				0
	Combat arms occupation				0
	Sexual identity crisis			V	1
	Poor physical health or recent medical issue				0
	Low self-esteem		V		1
Interpersonal	Association with unhealthy dysfunctional peer groups			P	1
	Isolation/lack of social support				0
	Close-relationship stressors				0
Unit	Stigma associated with reporting/seeking help				0
	Toxic/permissive unit climate	VP	VP	VP	3

SEM Level	Risk Factor Label	Race	Gender	Sexual Orientation	Total
	Toxic/ineffective or weak leadership			VP	1
Installation/ local community	Availability of alcohol				0
	Access to location or methods				0
	Social/community disorganization				0
	Low community SES			VP	1
Army	Stigma associated with reporting/seeking help				0
	Harmful norms (gender, violence, drinking)	VP	VP		0
	Structural barriers to accessing help/resolution	VP			1
Society	Weak policy/law	VP	VP	VP	3
	Weak economic conditions	VP			1

Source: CNA. SES = socio-economic status.

Unique role of alcohol misuse as a risk factor

Alcohol misuse has a unique role as both a harmful behavior (as part of substance misuse) and a risk factor. Research provides strong and ample evidence that alcohol misuse is a risk factor for four of the harmful behaviors included in this study, as well as for other harmful behaviors [29]. Binge drinking peaks between the ages of 18 and 25, and younger people are more likely than older people to commit certain types of crime (such as drug crimes and sex offenses) and experience motor vehicle accidents, accidental death, and criminal victimization [30-31]. Within the Army context, alcohol misuse warrants special attention because the young adult population that constitutes much of the military population is especially prone to increased risk of alcohol misuse, which can increase the risk of engaging in other harmful behaviors. For instance, according to the 2018 DOD Health Related Behaviors Survey (HRBS), junior enlisted servicemembers are the most likely to indicate that the military culture is supportive of drinking; 35.2 percent of respondents in pay grade E-1 to E-4 and 36.6 percent of those age 17 to 24 agreed with that view, compared with 28.2 percent of all active component respondents (26.8 percent of respondents in the Army) [32].

According to Guerra et al. (2014), young adults are more likely to engage in these kinds of harmful behaviors because neurobiological development, which affects high-level skills (e.g., thinking ahead, self-evaluation, emotional regulation), continues into young adulthood until the brain reaches full maturity (around the mid-20s) [33]. Young adulthood is an especially important age group for alcohol misuse prevention efforts because the trajectories of lifetime substance use and misuse peak in that age group [34-35]. Given the evidence, integrated prevention efforts should focus on the association between alcohol misuse and harmful behaviors more generally.

Protective factors

As shown in Table 3, we substantiated 15 cross-cutting protective factors for the harmful behaviors: 6 at the individual level, 3 each at the interpersonal level and unit level, 2 at the installation or local community level, 1 at the Army level, and 0 at the society level. Whereas half of the identified cross-cutting risk factors were associated with four or more harmful behaviors, the same was true for only six (or 40 percent) of the cross-cutting protective factors. This difference may be because the research on protective factors has less breadth and depth than the research on risk factors.

In the following tables, “P” indicates that the connection is a protective factor for perpetrating a harmful behavior, whereas “V” indicates a protective factor for victimization. Therefore, “VP” indicates a protective factor for both victimization and perpetration. “X” is used for harmful behaviors that do not have both a victim and a perpetrator. The colors in the following tables are used to visually signify factors that are connected to the same total number of harmful behaviors. For example, protective factors that are connected to five out of six behaviors are colored green.

Table 3. Cross-cutting protective factors across the Army SEM

SEM Level	Protective Factor Label	Suicide	Substance Misuse	Domestic Violence	Sexual Harassment/Assault	Discrim.	Extremism	Total
Individual	Life skill: decision-making and problem-solving	X	X	P	P			4
	Life skill: empathy			P	P	P	X	4
	High academic achievement		X	P	P		X	4
	Positive affect	X	X					2
	Marital status: married	X	X					2
	Spirituality/religiosity	X	X					2
Interpersonal	Social connectedness and support	X	X	VP	P		X	5
	Family cohesion and support	X	X	VP	VP			4
	Healthy peer relationships		X	P	V		X	4
Unit	Unit cohesion and connectedness	X	X		VP	VP		4
	Positive leadership engagement	X	X		VP	VP		4
	Unit-level policy enforcement		X		VP	VP		3
Installation/ local community	Restrict or limit access to instruments of harmful behavior	X	X	VP				3
	Community connectedness and support	X		VP				2
Army	Prevention policies		X	VP	VP	VP		4
Society	None identified							0

Source: CNA.

Protective factors for specific types of discrimination

The cross-cutting Army SEM identifies protective factors that apply to general discrimination or to any of the three forms of discrimination. However, not all protective factors apply equally to all types of discrimination. Table 4 depicts the protective factors associated with each type of discrimination. In rare cases, the protective factors literature did not identify the type of discrimination (e.g., empathy was associated with higher general levels of tolerance). When that was the case, we indicated it in the general discrimination column.

Table 4. Cross-cutting protective factors mapped to specific types of discrimination in the Army SEM

SEM Level	Protective Factor Label	Race	Gender	Sexual Orientation	General	Total
Individual	Life skill: decision-making and problem-solving					0
	Life skill: empathy				P	1
	High academic achievement					0
	Positive affect					0
	Marital status: married					0
	Spirituality/religiosity					0
Interpersonal	Social connectedness and support					0
	Family cohesion and support					0
	Healthy peer relationships					0
Unit	Unit cohesion and connectedness				VP	1
	Positive leadership engagement	VP			VP	2
	Unit-level policy enforcement			VP		1
Installation/ local community	Restrict or limit access to instruments of harmful behavior					0
	Community connectedness and support					0
Army	Prevention policies		VP			1
Society	None identified					0

Source: CNA.

Multifaceted categories of protective factors: life skills, resiliency, and connectedness

In reviewing the literature on protective factors, we focused on three streams of research that are particularly relevant in the prevention literature: life skills, resiliency, and connectedness. All three have been identified as protective against various harmful behaviors, and each encompasses discrete protective factors. Therefore, we reviewed the literature on each construct to ensure that we captured aspects of each that protect against the behaviors of interest. Life skills are relevant at the individual level. Resiliency, which is a blanket term that captures several protective factors, is also largely an individual-level construct, but the factors that constitute resiliency manifest at other SEM levels [36]. Connectedness is important at the interpersonal level up through the community level. More details on each construct are provided below.

- *Life skills* is a term used for nontechnical skills that enable individuals to be productive, happy, healthy, and contributing members of society and the organizations they serve. Such skills are also known as *character skills, soft skills*, or *social-emotional skills* [37]. Life skills can be cognitive (e.g., critical thinking, problem-solving), intrapersonal (e.g., self-awareness, self-efficacy, self-regulation), or interpersonal (e.g., communication, empathy or perspective taking) [38]. A recent review of life skills literature found scant research that provides a rigorous causal link between life skills and later outcomes. However, the same review describes a large body of literature that establishes a relationship between life skills and positive personal, work, community, and civic behavior; financial stability; and reduced crime [37]. Similarly, our literature review for this study identified specific life skills that can provide protection against engaging in some of the target harmful behaviors.
- *Resiliency*, broadly speaking, is the ability to “bounce back” from a variety of stressful psychological and social challenges in a way that does not impair functioning [39]. In recent years, the military services have been especially interested in developing psychological resiliency to ensure servicemembers’ mission readiness [36, 39]. The literature on resiliency identifies several individual behaviors and characteristics that constitute resiliency, many of which correspond to protective factors identified in the prevention literature at various SEM levels (e.g., positivity or optimism, self-efficacy, positive role models, social support and connectedness, positive command climate, community-level belongingness). When the literature identified resiliency as a protective factor for a specific harmful behavior, we examined the research more closely to discern, when possible, specific components of resiliency that are protective against that behavior (e.g., optimism) and incorporated those components (rather than resiliency more broadly) into our protective factor list.

- *Connectedness* refers to the bonding, emotional attachment, and commitment a person makes to an increasingly larger group of people as they move from interpersonal to unit to installation or local community levels. A comprehensive literature review describes connectedness with family (mentioned in 90 studies), peers (9 studies), partners (12), school (18), and communities (4)[40]. Our literature review identified connectedness as an important protective factor for all six behaviors at one of more of the following levels: interpersonal, unit, and installation or local community.

Overlap between protective factors and effective prevention principles

The effective prevention literature, discussed later in this report, identifies a few principles that correspond to protective factors found in the literature on harmful behaviors. For instance, our review identified several life skills and aspects of healthy relationships as protective factors. As will be discussed later, the literature also supports incorporating skill development and positive relationships into prevention programs. This overlap between protective factors and effective prevention principles highlights the protective role of these factors and provides evidence for developing Army programs that can build these protections into Soldiers' Army lives.

Key risk and protective factors for specific harmful behaviors

As noted, the cross-cutting risk and protective factors displayed on the Army SEM are those factors associated with more than one harmful behavior. However, from a prevention perspective, we do not wish to diminish the importance of factors that influence each of the harmful behaviors that are the focus of this study. Therefore, research team members who reviewed the literature on each harmful behavior identified key risk and protective factors as those that have (1) the most robust findings, (2) the largest volume of substantiating literature, or (3) the largest empirically demonstrated effects for each harmful behavior. These key factors are shown in Table 5.

Table 5. Key risk and protective factors associated with each harmful behavior

Harmful Behavior	Key Risk Factors	Key Protective Factors
Suicide	• Previously committed harmful behavior • Poor mental health • Poor physical health • Race: non-Hispanic white • Males • Close-relationship stressors	• Marital status: married • Restrict or limit access to instruments of harmful behavior
Substance Misuse	• Age: young adult • Gender: male • Association with unhealthy dysfunctional peer groups • Stressful events	• Restrict or limit access to instruments of harmful behavior • Healthy peer relationships
Domestic Violence	• Low SES (VP) • Age: young adult (VP) • Alcohol misuse (VP) • Poor mental health (VP) • Close-relationship stressors (VP) • Stigma associated with reporting/seeking help • Harmful norms	• Social connectedness and support (VP) • Family cohesion and support (VP)
Sexual Harassment/ Assault	• Alcohol misuse (VP) • Age: young adult (V) • Gender: female (V), male (P) • Stigma associated with reporting/seeking help • Toxic/permissive unit climate • Harmful norms	• Life skill: empathy (P) • Social connectedness and support (VP) • Family cohesion and support (VP) • Positive leader engagement • Unit cohesion and connectedness
Discrimination	• Race/ethnicity: non-Hispanic white (P), *Racial minority, Black, Hispanic, Asian (V)* • Gender: male (P), female (V) • Non-heterosexual orientation (V) • Hostile gender attitudes and beliefs (P) • Weak policy/law (VP) • *Fewer peers from same demographic group (V)*	• Unit cohesion and connectedness (V) • *Positive perception of interracial climate (V)*
Extremism	• *Previous criminal history* • Poor mental health • Isolation/lack of social support • Financial Stress (unemployment) • *Holding radical attitudes* • *Military experience*	• Social connectedness and support • Healthy peer relationships • Life skill: Empathy

Source: CNA. SES = socio-economic status.

Note: Factors in italics are NOT on the cross-cutting Army SEM. All other important factors are present on the cross-cutting SEM.

Importantly, all the key factors shown in Table 5 for suicide, substance misuse, domestic violence, and sexual harassment and assault appear in the cross-cutting Army SEM, and the same is true for most of the key factors for discrimination and extremism. Regarding extremism, there is research on radicalization to terrorism in the United States that shows that "having a criminal history, having mental health issues (or having received a diagnosis of schizophrenia or delusional disorder among lone actors), being unemployed, being single, being a loner or socially isolated, and having military experience were associated with a higher likelihood of engaging or attempting to engage in terrorism" [41]. The cross-cutting factors in Table 5 are defined and supporting evidence provided in the appendix. The factors listed in italics in Table 5 are not present on the cross-cutting Army-SEM and are described below.

- **Discrimination**[2]
  - **Risk factor:** ***Race/ethnicity: Racial minority, Black, Hispanic, Asian.*** Unsurprisingly, the most consistent risk factor for being a victim of racial/ethnic discrimination is being a racial minority [42]. Numerous studies have found that adolescents who are Black, Hispanic or Latino, or Asian report high levels of discrimination and harassment [43-48].
  - **Risk factor:** ***Fewer peers from same demographic group.*** Racial minority youth report more discrimination as the numerical representation of their own group declines in the schools they attend [49]. Similarly, a risk factor for gender discrimination toward women is employment in workplaces that are dominated by men [50].
  - **Protective factor:** ***Positive perception of interracial climate*.** Research conducted in schools has found that positive perceptions of a school's interracial climate is a protective factor for less perceived discrimination [49, 51].
- **Extremism**
  - **Risk factor:** ***Previous criminal history*.** A recent meta-analysis demonstrated a moderate relationship between criminal history and radical behaviors [52]. One study seeking to better articulate the relationship between radicalization and radical behavior (extremism) found pre-radicalization criminal behavior (violent on non-violent) to be the single strongest non-ideological predictor of post-radicalization violence [53].

[2] Much of the evidence for the factors described below is based on studies in schools. We hypothesize that these factors may also apply to the parallel Army context (i.e., the Army unit), but we have not found literature to support this contention.

- **Risk factor: *Holding Radical attitudes*.** A recent meta-analysis demonstrated a correlation between holding radical attitudes and radical intentions and behaviors. The authors found a large effect size for holding radical attitudes relative to radical intentions and a moderate effect size for holding radical attitudes relative to radical behavior [52].
- **Risk factor: *Military experience*.** A recent meta-analysis demonstrated a moderate effect size for current or past military experience relative to radical behaviors [52].

Implications of the Army SEM

The Army SEM provides a framework within which multiple risk and protective factors could be combined in a multifaceted and coordinated prevention effort to maximize the potential to reduce multiple harmful behaviors. For instance, the SEM shows that each of the risk factors of being a young adult, misusing alcohol, and having access to alcohol or the means to misuse substances at the installation or local community level are associated with at least three, and in some cases all, of the harmful behaviors. The Army SEM also indicates that associating with unhealthy dysfunctional peer groups is related to all these harmful behaviors except suicide, whereas a lack of social support and isolation is associated with every behavior except substance misuse. A coordinated and multifaceted prevention program could ensure that young Soldiers transitioning to a new command become connected to groups that have healthy group norms while also teaching them or reinforcing life skills (e.g., healthy relationships, self-efficacy, decision-making and problem-solving). These efforts would need to be accompanied by Army leadership efforts at the unit and installation level and by clear, consistent, and universal policies and practices across the Army. For example, to address the risk factor of *alcohol misuse,* an integrated education program might include scenario-based discussions that illustrate how alcohol misuse is associated with suicide, ongoing substance misuse, domestic violence, and sexual harassment and assault. Unit and installation leaders should promote healthy social groups to ensure that young Soldiers do not believe that excessive drinking is part of the Army culture, provide and promote alternative activities to drinking, and work with the local community to restrict young Soldiers' access to alcohol.[3] And "Big Army" would provide clear, consistent, and universal policies and practices to reduce the incidence of

[3] Examples include working with community leaders to encourage consistent enforcement of the legal drinking age, to restrict happy hours with price promotions that encourage patrons to drink more than they otherwise would, to restrict hours in which alcohol may be sold legally, to establish minimum unit pricing to ensure that the cost of alcohol is not discounted to encourage greater drinking, and to reduce the density of bars surrounding bases [54].

underage and binge drinking and associated harmful behaviors, many of which have a trajectory that begins with young adult alcohol misuse.

Principles of Effective Prevention

In addition to developing an Army-specific SEM, ARD asked us to identify evidence-based principles for preventing the harmful behaviors in an integrated manner that addresses the factors identified in the SEM. This kind of evidence-based integrated prevention program should be based on the research on effective prevention programs both generally and for the specific harmful behaviors of interest. In this section, we define the prevention categories of interest for the project and then summarize the general prevention literature as well as the research on preventing the six specific harmful behaviors. We use this research to identify a set of principles for effective integrated prevention programs for Soldiers.

Prevention categories

Prevention strategies and programs can be grouped into three categories based on when the programs occur:

- *Primary prevention* takes place before the harmful behaviors have occurred to prevent initial victimization and perpetration.
- *Secondary prevention* occurs immediately after an incident to address short-term consequences for victims.
- *Tertiary prevention* refers to long-term responses after the harmful behavior has occurred to mitigate the lasting effects of problematic behaviors for victims and to incorporate interventions for perpetrators [55-56].

Although the focus for this project is primary prevention, secondary prevention is extremely important in the military context because appropriate responses to harmful behaviors establish a culture and climate that help prevent reoccurrence. Therefore, in developing a set of effective prevention principles appropriate for the military audience, we consider secondary prevention principles that we believe to be key to an effective integrated prevention program for the Army.

Effective prevention principles in the literature

As a starting point to identifying best practices for integrated prevention programs, we drew on two commonly cited sources that outline evidence-based practices, strategies, and approaches for primary prevention:

- Nation et al.'s 2003 review, "What Works in Prevention: Principles of Effective Prevention Programs," uses a review-of-reviews approach to identify nine characteristics consistently associated with effective prevention programs for youth across four areas: substance abuse, risky sexual behavior, school failure, and juvenile delinquency and violence [57].
- Small et al.'s 2009 "Evidence-Informed Program Improvement" draws on Nation et al. and other best practices studies to identify 11 principles for effective prevention programs aimed at youth and families. These principles encompass the nine principles from Nation et al.'s article (with some relabeling) and two additional principles [58].

A comparison of the principles described in the two sources is shown in Table 6. The main differences are that Nation et al. incorporated developmental appropriateness into the "appropriately timed" principle, whereas Small et al. made it a separate principle. In addition, Small et al.'s "well-documented" principle adds a quality assurance component to support program implementation and evaluation.

Table 6. Principles of effective prevention

Nation et al., 2003	Small et al., 2009
Theory-driven: Programs have a theoretical justification, are based on accurate information, and are supported by empirical research.	**Theory-driven:** Program components are based on well-established, empirically supported theory(-ies) about the risk and protective factors a program should address to influence the desired outcomes.
Comprehensive: Multicomponent interventions address critical domains (e.g., family, peers, community) that influence the development and perpetuation of the behaviors to be prevented.	**Comprehensive:** Programs have multiple components that address a variety of risk and protective factors at multiple SEM levels.
Socio-culturally relevant: Programs are tailored to the community and cultural norms of the participants and make efforts to include the target group in program planning and implementation.	**Socio-culturally relevant:** Program language and content should reflect the target audiences' cultural experiences.

Nation et al., 2003	Small et al., 2009
Varied teaching methods: Programs involve diverse teaching methods that focus on increasing awareness and understanding of the problem behaviors and on acquiring or enhancing skills.	**Actively engaging:** Programs use active and varied teaching methods that engage participants and enable them to learn and practice new skills.
Sufficient dosage: Programs provide enough intervention to produce the desired effects and provide follow-up as necessary to maintain effects.	**Of sufficient dosage and intensity:** Participants' exposure is substantial enough (in terms of hours, duration, intensity, and complexity) to create changes that endure over time.
Appropriately timed: Programs are initiated early enough to have an effect on the development of the problem behavior and are sensitive to the developmental needs of participants.	**Appropriately timed:** Programs are timed to reach participants when they are most receptive to change.
	Developmentally appropriate: Programs respond to developmental differences among participants.
Well-trained staff: Program staff support the program and are provided with training regarding the implementation of the intervention.	**Delivered by well-qualified, trained, and supported staff:** Program staff establish rapport with participants, gain trust, relate well to others, and remain nonjudgmental. There is shared vision, administrative support, and low staff turnover.
Positive relationships: Programs provide exposure to adults and peers in a way that promotes strong relationships and supports positive outcomes.	**Focused on fostering good relationships:** Programs foster safe, trusting relationships among participants and staff.
Outcome evaluation: Programs have clear goals and objectives and make an effort to systematically document their results relative to the goals.	**Committed to evaluation and refinement:** Program staff and administrators are committed to program monitoring and evaluation.
	Well documented: Program is well documented (e.g., detailed implementation manual) to ensure program fidelity, understand which components are responsible for positive outcomes, and allow others to replicate the program.

Sources: Nation et al., 2003 [57]; Small et al., 2009 [58].

The connection between these principles and a SEM framework is evident in the first two principles—*theory-driven* and *comprehensive.* To be theory-driven and comprehensive, prevention programs should address risk and protective factors that are theoretically or empirically linked to each of the harmful behaviors across all SEM levels.

Principles for effective integrated prevention programs

To identify effective prevention principles applicable across the target behaviors, team members who conducted research on each harmful behavior identified two to three key sources[4] on effective prevention of those behaviors and summarized the identified prevention principles. This information was entered into a matrix that listed the general prevention principles in the first column and the harmful behaviors in subsequent columns. Team members then indicated with an "X" each of the general principles that was associated with the behavior they researched and added principles that were not identified in the general prevention literature. In addition, we reviewed the literature on integrated prevention approaches and incorporated best practices from that literature into the matrix. Note that the connections in Table 7 are based on the literature we reviewed on prevention of each harmful behavior. The absence of a connection between a specific principle and a harmful behavior does not mean that the principle is not important to incorporate into prevention programs for that behavior, it means only that we did not find any literature specifically describing the principle as a best practice for prevention of the harmful behavior. Any principle shown to be effective in preventing two or more of the target behaviors was retained in the matrix, as displayed in Table 7.

Table 7. Principles of effective integrated prevention programs

Category	Principle	Suicide	Substance Misuse	Domestic Violence	Sexual Harass./ Assault	Discrim.	Extrem.	Total
Content	Socio-culturally relevant	X	X	X	X	X	X	6
	Theory-driven	X	X	X	X		X	5
	Comprehensive	X	X	X	X	X		5
	Skills-oriented	X	X	X	X		X	5

[4] Key sources included systematic research reviews and meta-analyses as well as websites, guidelines, and practice guides from organizations focused on prevention of harmful behaviors (e.g., CDC, Equal Employment Opportunity Commission, National Institute on Drug Abuse, Suicide Prevention Resource Center, WHO).

Category	Principle	Suicide	Substance Misuse	Domestic Violence	Sexual Harass./ Assault	Discrim.	Extrem.	Total
	Fosters positive relationships	X	X	X	X			4
Delivery	Delivered by well-trained, qualified, committed, and supported staff		X	X	X	X		4
	Appropriately timed	X	X	X	X			4
	Of sufficient dosage and intensity		X	X	X	X		4
	Actively engaging		X	X	X	X		3
Policy	Incorporates systematic evaluation and refinement	X	X	X	X	X		5
	Accompanied by victim-centered response efforts		X	X	X	X		4

Source: CNA.

The resulting set of cross-cutting principles retains all nine of Nation et al.'s prevention principles, which were affirmed by Small et al. It also adds two principles not identified by Nation or Small: "skills-oriented" and "accompanied by victim-centered response efforts." Synthesizing both the general and behavior-specific prevention literature, we defined the principles for effective integrated prevention programs as shown below:

Program content

1. **Socio-culturally relevant.** Programs address the cultural and social norms of the target audience, respecting their values, beliefs, and language while acknowledging grievances, correcting misconceptions, and promoting positive norms that protect against harmful behaviors [17, 34, 57-66].
2. **Theory driven.** Programs are based on well-established, empirically supported theory about the causes of the behavior and related risk and protective factors a program should address to influence the desired outcomes [34, 57-58, 62-65, 67-69].
3. **Comprehensive.** Programs encompass multiple components from awareness to skill building to resource support and include universal and targeted interventions at multiple SEM levels (e.g., individual, relationships, work environment, community, society) [56-58, 62, 64, 68-73].

4. **Skills-oriented.** Programs develop social and emotional skills that protect against harmful behaviors, including communication, self-efficacy and empowerment, self-regulation, healthy relationships, critical thinking, problem-solving, stress management, coping, empathy, risk avoidance, and conflict resolution [34, 59, 61, 63-65, 73-74].
5. **Fosters positive relationships.** Programs foster safe, trusting relationships within the training context and in participants' social and work environment, including promoting social connectedness, bystander strategies, peer organizations, and mentoring [57-58, 62-64, 69, 74].

Program delivery

6. **Delivered by well-trained, qualified, committed, and supported staff.** Program staff are sufficiently trained and qualified, supported by the administration, and committed to program goals. Peer facilitators are included in program development and implementation [34, 56-58, 62, 69, 71].
7. **Appropriately timed.** Programs are timed to reach participants as early in life as possible, when they are most receptive to change, at key transition points, or when they are at potentially heightened risk. [34, 57-58, 62, 64, 69, 72].
8. **Of sufficient dosage and intensity.** Programs are of sufficient depth, length, and frequency (including refreshers) to support sustained changes in attitudes and behavior [57-58, 62, 64, 69, 71].
9. **Actively engaging.** Programs use varied teaching methods (e.g., small group discussion, role-playing, skill practice) that actively engage participants and allow them to learn and practice new skills [57-58, 62, 64, 69, 71, 74].

Program policies

10. **Incorporates systematic evaluation and refinement.** Programs have clear goals and objectives, results are systemically evaluated relative to the goals (including gathering participant feedback), and refinements are made to improve effectiveness [34, 56-58, 62-63, 67, 69].
11. **Accompanied by victim-centered response efforts.** Response efforts ensure support for victims, including ensuring privacy and confidentiality, providing advocacy and counseling, ensuring safety, maintaining zero tolerance for retaliation, and offering amnesty for collateral misconduct [61-63, 69, 71].

Note the overlap between two of the principles and several protective factors listed on the Army SEM:

- **Principle 4: Skills-oriented.** The Army SEM lists several life skills and related attributes as protective factors at the individual and interpersonal level (e.g., decision-making and problem-solving, empathy, positive affect). These skills are often identified as components of resiliency [36]. In the SEM section of this report, we noted the lack of rigorous research that links life skills with protecting against harmful behaviors—a linkage that is difficult to substantiate empirically. The prevention literature, however, notes the importance of life skills for five of the harmful behaviors. We believe the prevention literature provides further support for life skills both as protective factors and as a component of primary prevention programs.
- **Principle 5: Fosters positive relationships.** This principle overlaps with several protective factors, including social connectedness and support, family cohesion and support, healthy peer relationships, unit cohesion and connectedness, and community connectedness and support. Although addressing these factors is encompassed in principle 2 (comprehensive), which indicates that prevention programs should address risk and protective factors across the SEM, the prevention literature lists positive relationships as a principle in its own right. Although Nation et al. and Small et al. define the principle in terms of relationships between facilitators and participants in the training context, we expanded the definition to extend to other contexts because of the key role positive relationships play in preventing harmful behaviors [57-58].

Regarding principle 11—accompanied by victim-centered response efforts—we recognize that this principle differs from the other principles in that it is directed at secondary rather than primary prevention. As noted in the introduction to this section, secondary prevention is extremely important in the military context because appropriate responses to harmful behaviors establish a culture and climate that help prevent reoccurrence. In addition, our review of the literature on prevention of suicide, interpersonal violence, and discrimination, in particular, emphasized the importance of victim-centered responses as a strategy to prevent future perpetration [61-63, 71]. Therefore, we believe this principle should be addressed in an effective integrated prevention program for the Army.

Several of these principles align with recent DOD doctrine and policies. For instance, the DOD *Prevention Plan of Action* calls for a research-based (principle 2), comprehensive (principle 3) approach that begins with identifying key contributing risk and protective factors at the individual, interpersonal, and organizational levels and incorporates both universal prevention for all Soldiers as well as targeted interventions for those at higher risk. It also acknowledges the need for a well-trained prevention workforce rather than the current approach of asking dual-hatted personnel to implement the training (principle 6). Both the *Prevention Plan of Action* and the *DOD Policy on Integrated Primary Prevention* emphasize the importance of evaluating and refining prevention programs (principle 10) [5-6]. Finally, the

report of the Fort Hood Independent Review Committee on Fort Hood's command climate identified several issues that must be addressed to prevent harmful behaviors such as sexual harassment and assault. Several of these issues and related recommendations parallel key principles, including outdated gender and social norms (principle 1), dual-hatted roles of military prevention personnel (principle 6), and the heavy burden placed on victims (principle 11) [75].

Summary and next steps

These 11 principles will provide a framework for later phases of the project when we develop a model for an evidence-based integrated prevention program that addresses the cross-cutting risk and protective factors identified in the Army SEM. The principles will be used to identify aspects of existing Army prevention programs that are aligned with best prevention practices and areas in which programs could be better aligned (for which we will offer recommendations for doing so). We will give special attention to principle 2 (comprehensive) to ensure that our recommendations address risk and protective factors beyond the individual level on the Army SEM. Although understanding individual-level risk and protective factors can help the Army identify Soldiers who are at higher risk (or help them self-identify) and connect them with targeted supports, Army prevention efforts can have a greater effect at organizational levels by addressing, for example, outdated rituals or traditions, poor command climate, leadership commitment and engagement in prevention efforts, and leadership cross-cultural competence [56, 76].

Discussion and Implications

This report details the creation of an Army-specific SEM that identifies risk and protective factors at individual, interpersonal, unit, installation or local community, Army, and society levels. The Army-specific SEM is consistent with other SEMs that consider individual-, interpersonal-, community-, and society-level influences on behavior. However, this model is unique for two reasons. First, it divides the community and society levels into multiple relevant levels that apply specifically to Soldiers. Second, it identifies cross-cutting risk and protective factors, for both victimization and perpetration, for six harmful behaviors: suicide, substance misuse, domestic violence, sexual harassment and assault, discrimination, and extremism. Although the depth of published literature varied depending on SEM level and harmful behavior, the Army SEM includes 40 cross-cutting risk factors and 15 cross-cutting protective factors related to at least two of the harmful behaviors examined. Knowledge of these cross-cutting risk and protective factors for multiple harmful behaviors can allow the Army to design and implement prevention programs that do the following:

- Address risk and protective factors associated with multiple harmful behaviors of interest, thereby getting greater value by helping prevent several harmful behaviors simultaneously.
- Offer prevention efforts at multiple SEM levels that influence Soldier behavior (e.g., individual characteristics, interpersonal relationships, unit-level leadership behaviors, installation policies, Army norms).

As the Army designs and implements an integrated prevention approach (and in alignment with prevention principle 10), it should engage in the following evaluation efforts:

- Collect data on as many factors as possible that are identified in the Army SEM to empirically evaluate and analyze their collective effect on harmful behaviors in the Army and then reevaluate prevention efforts based on those insights.
- Simultaneously evaluate the extent to which the intersection of multiple risk and protective factors within and across SEM levels increases risk or protections for the targeted behaviors and then refine prevention efforts based on this analysis.

As the Army develops an integrated prevention approach that addresses cross-cutting risk and protective factors, it should not neglect efforts that address key risk and protective factors for *each* harmful behavior. One insight from our analysis is that the identified key factors for suicide, substance misuse, domestic violence, and sexual harassment and assault, as well as most of the key factors for discrimination and extremism, are represented on the cross-cutting Army SEM. Therefore, prevention efforts framed around the cross-cutting SEM will address

most of the key factors for each of the harmful behaviors analyzed. Prevention efforts aimed at discrimination and extremism, however, should consider the importance of addressing the additional key factors that are not part of the cross-cutting SEM.

In addition to identifying cross-cutting risk and protective factors, we identified evidence-based principles of effective prevention based on two seminal reviews of effective prevention principles as well as the literature on effective prevention of the focal harmful behaviors. Our analysis determined that nine of the seminal principles apply to at least two (although frequently more) of the harmful behaviors. In addition, the analysis identified two additional cross-cutting prevention principles: programs should be skills-oriented and accompanied by victim-centered response efforts. These 11 principles will provide a framework for later phases of the project when we develop a model for an evidence-based integrated prevention program that addresses the cross-cutting risk and protective factors identified in the Army SEM.

As the project moves into the next phases, culminating in a model for an evidence-based integrated prevention program, several issues and challenges should be considered:

- **Immutable factors.** Some risk factors are immutable (e.g., age, gender, history before joining the military). Although the Army cannot change these factors, it can offer targeted intervention strategies or supportive services that aim to enhance resiliency and life skills (e.g., women's empowerment groups). Similarly, targeted intervention and supportive services can be provided to protect against unavoidable unit- or installation-level risk factors (e.g., deployment, combat exposure).
- **Conflicting norms.** With a robust picture of the multilevel influences on behavior, the Army may confront conflicting norms associated with the military culture. For instance, Soldiers may receive conflicting messages from unit-level and senior leadership about the repercussions of reporting mental health challenges.
- **Integrated versus targeted prevention.** Although the cross-cutting SEM will enable the Army to address risk and protective factors shared across harmful behaviors, targeted prevention for specific harmful behaviors will likely still play a role. This research does not suggest that all prevention efforts should be incorporated into an integrated prevention program. However, this research can be used as a starting point to determine which efforts can be integrated and which should singularly focus on one harmful behavior.
- **Resource constraints.** The Army is constrained by both time and money resources. This research can help the Army prioritize high-value, evidence-based prevention efforts that address the greatest number of risk or protective factors across behaviors.

The research described in this report provides an evidenced-based foundation on which to consider these issues when (1) examining the extent to which current Army prevention

programs address cross-cutting risk and protective factors and prevention principles, and (2) designing additional integrated prevention programs to address any gaps.

Appendix: Definitions of Cross-Cutting Risk and Protective Factors in the Army SEM

This appendix provides definitions and descriptions of the risk and protective factors listed in the Army SEM (Table 1 and Table 3). As described earlier in this report, the label assigned to each factor was developed through an iterative process. First, we grouped factors found in the literature relating to the harmful behaviors of interest that were repeated or similar but given different labels. Once these factors were grouped and relabeled, we developed definitions based on the literature that supported the association of each factor with specific harmful behaviors. The factor definitions and descriptions are structured as follows: definition, associated harmful behaviors, and supporting literature.

Risk factors

Individual-level risk factors

Gender: male

Being of the male gender, defined as an individual who self-reports as male, is a risk factor for suicide, substance misuse, domestic violence perpetration, sexual harassment and assault perpetration, discrimination perpetration, and extremism.

- Although women are more likely to report suicidal ideation or suicide attempts, men are more likely to die by suicide across military and civilian populations [77-87].
- Men also have higher rates of substance misuse than women (especially binge drinking) during the transition from high school to college and in the military [29, 77, 88-89].
- Being male is associated with the *perpetration* of domestic violence, sexual harassment and assault, and all types of discrimination that we examined—racial/ethnic discrimination in adolescence, sexual orientation discrimination by heterosexual males, and gender discrimination [44, 84, 90-95].
- There is strong and consistent evidence that men are overrepresented as perpetrators of terrorism, including meta-analytic findings [52, 96-97].

Poor mental health

Poor mental health encompasses both generalized mental health challenges and specific mental health conditions, including anxiety, depression, and post-traumatic stress disorder (PTSD). Poor mental health is a risk factor for suicide, substance misuse, victimization and perpetration of domestic violence, sexual violence victimization and perpetration, gender discrimination victimization, and extremism.

- Depression and anxiety are linked to suicide [98].
- Symptoms associated with depression, PTSD, and traumatic brain injuries (TBIs) are related to substance misuse [99].
- Depression and depression-related symptoms are specifically linked to IPV, defined as including physical, psychological, and sexual abuse [100-101].
- A systematic review of risk factors for sexual violence identified two studies that found that a history of self-harm and/or suicide attempts were more common among perpetrators than non-perpetrators [102]. In addition, a review of longitudinal studies conducted with representative samples of women reported that chronic mental health conditions (schizophrenia, depression, and dissociation) and psychological distress resulting from abuse or assault (e.g., PTSD, low self-esteem, guilt, self-blame) are associated with increased risk for sexual assault [103].
- An association between depression and gender discrimination was shown in a study in which women who reported experiencing depression were more likely to acknowledge that they had been victims of gender discrimination [104].
- Mental illness is associated with domestic radicalization [65]. Specifically, mental health issues were found to be a predictor of participation in violent extremism [97] and terrorism [52].

Marital status: unmarried

Unmarried marital status is defined as being never married, separated, divorced, or widowed. Although there is a conceptual difference between being never married and previously married, the literature frequently combines these states into one category. Being unmarried is a risk factor for suicide, substance misuse, and victimization of domestic violence, sexual assault, discrimination, and extremism.

- Cross-sectional population studies of DOD personnel found that unmarried status was a risk factor for suicide [77, 85-86].

- Analysis of survey data found that being unmarried was also a risk factor for binge drinking and hazardous drinking among military personnel, and that never having married was a risk factor for current cigarette use [105].
- Civilian and military studies have identified being unmarried (including being separated, widowed, or divorced) as a risk factor for IPV and sexual assault and harassment [29, 92, 106].
- Being unmarried is a risk factor for being a victim of gender discrimination [50].
- Being single is a risk factor for engaging or attempting to engage in terrorism [41].

Age: young adult

Being a young adult, which we define as age 18 to 25 years, is a risk factor for suicide, substance misuse, domestic violence victimization and perpetration, sexual assault and harassment victimization, and victimization of all types of discrimination that we examined (gender, racial/ethnic, and sexual orientation).

- Military and civilian sources provide evidence that young adults are at the highest risk for suicide and suicide attempts [77, 98, 107-109].
- Numerous sources document that being a young adult is associated with high rates of binge drinking [2, 29, 88, 110-111].
- Domestic violence research indicates that both *victimization* and *perpetration* are more likely for young adults [91, 101, 112].
- Young adults are more likely than their older counterparts to report being victims of sexual assault and sexual harassment [84, 92, 113-115].

Low education attainment

Low education attainment refers to completing one's formal education before high school or with a high school diploma (not completing a college degree), accessing into the military service on an education waiver, or experiencing low school or academic achievement or success. Low education attainment has been identified as a risk factor for suicide, substance misuse, domestic violence victimization and perpetration, sexual assault and harassment victimization, and discrimination perpetration.

- One of the most common demographic characteristics of servicemembers who attempted suicide and those who died by suicide was having a high school education or less [109]. Additional evidence found that holding an education waiver was statistically associated with higher suicide rates among servicemembers [116].

- For substance misuse, a 2016 study found that servicemembers with a high school education or less had a higher likelihood of testing positive for illicit drugs than those with higher educational attainment [117].
- With respect to domestic violence, the CDC lists low education as an individual-level risk factor for IPV *perpetration*, and Campbell et al. (2003) reported that low education attainment has frequently been identified as a demographic risk factor for female interpersonal violence *victimization* [101, 106].
- For sexual assault and harassment, survey evidence found that women who reported being raped during military service were less likely to have completed college than those who did not report being raped [113].
- Regarding discrimination, research has identified negative relationships between education level (defined as the highest degree attained) and disapproval of same-sex relations [118].

Financial stress

Financial stress is defined as stress created by personal income instability. Dimensions of financial stress include personal bankruptcy or high debt levels and employment instability or stress (e.g., unemployment, job loss, lack of steady work, limited employment opportunities, low-paying part-time employment, holding multiple jobs). Such stress has been identified as a risk factor for suicide, substance misuse, domestic violence victimization and perpetration, discrimination victimization, and extremism.

- For suicide, the CDC lists financial and job problems as suicide risk factors, and Randazzo-Matsel and Strauss (2010) reported that financial problems were associated with increased suicide risk in both the Marine Corps and the general population [98, 119].
- Regarding substance misuse, a survey-based study indicated that past year stressful life events that included financial stressors increased the odds of new alcohol, tobacco, cannabis, and opioid use disorders for both men and women, with women more likely than men to maintain or relapse to smoking [120].
- For domestic violence, unemployment and lack of steady work can create problems at home and is identified as a high risk factor for IPV and physical child abuse; relatedly, several cross-sectional studies appear to support a significant association between unemployment and IPV [100, 112].
- Financial stress and vulnerability are also associated with reporting being a victim of racial/ethnic discrimination and radicalization [42, 121].

- In a recent US study, researchers found that lack of stable employment was one of the strongest risk factors for engaging in violent political extremism [52, 97].

Rank: enlisted

Rank: enlisted is defined as an individual who is currently serving in the military in the enlisted pay grades of E-1 through E-9. Being enlisted is a risk factor for suicide, substance misuse, domestic violence victimization and perpetration, sexual assault victimization and perpetration, and gender discrimination perpetration.

- The association between being enlisted and suicide, suicidal ideation, and suicide attempts has been documented by several population studies of DOD, the Army reserve component specifically, and the Department of the Navy [77, 79, 85-86, 108-109, 122].
- Junior enlisted personnel reported significantly higher rates of heavy drinking than junior officers, and noncommissioned officers reported higher rates of heavy drinking than junior and senior officers, on the 2018 DOD HRBS [32].
- A survey-based study of active-duty military women found that enlisted women were more than twice as likely as female officers to be victims of domestic violence [106]. A meta-analysis also found supporting evidence from multiple studies that junior enlisted personnel are more likely than officers to be perpetrators of domestic violence [123].
- Two survey-based studies reported that women of enlisted rank were more likely than those in other ranks to experience sexual assault or rape during their military service [113, 124]. In addition, a report that reviewed DOD data reported that the typical sexual assault *perpetrator* is an enlisted man of similar or slightly higher rank than the victim, and the typical *victim* is a junior enlisted woman [125].
- Enlisted personnel are more likely than officers to perpetrate gender discrimination [94].

Antisocial and aggressive behavior

Antisocial and aggressive behavior is defined as a demonstration of active or passive disregard for or aggression toward other people and institutional rules and expectations. It may encompass delinquency and rule-breaking behavior rather than definitive criminal behavior. Such behavior is a risk factor for suicide, substance misuse, domestic violence perpetration, and sexual assault and harassment perpetration.

- Aggressive tendencies and self-destructive or aggressive behavior are warning signs for suicide [68, 98].

- Stone et al. (2012) summarized literature that linked prior aggression, antisocial behavior, and conduct problems to subsequent substance misuse [126].
- Multiple longitudinal studies documented an association between aggressive and antisocial behaviors and IPV, which includes domestic violence and sexual harassment and assault [100-101].
- A systematic review reported that several studies across populations found links between early involvement in delinquent behavior and sexual violence perpetration [127].

Impulsivity

Impulsivity is defined as lack of self-control, poor behavioral control, sensation seeking, and seeking immediate gratification. It is a risk factor for suicide, substance misuse, perpetration of domestic violence, and sexual harassment and assault.

- Systematic literature reviews have linked impulsivity to suicide, substance misuse, and IPV *perpetration* [68, 76, 98-99, 101].
- Tharp et al. (2012) found significant relationships between impulsivity and sexual violence *perpetration* in six studies, primarily with adolescent and collegiate samples, but did not find significant relationships across every study [102].

Past exposure to trauma or abuse

Past exposure to trauma or abuse includes a history of exposure to trauma, family violence or abuse, and violence in general. It is a risk factor for suicide, substance misuse, and victimization and perpetration of both domestic violence and sexual harassment and assault.

- Trauma is a significant contributor to mental health problems and a history of trauma and abuse has been linked to suicide [68, 77, 119].
- Multiple comprehensive reviews have established a link between childhood trauma and subsequent substance misuse [126, 128-129].
- Multiple forms of past abuse, including childhood sexual, physical, and emotional abuse, and past exposure to family violence are predictors of subsequent IPV and sexual violence *perpetration* [1, 101, 130-131]. For example, a history of childhood physical or emotional abuse is a risk factor for IPV *perpetration*.
- Experiencing one type of violence is associated with experiencing other types of violence, meaning that a history of abuse is a risk factor for subsequent victimization [1, 101].

Alcohol misuse

Alcohol misuse is defined as excessive daily consumption, binge drinking, alcohol dependence, illegal use of alcohol, or alcohol use that results in harm to one's heath, relationships, or ability to work. Alcohol misuse is a risk factor for suicide, substance misuse, and victimization and perpetration of domestic violence and sexual assault and harassment.

- Alcohol misuse is associated with suicidal ideation [68, 79-80, 98].
- Low efficacy to refuse alcohol or stop drinking is a risk factor for substance misuse, which includes alcohol misuse as well as illegal drug use and prescription drug misuse [89].
- Heavy alcohol use is associated with *victimization* and *perpetration* of domestic violence and sexual assault and harassment [29, 76, 84, 90, 92, 101, 113, 130, 132-135].

Unhealthy or dysfunctional parenting

Unhealthy or dysfunctional parenting includes multiple aspects of unhealthy parenting and parent-child relationships, such as parental substance use, tolerant attitudes toward substance use, permissive parenting, family conflict, and poor parent-child relationships. Unhealthy or dysfunctional parenting is a risk factor for substance misuse, domestic violence perpetration, and sexual assault victimization and perpetration.

- Parental substance use, tolerance toward substance use, and permissive parenting are associated with binge drinking in young adults [89, 136-137].
- Experiencing poor parenting or having a poor relationship with one's parent(s) is associated with subsequent IPV *perpetration* [101].
- Family conflict and poor parent-child relationships are associated with subsequent sexual assault *victimization* and *perpetration* [102, 127].

Deployment

Deployment refers to the physical movement of individuals and units from their home installation to a designated theater of operations. Deployment has been identified as a risk factor for substance misuse, domestic violence victimization and perpetration, and sexual assault victimization.

- Multiple studies have demonstrated a relationship between deployment and new-onset heavy weekly drinking, binge drinking, and other alcohol-related problems; increased odds of a positive drug test; and substance abuse more generally [117, 138-140].

- In their literature review, Traxler and Griffis (2018) found a strong relationship between number of deployments, alcohol use, and post-deployment physical assaults (both *victimization* and *perpetration*) and sexual assaults for military populations [29].

Non-heterosexual orientation

Non-heterosexual orientation is defined as an individual whose sexual orientation is not exclusively heterosexual. Having a non-heterosexual orientation is a risk factor for suicide, sexual assault and harassment victimization, and sexual orientation discrimination.

- Individuals who identify as lesbian, gay, bisexual, or transgender (LGBT) are more likely to report suicidal ideation or suicide attempts than their non-LGBT counterparts. However, those differences disappear after adjusting for stressors (e.g., abuse, lack of social support), which suggests that the increased suicide risk may be due to higher stress rates among LGBT individuals [77, 141-143].
- Lesbian and bisexual women are more likely to have been victims of childhood sexual abuse, military sexual assault, or both [144].
- LGBT employees—particularly those who identify as transgender— are more likely to be victims of harassment and discrimination than non-LGBT employees [145].

Gender: female

Being of the female gender, defined as an individual who self-reports as female, is associated with *victimization* in cases of domestic violence, sexual harassment and assault, and gender discrimination [94-95]. Being a female sexual minority is associated with *victimization* in cases of sexual orientation discrimination [93].

Lower rank: junior enlisted or junior officer

Research suggests that servicemembers of lower ranks—especially junior enlisted (E-1 to E-4) and junior officers (O-1 to O-3)—are at higher risk of suicide, substance misuse, and sexual assault victimization.

- For suicide, studies have shown that enlisted servicemembers have the highest unadjusted suicide rates, and that being of lower enlisted rank (E-1 to E-4) is associated with higher suicide risk [78, 80, 109].
- Studies of substance misuse in the military reported that the lowest-ranking enlisted personnel were 6 times more likely than officers to binge drink and that enlisted personnel and those in lower officer ranks were more likely to binge drink than those in the highest officer ranks (O-4 to O-10) [29, 88].
- According to Peterson et al. (2016), the typical sexual assault victim is a junior enlisted woman [125].

Combat exposure

Combat exposure is defined as a combination of correlated experiences related to the violence of combat, including shooting at an enemy, being attacked or ambushed, seeing dead bodies during a deployment, being responsible for the death of an enemy combatant, and witnessing a buddy shot or hit near you. Combat exposure has been identified as a risk factor for suicide, substance misuse, and sexual assault victimization.

- Several studies have documented the association between suicide and combat exposure. For instance, studies have reported that witnessing combat atrocities was positively associated with suicide-related ideation; war zone deployment was linked with an elevated risk of suicide after returning home; active duty servicemembers exposed to combat had a higher suicide risk than comparable males in the general population; servicemember combat deployments to Afghanistan and Iraq were associated with elevated odds ratios for suicide; and risk of death by suicide was 54 percent greater in active duty military who reported seeing wounded, dead, or killed personnel [81, 146-148].
- For substance misuse, a meta-analysis of 55 studies found that rates of substance misuse, including high alcohol use, were greater for personnel with combat exposure and a recent or lengthy deployment [99].
- Regarding sexual assault, Murdoch et al. (2014) found that combat exposure was associated with sexual assault *victimization* in a sample of servicemembers who applied for Department of Veterans Affairs PTSD disability benefits [124].

Hostile gender attitudes and beliefs

Hostile gender attitudes and beliefs is defined as a combination of hostile gender-based attitudes regarding the role of woman and men in relationships and society, including hypermasculinity,[5] hostility toward women, desire for control in relationships, and rape myth acceptance. Such attitudes are a risk factor for perpetration of domestic violence, sexual assault and harassment, and gender discrimination.

- The CDC identifies hostility toward women and desire for power and control in relationships as risk factors for IPV perpetration [101].
- A systematic review determined that sexual violence was associated with multiple hostile gender-based cognitions, including rape myth acceptance, hostility toward

[5] Hypermasculinity is a belief system based on polarized gender roles; the endorsement of stereotypical gender roles; a high value placed on control, power, and competition; toleration of pain; and mandatory heterosexuality [92].

women or adversarial sexual beliefs, traditional gender role adherence, and hypermasculinity [102].

- High sexism, inappropriate sexual harassment beliefs, and adversarial sexual beliefs increase the risk of perpetrating gender discrimination and harassment [149-150].

Previously committed harmful behavior

This factor is defined as having committed or attempted to commit the harmful behavior, which is a risk factor for suicide, substance misuse, and sexual assault perpetration.

- A previous suicide attempt is a primary risk factor for suicide and is sometimes identified as the strongest predictor of subsequent death by suicide [68, 151].
- Studies have found that early adolescent use of substances is associated with an escalated use through young adulthood and that binge drinking and weekly volume of alcohol consumption are predictors of alcohol use disorder [34-35, 126, 152].
- Previous attempts to perpetrate sexual assault are related to subsequent perpetration of sexual assault [76, 130, 153-154].

Low socio-economic status

Socio-economic status (SES) refers to the social standing of an individual, measured as a combination of factors, including income, education level, and occupation. Low SES has been identified as a risk factor for domestic violence victimization and perpetration as well as sexual assault victimization.

- A 2012 literature review cited multiple studies finding that low income and unemployment are risk factors for IPV *perpetration* and *victimization* [100].
- Studies within the military report higher risk for sexual harassment and sexual assault *victimization* for women with low status and socio-cultural power [155].[6]

Race/ethnicity: Non-Hispanic white

Race/ethnicity: Non-Hispanic white is defined as an individual who self-reports as white or Caucasian/white when Hispanic is an alternative and anyone who identifies as Caucasian/white *and* non-Hispanic when race and ethnicity are separate choices. This factor has been identified as a risk factor for suicide and substance abuse.

- Longitudinal administrative data reveal that non-Hispanic white Soldiers in the reserve component are more likely to attempt suicide than other reserve component Soldiers

[6] The authors define socio-cultural power as including SES and other variables originating outside the organization (e.g., lower age, lower education, racial minority status, unmarried status).

and that white Soldiers on active duty are more likely to die by suicide than other active duty Soldiers [78, 108].

- Survey data reveal that non-Hispanic white servicemembers are more likely than Black servicemembers to binge drink, engage in hazardous drinking, use cigarettes, smoke daily, or use smokeless tobacco. They are also more likely than Hispanic servicemembers to engage in hazardous drinking, smoke daily, or use smokeless tobacco [77, 126].

Combat arms occupation

Combat arms occupation is defined as being assigned to a military unit that carries or employs weapons systems, such as infantry, cavalry, and artillery units, and is a risk factor associated with suicide and substance misuse.

- Multiple studies have found that Soldiers in these occupations are at greater risk of suicide [83, 156].
- Analysis of enlisted Soldiers' post-deployment drug tests reveals that those in a combat arms occupation are more likely than those in other occupations to test positive in the three years following deployment [117].

Sexual identity crisis

Sexual identity crisis is defined as experiencing stress, discomfort, or confusion about one's sexual identity. Such a crisis is a risk factor for suicide and discrimination victimization.

- Experiencing a sexual identity crisis is one of the key risk factors associated with suicide in the general population [98].
- Youth who are questioning their sexual orientation are at higher risk of being a victim of discrimination, including homophobic bullying, at school than heterosexual and LGBT adolescents [157].

Poor physical health or recent medical issue

Poor physical health or recent medical issue is defined as having an ongoing or recently concluded health issue. The definition is purposefully broad because simply experiencing the physical health challenge *is* the risk factor. It is a risk factor for suicide and substance misuse.

- Several sources substantiate the link between various kinds of medical issues and suicide, including associations between suicide or suicidal ideation and TBI, insomnia, chronic illness or pain, seeking medical care in the last 30 days, and being on a medical duty status in the last 12 months [68, 81, 98, 116, 122, 151, 158-160].
- Similarly, studies have shown evidence for an association between substance misuse and poor mental and physical health, including TBI, PTSD, depression, injury, and anxiety

[34, 128, 140]. And according to the Substance Abuse and Mental Health Services Administration, among adults who misused prescription pain relievers at least once in 2015, almost two-thirds said they did so to relieve physical pain [161].

Low self-esteem

Low self-esteem is defined as lacking confidence and having negative feelings of self-worth. Low self-esteem is a risk factor for domestic violence perpetration and discrimination victimization.

- A systematic review reported some evidence of an association between low self-esteem and IPV perpetration for women but little evidence for men, and the CDC identifies low self-esteem as an IPV risk factor.
- Low self-esteem is associated with being a victim of gender discrimination in adulthood [104].

Interpersonal-level risk factors

Association with unhealthy dysfunctional peer groups

Association with unhealthy dysfunctional peer groups is defined as associating with peers who misuse alcohol or drugs, engage in aggressive and antisocial behavior, are hypermasculine or homophobic, or have been radicalized by an extremist group. Associating with peers who fit this definition is a risk factor for substance misuse, domestic violence perpetration and victimization, perpetration of sexual assault and discrimination, and extremism.

- Associating with peers who misuse alcohol or use drugs increases an individual's risk of substance misuse [89, 126, 162].
- Associating with peers who engage in aggressive and antisocial behavior or are involved with a street gang increases the risk of domestic violence perpetration [101, 163]. Association with unhealthy peer groups that are aggressive or pressuring is associated with IPV perpetration and victimization [100].
- Association with "sexually aggressive, hypermasculine, and delinquent peers" is a risk factor for sexual assault perpetration [102, 164].
- Immersion in an aggressive peer group social climate is a risk factor for perpetrating sexual orientation discrimination [165-166].
- Associating with peers who deviate from accepted social standards or have been radicalized is significantly associated with participation in radical extremism [52, 97]

Isolation or lack of social support

Isolation or lack of social support is defined as lacking a social support network interpersonally and with the society at large and is a risk factor for suicide, victimization and perpetration of domestic violence and sexual assault, and extremism.

- A sense of lacking a support network is associated with risk of suicide and becoming either a victim or a perpetrator of domestic violence and sexual harassment and assault [68, 76, 101, 167].
- Research has identified a strong association between friendship difficulty or being a loner/socially isolated and extremism [52, 168].

Close-relationship stressors

Close-relationship stressors are defined as sources of tension and stress stemming from an individual's innermost circle of associations. This category is a risk factor for suicide, substance misuse, domestic violence perpetration, and sexual assault perpetration.

- Problems with an intimate partner or the recent failure of an intimate partner relationship are triggers for suicide [79, 98, 109, 169].
- Family stress at home while a Soldier is deployed increases the risk of alcohol misuse when the Soldier returns from deployment [170].
- Relationship conflicts—including jealousy, possessiveness, tension, divorce, and separation—are risk factors for IPV perpetration [101].
- Intimate partner conflict, minimization of conflict through avoidance, controlling behavior, and emotional withdrawal are associated with sexual assault perpetration [102].

Unit-level risk factors

Stigma associated with reporting or seeking help

Stigma associated with seeking help for harmful behavior perpetration or victimization is defined as fear of being seen as weak or as trying to avoid work, of experiencing humiliation or discrimination, or of negative career repercussions. This kind of stigma, which is likely felt at the unit level when Soldiers fear others will know what is happening in their lives, is a risk factor for suicide, substance misuse, domestic violence, and sexual assault.

- Regarding suicide, studies of the military and veteran populations have found a negative relationship between stigma and help seeking for mental health difficulties and major barriers to seeking help for mental health issues or suicidal ideation within the military

culture, with leadership playing an important role in establishing or mitigating them (Horn et al. 2017) [161, 171-174].

- For substance misuse, Gibbs et al. (2011) reported that in the general population, patients report high levels of stigma when receiving substance misuse treatment, which may have a negative effect on their willingness to seek care [175].
- Becker and Bachman (2020) noted evidence suggesting that IPV victims are unlikely to report incidents to the police and that the military population is significantly less likely to report IPV than the civilian population (the authors also noted that there is no evidence of any effect of military status on reporting of other crimes, such as robbery) [176].
- Regarding sexual assault, both male and female victims may be reluctant to seek help because of the stigmatizing nature of the act [177].

Toxic or permissive unit climate

Toxic or permissive unit climate is defined as a climate that tolerates inappropriate or harassing behavior and lacks cohesion and a sense of mutual support. Research suggests that a toxic or permissive unit climate is a risk factor for suicide, substance misuse, sexual assault and harassment, and discrimination.

- In a sample of recently redeployed Soldiers, Mitchell et al. (2012) found that those who had higher levels of combat exposure *and* lower unit cohesion were most at risk for suicide-related ideation [146].
- Woodruff et al. (2018) reported that units in which drinking is believed to be important to fitting into the unit have higher rates of binge drinking than units in which binge drinking is believed to have negative consequences [88].
- Separate literature reviews by CNA and RAND documented the association between permissive environments and more frequent sexually harassing behaviors or sexual assault incidents [60, 69, 76]. Work environments, including military units, that allow inappropriate sexual conduct or that are perceived to be tolerant of sexual harassment can increase sexual assault incidence [124].
- Hostile workplaces and situations are associated with higher rates of gender discrimination victimization and perpetration. Such environments tend to be male-dominated; to include gender, racial/ethnic, or sexual minority workgroups; to be physically demanding; and to include workplace sexuality, exposure to sexist material, and threats to masculine identity [50, 149-150, 178]. Poor peer, school, and societal climates are related to the perpetration and victimization of racial/ethnic discrimination [49].

Toxic, ineffective, or weak leadership

Toxic, ineffective, or weak leadership is defined as leadership that shows favoritism, makes demeaning remarks, publicly humiliates subordinates, or is neutral or indifferent to harmful behaviors. Such leadership has been linked to sexual harassment and assault and discrimination.

- A literature review by Kannapel et al. (2021) reported that more sexual assaults occur in units in which the commanding officer is neutral or indifferent to abuse than in those in which officers do not tolerate abuse [60]. Commands in which officers allow or initiate sexually demeaning comments or gestures or engage in quid pro quo behaviors also have been linked to higher levels of rape [113]. Other leader response behaviors associated with increased risk of sexual violence include victim blaming, leadership interest in the alleged perpetrator, and leader engagement in or tolerance of retaliation against those who report [113, 179-181].
- Toxic leadership has been linked to a higher likelihood of discrimination based on sexual orientation as well as ethnicity, gender, age, and caregiving responsibilities [182].

Installation- or local community–level risk factors

Availability of alcohol

Availability of alcohol is typically measured in terms of the number of alcohol outlets in a geographic area, the price of alcohol, and restrictions on when alcohol sales are permitted. Availability of alcohol is a risk factor for substance misuse, domestic violence, and sexual harassment and assault.

- High availability of alcohol is associated with substance misuse (especially binge drinking) [88-89]. For example, Marines who reported in surveys that alcohol was difficult to obtain or too expensive were less likely to report binge drinking.
- Longitudinal spatial data revealed that more outlets selling alcohol led to more local interpersonal violence, and a meta-analysis of several studies revealed that higher outlet density and lower alcohol taxes both contributed to higher sexual assault rates [183-185].

Access to locations or methods

Access to locations or methods is defined as access to locations or methods that enable the perpetration of harmful behaviors and is a risk factor for suicide, substance misuse, and sexual harassment and assault.

- Suicide is more likely when there is a convenient high place to jump from or easy access to poisons (e.g., pesticides) or firearms [68, 76, 151].

- Substance misuse is more likely when there is easy access to the substances [126].
- Sexual assault is more likely in sleeping quarters in which consensual sex is observed to occur, in crowded living conditions, and in units with a higher perceived tolerance for sexual harassment [84, 113, 124].

Social or community disorganization

Social or community disorganization is defined as an inability of community members to achieve their shared values or solve jointly experienced problems. Social or community disorganization is a risk factor for domestic violence and sexual assault.

- Studies show that such disorganization manifests as increased resident mobility, concentration of female-headed households, and violent crime rate, which increase the risk of sexual assault [102, 185-186].
- Lack of institutions and norms to shape a community's social interactions and weak informal sanctions against interpersonal violence increase the risk of domestic violence [101].

Low community SES

Low community SES is defined as a combination of high community poverty rate and low community average for educational attainment. It is a risk factor for domestic violence and discrimination.

- Poverty and unemployment rates in the community are both associated with IPV perpetration [100-101, 112].
- Lower levels of college attainment, high community poverty rates, and living in rural areas are associated with discrimination against LGBT youth [187].

Army-level risk factors

Stigma associated with reporting or seeking help

Stigma associated with reporting or seeking help is defined as being hesitant to report instances of victimization or struggles with harmful behaviors because of fear of negative consequences. This stigma can occur at the Army level and at the unit level [188]. The literature indicates that this stigma is a risk factor for suicide, substance misuse, domestic violence, and sexual harassment and assault.

- The stigma associated with reporting one's thoughts of suicide is similar to that associated with reporting other mental health concerns (including appearing weak and being treated differently by peers and supervisors) and the negative perception that servicemembers cannot handle their own problems [68, 173].

- Regarding substance misuse, servicemembers report concerns about appearing weak as well as career repercussions of "getting caught" using prohibited substances [175].
- Research indicates that reporting of IPV is lower in the military population than in the civilian population, likely because of military-specific stigma associated with victims' fear of damaging their career or the perpetrator's career [176].
- Sexual assault victims are often reluctant to report an incident for fear that that no action will be taken, that retaliation may occur, or that there will be career consequences for reporting [177, 188].

All four harmful behaviors linked with this risk factor could be considered on a continuum of harm, for which early reporting and intervention could mitigate more serious consequences (sexual assault or death).

Harmful norms (gender, violence, drinking)

Harmful norms are defined as outdated gender norms, hypermasculine attitudes and behaviors, and norms that support aggression toward others. The recent Fort Hood Independent Review Committee report notes that these norms have traditionally been a part of military culture [75]. Such norms are a risk factor for substance misuse, domestic violence, sexual harassment and assault, and discrimination.

- Harmful norms that are a risk factor for substance abuse include perceptions that peers drink excessively and that excessive drinking is normative and encouraged [89, 126].
- Harmful norms that are risk factors for violent harmful behaviors like domestic violence and sexual harassment and assault include hypermasculine attitudes and behaviors, an emphasis on violence, and cultural norms that support aggression toward others [1, 29, 92, 101, 189].
- Survey-based studies show that peer norms and institution norms (perceived views of authority figures) influence interest in, number of, and quality of inter-ethnic friendships, that individual tolerance changes when one moves to a new location with different norms, and that norms about how gender should determine behavior increase risk of becoming a victim of discrimination [114, 157, 190].

Structural barriers to accessing help or resolution

Structural barriers to accessing help or resolution includes structural impediments to getting the resources or support needed to deal with a harmful behavior. The presence of barriers to accessing help or treatment is a risk factor for suicide, sexual harassment and assault, and discrimination. Although not all the research described in this risk factor is military-related, this evidence demonstrates that a society-level risk factor exists that could apply to the Army.

- The WHO (2012) noted that barriers to accessing health care, especially mental health and substance abuse treatment, are socio-cultural risks for suicide [68].
- Similarly, recent military-focused independent review committees on sexual assault concluded that flaws in the structure of reporting options, lack of access to help, and lack of resources make it difficult to seek help and resolution for sexual assault [75, 188].
- A school that has a decreasing percentage of racially diverse teaching staff is at risk for its racial/ethnic youth feeling discriminated against, perhaps because there are fewer people who "look like me" to provide or vector them to support [49].

Society-level risk factors

Weak policy or law

Weak policy or law is ineffective at solving identified problems because of poor problem framing or ineffective design, implementation, or enforcement of policies or laws. It is a risk factor for suicide, substance misuse, domestic violence, discrimination, and extremism.

- Research shows an association between suicide and weak handgun laws, including lack of waiting periods, universal background checks, gun locks, and open carrying regulations [191].
- In their review of research funded by the federal government, Harding et al. (2016) noted that enforcement of underage furnishing laws, including laws that ban underage use or supply of false IDs or that impose criminal or other liability against individuals who allow underage drinking in retail establishments or on personal property, have been found to be effective in reducing underage drinking [192].
- Weak health, educational, economic, and social policies or laws are associated with higher domestic violence incidence rates.
- Discrimination is associated with weak nondiscrimination policies, laws, or sanctions (race, gender, transgender-inclusive) [101, 150, 193]. For example, Ryan and Rivers (2003) found that a lack of school policies to ensure adequate protection for sexual minority and gender nonconforming students makes schools primary targets for the maintenance of homophobic bullying [194].
- Lack of governmental ability to impose high operating costs on terrorist groups is associated with an increased threat of terrorism [195].

Weak economic conditions

Weak economic conditions are a negative economic state in which there is a downturn, recession, or perception of scarcity. Such conditions are a risk factor for suicide, substance misuse, domestic violence, and discrimination.

- Perception of scarcity and people struggling to cope during economic recessions are associated with suicide rates [196-200].
- Economic downturns are also associated with substance misuse involving hallucinogens and prescription pain relievers [201].
- Recessions increase economic and financial stress on families (e.g., unemployment, bankruptcy) and are associated with higher domestic violence incidence rates [101, 202].
- Racial/ethnic discrimination is more prevalent when the perception of economic scarcity is greater [203].

Protective factors

Individual-level protective factors

Life skill: decision-making and problem-solving

Decision-making and problem-solving are defined as the use of critical thinking and reasoning to identify a problem, generate solutions, and decide on a suitable action to address the problem. Decision-making and problem-solving are often viewed as related concepts and defined using similar terms. Decision-making and problem-solving are protective factors for suicide, substance misuse, and perpetration of domestic violence and sexual harassment and assault.

- The CDC notes that having skills to solve problems nonviolently is a protective factor against suicide [1].
- In their review of the literature, Guerra et al. (2014) cited studies that show that life skills training programs that incorporate problem-solving and decision-making, among other skills (e.g., teamwork, communication skills, initiative, assertiveness), are associated with reduced drug use [33].
- Improvements in nonviolent problem-solving skills have been found to be protective against perpetration of child abuse and neglect, teen dating violence, youth violence, and suicide [1], as well as IPV more broadly (including physical, sexual, and psychological abuse) [100].

Life skill: empathy

Empathy (which is often combined with perspective taking) is the ability to understand and feel concern for the feelings, reactions, or experiences of others by imagining what it would be like to be in their situation. Empathy is a protective factor for perpetration of domestic violence, sexual harassment and assault, discrimination, and extremism.

- Several sources, including the CDC and research reviews on adolescent dating violence and sexually aggressive behaviors, identified empathy as a protective factor for perpetration of IPV and sexual violence [101, 164, 204-205].
- A review of studies of the risk and protective factors of sexual violence perpetration found that empathetic deficits were a significant risk factor in 13 of the 20 studies [102].
- Regarding discrimination, a meta-analysis found that empathy and perspective taking were associated with a reduction in prejudice after intergroup contact [206].
- Research has shown that social-psychological resilience traits and processes such as empathy can serve as protective factors in relation to violent extremism [52].

High academic achievement

High academic achievement is defined as higher than average academic performance in high school as measured by grades or teacher ratings. High academic achievement is a protective factor for substance misuse and for perpetration of domestic violence, sexual harassment and assault, and extremism.

- Research has found that students with higher grades in high school are less likely to use marijuana during the transition from adolescence to young adulthood, to engage in heavy alcohol consumption as young adults, and to have an alcohol disorder in young adulthood [126].
- Higher grades have also been associated with a lower risk of males perpetrating dating violence against their female partners [205, 207].
- Similarly, the CDC lists academic achievement as a protective factor against perpetration of sexual violence [164].
- School achievement and bonding to school reduced far-right and far-left extremist attitudes and behaviors [208].

Positive affect

Positive affect is defined as a positive approach to addressing internal and external situations, tasks, pressures, and challenges. It encompasses a positive outlook (including hope, optimism, enthusiasm, and sense of humor) and positive thinking (including positive reframing and

expecting positive outcomes). Research indicates that positive affect protects against suicide and substance misuse.

- Numerous studies have shown an association between aspects of positive affect and lower suicidal ideation, including studies of older adults and college students [209-211].
- Studies also indicate that hope and optimism are negatively correlated with substance misuse in adolescents, indicating that they play a strong protective role [212-214].

Marital status: married

Marital status: married is defined as being legally wed**.** Being married has been found to be a protective factor for suicide and substance misuse.

- A review of the suicide literature reported that single people have higher suicide rates than married people and that divorced and widowed populations have higher suicide rates than those who have never been married [98].
- A study of Marines found that married Marines were significantly less likely to engage in binge drinking than their single peers [88].

Spirituality or religiosity

Spirituality or religiosity refers to an individual having a religious affiliation, feeling that religion is important to them, regularly attending a religious service, or believing in a spiritual being. Spirituality or religiosity is a protective factor for suicide and substance misuse.

- A literature review found that religiously affiliated people have a decreased risk of suicide relative to religiously unaffiliated people [98].
- Spirituality or religiosity has been associated with young adults abstaining from marijuana and having less frequent heavy drinking instances. It has also been shown to protect against developing alcohol use disorder [89, 126, 215] and against substance use disorders among servicemembers [34].

Interpersonal-level protective factors

Social connectedness and support

Social connectedness and support refer to bonding and emotional attachment to friends, a peer group, or family. Social connectedness and support is a protective factor for suicide, substance misuse, domestic violence victimization and perpetration, sexual harassment and assault perpetration, and extremism.

- Research indicates that connectedness is a protective factor against suicide in general and for sexual minorities specifically; it is particularly protective among those with high levels of depressive symptomatology [216-221].
- Family connectedness was cited as a protective factor against binge drinking in a study of young African American males [222]. Similarly, some programs that address family connectedness have been shown to have positive effects on substance use [40].
- For domestic violence, the CDC identifies strong social support networks and stable, positive relationships as protective factors for IPV *perpetration*, and a systematic review concluded that social support and tangible help from others are protective for IPV *victimization* and *perpetration* [100-101].
- Regarding sexual violence, the CDC and systematic reviews identified social support and connectedness as protective against *perpetration* [102, 164, 205].
- A larger social network has been identified as protective against extremism and radicalization [208].

Family cohesion and support

Family cohesion and support, defined as emotional bonding and support among family members, is a protective factor for suicide, substance misuse, and domestic violence and sexual harassment and assault victimization and perpetration.

- The WHO suicide prevention framework (2012) identifies strong connections to family and community support as protective factors for suicide [68].
- Regarding substance misuse, studies have shown that family church attendance and higher levels of parental monitoring protect against substance misuse later in life, that greater family support during military deployment is associated with lower odds of current drug use, and that higher levels of marital satisfaction protect against subsequent alcohol problems among recently married spouses [89, 162, 170].
- For domestic violence, systematic reviews indicate that parental support is protective against IPV *victimization* and *perpetration* for adolescents [100, 204].
- Studies of sexual violence show that higher levels of family support protect against sexual aggression *perpetration* by young men and that parental monitoring and support among Latinx youth are associated with decreased risk for IPV and sexual *victimization*, particularly for girls [205].

Healthy peer relationships

Healthy peer relationships, defined as associating with peers who engage in positive rather than harmful behaviors, is a protective factor for substance misuse, domestic violence perpetration, sexual assault victimization, and extremism.

- A systematic review of substance misuse research identified having fewer friends who use substances as a protective factor against frequent alcohol use, heavy episodic drinking, and marijuana use during the transition out of high school [89].
- The CDC finds that “association with pro-social peers” is a protective factor for domestic violence perpetration [1]. In addition, a survey-based study found that social support from “peers, family, and friends” (treated together as one protective factor) is a protective factor against domestic violence perpetration [223].
- Connectedness to family and friends and belonging to social groups in which alcohol and drugs are not perceived as a problem decrease the odds of sexual *victimization* [224].
- Regarding extremism, studies show that contact with non-deviant peers had a protective effect [208].

Unit-level protective factors

Unit cohesion and connectedness

Unit cohesion and connectedness refers to the unit’s ability to cooperate, depend on one another, and sustain commitment to each other and the mission. Both civilian and military literature identify connectedness to the work unit (e.g., school, workplace, military unit) as a protective factor for suicide, substance misuse, sexual harassment and assault, and discrimination.

- Unit cohesion is believed to strengthen an individual’s ability to cope with the stressors of military life (e.g., deployment), thus preventing the occurrence of harmful coping behaviors, such as depression, suicidal ideation, and alcohol and drug use [36]. For example, one study found that among Soldiers with greater combat exposure, those reporting lower levels of unit cohesion had a greater probability of suicide-related ideation [146]. In another example, greater unit support (i.e., feeling valued and appreciated by unit members) during deployment was associated with lower odds of later drug use [170].
- Regarding sexual violence, a survey-based study of middle and high school students found that school belonging was a protective factor for teen dating violence *perpetration* [223, 225].

- For discrimination, a literature review that identified risk and protective factors for problematic behaviors among military personnel reported that organizations that foster a common identity in which members emphasize their shared organizational membership over individual group identity have less prejudice and discrimination among people from different groups [76].

Positive leadership engagement

Positive leadership engagement is manifested when leaders get to know and support individual unit members, provide mentoring and positive role modeling, treat all members fairly, foster within-unit interaction, build pride in and support for the unit's mission, and implement institutional policies (including those designed to prevent harmful behaviors). It has been identified as a protective factor for suicide, substance misuse, sexual harassment and assault, and discrimination.

- Leadership behaviors such as treating all unit members fairly, maintaining contact with subordinates, and recognizing performance are associated with Soldiers seeking mental health treatment and related suicide prevention [226].
- Support from unit leadership is also associated with a lower likelihood of post-deployment alcohol problems and drug use [170].
- In the civilian context, leaders who are aware of policy and trained to recognize warning signs of sexual violence are a key ingredient in creating a workplace culture in which sexual harassment is not tolerated [71].
- Two survey-based studies found that positive leadership (including such traits as authenticity, respectfulness, and inclusivity) reduce discrimination in the workplace [227].

Unit-level policy enforcement

Unit-level policy enforcement is defined as implementing and enforcing organizational policies designed to prevent harmful behaviors. Research in both the civilian and military contexts indicates that organizational policies at the level closest to the individual (for this study, the unit level) protect against substance misuse, sexual harassment and assault, and discrimination.

- Regarding substance misuse, strict drinking and driving policies are associated with lower male drinking and bingeing [126].
- In the civilian context, leaders who are aware of policy and held accountable for an organization's culture are a key ingredient in creating a workplace culture in which sexual harassment is not tolerated [71].

- Regarding discrimination, a systematic review of protective factors among transgender and gender variant youth found that LGBT-inclusive curricula, LGBT information on campus, teacher intervention in bias-motivated harassment, and school policies against bullying were associated with increased feelings of safety and reduced absenteeism among transgender students [228].

Installation- or local community–level protective factors

Restrict or limit access to instruments of harmful behavior

Restrict or limit access to instruments of harmful behavior is defined as policies or actions that make it difficult or impossible to gain access to the items that enable individuals to engage in specific harmful behaviors. It has been found to protect against suicide, substance misuse and domestic violence.

- The WHO's evidence-based framework for preventing suicide identified several factors that reduce an individual's vulnerability to suicidal behaviors, including restricted access to means of suicide [68].
- A survey-based study of US Marines found that perceptions that alcoholic beverages cost too much and are difficult to obtain is a protective factor for binge drinking [88]. Furthermore, a recent review of federally funded research noted that laws banning underage use or supply of false IDs have been effective in reducing underage drinking [192].
- An analysis of criminal case data and randomly identified controls (abused women who were not killed) found that abused women are five times more likely to die from abuse if their partner owns a gun [229]. State laws in many states take this into account and allow or require gun removal in domestic violence cases [230].

Community connectedness and support

Community connectedness and support is defined as connections with other people in the community and is characterized by community cohesion, involvement, commitment, communication, mutual trust, and willingness to intervene for the common good. It has been identified as a protective factor for suicide and domestic violence.

- The WHO suicide prevention framework (2012) identifies community support as a protective factor for suicide [68].
- The CDC, supported by a systematic review, identifies "neighborhood collective efficacy," defined as feeling connected to one another and involved in the community, as a protective factor for IPV *perpetration* [101, 231].

Army-level protective factors

Prevention policies

Prevention policies are defined as policies that clearly define the prohibited behavior and specify reporting and response procedures, including a complaint process and assurances of confidentiality, protection from retaliation, prompt and thorough investigations, and immediate and proportionate corrective action. Such policies have been identified as helping prevent substance misuse, domestic violence, sexual harassment and assault, and gender discrimination.

- Regarding substance misuse, one study found that implementation of a zero-tolerance policy and random workplace drug testing program in the military was highly effective at deterring illicit drug use for both current and potential users [232].
- Regarding domestic violence, a meta-analysis found evidence that laws mandating arrest for domestic violence reduce the rate of its occurrence [233]. A panel analysis of 48 large cities over a twenty-year timespan found that more financial assistance to families with dependent children (which protects against retaliation through separation) and more aggressive police policy towards domestic violence reduce domestic homicide [234].
- Regarding sexual assault, a workplace study by the Equal Employment Opportunity Commission noted that policies, reporting procedures, investigations, and corrective actions are essential components of an organizational culture that prevents harassment and that employees in workplaces without such policies report the highest levels of harassment [71].
- Regarding discrimination, perceptions of company sanctions against gender discrimination—even more than the sanctions themselves—were found to protect against gender discrimination [50, 178].

Society-level protective factors

No society-level protective factors were identified.

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Abbreviations

ARD	Army Resiliency Directorate
CDC	Centers for Disease Control and Prevention
DOD	Department of Defense
HRBS	Health Related Behaviors Survey
IPV	intimate partner violence
LGBT	lesbian, gay, bisexual, or transgender
PTSD	post-traumatic stress disorder
SEM	social-ecological model
SES	Socio-economic status
TBI	traumatic brain injury
WHO	World Health Organization

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