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Opioid and Other Substance Misuse, Overdose Risk, and the Potential for Prevention Among a Sample of OEF/OIF Veterans in New York City

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Abstract

This paper describes veterans' overdose risks and specific vulnerabilities through an analysis of qualitative data collected from a sample of recently separated, formerly enlisted OEF/OIF veterans in the New York City area. We illustrate how challenges to the civilian readjustment process such as homelessness, unemployment, and posttraumatic stress disorder can render veterans at increased risk for negative health consequences and then present veterans' perspectives as they outline several innovative solutions to these obstacles. We conclude by discussing several overdose prevention efforts currently underway and how they might be adapted to meet the opioid and substance misuse challenges veterans face.

Keywords

veterans; military personnel; opioids; overdose; overdose prevention; substance use/misuse; pain management; alcohol; mental health; reintegration

INTRODUCTION

Amidst mounting concerns about the epidemic of prescription opioid (PO) misuse and related overdose in the US (CDCP, 2011; Hall et al., 2008; ONDCP, 2011; Paulozzi, Kilbourne, & Desai, 2011), a considerable proportion of recent veterans have returned home from the conflicts in Afghanistan and Iraq with substance-use and mental health profiles that put them at increased risk for adverse outcomes (Allan & Turner, 2000; Bergen-Cico, 2011; Bray, Olmsted, & Williams, 2012; Bray et al., 2010; Courtwright, 2001; Institute of Medicine, 2012; Manchikanti & Singh, 2008; Seal et al., 2011, 2012; U.S. Army, 2012; Wong & Roberts, 2007). Many opioid and substance consumption-related deaths manifest as accidental overdose, suicide, and accidents. This paper focuses specifically on overdose risks and the contexts in which they occur as veterans adjust to civilian life. The following section examines PO and other substance misuse and their related outcomes. It engages literature that links other social vulnerabilities [e.g., civilian readjustment challenges including social isolation and homelessness, as well as posttraumatic stress disorder (PTSD), traumatic brain injury (TBI) and depression] to risk for overdose.

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Declaration of Interest

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OPIOID MISUSE AND OVERDOSE RISK ROOTED IN THE MILITARY EXPERIENCE

Overdose, a principal health consequence associated with opioid and other substance misuse, has increased dramatically over the past decade across the nation, including among active-duty and veteran populations (Bray & Hourani, 2007; Bray et al., 2012, 2010; Institute of Medicine, 2012; Larance, Degenhardt, Lintzeris, Winstock, & Mattick, 2011; Warner-Smith, Darke, & Day, 2002; Warner-Smith, Darke, Lynskey, & Hall, 2001). The potential overdose risks that veterans face as they readjust to civilian life are often rooted in their military experiences and the associated mental health and pain management challenges. Many veterans endure traumatic events and injury resulting from combat and general military training activities. Physical pain due to injury can become chronic and impair all domains of functioning involved in the civilian readjustment process (e.g., stable work and housing, sleep and mood, social isolation and homelessness, and health care and social service utilization). POs are often prescribed as primary pain management tools. However, the use of POs carries risks, especially if POs are misused. Such misuse or aberrant practices include unauthorized dose escalation, mixing of medications or use with alcohol, and snorting or injecting substances intended for oral ingestion. Some veterans who use POs and other drugs for pain management can escalate their use as they face general reintegration challenges including finding housing, employment, and connections within their home communities. While some veterans' drug and alcohol use is motivated by boredom, stress, or general recreation purposes, research is suggesting that it may also be rooted in aspects of military lifestyle and culture (Ames & Cunradi, 2004; Ames, Cunradi, Moore, & Stern, 2007; Ames, Duke, Moore, & Cunradi, 2009; Barrett, 2007; Finley, 2011; Poehlman et al., 2011).

The military recently released data confirming the magnitude of the PO and other substance misuse problem among active-duty personnel. In 2009, an estimated 14% of active-duty Army service members were taking POs with prescription (U.S. Army, 2010). PO misuse among Department of Defense (DoD) personnel increased 9% between 2002 (2%) and 2008 (11%), while illicit drug use, including misuse of prescription drugs, also spiked in that same period from 3% to 12% (Institute of Medicine, 2012). The Army has cited figures indicating that 25–35% of soldiers prescribed a PO were determined to meet DSM-IV criteria for substance dependence while awaiting medical discharge (U.S. Army, 2012). Data released by the Army thus suggest that soldiers are often prescribed POs for pain management; some of these soldiers subsequently develop opioid dependence. In addition to increased incidence of substance dependence or substance use disorder (SUD), the Army has reported that among active-duty Army personnel, drug toxicity deaths more than doubled between 2006 and 2011 (Army, 2012). Of the 312 overdose deaths among active-duty Army Personnel in this period, 68% involved prescription medication (OxyContin™ being the most common)—only 48% of which had been legitimately prescribed by a doctor (Army, 2012), indicating that opioid misuse is not uncommon. Veterans' prescription drug misuse thus may be iatrogenic (i.e., resulting from medical use), for recreational purposes, or a hybrid of the two—that is, “opportunistic” as we have termed it elsewhere (see Golub & Bennett, this volume, 2013). Regardless of the reasons for initial and ongoing use, all pathways can involve incidents of misuse or aberrant use, which can result in overdose.

In addition to accidental drug overdose, 63% of attempted Army suicides involved drug or alcohol overdose in 2010 (Army, 2012), highlighting another potential consequence of alcohol or drug misuse, especially the concurrent use of POs and alcohol. Alcohol abuse remains an especially salient problem during military service, a practice that often continues as veterans readjust to civilian life. Heavy alcohol use (defined as five or more drinks at least once per week in the past 30 days) in the military declined 6% between 1980 (21%)

and 1998 (15%), but increased to 19% in 2005 and 20% in 2008 (Bray et al., 2010; Institute of Medicine, 2012). These data are supported by a recent study of Army soldiers screened 3–4 months after returning from deployment in Iraq showing that 25% met criteria for alcohol abuse and were at increased risk for related harmful behaviors including accidents, and alcohol consumption-related overdose (U.S. Army, 2012; Wilk et al., 2010).

As the above literature makes clear, the misuse of alcohol and drugs, including POs, along with a range of associated negative health consequences, has become more common among *active-duty* military service members in the past 10 years. However, there is very little information available about the types of overdose risk faced by *recently separated* service members, the ways in which these risks may be rooted in military culture and exacerbated by civilian readjustment and how understanding these domains may contribute to effective outreach and prevention measures for the veteran population.

OPIOID MISUSE AND OVERDOSE RISK AMONG VETERANS

The situations and contexts of PO and other substance misuse among veterans are often considerably different than among active-duty personnel, especially considering many active-duty personnel live on a military base. Veterans who have completely separated from the military no longer face routine drug testing or punitive measures, policies that may prevent some service members from using illicit drugs or engaging in PO misuse (Goebel et al., 2011a; Institute of Medicine, 2012; U.S. Army, 2012). At the same time, unlike active-duty personnel, many veterans no longer have the secure housing, steady paychecks and other supports that are provided by the military, all of which can be significant assets during readjustment. Other veterans face delayed onset of PTSD or depression, and many struggle to manage pain or use drugs for self-medication or recreational purposes (Andrews, Brewin, Philpott, & Stewart, 2007). A recent study looking at 343 veterans found that 35% reported engaging in drug misuse; specifically, 12% reported using street drugs, and 16% reported sharing prescription medications, to manage pain (Goebel et al., 2011b).

Recent efforts by the Centers for Disease Control and Prevention (CDC) and Office of National Drug Control Policy (ONDCP) to curtail prescriptions and misuse of POs have been endorsed by the DoD and Veterans Affairs (VA). While many recent veterans do not utilize the VA, for some veterans, these restrictions may lead them to turn to diverted POs or street drugs to manage their pain when they are unable to secure adequate analgesic medications from their VA doctors (Harocopos, Goldsamt, Kobrak, Jost, & Clatts, 2009; Lankenau et al., 2012; Sherman, Smith, Laney, & Strathdee, 2002). These various factors may in part explain the disproportionately high rates of alcohol and PO and other drug misuse among the veteran population. Indeed, veterans may face a range of distinct vulnerabilities and drug use trajectories associated with a range of endogenous as well as exogenous conditions; these may render some of them at heightened risk for overdose.

VETERANS AND VULNERABILITIES

Mental Health

As numerous studies of the veteran population have clearly indicated, the presence of chronic noncancer pain, PTSD, TBI, and depression can lead to high levels of PO use, while the cooccurrence of substance abuse with mental health conditions can produce negative health consequences including SUD and overdose (Becker et al., 2009; Becker, Fiellin, & Kerns, 2010; Bohnert, Roeder, & Ilgen, 2010; Bray et al., 2012; Hoge et al., 2004; Institute of Medicine, 2012; Seal, Bertenthal, Miner, Sen, & Marmar, 2007). Over 35% of Iraq and Afghanistan returning veterans have received mental health diagnoses, PTSD being the most prevalent (Cohen et al., 2010). Seal, et al. have found that, among US OEF/OIF veterans,

those diagnosed with mental health conditions, especially PTSD, were more likely to engage in high-risk PO-use behaviors such as obtaining early refills (Seal et al., 2012). Many psychiatric conditions such as PTSD can manifest several years after military separation and, for those veterans who do not utilize the VA or other services, it may take even longer for the condition to be diagnosed (Andrews et al., 2007; Seal et al., 2012).

Alcohol

As with active-duty military personnel, alcohol misuse is extremely prevalent among OEF/OIF veterans and greatly elevates the risk of overdose when combined with POs (Warner-Smith et al., 2002, 2001; White & Irvine, 2002). Rates of binge drinking, heavy alcohol use, and alcohol-consumption-related problems have been shown to be higher among those with combat exposure (Jacobson et al., 2008; Larson, Wooten, Adams, & Merrick, 2012). While mortality due to POs has received the bulk of media attention in the past several years, alcohol misuse is also associated with a considerable number of deaths annually. According to the CDC, in 2008 there were 38,649 drug use-induced deaths in the United States, many involving polydrug use and alcohol. In that same year, there were 24,189 alcohol-consumption induced deaths (Miniño, Xu, & Kochanek, 2011).

Accessing Services, Social Isolation

For injured and disabled veterans seeking pharmacological treatment for pain or assistance with civilian reintegration in general, considerable sociocultural and ideological barriers may prevent safe and informed access to the VA or veterans' benefits. For a number of veterans, distrust of the VA presents serious obstacles to the safe, monitored use of POs. Experiences of lost paperwork, poor organization, and difficulties in scheduling appointments have been reported by veterans in one recent study, leading many to report feeling that the VA does not want veterans to use their benefits (Schell et al., 2011; Tanielian & Jaycox, 2008a). Other veterans fear stigma or loss of benefits upon seeking treatment for mental health and/or substance-consumption-related problems (Gibbs, Olmsted, Brown, & Clinton-Sherrod, 2011) and therefore do not present when such problems manifest and treatment might be needed; this sometimes results in the use of diverted POs without any medical oversight or safety monitoring.

Whether accessing VA services or not, many OEF/OIF veterans are experiencing high degrees of social isolation, which appears as both barrier to accessing services and a distinct risk factor for PO-related overdose. Substance abuse literature has documented the various protective effects of social supports or forms of "social capital" (Finley, 2011; Pierce, 1999; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009); those veterans who are more connected to resources and others may benefit from a degree of overdose protection. Some veterans also have difficulty accessing information about prescription drug contraindications and available treatment and prevention resources; these veterans may be more likely to engage in risky polydrug use or to shift from prescription drug use to illicit drug use (e.g., heroin).

Female Veterans

Females now constitute roughly 15% of our military forces and are the fastest growing cohort within the veteran community, roughly 8% in 2011 (Department of Veterans Affairs, 2012). Female veterans who face drug and alcohol-consumption-related problems also encounter distinctive barriers to healing as they readjust to civilian life. Many of these challenges are both associated with and complicated by: the occurrence of sexual harassment, rape or other forms of Military Sexual Trauma (MST); depression and PTSD; a lack of knowledge of veterans' benefits; and status- and gender-based disparities in healthcare quality. In 2009, 30% of female veterans surveyed did not think they were

eligible for VA benefits and almost one third of Iraq/Afghanistan women veterans with PTSD reported MST and were more likely to be diagnosable with a SUD (Maguen, Luxton, Skopp, & Madden, 2011; Maguen, Ren, Bosch, Marmar, & Seal, 2010). A study of OEF/OIF women veterans who manifested positive PTSD symptoms found that 47% screened positive for high risk drinking, thereby increasing this vulnerable population's risk for overdose (Nunnink et al., 2010).

Homelessness and Poverty

Being homeless and socioeconomically disadvantaged increases the risk for SUD and has also been associated with higher rates of overdose (Hembree et al., 2005; Nandi et al., 2006). Individuals who serve in the US military, the majority enlisted, are disproportionately people of color and those from lower socioeconomic backgrounds (Armor, 1996; Institute of Medicine, 2012). Military recruiters tend to target low-income youth who are searching for a way out of poverty (Anderson, 2009). Research conducted in New York City (NYC) has suggested that poverty and social inequality can result in situational differences that may increase overdose vulnerability, such as not calling 911 due to fear of police arrest, or residing in areas with “environmental disorder” and an inadequate built environment; all of which may provide a partial explanation for the observed higher rates of fatal overdose among Blacks and Latinos than whites (Bohnert et al., 2011; Galea et al., 2003; Nandi et al., 2006). Indeed, homelessness is a major issue for a considerable proportion of recent veterans, particularly recent OEF/OIF veterans from poor and/or minority backgrounds. More than 18% of poor Hispanic/Latino veterans, 26% of poor Black veterans, and 26% of poor American Indian and Alaska Native veterans were homeless at some point during 2010 (US Department of Housing and Urban Development, 2010).

Military service also disrupts social relationships and networks, including family disruption. Veterans face the unique challenges of frequent separation and family reorganizations (Drummet, Coleman, & Cable, 2003). Likewise, friendships and social networks, especially those that are community-based, become disrupted in the frequent moves and absences associated with military life and war. Given the other challenges that veterans face upon their return from war, social networks might be especially important for coping and reintegrating. The traumas associated with serving in a war combined with the challenges of returning from war to impoverished communities that lack social service resources, jobs, and housing can exacerbate PO and other drug misuse leading to overdose, suicide, and accidents. Given the high rates of substance use and misuse and the difficulties in accessing services observed among homeless populations (Geissler, Bormann, Kwiatkowski, Braucht, & Reichardt, 1995; Hwang, 2001; Koegel, Sullivan, Burnam, Morton, & Wenzel, 1999; Unger, Kipke, Simon, Montgomery, & Johnson, 1997; Whitbeck, Hoyt, & Bao, 2000), the homeless veteran subpopulation may be especially susceptible to overdose and other drug use-related health consequences.

In light of these challenges many veterans face as they readjust to civilian life, the consequences of PO misuse and overdose are particularly salient—as is the public health response to the problem among this vulnerable population. Given the historic distrust of military authority held by veterans who return home with some combination of physical injury, substance abuse, and mental health concerns, the need to quickly and efficiently pioneer forms of social outreach, training, and remediation is clear. This study highlights the mechanisms, processes, and perceptions underlying the documented associations presented above. Using qualitative insights, this study adds to the composite of veteran overdose risk.

METHODS AND SAMPLE

This study used interviews and focus groups to study PO use, misuse, overdose, and related concerns among veterans living predominately in low-income sections of NYC. Qualitative, ethnographic methodologies allow researchers to present and analyze subjects' experiences from their own perspectives, guided by interview protocols to ensure key domains of interest are covered (Denzin & Lincoln, 2005). Interview and focus group participants provided their full informed consent and were compensated financially (\$40) for their participation. All procedures involving human subjects were approved by the study's Institutional Review Board.

Interviews

The project conducted individual, in-depth (ethnographic) interviews with a sample of 20 recently separated OEF/OIF veterans living in NYC. Participants were all formerly enlisted and from low income, predominately minority neighborhoods. Participants were recruited from a larger parent project which involved a longitudinal, 5-year panel study of 269 OEF/OIF veterans returning to low-income neighborhoods of New York City. The parent project employed Respondent Driven Sampling (RDS) to obtain its sample of recently discharged OEF/OIF veterans. RDS was developed in the late 1990s to target hidden populations and obtain a sample that can be used to provide unbiased estimates for characteristics of a larger target population (Heckathorn, 1997, 2002).

Participants from the parent project who used drugs (illicit or prescription) and/or alcohol since separation were asked to participate. Participants were asked if they would agree to be interviewed for a sub-study looking at “drug and alcohol use and misuse over the military veteran career.” All participants who were approached by study researchers agreed to participate and were compensated \$40 for participation. This project stratified the sample of 20 interviewees by race/ethnicity (10 African American, 5 Latino, and 5 Caucasian), gender (15 male and 5 female) and by combat experience (15 combat veterans and 5 veterans who did not experience combat), which the literature indicates is a key variable associated with substance misuse. Participants were selected from different NYC neighborhoods to help capture local nuance, variation, and context. Interviews lasted between 1.5 and 4 hours (2 hours average). Individual interviews explored participants' life histories and military experiences, especially as they related to trajectories in problematic substance use and overdose risk. The interview protocol also covered: drug use transitions (types, route of administration, and patterns), escalations, and substitutions; health consequences including drug dependence, suicidal thought and HIV/HCV risk; law enforcement encounters and legal consequences; medical and mental health treatment experiences; and salient protective factors (e.g., social capital).

Focus Groups

Focus groups, which are ideal for obtaining community-wide perspectives and shared experiences (Stewart, Rook, & Shamdasani, 2006), explored the barriers and obstacles participants faced in utilizing and accessing treatment and other resources. The project assembled two focus groups of 10 participants each to better understand the processes of drug/alcohol use initiation, transition, and escalation. Participants were recruited independently of the larger RDS study. One focus group was composed of homeless Black and Latino veterans (seven male; three female) and the other consisted of veterans attached to community or 4-year college and included white, Black and Latino participants (seven male; three female). Each focus group lasted approximately 2 hours. The focus group protocol covered participants' perspectives and experiences initiating drug and alcohol use,

accessing and utilizing drug and alcohol treatment information, postseparation readjustment (e.g., obtaining housing, employment, and benefits), and barriers encountered.

Analysis

The interviews and focus groups were digitally recorded, transcribed, and reviewed for accuracy. Transcripts and field notes were entered into Atlas.ti for electronic storage, coding, and data analysis. The data were analyzed according to the logic of grounded theory (Charmaz, 2000; Glaser & Strauss, 1967). This inductive procedure provides a method for reading, coding, and rereading the collection of transcripts to achieve insight into the forces and processes that underlie lived experiences (Miles & Huberman, 1994). This rigorous yet flexible approach involves exploring emergent ideas, developing and elaborating on typologies, and creating connections between key themes and personal experiences. All names used in this paper are pseudonyms.

RESULTS

The overdose risks veterans face during civilian readjustment are, for the vast majority, grounded in their military experience and exacerbated by additional challenges. While a small percentage of new recruits enter military service with histories of PO use and/or diagnosable substance abuse disorders (SUDs), a range of factors related to active-duty service—particularly during wartime—increase veterans' risk of SUDs and overdose. For those veterans returning to communities plagued by poverty, homelessness, crime, substandard housing, and unemployment, these risks can be greatly compounded. The interview segments presented below represent the range of themes addressed by a sample of veterans who have recently returned to disadvantaged urban communities; these veterans spoke to us about their perceptions of the unique contexts and risks related to PO and other substance misuse among active-duty personnel and veterans alike. The progression of themes is organized around the passage from active duty to civilian life and illustrates the vulnerabilities and distinct contexts for PO and other substance misuse and overdose risk experienced at various junctures along that passage.

Overdose Risks Rooted in Military Culture

Alcohol and Recreational Use—For almost all of the veterans with whom we spoke, enlisting in the military involved a rapid immersion in a culture of heavy drinking. While most smoked marijuana prior to military service, once participants began their military service, heavy alcohol use replaced marijuana use and became an almost ubiquitous military norm. Unlike marijuana use which poses no risk for overdose, excessive alcohol use alone or concurrent alcohol and opioid use are major risk factors for overdose as the literature above indicates. Andrew, a 28-year-old white Army veteran explained how entrenched drinking was in his military experience and how local bars served underage recruits receiving their basic training in Alabama:

So that's pretty much what was going on that's what everyone did was go to town and get drunk or get drunk in the barracks; at PT (Physical Training) everyone was singing songs about how much you drank But like they had a thing called “hot team” where one platoon couldn't be drunk because if they had called an alert they would be the ones to get everything together while everyone else stumbled in.

Some participants, like George, a Black male from Brooklyn who served in the Army and was deployed to Iraq, described drinking as a mandatory and ubiquitous practice that escalated through his service and escalated further during his reintegration experiences:

When I was in, all we did was drink. You had to! I'll drink now breakfast, lunch, dinner, dessert, and midnight snack.

Others, like Cali Crip a 31-year-old Black male OEF veteran who was homeless at the time of the interview (and former member of the Crips gang), described their drinking while serving in the military with clear regret at having fallen into an unhealthy behavior that had not been part of their lives prior to enlisting:

Being in the Marines all people did was drink but I never really liked to drink, I had an alcoholic period where I was like everyone else.

Even when speaking of their deployments in the Middle-East, our participants described the relative ease with which alcohol could be obtained—despite its forbidden use among active duty personnel while deployed. For some, alcohol was sent from the US in mouthwash bottles or other containers unlikely to arouse suspicion. For others, such as Marcos, a 34-year-old Latino OEF veteran who served in the Army, there was no need for such elaborate diversion, as alcohol was being provided by the “Polish and Russian nationals” who sold on his post in Afghanistan.

Illicit Drugs and Recreational Use—While most participants described the widespread use of alcohol while serving, many also discussed use of illicit drugs. Hector, for example, a white male who served in the Army and was deployed to Afghanistan reported that illicit drugs were easily available on and around his base:

The nationals knew that we would want to have drugs. [They would] bring it in base or even if we like go to town they'll try to sell [to] you, knowing that you're an American While I was in Xanax helped me the most, you could get whatever pills you wanted in Afghanistan, I mainly did Xanax, Percocet, and [now] some heroin ...

For some without such easy access to substances, opium was found *in the raw*, extracted by their own hands, and used in conjunction with alcohol. As Ian, a 28-year-old Army white male veteran of OEF explained:

So like we'd like drink um almost nightly and then we went to a new firebase where poppy fields were, there's poppy flowers like all over the place—and we would just cultivate our own [opium] and smoke it and get stoned like every day ... with the poppy flower, you cut it with a knife and it'd ooze this shit out.

For veterans like Ian, such practices rooted in military service hold long-lasting consequences. At the time of his interview, Ian was residing at a homeless shelter in Long Island City and explained how his in-service use of opium had become an “OxyContin habit,” a habit he was trying to break at the time of the interview. Others touched on these same risky behaviors that they developed while serving, in particular the practice of combining natural or semi-synthetic opioids (e.g., oxycodone) with alcohol, particularly in a social, party context. Kareem, a 29-year-old Black male Army veteran of OIF explained:

You mix Percocet with a Vicodin with a beer and ... you have a good night. Shit, some people would um chop it up like it's powder and sniff it.

Several other participants spoke, like Kareem, about concurrent use of POs and alcohol without any apparent concern or awareness about the related overdose risks. For others, including Karen a 24-year-old Latina OIF Army veteran, personal experiences with the misuse of POs and other pharmaceuticals in a party context involving alcohol had taught painful lessons.

Pill parties ... a girl that was in my unit died from one 3 years ago. She went to a pill party and overdosed. We were about to get deployed in a couple months.

Clearly, as veterans in our sample above indicated, the use of alcohol and drugs during military service was common and even persisted during deployment. This use described above was characterized as a largely recreational activity. Where strict prohibitions on use existed, at least some service personnel looking to access substances used innovative tactics and strategies to procure their beverage or drug of choice. Despite veterans' rather cavalier discussions of these forbidden activities, the great potential for opioid and substance related risk is clearly evident, as in the case above resulting in fatal overdose.

Pain, Injury, and the Iatrogenic Progression to Aberrant PO Use—

Unquestionably, the recreational use of POs and alcohol represented an important source of overdose risk among veterans in our study. An overly close focus on this form of substance misuse, however, can potentially obfuscate the far more commonplace risk associated with prescribed opioid use. For the majority of our PO-using veteran participants, painkillers were emphatically not a component of their after-hours socializing, but rather a necessary pharmacological intervention in their injury-related pain. Stories of serious injury leading to regular PO use were common among the veterans in our study. Marcos, introduced above, suffered a blast resulting in TBI while deployed in Afghanistan. In interview, he described his experience of iatrogenic opioid initiation, his use of an increasingly potent series of POs, and his concurrent use of alcohol:

There was a blast, fucked up my side, shoulder and head [in Afghanistan]. They gave me Vicodin at first, OxyContin, Tramadol. ... I drank lots too.

The escalation described by Marcos and concurrent alcohol use represents a classic overdose risk scenario: iatrogenic initiation to manage pain, dose escalation, and subsequent mixing drugs to deal within a context of daily traumatic events and stressful situations. Joel, a 32-year-old Latino male Army veteran described a similar progression that for a period of time, rendered him a candidate for drug overdose. After an improvised explosive device toppled his tank, Joel suffered numerous injuries and was eventually airlifted to Germany for treatment. During his recovery he described his pain management regimen, liberal dispensing practices, and even peer pressure to divert his opioids:

They were giving me pain pills, I was getting Percocet, Vicodin, I was getting fucking OxyContin, Oxycodone, if I fucking wanted it they would give it to me, no doubt about it, um ... and my friends wanted some but most of the time they kind of knew, it'd be once or twice, they'd be like "yo, come on just let me get one or two" I'd be like come on man, you know I need that shit and it's not really for that but I guess being that you fucking wanna enjoy yourself, they could have like 1 or 2. I used to get like 460 at a time! [I told my doctor] "look I'm a heavy drinker" and he was like "well, just take one before you start drinking about an hour before you start and then don't take anymore after that until the morning." Fucking miracle hangover cure I'll tell you right now is a Percocet in the morning ... cause (laughs). ... I'd wake up in excruciating pain but it was mostly from the hangover, pop two of them out, 'I'm up, let's go, duty, let's go work' (laughs).

While some veterans described largely recreational use of opioids, drugs and alcohol—a recreational cohort, so to speak—other overdose risks began with earnest efforts to manage pain. Joel represents a hybrid of sorts: his initiation was iatrogenic but the demarcation between pain management and recreation became very blurred. He was in pain and used opioids (and alcohol) to manage the pain but he also misused his POs in other ways—mixing with alcohol and occasionally diverting to his friends. Unlike some of our participants, however, Joel recognized the potential for dependency and other adverse

consequences of substance misuse more generally, and had even been counseled by his doctor about how to minimize risks in light of his penchant for heavy drinking. As another veteran, George, a 32-year-old Black male OIF Army veteran, insisted, however, even with a doctor's oversight, the potential for PO use for acute pain to lapse into ongoing use for chronic pain is all too great:

During a medevac training I shattered my knee ... they gave me bed rest and for pain, mainly gave me codeine and Percocet, early on Oxycodone. ... I take two Percs a day now, drink all the time.

For some of our interviewees who had been prescribed PO medications for legitimate injuries or related pain syndromes, what was most surprising (and, for some, upsetting) was the dosage and quantity of pills they were prescribed. Like Joel, who described how his doctor gave him 460 opioid pills at a time, Maria, a 24-year-old Latina Army veteran, spoke with genuine anger about her experiences with military PO dispensing practices:

People I know were doing pain killers and now they are shooting heroin. ... Doctors in the Military will give pain killers for anything. Anything! Like, "my tooth aches." I was at the gym in Iraq and I busted my mouth on a pole and my friends were like, "you could get them [POs] ... please just go to the doctor." I don't like going to sick call. I don't want to look like a dumbass just for a cracked tooth. I feel like they don't see the dependence of it as much as civilian doctors. Civilian doctors: you can go through so much pain and they'll give you an 800 mg Tylenol. Military give you a 30 mg Oxy.

Whether for legitimate medical reasons or not, veterans whom we interviewed generally did not reject a prescription for PO medications or diverted POs during their military service; many returned home using them. What emerged during our interviews with veterans was that, even where use was not legitimated by a valid prescription, it was perceived to be a means of medicating or coping with pain—whether physical or psychological. Maria was an exception: most participants, including Joel, took POs even when they had reservations about them and often returned home still using them.

Mental Health Concerns, Social Isolation, and Substance Misuse

Explicit commentary on PO use or substance misuse in the context of a PTSD, TBI, or depression diagnosis among our participants suggested they struggle to understand the roots and complexity of their challenges. Gary, a 32-year-old Black male who served in OIF provided one of the more holistic explanations of the mental health and social adjustment challenges veterans face:

Some people develop a habit of alcoholism while being in the military and then take it out to civilian lifestyle so they might need counselor for that. Some people yes have PTSD from seeing traumatic events or going through some experience in their life that they can't bear with so they get a little crazy in the head. Then you got people that were diagnosed with major depression. They don't want to be around people; you know they feel isolated. They drink while in, more when they get out. That's basically it.

Several other participants spoke of their varied attempts to simultaneously manage their physical pain and psychological struggles—often in conjunction with alcohol and/or other pharmaceutical or illicit drugs. Marcos, 34-year-old Latino Army veteran, who suffered a blast resulting in TBI while deployed in Afghanistan, offered us an account that is exemplary of the self-medicating practices common among many of those who suffer from PTSD, TBI, and other mental health concerns:

I was in pain when I got back but ugh, 'cause I didn't know about the VAs, I didn't know about any of these veterans' hospitals. I found out about VAs through other veterans, eventually. But unfortunately that's when I really started drinking. ... Some of my symptoms were coming out (PTSD/TBI) and I drank more. And [with the pills] I was smoking weed and some crack to deal with the pain, I was thinking it would help but it just doubled the pain (laughs) you know, all that time, more walking and bugging out.

Initiating opioid use for medical purposes, struggling with pain management, escalating drug use, transitioning to other illicit substances, and mixing drugs all render Marcos at considerable risk for overdose. His suggestion that even crack cocaine use was motivated by a desire to remediate his PTSD and TBI symptoms resonates with the accounts of several other veterans who described using POs or other drugs as part of a more general process of “figuring things out,” to quote Ian, an Army veteran, who remarked that, “I smoke pot now, take OxyContin or whatever; trying to figure things out, housing and work.”

According to several other veterans in our study, substance use, including that of POs, was described as a form of coping, particularly when no meaningful social or economic supports were available. Juan, a 28-year-old homeless male Latino OEF veteran described the environment at a homeless shelter as exacerbating his own aberrant substance use:

You are dealing with cats who are depressed and don't want to go nowhere. If you got no money in your pocket you don't want to go no anywhere. ... When I was stuck in that slum [homeless shelter], there was no one who understood me ... yeah, I drink, smoke pot, take some pills.

For Juan, after having served with pride in Afghanistan and returning to a situation such that he felt isolated, misunderstood, and homeless, diverted POs he obtained through connections around the shelter were a means to “get by” and numb the discomfort. Another 22-year old Black veteran, Jared, spoke candidly with us about his own surprise at finding himself homeless, unemployed, and caught up using drugs following his return from Iraq:

That's the main problem: if you're like me [i.e., disabled] you can't work, don't have a home or apartment, you're always in pain, you're not making money. You're really partying, you don't have a life. ... Bored. Drink and drugs. ... I could see how people overdose and commit suicide or want to do more drugs, drink and other things because you don't have anything else. ... I was in the military for six years. I've done deployments, I've slept in the mud, so it shouldn't be this hard for me coming back here.

Part of what is provocative about the above account is the way in which it moves between stereotypically presented recreational drug use into a more nuanced discussion of self-medication and coping. While some veterans are able to take opioids as prescribed to manage pain and others explicitly state they use drugs for recreational purposes, some in our sample had difficulty separating the two; pain management was at times coupled with recreation. It is these shifts often compounded by mental health concerns that greatly increase the potential for drug overdose. The lack of meaningful employment and social relationships that he describes—as well as his professed understanding about how such conditions can lead to suicidality—point toward a pressing need to investigate further not just common mental health diagnoses but a more diffuse experience of social anomie and isolation among recent veterans.

Speaking to the topic of social isolation, Peecee, one of our Army veteran participants who grew up in a poor, predominantly Black Bronx neighborhood, described the powerful allure of the military service within that community and the perception of military service as

“having made it.” Later in the interview he described his own difficulties in returning to his old neighborhood. A primary part of his problem in reintegrating into civilian life, he explained, resulted from an inability to reconnect with family and old friends who imagined that he would never need to return to a poor urban environment again:

When you come back, you're almost viewed as lower than when you left, 'cause it's like, “how'd you mess up a free place to live, all this money, and travel?” What they don't realize is that the model of the military is that they give you 100 and they take back 99—nothing is free. It's almost worse than living a regular life because you're not expected to get help; you're expected just to figure it out. As a soldier, your whole mentality is just, “figure it out, get her done” You're almost looked at as like a leach. If you come home not a war hero without a new car and a nice house, you're viewed as a fuckup [The military] seems appealing in the 'hood, because it seems like an easy way of life ... It's not an easy way out, and it's not an easy way back in.

As Peecee argues, the shame at returning home as anything but a financially stable war hero can create obstacles to social intimacy and social support; for PO misusers, this social isolation can have grievous effects as the supports of family, friends, and social service providers are absent. At the same time, he raises a topic that emerged as central in our interviews with veterans—that veterans are expected to manage their reintegration themselves, without outside support.

Stigma, Vulnerability, and Masculinity

The ethos of relying on oneself stands in stark contrast with the teamwork promoted in the military. This ethos often prevents veterans from seeking treatment, one of the major obstacles to safe pain management. Indeed, this emphasis on self-reliance is a major risk for adverse health consequences resulting from the self-management of physical and mental health problems. In particular, a strong emphasis on displaying one's masculinity at all times, shunning the appearance of vulnerability, and “being the best” at everything translates into widespread and shared behaviors in which such practices as drinking to excess are expected norms, and seeking help and assistance during readjustment a sign of weakness. Coupled with other risks discussed above, an over emphasis on being stoic at all times is in itself a major risk factor for substance misuse and overdose. As Blue, a 29-year-old Black male Army veteran discussed, this stoicism is firmly entrenched in the military and can be a key to securing the full benefits for the future that the military promises:

When you're in, tuff it up—you don't go get help for nothing. You certainly don't want a bad psych evaluation, sent home, shit future.

Adding to the themes about stigma, masculinity, and the military ethos of autonomy that Blue and Peecee addresses above, a number of other veteran participants in our study offered important commentary on why they had not sought treatment for their aberrant substance use—even when they acknowledged it as risky and debilitating. For some, the social discomfort that seeking treatment involves was paramount, a direct threat to their sense of manhood and a distinct overdose risk. Indeed, the gender stereotypes and gendered expectations common in the military unquestionably carry over to civilian life rendering veterans at heightened risk for overdose. Gary, a 33-year-old Black male Marine veteran of OIF explained how the combination of gendered expectations and ignorance about benefits can create a significant risk for continued drug and alcohol misuse and associated health consequences:

Veterans aren't sure if they have benefits, they think of the VA as a place for old disabled vets We don't trust the VA Vets think seeking treatment could affect them getting employment. Male vets feel they are supposed to be strong and

handle any problem, not show signs of weakness and seeking treatment can be seen as weakness.

While a number of male veterans spoke of the burden of macho, masculine gender roles particularly in the context of substance misuse and acquiring benefits, the female veterans with whom we spoke often addressed even more pressing structural and experiential barriers to healthy reintegration among women. Keisha, a 29-year-old Black female OIF veteran who was homeless at the time of her interview related,

I didn't even know I was eligible for benefits. [I] received a general discharge, other than honorable. Can a woman be a veteran? After I was raped, I didn't report it and I was sort of I didn't care. I slacked lots. [I] got in some trouble. [I] started using lots of drugs, anything, alcohol to numb or feel better It's hard to figure out what to do, how, or if eligible. People don't really seem to care.

Preventing Overdose by Connecting with Other Veterans

While many veterans shared Keisha's sentiment about the lack of caring among service providers, almost all of our interviewees made emphatic statements of concern, not just about their own treatment as veterans but about the welfare of all veterans. Many also had clearly thought in detail about veterans' policy, social service delivery, and forms of social support that might improve the collective veterans' reintegration experience. The most frequently cited and powerful theme emerging from this line of questioning involved the benefits of peer-to-peer service delivery and other forms of support relating to drug and alcohol misuse, social isolation, homelessness, overdose, and suicide. Veterans spoke to the perceived importance among veterans of speaking and dealing with others who have shared in their experiences of military culture and war itself. Almost all veterans with whom we discussed ways of improving social services and overdose prevention efforts highlighted the value and desirability of peer-driven programming. Krista, a 29-year-old Black female OIF veteran made this point clearly:

Most helpful information you get is not from the military or people working at the VA or shelters, it's the veterans! That's how we get our information, it's through other veterans. If there is a veteran they pair you up with in your city or state, that'll work a little better, maybe save the state some money.

David, a 30 year-old Black male OIF veteran who grew up in Queens and a frequent user of VA services reinforced Krista's sentiments, explaining how forms of conventional authority were often worth less than insider's status, particularly where overdose prevention and substance abuse prevention and treatment is concerned:

Well in terms of treatment, I know this much: I think it starts with the staff on the side of the agency who is providing the service. I don't care how many degrees or experience you have, the best drug counselor is going to be a former addict. I would assume it would be the same way in situations like this, for veterans!

While our interviewees' comments on the value of peer-driven support systems were not surprising—particularly in light of current efforts to implement community and peer based interventions for veterans, the seeming consensus among veterans that these programs represent the way forward was unanticipated. Despite a lack of direct contact with, or even awareness about, actual programs that are currently utilizing a peer-delivery model, they had independently arrived at the concept as an ideal way to ease the veteran readjustment experience and in particular, adverse health consequences such as overdose, opioid misuse, and substance use and misuse more generally.

LIMITATIONS

This study was not without limitations, primarily in terms of the representativeness of its sample. Looking exclusively at veterans from historically disadvantaged NYC neighborhoods raises important questions about underlying social, environmental, and geographical factors that impact substance abuse generally, PO misuse more specifically, and related health consequences. What this, and indeed all, qualitative research lacks in generalizability, however, it makes up for in terms of detail, in this case about the sociocultural contexts and processes affecting veterans' substance use practices and their related health risks. In this qualitative vein, our study can help understand risk as a process, not an indelible, static mark upon individual lives. In that regard, this study establishes some important preliminary findings which can productively inform and guide future policy and public health interventions addressing veterans.

CONCLUSION

There is an established need for overdose prevention outreach targeting veterans, the contours of which may be different from overdose prevention programming aimed at a general population. Indeed, there is much more information we need about the very pressing topic of opioid and other substance misuse among the vulnerable veteran population, especially as it relates to behaviors and practices rooted in the military experience and a larger constellation of risks associated with the readjustment process, including social isolation, homelessness, mental health needs (e.g., PTSD, TBI, and depression), pain management, stigma, and perceptions of vulnerability.

Taken together, the narrative accounts offered by our veteran participants make a powerful case for bolstering existing educational and therapeutic programs and developing new, targeted overdose prevention efforts. While the broad contours of the PO and other substance misuse problem among veterans have been established by statistical surveys and data released by the US military, the full scope of the issues surrounding PO and other substance misuse and overdose have not yet been fully elucidated and cannot easily be discerned without more intimate and extensive involvement from veterans themselves. One of the most important lessons offered by our veteran participants is that factors impacting PO and other substance misuse and related overdose risk exist throughout the multiple phases, settings, and experiences that characterize the civilian/military/veteran career. Unquestionably, individuals' background experiences with substance use and/or abuse can shape subsequent experiences, but so too does the formative social experience of military service—where heavy alcohol use can feel almost mandatory—set the stage for heightened levels of risk later on, during deployment and reintegration. As many of our participants noted, learning to be a soldier involved learning to drink to extremes, to “be the best” as so many put it. For others, alcohol use was also a means to deal with pain. However contraband alcohol may be on military posts in the United States or abroad, the reports we collected suggest that, for many of our participants, drinking was often a core part of their military experience.

Concurrent use of alcohol and POs represents one of the most common risk factors for overdose, yet our focus groups and interviews strongly suggest that awareness of PO-related contraindications is limited among our study population. Some participants spoke in cavalier tones about partying with alcohol and PO medications, while others described using a combination of alcohol, POs, and other substances to cope with physical pain or the pressures of military life and reintegration into civilian society. Whether or not pathways into PO and other substance misuse can be categorized as “iatrogenic,” “recreational,” or “opportunistic,” each holds significant risk for overdose, especially in the context of the

myriad challenges of readjustment faced by a primarily poor, enlisted, and minority veteran population. Even when prompted, very few PO-using participants indicated that they had concerns about associated overdose risk. When POs can be obtained for injuries as minor as “toothache,” to paraphrase one participant, it is critical that military personnel be better educated in the risks attendant in the concurrent use of POs and alcohol.

For veterans who return home with alcohol and other SUDs, more than basic educational materials are clearly indicated. One of the critical themes emerging from our participants concerned the feeling of disconnection from social supports that complicates reintegration for so many veterans. As several of our participants emphatically stated, seeking help is difficult to do when one has been raised on a military ethos that shuns the appearance of vulnerability. For so many veterans with whom we spoke, “figuring it out” appeared an almost impossible achievement, especially when mental health concerns, social isolation, unemployment, and/or SUD/AUDs complicated the passage back into civilian life and even one's close friends and family looked upon one's need for support as a kind of failure. After an experience of intense camaraderie and social togetherness, many of those with whom we spoke have returned home to find life characterized by loneliness and a distrust of those institutions that exist to serve the veterans population.

The notion that veterans can only truly relate to other veterans emerged in this study as a powerful indication of some of the barriers that exist for those recognizing a need or desire to seek treatment for their mental health, alcohol use disorder or SUD concerns. While the stigma related to treatment seeking that has been documented in other studies (Finley, 2011; Tanielian & Jaycox, 2008b; Vaishnavi, Connor, & Davidson, 2007) was mentioned by several of our interviewees, the overwhelming consensus about the value of receiving services *from other veterans* was something that we have yet to see clearly documented in extant research. Fortunately, novel approaches to peer-delivery of veterans services have already been undertaken (Davidson, Chinman, Sells, & Rowe, 2006) in select locations and can point to the way to a nuanced tailoring and more robust implementation of these approaches in the future, especially concerning overdose prevention and response. The VA has funded research into the “peer support model” for service provision, in which veterans with mental health concerns, for example, deliver services to other veterans with mental health concerns (Davidson et al., 2006) and has begun employing Peer Support Technicians to aid with mental health recovery in select locations (Chinman, Shoai, & Cohen, 2010). Ethical issues guiding peer education among veterans service organizations have also been carefully examined (Whittle et al., 2010), and one fully implemented intervention, peer-assisted case management for homeless veterans, proved a highly effective approach (Weissman, Covell, Kushner, Irwin, & Essock, 2005). What our research indicates is that these efforts have the potential to be highly effective at reaching veterans whose mistrust of the VA and other organizations affiliated with the military stands in the way of their accessing the services they need.

The US DoD has recently introduced initiatives to stem the problem of PO misuse among active-duty military personnel, such as Operation Opioid SAFE implemented at Ft. Bragg, NC, a program that combines close monitoring of PO use with distribution of Narcan/naloxone, an opioid receptor antagonist capable of reversing an opioid-related overdose. While this initiative holds great promise for the small subpopulation of active-duty personnel who utilize it, veteran populations have yet to see comparable interventions tailored to their particular needs and vulnerabilities. The pioneering efforts of a military intervention to monitor opioid use and curtail overdose undertaken at Ft. Bragg can only benefit veterans as well as active-duty personnel. Our finding that many veterans from historically underprivileged urban environments lack information about overdose risks strongly suggests that interventions designed to inform veterans populations about not just

avoiding but reversing overdoses through the timely administration of Narcan/naloxone are imperative if lives are to be saved. Public Health Departments and community groups across the nation have successfully implemented such overdose prevention and naloxone distribution programs targeting drug users, their families, and their peers (Bennett, Bell, Tomedi, Hulsey, & Kral, 2011; Piper et al., 2007; Sherman et al., 2009; Sporer, 2003; Strang, Darke, Hall, Farrell, & Ali, 1996; Tobin, Sherman, Beilenson, Welsh, & Latkin, 2009; Tracy et al., 2005). Such programs provide information about identifying an overdose, overdose risks (e.g., tolerance, mixing drugs, and using alone), and responding to an overdose (e.g., rescue breathing and Narcan). As much of the groundwork and effectiveness of such programs has now been established, such interventions could be tailored to veteran populations, recognizing cultural, socioeconomic, and identity variations among this population. These veteran-tailored interventions could be designed in dialogue with veterans and community partners and could be piloted in order to assess their efficacy and best ways to disseminate findings among veterans' groups, VA medical centers, drug prevention and treatment agencies, and other community groups. As has been done with other at-risk substance involved populations, overdose prevention training for veterans could be greatly enhanced by incorporating veterans themselves and the organizations that serve them in the planning, implementation, evaluation, and ultimate dissemination of opioid misuse and overdose prevention programming. An important step in this direction will involve more research into the settings and situations, endogenous as well as exogenous conditions, micro to macro levels, in which risky behaviors occur and the mechanisms and processes underlying the passage between PO use and misuse. This research might consider such discrete abstract domains as necessarily linked in dialogic process through time.¹

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Biographies

Alex S. Bennett, PhD is a Principal Investigator at National Development and Research Institutes (NDRI). He received his PhD in History and Policy from Carnegie Mellon University in 2009. His current work focuses on veterans, overdose prevention and response,

¹The reader is asked to consider that concepts and processes such as “risk,” “vulnerability,” and “protective” factors are often noted in the literature, without adequately delineating their dimensions (linear, nonlinear, rates of development, sustainability and cessation, exposure time, etc.), their “demands,” the critical necessary conditions (endogenously as well as exogenously; micro to macro levels) which are necessary for them to operate (begin, continue, become anchored and integrate, change as de facto realities change, cease, etc.) or not to operate. The reader is also asked to consider whether their underpinnings are theory-driven, empirically based, individual and/or systemic stake holder-bound, historically bound, based upon “principles of faith,” intuitive-driven, or what. This is necessary to clarify, if possible, if these terms are not to remain as yet additional shibboleths in a field of many stereotypes. Editor’s note.

and drug use and misuse more broadly. He started work on overdose prevention and outreach services in 2002 with Prevention Point Pittsburgh, an early model for many of the overdose prevention programs. Dr. Bennett continued this work on substance misuse and overdose prevention and response both in an academic and community-based setting doing research, needs assessment, program development, service delivery, and evaluation work. Dr. Bennett currently serves on the Board of Directors of the New York Harm Reduction Educators. In 2012, Dr. Bennett organized a Community Advisory Board (CAB) that includes diverse NYC organizations with a common purpose of addressing veterans substance misuse that includes veterans groups, public health agencies, drug treatment providers, academic researchers, and advocacy groups. This CAB promotes awareness and personal connection between organizations and veterans, facilitates information exchange, and supports collaboration across agencies on local initiatives.

Luther Elliott, PhD is a Principal Investigator at National Development and Research Institutes, Inc. He received his PhD in cultural anthropology from New York University in 2006. His work has focused on subcultures of substance use and abuse. He has worked with diverse populations of substance users, ranging from urban marijuana smokers in NYC to PO using combat veterans and young club drug users. Dr. Elliott also conducted a large NIDA-funded study on problematic video game use, expanding his research into the domain of behavioral addictions. His work is united by an attention to the symbolic construction and categorization of experience and the importance of sociocultural and political contexts to our understanding of substance related pleasures and harms. Elliott is currently also a volunteer at New York Harm Reduction Educators where he is assisting with an innovative program providing a spiritual, ritualized framework for assisting substance users in reducing negative outcomes related to their substance use.

Andrew Golub, PhD is a Principal Investigator at National Development and Research Institutes, Inc. (NDRI). He received his PhD in public policy analysis from Carnegie Mellon University in 1992. His work seeks to improve social policy and programs through research. His studies have examined trends in drug use, the larger context of use, causes and consequences of use, and the efficacy of policies and programs as well as associated issues related to violence, crime, policing, poverty, and families. Dr. Golub is currently the Principal Investigator of the Veteran Reintegration, Mental Health and Substance Abuse in the Inner-City Project funded by NIAAA that examines the challenges faced by veterans returning from Afghanistan and Iraq to New York's low-income predominately minority neighborhoods. This mixed methods study focuses on the significance of substance misuse

and its relationship with other mental health problems, and reintegration into family, work, and community life within the complex of problems prevailing in low-income communities.

REFERENCES

- Allan K, Turner JH. A formalization of postmodern theory. *Sociological Perspectives*. 2000; 43:363–385.
- Ames GM, Cunradi CB, Moore RS, Stern P. Military culture and drinking behavior among US Navy careerists. *Journal of Studies on Alcohol and Drugs*. 2007; 68(3):336. [PubMed: 17446972]
- Ames G, Cunradi C. Alcohol use and preventing alcohol-related problems among young adults in the military. *Alcohol Research & Health*. 2004; 28(4):252–257.
- Ames GM, Duke MR, Moore RS, Cunradi CB. The impact of occupational culture on drinking behavior of young adults in the US Navy. *Journal of Mixed Methods Research*. 2009; 3(2):129–150.
- Anderson GA. The politics of another side: Truth-in-military recruiting advocacy in an urban school district. *Educational Policy*. 2009; 23(1):267–291.
- Andrews B, Brewin C, Philpott R, Stewart L. Delayed-onset posttraumatic stress disorder: A systematic review of the evidence. *American Journal of Psychiatry*. 2007; 164(9):1319–1326. [PubMed: 17728415]
- Armor DJ. Race and Gender in the US Military. *Armed Forces and Society*. 1996; 23(1):7–27.
- Army, US. *Army 2020: Generating health & discipline in the force ahead of the strategic reset*. U.S. Army; Washington, DC: 2012.
- Barrett FJ. The organizational construction of hegemonic masculinity: The case of the US Navy. *Gender, Work & Organization*. 2007; 3(3):129–142.
- Becker WC, Fiellin DA, Gallagher RM, Barth KS, Ross JT, Oslin DW. The association between chronic pain and prescription drug abuse in veterans. *Pain Medicine*. 2009; 10(3):531–536. [PubMed: 19425211]
- Becker WC, Fiellin DA, Kerns RD. Opioid doses and increased risk for overdose. *Annals of Internal Medicine*. 2010; 153(1):59. author reply 59–60. [PubMed: 20621908]
- Bennett AS, Bell A, Tomedi L, Hulsey EG, Kral AH. Characteristics of an overdose prevention, response, and naloxone distribution program in Pittsburgh and Allegheny County, Pennsylvania. *Journal of Urban Health*. 2011; 88(6):1020–1030. [PubMed: 21773877]
- Bergen-Cico, DK. *War and drugs: The role of military conflict in the development of substance abuse*. Paradigm; Boulder, Co: 2011.
- Bohnert ASB, Nandi A, Tracy M, Cerdá M, Tardiff KJ, Vlahov D, et al. Policing and risk of overdose mortality in urban neighborhoods. *Drug and Alcohol Dependence*. 2011; 113(1):62–68. [PubMed: 20727684]
- Bohnert ASB, Roeder K, Ilgen MA. Unintentional overdose and suicide among substance users: A review of overlap and risk factors. *Drug and Alcohol Dependence*. 2010; 110(3):183–192. [PubMed: 20430536]
- Bray RM, Hourani LL. Substance use trends among active duty military personnel: Findings from the United States Department of Defense Health Related Behavior Surveys, 1980–2005. *Addiction*. 2007; 102(7):1092–1101. [PubMed: 17567397]
- Bray, RM.; Olmsted, KR.; Williams, J., editors. *Misuse of prescription pain medications in US active duty service members*. IOS Press; Amsterdam: 2012.
- Bray RM, Pemberton MR, Lane ME, Hourani LL, Mattiko MJ, Babeu LA. Substance use and mental health trends among U.S. military active duty personnel: Key findings from the 2008 DoD health behavior survey. *Military Medicine*. 2010; 175(6):390–399. [PubMed: 20572470]
- CDCP. Prescription painkiller overdoses in the US: Vital signs. 2011. Retrieved September 12, 2012, from <http://www.cdc.gov/vitalsigns/painkilleroverdoses/>
- Charmaz, K. Grounded theory: Objectivist and constructivist methods. In: Denzin, NK.; Lincoln, YS., editors. *Handbook of qualitative research*. 2nd ed.. Sage; Thousand Oaks, CA: 2000. p. 509-535.

- Chinman M, Shoai R, Cohen A. Using organizational change strategies to guide peer support technician implementation in the veterans administration. *Psychiatric Rehabilitation Journal*. 2010; 33(4):269–277. [PubMed: 20374985]
- Cohen BE, Gima K, Bertenthal D, Kim S, Marmar CR, Seal KH. Mental health diagnoses and utilization of VA non-mental health medical services among returning Iraq and Afghanistan veterans. *Journal of General Internal Medicine*. 2010; 25(1):18–24. [PubMed: 19787409]
- Courtwright, DT. *Dark paradise : A history of opiate addiction in America*. Enl. ed.. Harvard University Press; Cambridge, Mass: 2001.
- Davidson L, Chinman M, Sells D, Rowe M. Peer support among adults with serious mental illness: A report from the field. *Schizophrenia Bulletin*. 2006; 32(3):443–450. [PubMed: 16461576]
- Denzin, NK.; Lincoln, YS. *The Sage handbook of qualitative research*. Sage Publications, Incorporated; Thousand Oaks, CA: 2005.
- Department of Veterans Affairs. Advisory Committee on Women Veterans. *Honoring Women Veterans—Yesterday, Today and Tomorrow*. Washington, DC: Sep. 2012 2012 Report.
- Drummet AR, Coleman M, Cable S. Military families under stress: Implications for family life education. *Family Relations*. 2003; 52(3):279–287.
- Finley, EP. *Fields of combat: Understanding PTSD among veterans of Iraq and Afghanistan*. Cornell; Ithaca, NY: 2011.
- Galea S, Ahern J, Tardiff K, Leon A, Coffin PO, Derr K, et al. Racial/ethnic disparities in overdose mortality trends in New York City, 1990–1998. *Journal of Urban Health*. 2003; 80(2):201–211. [PubMed: 12791796]
- Geissler LJ, Bormann CA, Kwiatkowski CF, Braucht GN, Reichardt CS. Women, homelessness, and substance abuse: Moving beyond the stereotypes. *Psychology of Women Quarterly*. 1995; 19(1): 65–83.
- Gibbs DA, Olmsted KLR, Brown JM, Clinton-Sherrod AM. Dynamics of stigma for alcohol and mental health treatment among army soldiers. *Military Psychology*. 2011; 23(1):36–51.
- Glaser, BG.; Strauss, AL. *The discovery of grounded theory: Strategies for qualitative research*. Aldine de Gruyter; Hawthorne, NY: 1967.
- Goebel JR, Compton P, Zubkoff L, Lanto A, Asch SM, Sherbourne CD, et al. Prescription sharing, alcohol use, and street drug use to manage pain among veterans. *Journal of Pain and Symptom Management*. 2011a; 41(5):848–858. [PubMed: 21256706]
- Goebel JR, Compton P, Zubkoff L, Lanto A, Asch SM, Sherbourne CD, et al. Prescription sharing, alcohol use, and street drug use to manage pain among veterans. *Journal of Pain and Symptom Management*. 2011b; 41(5):848–858. [PubMed: 21256706]
- Golub, A.; Bennett, AS. *Substance Use and Misuse*. 2013. Prescription opioid initiation, correlates, and consequences among a sample of OEF/OIF military personnel.
- Hall AJ, Logan JE, Toblin RL, Kaplan JA, Kraner JC, Bixler D, et al. Patterns of abuse among unintentional pharmaceutical overdose fatalities. *JAMA*. 2008; 300(22):2613–2620. [PubMed: 19066381]
- Harocopos A, Goldsamt LA, Kobrak P, Jost JJ, Clatts MC. New injectors and the social context of injection initiation. *International Journal of Drug Policy*. 2009; 20(4):317–323. [PubMed: 18790623]
- Heckathorn DD. Respondent-driven sampling: A new approach to the study of hidden populations. *Social Problems*. 1997; 44(2):174–199.
- Heckathorn DD. Respondent-driven sampling II: Deriving valid population estimates from chain-referral samples of hidden populations. *Social Problems*. 2002; 49(1):11–34.
- Hembree C, Galea S, Ahern J, Tracy M, Markham Piper T, Miller J, et al. The urban built environment and overdose mortality in New York City neighborhoods. *Health Place*. 2005; 11(2):147–156. [PubMed: 15629682]
- Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *The New England Journal of Medicine*. 2004; 351(1):13–22. [PubMed: 15229303]
- Hwang SW. Homelessness and health. *Canadian Medical Association Journal*. 2001; 164(2):229–233. [PubMed: 11332321]

- Institute of Medicine. Substance use disorders in the U.S. armed forces. National Academies; Washington, DC: 2012.
- Jacobson IG, Ryan MAK, Hooper TI, Smith TC, Amoroso PJ, Boyko EJ, et al. Alcohol use and alcohol-related problems before and after military combat deployment. *JAMA: The Journal of the American Medical Association*. 2008; 300(6):663–675. [PubMed: 18698065]
- Koegel P, Sullivan G, Burnam A, Morton SC, Wenzel S. Utilization of mental health and substance abuse services among homeless adults in Los Angeles. *Medical Care*. 1999; 37(3):306. [PubMed: 10098574]
- Lankenau SE, Teti M, Silva K, Bloom JJ, Harocopos A, Treese M. Initiation into prescription opioid misuse amongst young injection drug users. *International Journal of Drug Policy*. 2012; 23(1):37–44. [PubMed: 21689917]
- Larance B, Degenhardt L, Lintzeris N, Winstock A, Mattick R. Definitions related to the use of pharmaceutical opioids: Extramedical use, diversion, non-adherence and aberrant medication-related behaviours. *Drug & Alcohol Review*. 2011; 30(3):236–245. [PubMed: 21545553]
- Larson MJ, Wooten NR, Adams RS, Merrick EL. Military combat deployments and substance use: Review and future directions. *Journal of Social Work Practice in the Addictions*. 2012; 12(1):6–27. [PubMed: 22496626]
- Maguen S, Luxton DD, Skopp NA, Madden E. Gender differences in traumatic experiences and mental health in active duty soldiers redeployed from Iraq and Afghanistan. *Journal of Psychiatric Research*. 2011; 46(3):311–316. [PubMed: 22172997]
- Maguen S, Ren L, Bosch JO, Marmar CR, Seal KH. Gender differences in mental health diagnoses among Iraq and Afghanistan veterans enrolled in Veterans Affairs health care. *American Journal of Public Health*. 2010; 100(12):24500–22456.
- Manchikanti L, Singh A. Therapeutic opioids: A ten-year perspective on the complexities and complications of the escalating use, abuse, and nonmedical use of opioids. *Pain Physician*. 2008; 11(2 Suppl):S63–88. [PubMed: 18443641]
- Miles, MB.; Huberman, AM. Qualitative data analysis: An expanded sourcebook. Sage Publications, Incorporated; 1994.
- Miniño AM, Xu J, Kochanek M. National Vital Statistics Reports. National Vital Statistics Reports. 2011; 59(10)
- Nandi AK, Galea S, Ahern J, Bucciarelli A, Vlahov D, Tardiff KJ. What explains the association between neighborhood-level income inequality and the risk of fatal overdose in New York City? *Social Science & Medicine*. 2006; 63(3):662–674. [PubMed: 16597478]
- Nunnink SE, Goldwaser G, Heppner PS, Pittman JOE, Nievergelt CM, Baker DG. Female veterans of the OEF/OIF conflict: Concordance of PTSD symptoms and substance misuse. *Addictive Behaviors*. 2010; 35(7):655–659. [PubMed: 20378259]
- ONDCP. Epidemic: Responding to America's prescription drug abuse crisis. 2011. Retrieved September 14, 2012, from <http://www.whitehouse.gov/ondcp/>
- Paulozzi LJ, Kilbourne EM, Desai HA. Prescription drug monitoring programs and death rates from drug overdose. *Pain Medicine*. 2011; 12(5):747–754. [PubMed: 21332934]
- Pierce TG. Gen-X junkie: Ethnographic research with young white heroin users in Washington, DC. *Substance Use & Misuse*. 1999; 34(14):2095–2114. [PubMed: 10573306]
- Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Southwick SM. Psychological resilience and postdeployment social support protect against traumatic stress and depressive symptoms in soldiers returning from Operations Enduring Freedom and Iraqi Freedom. [Article]. *Depression & Anxiety* (1091–4269). 2009; 26(8):745–751.
- Piper TM, Rudenstine S, Stancliff S, Sherman S, Nandi V, Clear A, et al. Overdose prevention for injection drug users: Lessons learned from naloxone training and distribution programs in New York City. *Harm Reduction Journal*. 2007; 4:3. [PubMed: 17254345]
- Poehlman JA, Schwerin MJ, Pemberton MR, Isenberg K, Lane ME, Aspinwall K. Socio-cultural factors that foster use and abuse of alcohol among a sample of enlisted personnel at four Navy and Marine Corps installations. *Military Medicine*. 2011; 176(4):397–401. [PubMed: 21539161]

- Schell, TL.; Tanielian, T.; Farmer, CM.; Jaycox, LH.; Marshall, GN.; Vaughan, CA., et al. A needs assessment of New York State veterans: Final Report to the New York State Health Foundation. RAND Corporation; Santa Monica, CA: 2011.
- Seal KH, Bertenthal D, Miner CR, Sen S, Marmar C. Bringing the war back home: Mental health disorders among 103,788 US veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs facilities. *Archives of Internal Medicine*. 2007; 167:476–482. [PubMed: 17353495]
- Seal KH, Cohen G, Waldrop A, Cohen BE, Maguen S, Ren L. Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001–2010: Implications for screening, diagnosis and treatment. *Drug and Alcohol Dependence*. 2011; 116(1):93–101. [PubMed: 21277712]
- Seal KH, Shi Y, Cohen G, Cohen BE, Maguen S, Krebs EE, et al. Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan. *JAMA: The Journal of the American Medical Association*. 2012; 307(9):940–947. [PubMed: 22396516]
- Sherman SG, Gann DS, Tobin KE, Latkin CA, Welsh C, Bielenso P. “The life they save may be mine”: Diffusion of overdose prevention information from a city sponsored programme. *International Journal of Drug Policy*. 2009; 20(2):137–142. [PubMed: 18502635]
- Sherman SG, Smith L, Laney G, Strathdee SA. Social influences on the transition to injection drug use among young heroin sniffers: A qualitative analysis. *International Journal of Drug Policy*. 2002; 13(2):113–120.
- Sporer KA. Strategies for preventing heroin overdose. *BMJ: British Medical Journal*. 2003; 326(7386): 442–444.
- Stewart, DW.; Rook, DW.; Shamdasani, PN. Focus groups: Theory and practice. Vol. Vol. 20. Sage Publications, Incorporated; Thousand Oaks, CA: 2006.
- Strang J, Darke S, Hall W, Farrell M, Ali R. Heroin overdose: The case for take-home naloxone. *BMJ: British Medical Journal*. 1996; 312(7044):1435–1436.
- Tanielian, T.; Jaycox, LH. Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery. RAND; Santa Monica, CA: 2008a.
- Tanielian, TL.; Jaycox, L. Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery. Vol. Vol. 720. Rand Corporation; Santa Monica, CA: 2008b.
- Tobin KE, Sherman SG, Beilenson P, Welsh C, Latkin CA. Evaluation of the Staying Alive programme: Training injection drug users to properly administer naloxone and save lives. *International Journal of Drug Policy*. 2009; 20(2):131–136. [PubMed: 18434126]
- Tracy M, Piper TM, Ompad DC, Bucciarelli A, Coffin PO, Vlahov D, et al. Circumstances of witnessed drug overdose in New York City: Implications for intervention. *Drug and Alcohol Dependence*. 2005; 79:181–190. [PubMed: 16002027]
- U.S. Army. Army health promotion, risk reduction and suicide prevention report. U.S. Army; Washington, DC: 2010.
- U.S. Army. Army 2020: Generating health & discipline in the force ahead of the strategic reset. Headquarters, Department of the Army; Washington, DC: 2012.
- U.S. Department of Housing and Urban Development. Veteran Homelessness: Assessment Report to Congress. Washington, DC: 2010.
- Unger JB, Kipke MD, Simon TR, Montgomery SB, Johnson CJ. Homeless youths and young adults in Los Angeles: Prevalence of mental health problems and the relationship between mental health and substance abuse disorders. *American Journal of Community Psychology*. 1997; 25(3):371–394. [PubMed: 9332967]
- Vaishnavi S, Connor K, Davidson JRT. An abbreviated version of the Connor-Davidson Resilience Scale (CD-RISC), the CD-RISC2: Psychometric properties and applications in psychopharmacological trials. [Article]. *Psychiatry Research*. 2007; 152(2/3):293–297. [PubMed: 17459488]
- Warner-Smith M, Darke S, Day C. Morbidity associated with non-fatal heroin overdose. *Addiction*. 2002; 97(8):963–967. [PubMed: 12144598]

- Warner-Smith M, Darke S, Lynskey M, Hall W. Heroin overdose: Causes and consequences. *Addiction*. 2001; 96(8):1113–1125. [PubMed: 11487418]
- Weissman EM, Covell NH, Kushner M, Irwin J, Essock SM. Implementing peer-assisted case management to help homeless veterans with mental illness transition to independent housing. *Community Mental Health Journal*. 2005; 41(3):267–276. [PubMed: 16131006]
- Whitbeck LB, Hoyt DR, Bao WN. Depressive symptoms and co-occurring depressive symptoms, substance abuse, and conduct problems among runaway and homeless adolescents. *Child Development*. 2000; 71(3):721–732. [PubMed: 10953939]
- White JM, Irvine RJ. Mechanisms of fatal opioid overdose. *Addiction*. 2002; 94(7):961–972. [PubMed: 10707430]
- Whittle J, Fletcher KE, Morzinski J, Ertl K, Patterson L, Jensen W, et al. Ethical challenges in a randomized controlled trial of peer education among veterans service organizations. *Journal of Empirical Research on Human Research Ethics*. 2010; 5(4):43–51. [PubMed: 21133786]
- Wilk JE, Bliese PD, Kim PY, Thomas JL, McGurk D, Hoge CW. Relationship of combat experiences to alcohol misuse among US soldiers returning from the Iraq war. *Drug and Alcohol Dependence*. 2010; 108(1):115. [PubMed: 20060237]
- Wong SC, Roberts JR. Case files of the Drexel University Medical Toxicology Fellowship: Methadone-induced QTc prolongation. *Journal of Medical Toxicology*. 2007; 3(4):190–194. [PubMed: 18072176]