RESEARCH REVIEW: RISK FACTORS FOR OPIOID USE/MISUSE AND EMERGING INTERVENTIONS

PREPARED BY
BENJAMIN GLEASON, PHD
TANNER BROOKS, MA

asapp ALCOHOL & SUBSTANCE ABUSE PREVENTION PROJECT
WORKFORCE DEVELOPMENT SYSTEM
PROSPECTUS GROUP·LLC

PART I: RISK FACTORS FOR OPIOID USE/MISUSE

In recent years, heroin abuse has risen dramatically in the US among men and women, most age groups, all races and ethnic groups, and all income levels, with some of the epidemic's greatest increases occurring in demographic groups with historically low rates of heroin use: women, people with higher incomes, and the privately insured (CDC, 2017). Risk factors for heroin abuse are numerous and diverse, comprising individual and environmental influences such as past use of prescription opioids, psychological dynamics, market forces, and social climates. Addressing this crisis demands a greater understanding of the range and depth of risk factors involved.

Recent studies on the patterns and characteristics of heroin abuse indicate a positive association between nonmedical use of prescription opioids and heroin use. Various investigations found that heroin users were significantly more likely to report previous nonmedical use of prescription opioids, suggesting **a marked connection between nonmedical use of prescription opioids and initiation and transition to heroin use** (Compton, 2017). Additional research found that prior nonmedical use of prescription opioids was a strong predictor of the onset of heroin use among adolescents and young adults, with the greatest risk among individuals exposed in early adolescence (Cerda, 2015).

According to recent government survey data, 80% of heroin users reported opioid use beginning with opioid pain relievers, and **the overprescribing of opioid pain relievers has led to a sharp increase in the prevalence of opioid addiction,** overdose deaths, and heroin use (Kolodny, 2015). Further screening and diagnostic research found that individuals abusing opioids for chronic pain were more likely to display aberrant behavior such as forged prescriptions, soliciting opioids from multiple providers, unauthorized dosage increases, abnormal urine/blood screenings, using additional opioids other than those prescribed, and canceled clinic visits (Webster & Webster, 2005).

Psychological issues pose another set of risk factors. Reports indicate that the **presence of psychological features of depression, anxiety, and somatization disorder are markers of a predisposition for substance abuse** in chronic pain patients. This patient population presents a persistent and problematic tendency to abuse prescription drugs, opioids, and illicit agents (Manchikanti, 2007).

Anxiety sensitivity has also been identified as an underlying factor linked to heroin abuse. Evidence suggests that habitual heroin users exhibit a greater prevalence of and increased risk for heightened anxiety and anxiety disorders, **pointing to a unique relationship between heroin use and anxiety**. Studies found individuals with high anxiety reported using substances such as heroin to self-medicate negative affective states, implicating anxiety as a factor influencing heroin use (Tull, 2007).

Certain demographic and environmental factors have additionally been associated with heroin abuse, **such as increasing use among whites, the middle-class, and people living in nonurban areas**. Societal conditions affecting heroin morbidity and mortality involve its increasingly lower cost and cost-effectiveness versus other drugs and prescription opioids, increased purity, its relative accessibility and availability, and initiation through social surroundings such as contact with drug users, sexual partners, or drug dealers (Compton, 2017). Genetic influences have likewise been linked to heroin and opioid abuse, as well as a family history of alcoholism, illegal and prescription drug abuse, age, a history of preadolescent sexual abuse, and certain mental disorders (Webster & Webster, 2005).

Heroin and opioid abuse encompass a multitude of eclectic individual and environmental risk factors, including past use of prescription opioids, psychological indicators, market forces (e.g., low cost), and social climates. **Combating this epidemic requires greater comprehension and recognition of this constellation of factors toward more effective and efficient intervention strategies.**

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PART II: INTERVENTIONS TARGETING OPIOID USE/MISUSE

ARTICLE 1: THE PRESCRIPTION OPIOID AND HEROIN CRISIS: A PUBLIC HEALTH APPROACH TO AN EPIDEMIC OF ADDICTION.

SUMMARY

According to the United States Centers for Disease Control and Prevention, recent dramatic and unprecedented increases in the rate of opioid pain reliever (OPR) use have induced the worst drug overdose epidemic in US history. The federal government's National Survey on Drug Use and Health found that 4 of 5 current heroin users reported that their opioid use started with OPRs, and the increased extent of opioid addiction has been linked to rises in the incidence of heroin usage and heroin-related overdose. The overprescribing of OPRs has fueled a rapid acceleration in opioid addiction. This sharp rise in the prevalence of addiction is a key catalyst of opioid-related morbidity and mortality. Efforts to address this crisis must include preventing and treating opioid addiction rather than focusing exclusively on reducing nonmedical OPR use (p. 560-565).

Combating the epidemic of opioid addiction should include interventions focused on three areas of prevention. **Primary prevention through more cautious and selective prescribing** can reduce the incidence of new cases of medical and nonmedical exposure to OPRs. **Secondary prevention to identify nascent cases of opioid addiction** should involve prescribers detecting early addiction and prescriptions from multiple providers (“doctor shopping”) through consulting collateral information such as reports from prescription drug monitoring programs before prescribing OPRs. Lastly, **tertiary prevention measures that ensure access to effective treatment** can be accomplished through pharmacotherapies such as methadone and naltrexone, psychosocial methods including residential treatment and mutual-help programs, and harm-reduction approaches such as syringe exchange programs and expanding access to naloxone. This multi-pronged framework for intervention is essential to effectively decrease opioid-related morbidity and mortality (p. 565-569).

The overprescribing of OPRs has led to a marked increase rate of opioid addiction and a concurrent rise in overdose deaths. Acknowledging that opioid addiction in both medical and nonmedical users is a central driver of opium-related morbidity and mortality, rather than focusing solely on decreasing nonmedical OPR use, will more effectively address this crisis. **A multi-faceted approach utilizing primary, secondary, and tertiary prevention methods is an essential intervention strategy.** Properly confronting this disease requires reducing incidence

rates through more selective OPR prescribing and better early identification of new cases of addiction while ensuring access to capable treatment (p. 559, 560, 569).

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ARTICLE 2: PROJECT LAZARUS: COMMUNITY-BASED OVERDOSE PREVENTION IN RURAL NORTH CAROLINA

SUMMARY

Seeking to counter some of the highest drug overdose rates in the country—due almost entirely to prescription opioid pain relievers such as fentanyl, hydrocodone, methadone, and oxycodone—Project Lazarus developed a community-based overdose prevention program in Wilkes County, North Carolina. **It involved the creation of a prevention tool kit and employed face-to-face meetings aimed principally at educating primary care providers in managing chronic pain and safe opioid prescribing.** The program centered around an understanding that "communities are ultimately responsible for their own health, and that active participation from a coalition of community partners is required for a successful public health campaign" (p. 78).

Building on successful public health campaigns in injury prevention, Project Lazarus devised a model for preventing prescription opioid overdose deaths that employed five components: first, community activation and coalition building (i.e. concrete actions necessary to unite communities in developing a health promotion strategy and build lasting social capital); second, prevention of overdoses; third, use of rescue medication for reversing overdoses by community members; fourth, monitoring and surveillance data, and fifth, evaluating project components.

The model was informed by previous research indicating that organizations such as health departments, governmental agencies, schools, churches, and hospitals are the most important for successful public health campaigns. Such "bottom-up" interventions were designed and initiated by local individuals, agencies, and organizations that raised awareness for new program funding and leveraged existing resources. **Project Lazarus coordinated these efforts by training community organizers, raising awareness of the overdose problem, and creating strategic and action plans.** The program's model functioned conversely from "top-down"

approaches in which interventions are adopted at the local level after being devised by centrally funded expert advisory boards and health authorities (p. 78-81).

Built around community activation and a robust coalition of partners with an active interest in preventing prescription overdose deaths, Project Lazarus' five-component strategy harnessed numerous levels of prevention efforts and community-based education developed to reach medical care providers along with pain patients and non-medical drug users. **Preliminary results from the Project Lazarus model indicate that its emphasis on empowerment through improving and coordinating responses to overdoses among various actors such as doctors, pain patients, and law enforcement yielded progress.** Replicating this progress in areas also impacted by high rates of prescription opioid abuse demands the presence of support from the medical establishment, the use of effective data practices, and a base level of community motivation, awareness, and coalition-building capacity. (p. 82, 83)

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ARTICLE 3: DEVELOPMENT OF A SELF-REPORT SCREENING INSTRUMENT FOR ASSESSING POTENTIAL OPIOID MEDICATION MISUSE IN CHRONIC PAIN PATIENTS

SUMMARY

With the primary goal of initiating the first step in the process of developing a self-report screening instrument for risk of opioid medication misuse among chronic pain patients, the present study constructed the Pain Medication Questionnaire (PMQ) to assess risk for aberrant behaviors in opioid medication use among patients with heterogeneous pain syndromes. Using suspected behavior correlates of opioid medication misuse—which as yet have received limited empirical investigation—**the study found that higher PMQ scores were associated with higher levels of psychosocial afflictions, a history of substance abuse, and poorer functioning (p. 441-443).**

Researchers administered the 26-item PMQ to 184 patients at an interdisciplinary treatment center in Dallas, Texas between October 2001 and May 2002. Patients responded to each item on a standard numerical-type scale, arranged in a 5-point Likert format, with their overall score derived by summing the item scores.
The study revealed that the potential risk for opioid misuse among chronic pain patients was related to a variety of behavioral and psychosocial variables including:

- psychological vulnerability, such as depression and anxiety;
- diminished physical and functional performance;
- a history of problems with substances such as alcohol, street drugs, and prescription medication.

High PMQ scores were additionally associated with patients rated by their physician to show—at initial medical intake—more behaviors and attitudes thought to be related to risk for opioid misuse, unemployment due to pain, disability, Interpersonally Distressed or Dysfunctional coping styles, and a general outlook of negativity. Patients taking opioid medications and those with a known history of opioid misuse were also shown to have significantly higher PMQ scores (p. 447-454).

The study represents the initial step in devising and validating a self-report screening instrument for evaluating risk of opioid medication misuse. **It suggests that the risk for opioid misuse was associated with reports of various factors such as physical disability, functional impairment, and psychosocial distress.** Though further investigation is necessary to determine the predictive validity of the PMQ, within the ambit of the present study, psychometric results indicate that the PMQ holds promise as a self-report screening measure for risk of opioid misuse. (p. 452-455)

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ARTICLE 4: BRIEF MOTIVATIONAL INTERVENTION AT A CLINIC VISIT REDUCES COCAINE AND HEROIN USE

SUMMARY

Cocaine and heroin abuse incur a tremendous personal and social cost, and health care providers need practical methods which they can utilize to help patients reduce or quit using illegal substances. Though *motivational interventions* (for example, typically consisting of negotiation to facilitate behavior change) have been demonstrated to be effective for alcohol abuse, they have not been adequately tested in a clinical setting with drug-using patients. With the goal of motivating out-of-treatment cocaine and heroin users to quit or cut back their illicit drug use, the current study was developed to test the effectiveness of a peer-delivered, brief motivational intervention in the medical setting (p. 49-50).

Researchers conducted a randomized, controlled trial at walk-in clinics at Boston Medical Center, an inner-city teaching hospital, from May of 1998 to November of 2000. Using 3 and 6-month follow-up visits by blinded observers, it assessed the impact of a single, structured encounter by peer educators targeting the cessation of drug use in the context of a routine medical visit (e.g. non-acute health problems such as respiratory infections, diabetes, and hypertension). The main outcomes measured were reductions in use, or abstinence from, cocaine and/or heroin 6 months after enrollment, determined by radio-immune assay of their hair. Of 1175 patients enrolled, the mean age was 38, with 29% female, 62% non-Hispanic Black, 23% Hispanic, and 46% homeless. The intervention group was found to be more likely to have ceased use compared to the control group (who were given only written advice) for cocaine alone (22% versus 17%), heroin alone (40% versus 31%), and both drugs (17% versus 13%). Opiate levels in hair were reduced by 29% for the intervention group compared to 25% for the control group, with tandem reductions in cocaine levels (29% versus 4%). **Brief motivational intervention "appears to facilitate abstinence at 6 months, even in the absence of meaningful contact with the treatment system, and for cocaine it appears to result in reduced mean drug levels compared to controls"** (p. 57).

This first large-scale, randomized trial of intervention in the clinical setting with out-of-treatment cocaine and heroin users demonstrated that brief motivational intervention in the clinical setting can reduce heroin and cocaine use and may help patients achieve abstinence. **In a busy clinical environment, where providers are pressed for the time to detect, intervene, and refer drug-use patients, peer interventionists could play an important role.** Though data suggests that for one patient to achieve abstinence from both drugs, 20 would have to receive intervention, considering the enormous scale of the problem, and that abstinence could result in significant improvements in health as well as reductions in long-term health care and criminal justice costs, on whole there could be major effects from intervention if it were employed as common practice in clinical settings across the country. (p. 49, 57-58)

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CONCLUSION

The epidemic of opioid use bears further investigation, especially because some of the epidemic's greatest increases have occurred in demographic groups with historically low rates of heroin use: women, people with higher incomes, and the privately insured (CDC, 2017). This review aimed to provide information on two distinct, but related, phenomena: first, the risk factors for opioid use (i.e., heroin and prescription drug use); and second, promising interventions to target the use and misuse of opioids.

There are a number of risk factors for opioid use, including both individual and environmental factors: past use of prescription opioids, psychological indicators, market forces (e.g., low cost), and social climates. Promising interventions aim to reduce use and misuse of opioids through a number of diverse means, including brief motivational interventions (Bernstein et al, 2005), a self-screening intervention (Adams et al, 2004), a community-based coalition that built a "prevention toolkit" and trained partners (Albert et al, 2012), and multi-part prevention strategies that incorporate primary, secondary and tertiary interventions (Kolodny et al, 2015).

This report reviewed evidence-based interventions that can be used in the epidemic of opioid use and misuse. It noted a number of risk factors and pointed to community, state, and federal initiatives that aim to reduce the drastic consequences of opioid use.

AUTHOR INFORMATION

Benjamin Gleason, PhD is the Director of Applied Research for the Prospectus Group. He earned a PhD in Educational Psychology & Educational Technology from Michigan State University, researching how to best support communities of learners through educational technology. Before academia, Benjamin has worked in youth and adult-serving learning spaces for almost fifteen years, from designing youth-initiated community service projects and teaching high school in Richmond, California, to working as a university instructor in Guatemala. Benjamin is also a founder of the Prospectus Group.

Tanner Brooks, MA earned his BA in Political Science from Oberlin College and an MA (with distinction) International Studies and Diplomacy from the University of London School of Oriental and African Studies, where his thesis focused on examining the application of international human rights norms to the experience of child soldiers in Sierra Leone. He has a decade of experience in national and international activism, advocacy, and education, from working on political campaigns, nonprofits, and political action committees to writing and teaching politics and sociology as a professor in Tunisia. His most recent work involves mentoring and tutoring teenage survivors of sex trafficking.