Substance Abuse and Mental Health Concerns in Special Populations in Indiana: A Supplemental Report to the 2012 State Epidemiological Profile

Developed by the Indiana State Epidemiology and Outcomes Workgroup, 2013

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SUBSTANCE ABUSE AND MENTAL HEALTH CONCERNS IN SPECIAL POPULATIONS IN INDIANA: A SUPPLEMENTAL REPORT TO THE 2012 STATE EPIDEMIOLOGICAL PROFILE

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Our Vision

Healthy, safe, and drug-free environments that nurture and assist all Indiana citizens to thrive.

Our Mission

To reduce substance use and abuse across the lifespan of Indiana citizens.

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This document, written for state policymakers and community leaders, presents data and analyses to support the development of a framework for advancing the mission of the Indiana Substance Abuse Prevention System.

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Improving Community Health Through Policy Research

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This report was developed by the SEOW Support Team headed by **Eric R. Wright, PhD.** Dr. Wright is the director of the Center for Health Policy; Professor for Health Policy and Management at the IU Richard M. Fairbanks School of Public Health at IUPUI; and associate director of the Indiana Consortium for Mental Health Services Research.

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The mission of the Center for Health Policy (CHP) is to conduct research on critical health-related issues and translate data into evidence-based policy recommendations to improve community health. The CHP faculty and staff collaborate with public and private partners to conduct quality data driven program evaluation and applied research analysis on relevant public health issues. The Center serves as a bridge between academic health researchers and federal, state, and local government as well as healthcare and community organizations.

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Foreword from the SEOW Chair

This supplemental report to our annual State Epidemiological Profile for 2012 represents a special accomplishment for Indiana's State Epidemiology and Outcomes Workgroup (SEOW). Two years ago, the State of Indiana identified the need to know more about the substance abuse prevention needs of four special subpopulations: 1) lesbian, gay, bisexual, and transgender (LGBT) people; 2) veterans returning from recent conflicts; 3) people incarcerated and those re-entering society after incarceration; and 4) people who are dually diagnosed with a mental illness and substance abuse disorder. Since its establishment in 2006, the SEOW has struggled to understand the many dimensions of substance use- and abuse-related challenges in Indiana because of the limitations inherent in the many data sources we utilize each year.

This report is unique in several ways. First, it was created in response to a special request by policymakers within the State of Indiana to know more about the needs of these special populations. The request signals both a desire to address the unique concerns of this population and a recognition that our existing data systems do not give us enough information to respond in a thoughtful or efficient way.

Second, the available data on each population varies enormously. As you will read, we relied on others' scientific studies and public reports, secured unique sources of data from local agencies, and, in one case, even conducted an internet-based survey. Consequently, these chapters are not directly comparable with those in our annual epidemiological profile. Our aim is to shed light on what we know about the burden of substance abuse and the risk and protective factors in these communities to guide policymakers as they strive to respond to the needs in these communities.

Third, a common theme in our findings is that we have much to learn to meet the needs of these populations. Indeed, the limited research available—in particular, the lack of data about the specific needs of Hoosiers in these four communities—underscores the need for the State of Indiana to carefully review ongoing data collection initiatives that are central to the SEOW's efforts to monitor substance use and abuse trends. Over the years, we have learned that policymakers find these data valuable to guide decision-making. By making modest changes in our existing data systems, we could significant enhance the SEOW's and others' abilities to explore the needs of these and many other subpopulation more systematically in the future.

Finally, I would like to thank the members of the SEOW for helping us access some of the data and for providing invaluable feedback on the draft chapters. The report would not have been possible without the skillful, hard work of the outstanding SEOW Support Team: Marion Greene, Harold Kooreman, Pinkie Evans, Dr. Dennis Watson, and Matthew Williams.

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1 Introduction

Indiana's State Epidemiology and Outcomes Workgroup (SEOW)

In 2005, the State of Indiana received the Strategic Prevention Framework State Incentive Grant (SPF SIG) from the Substance Abuse and Mental Health Services Administration's (SAMHSA) Center for Substance Abuse Prevention (CSAP). This five-year federal infrastructure-building grant was designed to help states lay a solid foundation for delivering and sustaining effective substance abuse prevention services. Specific to the grant was the application of a strategic prevention framework, a five-step process that includes assessment, capacity building, strategic planning, program implementation, and process and program evaluation:

(1) Assessment
Assess alcohol, tobacco, and other drug use in Indiana; monitor emerging trends; identify prevention priorities statewide, by geographic area, and by group.

(2) Capacity building
Collaborate to develop Indiana's substance abuse prevention capacity and strengthen infrastructure.

(3) Strategic planning
Develop a comprehensive statewide strategic plan to address substance abuse prevention priorities.

(4) Program implementation
Implement evidence-based prevention policies, programs, and activities at the state and community levels.

(5) Evaluation
Evaluate the SPF SIG process and the effectiveness of implemented programs and activities.

As a SPF SIG grantee, Indiana was required to: 1) establish a State Epidemiology and Outcomes Workgroup (SEOW); i.e., a "Data Group" that collects and analyzes epidemiological data to monitor substance abuse patterns and emerging trends; 2) identify key prevention priorities and target populations; 3) inform policymakers, the prevention community, and the general public; and 4) encourage the implementation of data-driven and evidence-based prevention planning and funding. The SEOW, spearheaded by the Indiana Family and Social Services Administration's Division of Mental Health and Addiction, consists of members from various state agencies including (in alphabetical order):

- Indiana Board of Pharmacy
- Indiana Criminal Justice Institute
- Indiana Department of Correction
- Indiana National Guard
- Indiana Professional Licensing Agency
- Indiana State Department of Health
    - Epidemiology Resource Center
    - Tobacco Prevention & Cessation Commission
- Indiana State Police

Leadership and technical expertise are provided by the Center for Health Policy at the IU Richard M. Fairbanks School of Public Health at Indiana University-Purdue University Indianapolis. Additional assistance is received from the Indiana Prevention Resource Center at the IU School of Public Health-Bloomington.

To ensure the continuation of the Workgroup beyond SPF SIG's five-year allocation, Indiana's Division of Mental Health and Addiction switched funding streams for the SEOW, from SPF SIG to the Substance Abuse Prevention and Treatment (SAPT) block grant in 2009. So, after completion of the SPF SIG initiative on June 30, 2010, the SEOW continued its collaboration among Indiana government agencies to monitor trends and provide statewide guidance on alcohol, tobacco, and other drug related issues.

In 2012, the SEOW received an additional CSAP grant to expand its focus and integrate substance abuse prevention together with mental health promotion into its strategic initiatives. Furthermore, the inclusion of "hidden" high-risk groups (those being at a higher risk for substance abuse and mental health issues) was encouraged. The SEOW identified four underserved populations to be the focus of the Expansion Grant. The determination of whom to include was based on multiple factors such as SAMHSA recommendations, strategic planning decisions from the State Prevention Enhancement initiative, and SEOW consensus.

This report features our findings on substance abuse and mental health issues among the following special populations:

- Veterans Returning from Recent Conflicts – Chapter 2
- The Incarcerated and those Re-entering Society – Chapter 3
- Clients with Co-occurring Disorder – Chapter 4.
- LGBT (Lesbian, Gay, Bisexual, and Transgender) Community – Chapter 5

The SEOW has been publishing its annual comprehensive report on *"The Consumption and Consequences of Alcohol, Tobacco, and Drugs in Indiana: A State Epidemiological Profile"* since 2006, and the most current version was released in the spring of 2013 (Indiana State Epidemiology and Outcomes Workgroup, 2013). This Supplemental Report to the State Epidemiological Profile is the product of the Expansion Grant and features findings on the substance abuse and mental health issues among the before-mentioned high-risk populations. All materials are publicly available at the Center for Health Policy website at www.healthpolicy.iupui.edu/SEOW.

Methodological Issues and Data Challenges

Currently, only limited data exist on alcohol or drug abuse and mental health problems among returning veterans, criminal offenders, clients with co-occurring mental illness and substance use disorder, and LGBT individuals; in particular, state-level data are rare. One of the reasons for this lack concerns the difficulty in obtaining information due to stigma associated with mental illness and drug-using behaviors. Also, some of these high-risk groups, especially LGBT, criminal offenders, and those with co-occurring disorder, can be considered "hidden populations," making sampling in these populations particularly challenging.

The term "hidden population" is frequently used to describe a "subset of the general population whose membership is not readily distinguished or enumerated based on existing knowledge and/or sampling capabilities" (Wiebel, 1990). The term generally refers to individuals who are disadvantaged and disenfranchised, such as the homeless, individuals with chronic mental illness, criminal offenders, sex workers, runaways, and others. There is a lack of data on these groups because they are often omitted from nationally representative surveys. They may be omitted because they lack a permanent address or are less likely to be found at home or to agree to an interview. Another reason for their omission is that survey sampling does not occur within institutions. Unfortunately, these groups are often at a greater risk for substance abuse and mental illness and would benefit the most from prevention and intervention efforts (Lambert & Wiebel, 1990).

Lack of detailed information is a common problem that can render data-driven decision-making a challenging task. Collection, maintenance, and analysis of information are resource-intensive endeavors, and state agencies frequently do not have the means to implement new or update archaic data systems. Moreover, some agencies regularly publish reports and statistics, while others may not have the internal capacity.

The goal of this supplemental report was to collect additional data (primary and secondary) on four high-risk groups in order to: (a) get a better understanding of the occurrence of mental health and substance abuse problems in these populations; (b) recognize the consequences and challenges these groups face due to mental health and substance abuse issues; and (c) determine the treatment needs and gaps. To achieve this goal, we performed extensive literature reviews; collaborated with agencies and organizations to obtain what data were available; and conducted focus groups for additional qualitative information from the groups directly impacted.

This report is a first step in helping the State of Indiana identify some critical issues as they pertain to returning veterans, criminal offenders, Hoosiers with co-occurring disorders, and LGBT individuals.

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2 Mental Health And Substance Use Among Veterans Returning Home From Iraq and Afghanistan

Since October 2001, about 1.6 million U.S. troops have deployed to the wars in Iraq and Afghanistan. Many of them were exposed to long periods of combat-related stress and traumatic events (Tanielian & Jaycox, 2008). The latest data show that the total number of Indiana residents deployed as part of the National Guard to Iraq and Afghanistan supporting the Global War on Terror (GWOT) since 9/11 is 13,596 people (Indiana National Guard, 2009). With the additional 2,538 service members mobilized currently, the cumulative total of Hoosiers in wars in Iraq (Operation Iraqi Freedom, OIF) and Afghanistan (Operation Enduring Freedom, OEF) deployed through the National Guard is 16,134 people (Indiana National Guard, 2009).

National Guard is one of the three large contributors of the total number of soldiers who fought in these two wars, the other two being the active Army and Army Reserve. Combined with soldiers in Reserve, U.S. National Guard supplied 52 percent of the American soldiers involved with OIF and OEF. The other 48 percent were active duty soldiers in the Army or other branches of service (Department of Veterans Affairs, 2008). According to Department of Defense data quoted by local media, with 4,515 Hoosiers deployed, Indiana has the highest number of service members called to active duty in U.S. Army National Guard and Reserve deployments. California is second at 3,914 deployed and Oklahoma is third, with 3,368 (South Bend Tribune, 2008; WSBT.com, 2008).

This chapter covers mental health and substance use among veterans returning home from Iraq and Afghanistan, encompassing such topics as: history of alcohol use prior to enlistment, alcohol use while in service, alcohol use after returning from deployment, and age as a factor in alcohol use. This chapter also explores mental illness among veterans and the impact of psychological factors and substance use on families and communities.

Note that qualification for Veterans Affairs assistance varies greatly. Some service members who have served in the military do not qualify as “veterans” for federal and state benefits but these service members might need services from community organizations.

Limited statistical data from the Indianapolis VA Medical Center (VAMC) and the Indiana National Guard are included, along with SEOW recommendations for next steps.

MENTAL HEALTH AND SUBSTANCE USE AMONG U.S. VETERANS

Although none of the reviewed studies was conducted with Indiana veterans specifically, a few studies were done in Midwestern VA clinics, and some were random national samples that most likely have included Indiana residents. The majority of studies were done on young (age 30 or less) servicemen deployed to OIF and OEF between 2001 and 2009, and can be generalized to our group of interest, Indiana OIF/OEF veterans. Some studies that were included in the review had more inclusive samples, such as the Army in general (not just OIF/OEF veterans) within the time period of our interest, 2001-2009. Another round of studies on veterans was started prior to 2001. These studies captured a mixed group of non-OEF and non-OIF veterans, but nonetheless, presented valuable findings.

About a dozen articles focus on alcohol use by OEF/OIF veterans. The majority of studies investigating alcohol abuse and alcohol disorders among recent veterans look at co-occurring conditions of alcohol misuse with mental illness, or with substance abuse. Some articles extend the problems with veterans’ alcohol consumption to include quality of life and reintegration issues.

Alcohol Use among Returning Veterans

Although the major presenting problem is alcohol consumption among OIF/OEF returnees, OEF/OIF returnees may still be part of the active duty military personnel. That is why it is sometimes difficult to clearly distinguish the group of articles on alcohol use among current servicemen versus those involving returning veterans. But this thematic consideration highlights drinking patterns before and during deployment, which may affect drinking levels among returning servicemen.

Alcohol Use Prior To Enlistment

A study on the history of alcohol-related problems among Air Force recruits found that before the start of their basic military training, 78 percent of recruits reported consuming alcohol, and 49 percent engaged in binge drinking (Taylor, Haddock, Poston, & Talcott, 2007). Air Force is one of the five branches of service of the U.S. Military, along with the Army, Marine Corps, Navy, and the Coast Guard. Further, Air Force has the following three components: Active Air Force, Air Force Reserve, and Air National Guard. By contribution to the wars in Iraq and Afghanistan, Air Force veterans constituted 12 percent of OIF/OEF veterans, along with 12 percent Navy, 12 percent Marines, and 65 percent Army forces (Department of Veterans Affairs, 2008). The term *binge drinking* is discussed later, but most often it was defined as having five or more drinks on a single occasion for men and four or more drinks for women (Bradley et al., 2001; Jacobson et al., 2008; Stahre, Brewer, Fonseca, & Naimi, 2009; Taylor et al., 2007).

Despite having high rates of alcohol consumption prior to enlistment, Air Force service members had the lowest level of *heavy alcohol* use while in service (19.8 percent), compared to the Marines (35.4 percent), the Army (27.6 percent), and the Navy (26 percent) (Fernandez, Hartman, & Olshaker, 2006). The term heavy alcohol use was defined as having five or more drinks on the same occasion on each of five or more days in the past 30 days (Substance Abuse and Mental Health Services Administration (SAMHSA), 2001). In another study on pre-enlistment behaviors, Ames et al. concluded that drinking, smoking, and drug abuse were prevalent among military recruits (Ames, Cunradi, & Moore, 2002). This five-year longitudinal study showed that 75 percent of Navy recruits consumed at least one drink within the year before enlistment, and 26 percent had engaged in heavy drinking. Additionally, 30 percent of the respondents used at least one illicit drug, most often marijuana, within a year prior to enlistment, and 51 percent used tobacco products in the 30 days prior to enlistment. According to the authors, compared to recruits who did not use tobacco or drugs, a significantly higher risk for being current drinkers was observed for recruits who reported pre-enlistment tobacco (OR = 5.93) or drug use (OR=4.33) (Ames et al., 2002).

One study investigated predicting factors for drinking among National Guard soldiers (N=515) prior to deployment to a combat zone and found that demographic and personality variables significantly predicted all drinking outcomes (Ferrier-Auerbach et al., 2009). Specifically, younger age (discussed later) predicted higher quantity of drinking; being unmarried predicted greater total drinking and higher frequency of binge drinking (Ferrier-Auerbach et al., 2009).

In addition to marital status and age, cultural and social influences were also mentioned among the factors that interact with drinking patterns (Bell, Harford, Fuchs, McCarroll, & Schwartz, 2006). Vander Weg et al. looked at alcohol use patterns of reserve personnel (N=4836 guardsmen and reservists) and found that 46 percent reported one or more binge drinking episodes in the month before basic military training (Vander Weg, DeBon, Sherrill-Mittleman, Klesges, & Relyea, 2006). These studies may be valuable in drawing correlation between the high levels of alcohol consumption prior to and during the military service, possibly under the influence of the workplace (military) culture. A study of 37,858 Air Force recruits suggested that high levels of alcohol-related problems among those entering the ranks of military service may necessitate a more thorough screening for future problems (Taylor et al., 2007).

Alcohol Use among Soldiers in Service

A few studies on alcohol use among soldiers in service mentioned regulation of alcohol consumption in the army (Ames, Cunradi, Moore, & Stern, 2007; Lande, Marin, Chang, & Lande, 2008; Wallace, Wallace, & Weeks, 2008). According to these researchers, alcohol consumption in the U.S. military is regulated by the General Order Number 1A (GO-1A), which prohibits military personnel from "the possession, manufacture, importation, distribution, or consumption of alcohol" in some areas of service, but permits these activities while off duty. This stricture includes the participants of OIF and OEF (Lande et al., 2008). Violations of this order are not uncommon, and incidences of soldiers' excessive drinking were reported numerous times (Daily Mail Foreign Service, 2009; Eggleston, Straits-Troster, & Kudler, 2009; Kennedy, 2009; Zielbauer, 2007; Zoroya, 2009).

Most often, data on the prevalence of alcohol consumption among military personnel was provided by the Department of Defense (DoD). According to the 2002 DoD Survey of Health-Related Behaviors, service members between ages 18 and 25 had a 27.3 percent prevalence of heavy drinking during one month compared to 15.3 percent among civilians in the same age group (U.S. Department of Defense, 2002; Fernandez et al., 2006). The DoD data also indicated that 12.3 percent of all

service members had symptoms of alcohol dependence, and 17.3 percent reported some degree of lost productivity within a year (U.S. Department of Defense, 2002; Fernandez et al., 2006). The 2005 Survey of Health Related Behaviors among Active Duty Military Personnel (the ninth survey in the series of anonymous surveys asking active duty service members about various lifestyle and health-related behaviors) found that the rates of heavy drinking remained elevated, especially among young people (U.S. Department of Defense, 2007). From 2002 to 2005, the Army showed an increase in heavy drinking from 18.8 percent to 24.5 percent, or a 30 percent increase (RTI International, 2006). The strength of these surveys is in their repetitiveness; the weaknesses might be in their nature (a self-reporting survey that does not represent a formal clinical diagnostic evaluation) and inclusiveness of sample (more than 16,000 randomly selected service members throughout the world).

There was consensus among researchers that the use of alcohol among active duty military personnel was higher than among civilians (Bray & Hourani, 2007; Bray, Marsden, & Peterson, 1991; U.S. Department of Defense, 2003; Fernandez et al., 2006; Moore, Ames, & Cunradi, 2007). Because of the unique demands of life in the armed forces such as living away from family and exposure to hazards, military personnel was thought to be at a greater risk for alcohol abuse (Bray, Marsden, Mazzuchi, & Hartman, 1999). Researchers and the media were also in a general agreement that alcohol consumption among U.S. military personnel, including OIF/OEF veterans, had increased recently. For example, in their 2005 Survey of Health Related Behaviors, the DoD reported a rise in binge drinking and a trend toward higher alcohol use among deployed service members (U.S. Department of Defense, 2007).

The finding that binge drinking has increased among OIF veterans and active duty military personnel has been confirmed by researchers (Jacobson et al., 2008; Lande et al., 2008; Stahre et al., 2009; Vander Weg et al., 2006). In pointing out the surge in alcohol consumption among the military, DoD reports that heavy drinking rose to from 15.4 percent in 1998 to 18.1 percent in 2002, but declined slightly in 2005 (U.S. Department of Defense, 2007). Another source reported that heavy drinking continued to increase among military personnel since 1998, remaining at its 2002 levels in 2005 (Bray & Hourani, 2007). Heavy drinking was defined as five or more drinks per typical drinking occasion at least once a week, and binge drinking referred to five or more drinks per typical drinking occasion at least once during the past 30 days (U.S. Department of Defense, 2003), but more definitions of binge and heavy drinking are discussed later. Latest reports from the Army reiterated that “violence, alcohol and substance abuse, and destructive or reckless behaviors have increased among soldiers” (American Forces Press Service, 2009).

Some study authors cited military culture as a factor associated with drinking during combat deployment, suggesting that many military personnel saw drinking heavily as a rite of passage and part of their military culture. Research shows a significant relationship between occupational factors and positive normative beliefs for heavy drinking (Ames et al., 2007; Eggleston et al., 2009). *Occupational factors* as described by the authors referred to perceptions of alcohol policy enforcement (consistently enforced, enforced with favoritism, or did not know), work problems, and work-related stress (Ames et al., 2007). One study suggested that heavy alcohol use of military personnel varies by region of assignment (Bray, Bae, Federman, & Wheeless, 2005) and besides being affected by the military culture, may be attributable to a variety of other factors, such as local culture, social and physical availability of alcohol, freedom from constraints, response to stress, and selection effects (Bell et al., 2006; Bray et al., 2005; Moore et al., 2007). The four *regions of assignment* considered in the study by Bray et al. were Asia, Europe, Hawaii, and the continental United States, and the term local culture referred to cultural attitudes (or the sociocultural context) on alcohol use present in countries or regions of deployment, or in various states in the U.S. (Bray et al., 2005). *Social availability* referred to the degree of normative support for or against drinking within one’s social environments, while *physical availability* referred not only to the extent to which alcohol is accessible in a given environment but also to the barriers or costs associated with obtaining it such as geographic clustering, policies and regulations, and taxes (Moore et al., 2007). Freedom from constraints referred to freedom from family or other restricting normative influences (Bray et al., 2005).

Several authors suggested that alcohol disorders negatively affect soldiers’ survival rates and increase the likelihood of attrition from service (Baker et al., 2009; Lopez, 2002). Within one year of first diagnoses, approximately one-third of service members with alcohol disorders and 60 percent of those with alcohol disorders plus comorbid mental disorders had left military service, in

contrast to 25 percent of service members with diabetes mellitus (another chronic condition) and 15 percent of those with appendicitis (an acute condition generally compatible with continued service after convalescence) (Lopez, 2002).

Alcohol Use among Returnees

A series of studies identified drinking levels among veterans deployed in the support of GWOT. The levels of alcohol use were different depending on the type of alcohol problem researched and the method of screening. Among the 1,508 OIF-OEF veterans seen at Veterans Affairs (VA) hospitals and clinics in 2005, 40 percent screened positive for risky drinking and 41 percent for non-risky drinking (Calhoun, Elter, Jones, Kudler, & Straits-Troster, 2008; Eggleston et al., 2009). *Risky drinking* referred to either *hazardous drinking or alcohol abuse/ dependence*, assessed using the Alcohol Use Disorders Identification Test (version AUDIT-C). According to many authors and the World Health Organization (WHO) recommendations, AUDIT is a screening tool deemed to provide an accurate measure of risk across gender, age, and cultures; AUDIT is consistent with the WHO definitions of alcohol dependence and harmful alcohol use (Bohn, Babor, & Kranzler, 1995; Bradley et al., 2003; Calhoun et al., 2008; Shields, 2003; World Health Organization, 2001). Its AUDIT-C version, used by Calhoun et al., has been validated in multiple studies across various target groups (Calhoun et al., 2008; Dawson, Grant, Stinson, & Zhou, 2005; Felker, Hawkins, Dobie, Gutierrez, & McFall, 2008). *Hazardous drinking* was defined as an AUDIT-C score of ≥ 4 for men and ≥ 3 for women. *Alcohol use disorder* was defined as an AUDIT-C score of ≥ 6 for men and ≥ 4 for women (Calhoun et al., 2008). Aside from these numeric scores, the authors did not provide the number or volume of drinks in their definitions of hazardous drinking and alcohol abuse or dependence, making their findings less comparable to definitions of binge and heavy drinking.

However, the finding that 40 percent of the sample engaged in hazardous alcohol use and 22 percent screened positive for possible alcohol use disorder led to a conclusion that hazardous alcohol use was prevalent among OIF/OEF veterans (Calhoun et al., 2008). In a study by Jakupcak et al. (2008) of Iraq and Afghanistan veterans (N=108), a quarter (23.4 percent) of their sample screened positive for problem drinking symptoms (Jakupcak, Luterek, Hunt, Conybeare, & McFall, 2008). Seal et al. reported that 46 percent of their OIF/OEF sample (N=338) veterans screened positive for high-risk alcohol use (Seal et al., 2008). Another study revealed that only 36 percent of the sample (N=339) of OIF/OEF troops screened for mental health symptoms did not meet thresholds for post-traumatic stress disorder (PTSD), depression, or substance and alcohol abuse, and as much as 64 percent did (Baker et al., 2009). Felker et al. (2008) suggested that in contrast to higher levels of drinking among veterans who returned or were discharged, only 11 percent of sample subjects who were still in deployment were severely misusing alcohol.

Besides conducting one-time surveys or secondary data analyses, some studies were longitudinal and presumably more validated as they were conducted using follow-up surveys that were compared with baseline data. The first study to prospectively investigate changes in alcohol use patterns in relation to deployment to Iraq and Afghanistan was done on a large population-based military cohort that included both active duty and Reserve/ Guard personnel (Jacobson et al., 2008). According to this study of Reserve/National Guard personnel deployed with combat exposures, new-onset prevalence rates of heavy weekly drinking, binge drinking, and alcohol-related problems were 8.8 percent, 25.6 percent, and 7.1 percent respectively. These findings were higher compared to the active duty personnel, suggesting that National Guard and Reserve personnel were at an increased risk for alcohol misuse (Jacobson et al., 2008).

This study is powerful because of its size, robust selection criteria, and replication of the survey for the same cohort a few years later. Of the 77,047 participants from the Army, Navy, Air Force, Marines service branches (of whom 43,890 were from the active duty and 33,157 were from the Reserve/National Guard service components) who completed a baseline survey in 2001-2003, 55,021 (71 percent) completed a follow-up survey in 2004-2006. Individuals were excluded from this study if they deployed to Iraq or Afghanistan before the baseline assessment or if they took their survey while deployed; authors believed reporting during deployment would likely differ from reporting after deployment.

A finding that combat exposure was associated with elevated alcohol consumption was consistent across many studies (Jacobson et al., 2008; Killgore et al., 2008; Lande et al., 2008; Milliken, Auchterlonie, & Hoge, 2007; Reeves, Parker, & Konkle-Parker, 2005). In the above mentioned prospective study of OEF/OIF veterans on changes in drinking habits (estimating baseline levels and following

up with the same cohort in several years), it was found that baseline and new-onset prevalence of heavy weekly drinking, binge drinking, and alcohol-related problems was highest among those deployed with combat exposures compared with those deployed without combat exposures and non-deployed personnel (Jacobson et al., 2008). Compared to those not assigned to an area of combat operations, soldiers who recently returned from an area of combat (Iraq) were more likely to engage in binge drinking (P=0.023) (Lande et al., 2008). In this study, 8.4 percent of those exposed to combat operations in Iraq engaged in binge drinking versus 6.5 percent of the non-deployed personnel.

A study by Killgore et al. (2008) showed that combat exposure (specifically, violent combat exposure, human trauma exposure, and having killed enemy or friendly) was associated with increased rates of mental health problems and an increased risk-taking propensity (P<.001) among returning service members in the preceding month. This study was done by administering surveys 3 months apart to the same group of soldiers (N1= 2,983; N2= 2,244), and its key finding was that greater exposure to combat experiences was predictive of actual risk-related behaviors, including more frequent and greater quantities of alcohol use upon their return home (other unsafe behaviors included driving fast, taking dangerous shortcuts, and engaging in high-thrill activities). Reeves et al. (2005) suggested that exposure to significant psychological stressors by OIF/OEF veterans resulted in mental and emotional distress, including PTSD and substance abuse.

Additionally, the finding that Reserve/Guard members were at increased risk for certain health behaviors including excessive alcohol use was consistent across several studies, raising the issue of higher vulnerability of the Reserve/Guard group in light of the increased reliance on them in latest combat operations (Jacobson et al., 2008; Milliken et al., 2007; Resnik & Allen, 2007; Riddle et al., 2007; Vander Weg et al., 2006). These authors found that compared to active duty military personnel, Reserve/Guard personnel were especially at risk for heavy and binge drinking. Comparisons of alcohol use levels by reservist versus active duty or civilian groups were made by several authors. An earlier study showed that 30% of Army reservists reported weekly alcohol consumption, compared to 24% of active duty personnel, and 21% of civilians (Wynd, 2000). More recent studies consistently found that weighted prevalence defined by the level of endorsement of alcohol-related problems was lower (11.8 percent) for active duty personnel compared with reservists and Guards (15.0 percent) (Milliken et al., 2007); or 11.5 percent among regular active duty members and 14.1 percent among Reserve/Guard members (Riddle et al., 2007).

Binge Drinking

The definitions of binge and heavy drinking varied across studies. Binge drinking was defined as having four or more drinks at one sitting (Lande et al., 2008), five or more drinks on a single occasion for men and four or more drinks for women (Bradley et al., 2001; Jacobson et al., 2008; Stahre et al., 2009; Taylor et al., 2007), or consuming six or more drinks on one occasion at least monthly in the past 12 months (Calhoun et al., 2008). Taylor et al. (2007) mentioned an "older definition of binge drinking" (eight or more drinks per occasion). Clearly, the vast majority of sources, including DoD, use the "five or more drinks on a single occasion" definition of binge drinking. Some studies used the term "heavy drinking" synonymously with binging, and defined heavy drinking as having five or more drinks per typical drinking occasion (Taylor et al., 2007). According to others, heavy drinkers were defined as men who consumed more than 14 drinks per week and women who consumed more than 7 drinks per week (Jacobson et al., 2008). According to the Department of Health and Human Services (DHHS), the difference between heavy alcohol use and binge drinking is that having five or more drinks on the same occasion is considered heavy drinking if it happened on each of 5 or more days in the past 30 days, while binge alcohol use is defined as drinking five or more drinks on the same occasion on at least 1 day in the past 30 days; all heavy alcohol users are also "binge" alcohol users (Substance Abuse and Mental Health Services Administration (SAMHSA), 2001). Authors did not specify if they were using the term heavy drinking according to the DHHS-SAMHSA definition but rather articulated the definitions they were using.

Reported prevalence of binge drinking was inconsistent across studies. Binge drinking (defined as six or more drinks on one occasion at least monthly in the past year) was prevalent among 23 percent (N = 345) of the sample of Iraq and Afghanistan returnees (N = 1,508) (Calhoun et al., 2008). Stahre et al. (2009) reported that among the 76 percent of active duty military personnel who were current drinkers, the prevalence of

binge drinking was 56.6 percent (59.4 percent for men, 36.7 percent for women), and the number of per-capita episodes of binge drinking was estimated at 38.9 per person per year. Being unmarried was a predictor for higher frequency of binge drinking (Ferrier-Auerbach et al., 2009; Lande et al., 2008; Vander Weg et al., 2006). In addition to veterans returning from service, high binge drinking levels were reported among active duty military personnel. A study based on DoD's 2005 evaluation of health behaviors associated with deployment to Iraq and Afghanistan reported that a total of 43.2 percent of active duty military personnel had at least one episode of binge drinking in the past 30 days (Stahre et al., 2009).

Age as a Factor for Higher Alcohol Use

Authors agreed that the majority of binge or heavy drinkers or those with alcohol disorder-related diagnoses were younger soldiers or veterans and suggested that younger age was associated with drinking problems (Ames et al., 2002; Ferrier-Auerbach et al., 2009; Lopez, 2002; Taylor et al., 2007; U.S. Department of Defense, 2007). Jacobson et al. (2008) reported that those born after 1980 were at 6.72 increased odds of new-onset binge drinking and at 4.67 increased odds of new-onset alcohol-related problems, concluding that the youngest members of their 55,021-people cohort were at highest risk for binge drinking, heavy weekly drinking, and alcohol-related problems. A large OIF/OEF veteran survey (N=289,328) showed that active duty OIF and OEF veterans younger than 25 years were over twice the risk for alcohol use disorder diagnoses compared with veterans older than 40 years (Seal et al., 2009). In another study, youth and young adults aged 17–25 years accounted for 67.1 percent of all binge drinking episodes, while this demographic constituted only 46.7 percent of all the active duty military personnel (Stahre et al., 2009). Most recent data from the DoD also indicated that the majority of heavy (54.5 percent) and binge (53.8 percent) drinkers in the DoD were 25 years of age or younger (Taylor et al., 2007). The DoD also focused attention on underage drinking by reporting that although only 9 percent of all U.S. service members were under the age of 21, 28 percent of those receiving a diagnosis of alcohol disorder were under 21, below the legal drinking age in the U.S. (Lopez, 2002).

Mental Illnesses and Alcohol Abuse

The occurrence of mental illnesses (MI) among OIF/OEF troops was studied extensively. Although MI is not the main focus of this review, it is important to note that alcohol-use disorders were studied as a mental health issue and researchers who mainly focused on mental health may have simultaneously addressed alcohol-related problems. The VA National Patient Care Database, as well as U.S. military databases such as the Defense Medical Surveillance System, used by numerous authors, contained veterans' diagnoses designated using the International Classification of Diseases, Ninth Revision Clinical Modification (ICD-9-CM) (Department of Veterans Affairs, 2009; Lopez, 2002). Under ICD-9-CM, Alcohol Use Disorder was one of the mental health diagnostic categories, and included diagnoses such as Alcohol Abuse and Alcohol Dependence Syndrome (Seal et al., 2009). In 1990, the WHO introduced the current, Tenth Revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10), where alcohol-related diagnoses were still classified as mental disorders. Under the ICD-10, alcohol-related diagnoses were included in the diagnostic category "F10. Mental and behavioral disorders due to use of alcohol" (World Health Organization, 1990).

Thus, mental illnesses (MI) prevalence data may be useful if one wants to view alcohol-related issues in the context of their clinical classification as a mental disorder. To have a global view on MI prevalence among OIF/OEF veterans, the following data obtained from a large study of OIF/OEF veterans may be useful. National VA data showed that 36.9 percent (N=106,726) of the sample received mental health diagnoses, and over 40 percent received mental health diagnoses or were found to have psychosocial and behavioral problems or both (Seal et al., 2009). More specifically, 21.8 percent (62,929) were diagnosed with PTSD and 17.4 percent (50,432) with depression (Seal et al., 2009). The sample for this study consisted only of OIF and OEF veterans who were first-time users of VA services after the start of OEF or OIF, N=289,328; 41.4 of these percent were National Guard/Reserve veterans, as described above. In contrast to studies mentioned above that claim a rapid increase in alcohol use among servicemen and veterans in recent years, this study showed that both alcohol and drug use disorder diagnoses were less prevalent and accrued at a slower rate during the study period (2002-2008). The authors presented this growth in a time-series graph showing the prevalence rate curve for alcohol disorder diagnoses increasing at a significantly slower rate compared to prevalence rate curves for PTSD and Depression (Seal et al., 2009) Despite that, the prevalence

rate of alcohol use disorder diagnoses among returnees has increased from 1.1 percent to 7.1 percent between 2002 and 2008 (Seal et al., 2009).

A large body of research suggested that alcohol misuse was comorbid with mental health disorders (Baker et al., 2009; Felker et al., 2008; Ferrier-Auerbach et al., 2009; Jakupcak et al., 2008; Killgore et al., 2008; McFarlane, 1998; Reeves et al., 2005). Among the various MI, most researchers focused on co-occurrence of PTSD and alcohol dependence, suggesting that PTSD was associated with increased levels of alcohol consumption (Marmar, 2009; Pietrzak, Goldstein, Malley, Johnson, & Southwick, 2009; Reeves et al., 2005; Samuelson et al., 2006; Zalihic, Skobic, & Pejanovic-Skobic, 2008; Zoricic, Buljan, Thaller, & Karlovic, 2003). Back et al. emphasized the importance of the temporal order of onset of alcohol dependence and PTSD symptoms in veterans who manifested both (Back, Jackson, Sonne, & Brady, 2005), as their study showed different treatment results for the primary alcohol dependence group versus the primary PTSD group, which may present an important finding for clinicians. Regarding the prevalence of PTSD and alcohol symptoms, a study evaluating the levels of alcohol abuse among returnees from OEF and OIF found that problematic drinking levels were elevated in their sample (33 percent of the sample) while PTSD levels (12 percent) were consistent with previous research (Erbes, Westermeyer, Engdahl, & Johnsen, 2007). This study is useful for generalizing to Hoosiers because the sample was drawn from returnees enrolled for healthcare at a Midwestern Veterans Affairs medical center (in Minneapolis), and, according to the authors, their sample more closely approximated a community sample than a clinical sample (Erbes et al., 2007).

Regarding other types of MI, the DoD reported statistically significant correlations among heavy alcohol use, stress, and mental health issues. Compared with abstainers, heavy users of alcohol were more likely to meet screening criteria for anxiety (17.5 percent vs. 10.1 percent) and depression (31.2 percent vs. 19.1 percent). Heavy users reported more limitations in activities as a result of poor mental health (4.8 percent vs. 2.0 percent) (U.S. Department of Defense, 2007). Personnel deployed to Iraq and Afghanistan between 2002 to 2005, compared to those who did not deploy, had a greater number meeting criteria for mental illnesses and heavy alcohol use (U.S. Department of Defense, 2007). However, the cross-sectional data obtained through the survey made it difficult for the DoD to ascertain which behavior (the heavy alcohol use or the mental health problems) came first. When studying predictors of mental health symptoms, Baker et al. (2009) reported (N=339) that gender, age, race, and rank were not significantly related to mental health symptoms, whereas branch of service and report of injury during combat were. In contrast to studies that associated MI with alcohol use or vice versa, Ferrier-Auerbach et al. (2009) reported that after accounting for personality variables, mental health was not associated with any drinking variable.

Family and Community Reintegration Problems Related to Alcohol Misuse

Authors agreed that many veterans returning home from OEF and OIF presented with multiple physical or psychological symptoms (Back et al., 2005; Batten & Pollack, 2008; Erbes et al., 2007; Jakupcak et al., 2008; Killgore et al., 2008; Reeves et al., 2005; Seal et al., 2008; Vitzthum, Mache, Joachim, Quarcoo, & Groneberg, 2009). Overall, personnel deployed to Iraq and Afghanistan between 2002 to 2005, compared to those who did not deploy, had higher rates of work and family stress; over time, they had higher rates of heavy alcohol use (20.5 in 2005 versus 20.2 in 2002), cigarette use (14.5 percent in 2005 versus 12.2 percent in 2002 and), and illicit drug use (5.0 percent in 2005 versus 3.4 percent in 2002, however, a wording change in the drug use question makes these two not comparable) (U.S. Department of Defense, 2007).

Lande et al. (2008) suggested that “missing work” or “seriously thinking about suicide” reported by OIF returnees might be considered a likely consequence of alcohol consumption. PTSD and alcohol problems were found to be prevalent among OEF and OIF returnees; these conditions were associated with lower quality of life, and their co-occurrence might have complicated recovery and promoted disability (Erbes et al., 2007; Vitzthum et al., 2009). Also, compared with abstainers, heavy users of alcohol among OIF and OEF returnees reported more problems with stress at work (41.1 percent vs. 28.4 percent) or in their family (24.7 percent vs. 15.3 percent) (U.S. Department of Defense, 2007). Additionally, families of Iraq and Afghanistan veterans with PTSD were more likely to suffer domestic violence or intimate partner violence than families of veterans without PTSD (Marmar, 2009; Zoricic et al., 2003). Those with PTSD were more likely to have impaired relationships with their spouses (Vitzthum et al., 2009).

Some authors suggested that alcohol dependence comorbid with PTSD may have a role in verbal and physical aggression levels, especially for combat-experienced soldiers (Killgore et al., 2008; Zoricic et al., 2003). Others suggested that exhibiting more violent behavior was related to combat exposure and/or alcohol misuse among OEF/OIF returnees (Fontana & Rosenheck, 2008; J. E. McCarroll et al., 2000). Possible explanations included exposure to violent combat that may alter an individual's perceived threshold of invincibility, increase veterans' propensity to engage in risky behavior, and increase verbal and physical aggression toward others upon returning home (Killgore et al., 2008). However, the extent to which violent behavior could be attributed to combat exposure was still an area of debate (Fontana & Rosenheck, 2005; McCarroll et al., 2003; Ritchie, Benedek, Malone, & Carr-Malone, 2006).

Underuse of Professional Help

In summary, although soldiers frequently reported alcohol concerns, very few were referred to alcohol treatment. For example, a large population-based study of 88,235 Iraq war returnees showed that referrals to alcohol services were dramatically lower than for other mental health-related concerns: Out of 56,350 active soldiers, 6,669 (11.8 percent) reported alcohol misuse, 134 (0.2 percent) were referred, and only 29 were seen within 90 days (Milliken et al., 2007). Calhoun et al. found that of the total number of OIF/OEF veterans found to engage in hazardous drinking behavior, only 31 percent reported being counseled to cut back or abstain from alcohol (Calhoun et al., 2008), where hazardous drinking was assessed using AUDIT, a validated tool for alcohol screening used extensively in alcohol studies (Bohn et al., 1995; Bradley et al., 2003; Calhoun et al., 2008; Shields, 2003; World Health Organization, 1989, 2001). The weakness of this and many other single-survey based studies was that a survey captures a moment in time and only gains validity with replication (Calhoun et al., 2008). Another study found that mental health service utilization was limited even among returnees enrolled for Veterans Affairs health care, and less than one in five (18 percent) of OEF and OIF returnees who screened positive for alcohol abuse reported using mental health services (Erbes et al., 2007). A study on comparative use of psychiatric care showed only minor differences between military and civilians with respect to variables associated with psychiatric rehospitalization (Bobo et al., 2004), which may or may not imply that even if mental services were underutilized among military veterans, it was comparable to civilian mental health underutilization.

Regarding use of mental health services, veterans with mental health disorders were said to have barriers to mental healthcare utilization (Marmar, 2009; Riddle, Sanders, Jones, & Webb, 2008), specifically, because of the perception of stigma (Hoge et al., 2004; Stecker, Fortney, Hamilton, & Ajzen, 2007). Seal et al. (2008) found that of the 338 Iraq and Afghanistan veterans in their sample who underwent postdeployment screening, 233 (69 percent) screened positive for mental health problems, 170 of which (73 percent) completed a mental health follow-up visit. The issue of stigma for use of mental health services predates GWOT. This has long been an issue the military has tried to erase. Stigma can be seen as labeling a person as having undesirable characteristics or as being weak (Kim, Britt, Klocko, Riviere, & Adler, 2011). Hoge et. al (2004) found that service members feared repercussions from leadership if they used mental health services.

Among the predictors of postemployment mental health screening were having been seen in primary care (adjusted odds ratio, AOR=13.3, 95% CI=8.31-21.3), and at a VA community clinic (AOR=3.28; 95% CI=2.03, 5.28). Race predicted screening rates: white veterans were more likely to have been screened than were African-American veterans (Seal et al., 2008). Among the factors that might have affected use of professional care, social and economic factors such as insurance mechanisms or criteria for treatment enrollment were suggested to influence the frequency of alcohol treatment over time (Wallace et al., 2008). Milliken et al. (2007) suggested that lack of confidentiality was the factor deterring soldiers with alcohol problems from accessing treatment. Indeed, under the current military policies, accessing alcohol treatment triggers the involvement of a soldier's commander and may negatively influence career if a soldier fails to comply with treatment (U.S. Department of Defense, 1985). According to the DoD, although alcohol misuse was recognized as a mental health issue in the language of army and military literature, lack of confidentially surrounding alcohol treatment in the army was in conflict with medical confidentiality protections about mental health issues (U.S. Department of Defense, 1997, 2003), likely discouraging referrals to alcohol counseling and treatment among soldiers.

Veterans Affairs Regulations on Qualifying for Assistance

Most people think of a veteran as someone who has served in a branch of the military services. The federal definition of a veteran is found in the United States Code (U.S.C) and specific Code of Federal Regulation (C.F.R.) sections. The CFR is the listing of rules of the federal departments and agencies (U.S. Government Printing Office, 2013). The State of Indiana follows the federal guidelines in determining who is a veteran (Veterans Affairs Commission, 2012). The U.S.C defines a "veteran" as a "person who served in the active military, naval, or air service, and who was discharged or released therefrom under conditions other than dishonorable" (U.S. Government Printing Office, 2013) There are specific documentation requirements that prove a person is a veteran in order to receive benefits. The documents must verify that the person meets requirements in four categories: active service, length of service, discharge criteria, and wartime military service (Scott, 2012).

Active Service: Scott (2012) defines active service to mean full-time service other than active duty for training for members of the Army, Navy, Air Force, Marine Corps, Coast Guard; or a commissioned officer of the Public Health Service, the Environmental Science Services Administration, or the National Oceanic and Atmospheric Administration. Full-time training for service members of the Air or Army National Guard or reservists is also considered as active service (Scott, 2012).

Length of Service: Since September 8, 1980, generally 24 months of continuous active duty (or the "full period" for which the service member was called to duty) is considered the appropriate length of service (Scott, 2012). There are exceptions to this length of service for service-connected disability benefits and other active service-incurred injuries or diseases (Scott, 2012).

Discharge Criteria: Most service members are eligible for benefits except those discharged under "dishonorable" conditions. Since this language is not precise, some cases are determined by the Department of Veterans Affairs (DVA) on a case-by-case basis (Scott, 2012). Sometimes these former service members are unemployable and therefore might not have health insurance.

Time of war: Military service is considered to have occurred in either wartime or peacetime as defined by Congress (Scott, 2012). For periods generally reviewed for veterans' benefits. Wartime periods are:

- World War I – April 6, 1917 through November 11, 1918; extended to April 1, 1920; by regulation extended to July 1, 1921 under specific conditions.
- World War II – December 7, 1941, through December 31, 1946; extended to July 25, 1947.
- Korean Conflict – June 27, 1950, through January 31, 1955.
- Vietnam Era – August 5, 1964, through May 7, 1975.
- Persian Gulf War – August 2, 1990, through a date to be prescribed by Presidential proclamation or law (Scott, 2012).

National Guard and reserve service members sometimes have difficulty meeting the criteria for active duty and length of service." If service members of the Guard or reserves have not been activated for federal military service, the service members do not meet the requirement for "active duty" (Scott, 2012). If service members of the Guard or reserves completed a period of activive duty, even if this is less than 24 months, then that service member meets the length of service requirement (Scott, 2012). Sometimes VA needs to determine eligibility for Guard and reserve service members individually.

Families of these military and veteran populations will need some assistance. What resources are available for the families? For families of GLBT military, now that Don't Ask Don't Tell is revoked, how are these families impacted for needed services?

Alcohol Abuse among Veterans in Indiana

Through a memorandum of understanding (MOU) with the Richard L. Roudebush VA Medical Center (Indianapolis VA Medical Center, VAMC), the SEOW was approved to receive information on veterans:

- Age
- Gender
- Race/ethnicity
- Branch of service
- Status (active, reserve or guard)
- Rank
- Education level
- Number and length of deployments
- Combat exposures
- AUDIT and/or other screening test results
- Diagnosis code (all current diagnosis codes)
- Treatment code (all current treatment codes)

Institutional Review Boards (IRB) of both Indiana

University and Roudebush VAMC approved the information request and this study. However, we faced various difficulties and delays in receiving the requested information, partially because of limited availability of human resources, i.e., lack of data analysts dedicated to the project at the VA. Furthermore, the project encountered challenges associated with the data system, such as (a) variables of interest were stored in diverse databases and queries would have to be linked by subject; (b) data analysts had different levels of clearance and not all analysts had access to all databases; and (c) the query of such a large amount of data resulted in multiple "crashes" of the data system.

The final data report we received from the VA was a breakdown on AUDIT-C scores among veterans served at the Indianapolis VAMC.

In 2012, there were 58,610 unique veterans with at least one office visit. Of those, 38,494 were administered the AUDIT-C. Here is the score breakdown:

AUDIT-C Score	# of Patients
0	20,405
1	7,459
2	3,136
3	2,546
4	2,439
5	797
6	471
7	291
8	324

Given the limited statistical data, we decided that a review of literature on veterans and mental health and substance use would be appropriate to provide more information.

Summary of Literature

Some authors pointed to findings derived from studying Vietnam War veterans when analyzing physical and mental health issues among OIF and OEF veterans. For example, PTSD was called the Vietnam syndrome and developed among one-fifth to one-third of men and women who served in the Vietnam War (Marmar, 2009; Vitzthum et al., 2009). Those suffering from PTSD had increased rates of depression, alcohol and drug abuse, family adjustment problems, and interpersonal violence (Marmar, 2009; Vitzthum et al., 2009). Co-occurring alcohol dependence or alcohol abuse was observed among 75 percent of Vietnam war combat veterans with lifetime PTSD (Kulka, Schlenger, & Fairbank, 1990).

Lessons learned from previous wars included drawing parallels in the onset and severity of alcohol use and PTSD and responding to this by coordinating efforts across systems in patient care (Eggleston et al., 2009). The association of alcohol problems and mental illnesses pointed to potential intervention strategies; reducing one would help reduce the other (U.S. Department of Defense, 2007). Difficulties in providing effective care to returning veterans included low retention and non-adherence to treatment. For example, alcohol consumption has demonstrated a temporal and dose-response relationship to poor medication adherence (Braithwaite et al., 2005), and is also associated with difficulties in treatment engagement and retention among OEF/OIF veterans (Batten & Pollack, 2008). For these and other reasons, researchers suggested providing integrated care by multidisciplinary teams in which primary care providers, polytrauma specialists, rehabilitation specialists, and mental health clinicians would work together (Back et al., 2005; Batten & Pollack, 2008; Eggleston et al., 2009; Gerardi, Rothbaum, Ressler, Heekin, & Rizzo, 2008; Lew et al., 2007). Behavioral interventions for at-risk drinkers have been successful in encouraging service members or retirees to change their risky behaviors (Fernandez et al., 2006).

In addition to focusing on veterans themselves, some attention in the literature was given to families of veterans. The DoD and VA face a challenge of mitigating the effects of warzone experiences on the health and functioning of spouses and children who suffer domestic violence from veterans with PTSD (Marmar, 2009; Zoricic et al., 2003). The state of Vermont has been implementing a model of care for veterans returning from Iraq and Afghanistan and their families aimed at adequate community support systems (Slone, Pomerantz, & Friedman, 2009). Their model featuring military members and civilians working together to identify gaps in services was "proven effective and sustainable" (Slone et al., 2009).

To summarize, recommendations given by most authors emphasized availability and access to care (reducing stigma around use of mental health services, specifically alcohol counseling, and addressing other access issues); timeliness and early intervention; the importance of providing integrated care through multi- or interdisciplinary teams that would address physical and mental health issues while facilitating social integration to the community; and the provision of support services for families of veterans (to help them cope with changes in mental and physical health of their veteran spouses).

Resources

The Indiana Department of Veterans Affairs, the Indiana National Guard, and the Indianapolis VAMC work with many groups to provide assistance to veterans and their families. Some of these resources include the Inter-Service Family Assistance Committee (ISFAC) and the Joint Family Support Assistance Program.

The Indiana National Guard provides crisis prevention and intervention support and information and psychological support through its website http://www.in.ng.mil/.

Considerations for SEOW

Some questions that arise are: How do we obtain more specific numbers for the State of Indiana? The Department of Veterans Affairs provides general numbers for its system. Many of the Indiana service personnel are/were in the Indiana National Guard. Can SEOW work to facilitate de-identified Indiana-related data from the DVA system to be used for further research?

Two examples of collaborations can serve as models for continued research in Indiana. In Michigan the University of Michigan, Michigan State University, the Michigan Army National Guard, the Department of Veterans Affairs, and Ann Arbor Healthcare System formed a partnership to assess and develop programming to meet the needs of returning service members (Dalack et al., 2010). The partnership was formed because National Guard members can come from anywhere throughout a state or even from other states when called up to active service. At the end of a deployment these service members then return home and do not always have regular contact with their peers from deployment or access to military health services.

The Michigan study details challenges in working through requirements of all the different partners. Lessons learned include: a need for flexibility and humility to adapt and change "individual and institutional aims into joint aims," understanding that goals and timelines of academic institutions and military organizations can differ and that adjustments will be needed, establishing trust between the partners, and finding time to work face-to face to build the relationships (Dalack et al., 2010).

A New Jersey study recognized that National Guard and Reserve troops are more vulnerable to mental and physical health risks, especially post deployment (Kline et al., 2010). The New Jersey research included the University of Medicine and Dentistry of New Jersey, the Department of Veterans' Affairs, New Jersey Health Care System, Lyons, and the New Jersey Department of Military, and Veterans Affairs.

Perhaps a partnership among SEOW, the Indiana Department of Veterans Affairs, the Indiana Army National Guard, and the Department of Veterans Affairs could work in the State of Indiana. Since there are at least four different Department of Veterans Affairs systems within Indiana, SEOW can consider starting a State of Indiana-only partnership without the Department of Veterans Affairs System for collaboration as a pilot study. Once the challenges are worked through and an ongoing working relationship established, the DVA systems could be added so that services are provided for veterans throughout the state.

Determining the extent to which alcohol consumption habits prior to and during service affect alcohol use when one becomes a veteran (i.e. returns from service) is a question worth further investigation. In other words, finding the influence of factors not related to combat exposure (military culture that endorses drinking, previous habits, young age, etc.) versus war-related factors (psychosocial pressures and stresses from being exposed to combat operations) would be enlightening.

Also of interest would be investigating whether a type of service branch affects the level of alcohol consumption during and after deployment.

A comparison of use (or rather underuse) of mental services would be helpful, particularly alcohol counseling services among military veterans and the civilian population. Further, do particular legal and procedural obstacles in the army (such as the requirement to notify a soldier's commander and subsequent availability of information on alcohol treatment) deter soldiers from seeking treatment? One might also compare soldiers' and veterans' service utilization rates and see if concerns about reporting alcohol problems are gone when military career is no longer potentially negatively affected by such information.

Some topics to incorporate into reports on military service personnel and veterans in future research projects could include: domestic violence, suicide prevention, military sexual trauma, and traumatic brain injury.

Additional resources for military families and veterans and their families are available within the State of Indiana. Resources are also available for service providers to military service members, veterans, and their families. Gathering a list of resources and providing this information could be a valuable service of SEOW.

The SEOW can use lessons learned to establish support in those communities that do not have ready access to VA systems and to facilitate community networks for former service members who do not meet the criteria of being “veterans.”

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3 Substance Abuse and Mental Health Concerns among Indiana's Offender Population

At the end of 2011, approximately 1.6 million individuals in the United States were under the jurisdiction of state and federal correctional authorities; nearly 29,000 of these prisoners were located in Indiana. Males made up over 93 percent of the U.S. prison population (1,433,741 inmates). About 61 percent of all inmates, both males and females, were age 39 or younger. Racial/ethnic distribution of inmates differed by gender: among males, blacks contributed the most to the prison population, but among females, whites made up the largest part (see Table 3.1) (Carson & Sabol, 2012).

Table 3.1 Estimated Percentage of Sentenced Prisoners under State and Federal Jurisdiction, by Gender and Race/Ethnicity (December 31, 2011)

	Male	Female
White	465,100 (32.4%)	51,100 (49.3%)
Black	555,300 (38.7%)	26,000 (25.1%)
Hispanic	331,500 (23.1%)	18,400 (17.7%)
Other	81,841 (5.7%)	8,174 (7.9%)
Total	**1,433,741**	**103,674**

Source: Carson & Sabol, 2012

Imprisonment rates (i.e., the number of sentenced prisoners divided by the U.S. resident population) differed by gender. In 2011, about 0.5 percent of the entire U.S. population was imprisoned; the rate was considerably higher for males (0.9%) than for females (less than 0.1%). The differences in imprisonment rates by race/ethnicity for males were especially notable: 0.5 percent of all white males, more than 3.0% of all black males, and 1.2% of all Hispanic males were imprisoned in 2011 (Carson & Sabol, 2012).

Nationally, in 2010 an estimated 17% (237,000) of the 1.4 million sentenced state prisoners were serving their sentences for drug crimes including trafficking, possession, and other drug offenses (Carson & Sabol, 2012).

Family Impact

Not only does imprisonment affect individuals physically within the prison system, it also affects the families of the incarcerated. In 2007, 1.7 million children had a parent in the U.S. federal or state prison system, representing 2.3% of all American children (Murray, 2009; Poehlmann, Dallaire, Loper, & Shear, 2010). This is an 80% increase since 1991 (Poehlmann et al., 2010). Children whose parents are incarcerated have a higher risk for certain problems than children whose parents are not incarcerated, including depression, substance abuse issues, truancy, poor academic progress, behavioral problems such as aggression, poverty, and changes in caregivers (Hanlon, Carswell, & Rose, 2007; Johnson & Waldfogel, 2002; Poehlmann et al., 2010).

SUBSTANCE ABUSE AND MENTAL ILLNESS AMONG THE INCARCERATED IN THE UNITED STATES

A high prevalence of substance abuse exists among individuals suffering from a mental illness (Stephanie Hartwell et al., 2013), and "over half of persons with mental illness have substance abuse problems at some point in their lives" (S. Hartwell, 2004). In addition, individuals who suffer from a mental illness have higher arrest rates than similar persons in the general population (Stephanie Hartwell et al., 2013).

Federal policies under both the Community Mental Health Act of 1963 and Omnibus Budget Reconciliation Act of 1981 have been cited as the major reasons for the reduction of funding and subsequent closure of many state mental health facilities (Hatcher, Toldson, Godette, & Richardson, 2009). The result is an increase in the criminalization of both ethnic/racial minorities and those individuals suffering from mental health problems (Hatcher et al., 2009). According to Mann, Bond, and Powitzky (2011), "many times, prison is now seen by judges as the safest and most compassionate mental health care they can mandate for individuals with serious mental illness who have come into conflict with the law."

Substance Abuse among the Incarcerated

Since 1996, more individuals have been arrested for illicit drugs offenses than any other type of offense (J. M. Miller & H. V. Miller, 2010; Weisheit, 2009). Hatcher et al. (2009) report that "between 1985 and 1995 the proportion of inmates who were drug offenders rose from below 50% to above 50% of the total prison population." Nearly one-third of all arrests are due to illicit drugs or alcohol (J. M. Miller & H. V. Miller, 2010; Weisheit, 2009). Hartwell (2004) indicates that 80% of state inmates and 70% of federal inmates currently serving sentences have drug and/or alcohol histories. According to the National Center on Addiction and Substance Abuse (2010), an estimated 1.5 million inmates in U.S. prisons meet DSM-IV criteria for alcohol or other drug abuse and addiction and an additional 458,000 are substance-involved (Columbia University & National Center on Addiction and Substance Abuse, 2010).

According to results from various surveys and urine tests of individuals in community corrections, over 75% have recently used drugs and/or alcohol, and 80 percent of individuals recently arrested for drug possession and sale tested positive for illicit substances (S. Hartwell, 2004). These prevalence rates are higher than those of individuals arrested for other types of crimes, such as larceny and assault, at 50% (S. Hartwell, 2004).

Mental Illness among the Incarcerated

Hatcher at al. (2009) report that over 50% of current inmates have a diagnosable mental illness, and that a higher prevalence of mental illness occurs among inmates than among the general U.S. population (Hatcher et al., 2009). According to a report by Ditton (1999), the following percentages of individuals in the legal system are estimated to be mentally ill:[1] 16.2% in state prisons; 7.4% in federal prisons; 16.3% in jails; and 16.0% on probation[2]. Furthermore, mentally ill inmates are more likely to be in prison for a violent offense than other inmates, 52.9% compared to 46.1%, and less likely than others to be in prison for a drug-related offense, 12.8% compared to 22.2% (Ditton, 1999). A recent study suggests that among jail inmates, 14.5% of men and 31.0% of women suffer from serious mental illness (Henry J. Steadman, Fred C. Osher, Pamela Clark Robbins, Brian Case, & Steven Samuels, 2009).

Hatcher et al. (2009) disagree with Ditton (1999), and posit that, in fact, most detainees and inmates are nonviolent and are frequently charged with misdemeanor offenses, contending that because of barriers faced by persons suffering from a mental health issue (e.g., lack of access to mental health, substance abuse, and social services), many will enter into the "revolving door of incarceration" for these misdemeanor offenses.

The primary risk factors for the eventual incarceration of mentally ill individuals include substance abuse disorders, failure to complete community-based treatment, and homelessness (Messina, Burdon, Hagopian, & Prendergast, 2004). According to Ditton (1999), before entering into the state prison system in the U.S., incarcerated individuals assessed as mentally ill were more likely than other inmates to:

- Be homeless in the past 12 months prior to their arrest (20.1% vs. 8.8%);
- Be victims of physical or sexual abuse (among males: 32.8% vs. 13.1; among females: 78.4% vs. 50.9%);
- Be under the influence of drugs or alcohol at the time of their arrest (58.7% vs. 51.2%); and
- Use drugs in the month prior to committing their offense (58.8% vs. (56.1%).

Incarcerated individuals who suffer from a mental illness are more likely to have higher levels of impulsivity (reduced self-control), often associated with pathological gambling and other psychiatric disorders (Wolff, Morgan, & Shi, 2013). Studies have indicated that offenders in the prison system have significantly higher prevalence estimates of gambling-related disorders than the general population (Shaffer, Hall, & Vander Bilt, 1999; Templer, Kaiser, & Siscoe, 1993).

Furthermore, a person with pathological gambling may be enticed to commit crimes to get money for gambling, thus increasing their chances of involvement with the legal system and possible time in prison (Vorvick & Rogge, 2012).

[1]These individuals "reported either a mental or emotional condition or an overnight stay in a mental hospital or program" (Ditton, 1999).

[2]Jails are defined as those institutions where inmates are serving a sentence of one year or less, whereas a prison is where inmates typically serve sentences of more than one year. The exceptions are the states of Connecticut, Rhode Island, Vermont, Delaware, Alaska, and Hawaii, which combine jails and prisons into one system (Carson & Sabol, 2012).

Co-occurring Disorder (COD) among the Incarcerated

Co-occurring disorder (COD), also known as dual diagnosis, occurs when a person has both a substance use disorder and at least one non-drug-related psychiatric disorder (Messina et al., 2004). It is a problem that can affect people regardless of their age. Individuals who live in poverty, those who are particularly disenfranchised, or those from minority backgrounds are especially at risk (Green & Drake, 2011).

Incarcerated individuals possess a high prevalence of co-occurring disorders, including "alcohol or drug abuse or dependence, suicide, and other risk health behaviors within the detention facilities" (Hatcher et al., 2009). Eighty-three percent of inmates with mental illness also possess a dual diagnosis (Stephanie Hartwell et al., 2013). Studies suggest that inmates diagnosed with schizophrenia, major affective disorder, or antisocial personality disorder possess rates of co-occurring disorder as many as two to three times higher than rates found in the general population (Messina et al., 2004).

Treatment

Messina et al. (2004) report that "the percentage of co-disordered inmates receiving treatment for their complex psychiatric–substance abuse disorders is very small," though many inmates do receive treatment for substance abuse alone. Hartwell (2004) indicates that 50% of state and 40% of federal inmates reported having participated in a drug or alcohol treatment program in the past. An estimated 60.5% of mentally ill inmates in state prison have received any mental health treatment since admission, compared to 40.9% of mentally ill inmates in jail (Ditton, 1999).

Recidivism after Incarceration

Rates of recidivism do not differ between those ex-offenders with a mental illness and those who do not have a mental illness (Stephanie Hartwell et al., 2013). However, recidivism is more likely to occur among ex-offenders with a co-occurring disorder than those either with a mental illness alone those without such mental illnesses (Stephanie Hartwell et al., 2013).

Costs

Societal costs of substance use disorders are staggering. The estimated cost of substance abuse disorders in the U.S. in 2002 was $180.9 billion (Anglin, Nosyk, Jaffe, Urada, & Evans, 2013). The overall economic costs of illicit drug use in the U.S. in 2007 was an estimated $193 billion; $120 billion of which is attributed to lost productivity due labor issues, costs for participating in drug abuse treatment, incarceration, and premature death (Office of National Drug Control Policy, n.d.)

The costs to society from ex-inmates suffering from untreated COD-related problems may be high. These individuals possess "high rates of physical illness, unemployment, and homelessness upon release" (Messina et al., 2004).

SUBSTANCE ABUSE AND MENTAL ILLNESS AMONG THE INCARCERATED IN INDIANA

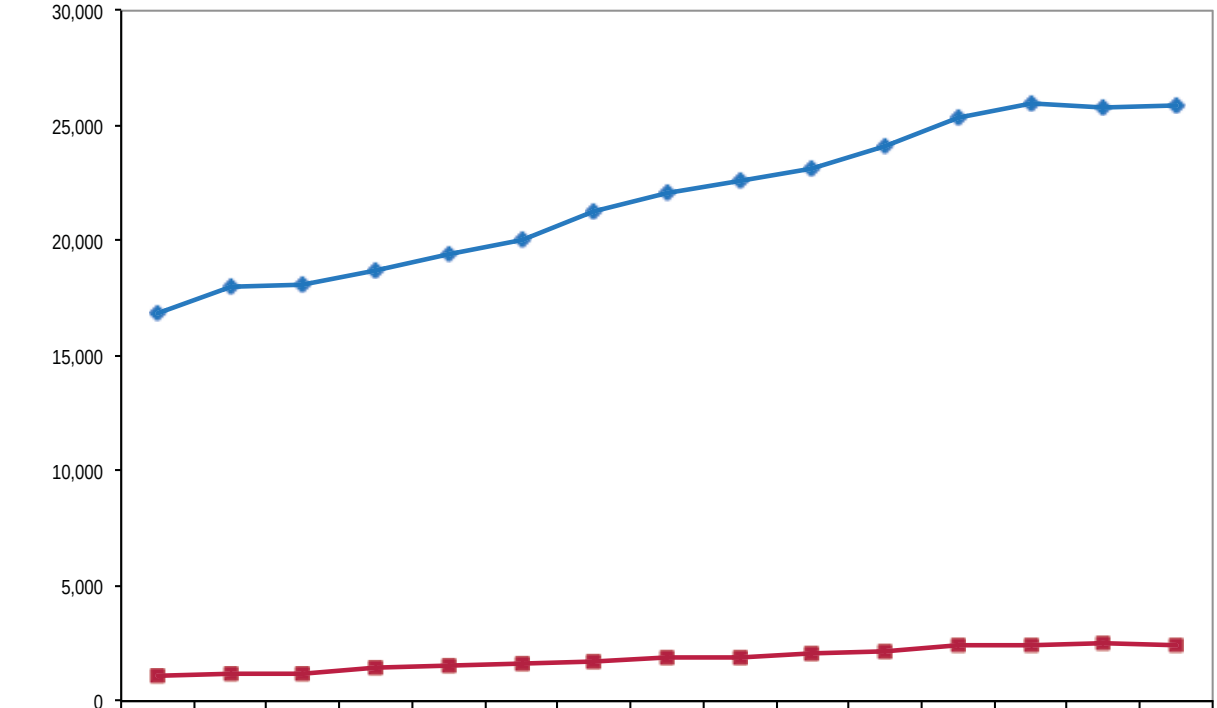
Indiana's Prison Population

In 2011, 28,314 adults were incarcerated within the Indiana Department of Correction (IDOC) system, including those offenders held in county jails and contracted beds. The vast majority of adult offenders were male (25,887) and 2,427 were female (see Figure 3.1). By contrast, 577 juveniles resided within the IDOC system (Indiana Department of Correction, 2011).

At the end of 2011, in Indiana's adult offender population, male inmates were more likely to be white, held in a serious offense security level, and convicted of an offense against a person (see Table 3.2). Most of the male inmates in the U.S. prison system came from a minority background (39% black and 23% Hispanic), while the majority of inmates in Indiana were white (55%). This difference can be explained by the low percentage of Hispanic inmates in the state, since the percentages of black inmates were similar in Indiana (37%) and the nation (39%).

Adult females inmates were more likely to be white, held in a serious offense security level, and convicted of a controlled substance offense (see Table 3.2) (Indiana Department of Correction, 2011). Male juveniles in the IDOC system were more likely to be white, held in a less serious offense security level, and convicted for an offense against property (see Table 3.3). Female juvenile inmates were more likely to be white, held in a less serious offense security level, and convicted of a controlled substance offense (see Table 3.3) (Indiana Department of Correction, 2011).

Figure 3.1 Indiana's Adult Offender Population, by Gender, 1997-2011



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Male	16,832	17,999	18,087	18,673	19,424	20,069	21,311	22,116	22,571	23,180	24,071	25,340	25,961	25,805	25,887
Female	1,071	1,198	1,222	1,452	1,542	1,592	1,758	1,892	1,884	2,057	2,178	2,402	2,428	2,476	2,427

Source: Indiana Department of Correction, 2011

Table 3.2 Indiana's Adult Offender Population, 2011

		Male	Female
Race			
	White	55%	74%
	Black	37%	21%
	Hispanic	5%	2%
	Other/Unknown	3%	3%
Security Level			
	Violent	14%	43%
	Serious	57%	53%
	Less Serious	18%	4%
	Minor	11%	N/A
Most Serious Offense			
	Controlled Substance	25%	36%
	Weapon	3%	1%
	Sex Offense	13%	2%
	Property	19%	28%
	Person	28%	21%
	Other	12%	12%

Source: Indiana Department of Correction, 2011

Table 3.3 Indiana's Juvenile Offender Population, 2011

		Male	Female
Race			
	White	51%	62%
	Black	37%	23%
	Other	12%	15%
Security Level			
	Violent	25%	19%
	Serious	8%	3%
	Less Serious	58%	56%
	Minor	9%	22%
Most Serious Offense			
	Controlled Substance	8%	5%
	Weapon	5%	N/A
	Status	1%	2%
	Public Order	6%	8%
	Public Admin.	12%	17%
	Property	40%	29%
	Person	27%	31%
	Other	1%	8%

Source: Indiana Department of Correction, 2011

Indiana Department of Correction New Admissions

In 2011, there were 14,435 new adult admissions into the IDOC system under the most serious offense level; 12,175 of these inmates were male, and 2,260 were female (Indiana Department of Correction, 2011). A total of 994 juveniles entered the IDOC system in 2011; 842 of these inmates were male and 152 were female. For detailed information on new admissions, see Tables 3.4 and 3.5.

Adult and juvenile new admissions into IDOC by county for 2011 can be found in Appendix 3A, page 32 (Indiana Department of Correction, 2011).

Table 3.4 Indiana's New Admissions Adult Offender Population, 2011

		Male	Female
Race			
	White	62.0%	76.0%
	Black	32.0%	19.0%
	Hispanic	4.0%	6.0%
	Other/Unknown	2.0%	3.0%
Most Serious Offense			
	Controlled Substance	25.0%	31.0%
	Weapon	3.0%	0.5%
	Sex Offense	6.0%	1.5%
	Property	28.0%	38.0%
	Person	20.0%	14.0%
	Other	18.0%	15.0%
Age at time of intake			
	Under 18	1.0%	1.0%
	18-24	25.0%	20.0%
	25-34	36.0%	39.0%
	35-44	21.0%	25.0%
	45-54	13.0%	13.0%
	55 and over	4.0%	2.0%

Source: Indiana Department of Correction, 2011

Table 3.5 Indiana's New Admissions Juvenile Offender Population, 2011

		Male	Female
Race			
	White	53.0%	58.0%
	Black	35.0%	32.0%
	Hispanic	7.0%	6.0%
	Other	5.0%	4.0%
Most Serious Offense			
	Controlled Substance	9.0%	7.0%
	Weapon	7.0%	N/A
	Status	2.0%	7.0%
	Public Order	5.0%	8.0%
	Public Admin.	10.0%	17.0%
	Property	42.0%	28.0%
	Person	24.0%	27.0%
	Other	1.0%	6.0%
Age at time of intake			
	Age 12	0.5%	1.0%
	Age 13	3.0%	3.0%
	Age 14	6.0%	8.0%
	Age 15	16.0%	16.0%
	Age 16	31.0%	33.0%
	Age 17	43.0%	38.0%
	Age 18	0.5%	1.0%

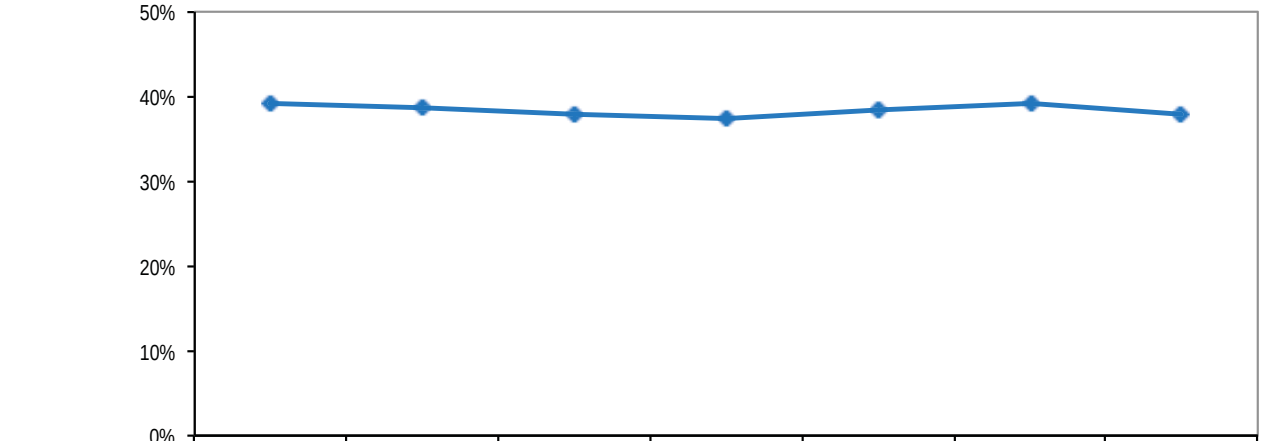
Source: Indiana Department of Correction, 2011

Indiana Department of Correction Adult Recidivism

According to IDOC, recidivism is defined as returning to incarceration within three years of being released from a state correctional facility (Indiana Department of Correction (IDOC), 2011). In 2011, 37.9% of those released from IDOC in 2008 returned to incarnation in the state[3] (See Figure 3.2) (Indiana Department of Correction (IDOC), 2011).

[3]The 2011 IDOC recidivism statistics reflect those previous inmates released from Indiana correctional facilities in 2008, and recidivated in 2011, per IDOC definitions.

Figure 3.2 Indiana's Adult Recidivism Rates, 2005-2011



	2005	2006	2007	2008	2009	2010	2011
Recidivism Rate	39.2%	38.6%	37.8%	37.4%	38.4%	39.3%	37.9%

Source: Indiana Department of Correction, 2011

According to IDOC, male offenders had higher rates of recidivism (39.3%) than females (29.5%). The rate for blacks was 43.3%, while for white offenders it was approximately 36%. Offenders who were younger in age were more likely to recidivate and return to IDOC than older offenders (Indiana Department of Correction (IDOC), 2011).

Eighty-four percent of all recidivists in Indiana were offenders serving less than two years. Approximately 52% of all offenders returned to IDOC after the commission of a new crime, while approximately 48% returned because of a technical rule violation. Offenders who did not have a conduct violation while incarcerated were 28% less likely to recidivate than offenders with one or more conduct violations while incarcerated. IDOC offenders who had visits from family or friends were 14% less likely to recidivate than offenders who did not receive visits from family or friends. Offenders who participated in a work release program within IDOC were 27% less likely to recidivate than those offenders who did not participate (Indiana Department of Correction, IDOC, 2011).

Substance Abuse Management System (SAMS) II

To assess the level of substance abuse among the incarcerated, the SEOW obtained de-identified data from IDOC's Substance Abuse Management System (SAMS) II. The database collects information on offenders receiving substance abuse treatment services while in the IDOC system, including lifetime use; use in the past six months; and age of first use of alcohol, marijuana, cocaine/crack, opiates, and speedballs (combined use of cocaine with heroin or other opioid) (Indiana Department of Correction, 2012).

Population Characteristics

The dataset contained information from 5,517 individuals in treatment in the IDOC system; most of these were incarcerated (97.7%), on parole (1.5%), or on probation and parole (0.6%). Nearly 90 percent of offenders were male; most identified as non-Hispanic white (63.7%), between the ages of 27 through 37 (39.5%), never married (51.0%), with an annual income of less than $10,000 (65.5%), and no health insurance (64.2%) (for more detailed demographic information, see Table 3.6).

Table 3.6 Demographic Characteristics of Study Population, 2012 (SAMS II)

		Frequency	Percentage
Gender (missing=0)	Male	4,808	87.1%
	Female	709	12.9%
Age (missing=0)	16-26	1,292	23.4%
	27-37	2,177	39.5%
	38-48	1,389	25.2%
	49-59	570	10.3%
	60-70	83	1.5%
	71-81	6	0.1%
Race (missing=44)	African-American	1,784	32.6%
	Asian/Pacific Islander	2	0.0%
	Mexican-American (Hispanic Origin)	173	3.2%
	White (non-Hispanic)	3,514	64.2%
Marital Status (missing=8)	Never Married	2,811	51.0%
	Legally Married	763	13.9%
	Living as Married	326	5.9%
	Separated	298	5.4%
	Divorced	1,238	22.5%
	Widowed	73	1.3%
Income (missing=11)	< 10,000	3,615	65.7%
	10,000-30,000	1,329	24.1%
	30,001-50,000	387	7.0%
	50,001-70,000	85	1.5%
	70,001-100,000	48	0.9%
	> 100,000	42	0.8%
Health Insurance (missing=11)	No Insurance	3,543	64.3%
	Medicaid/Medicare	918	16.7%
	CHAMPUS	21	0.4%
	Private Insurance - Substance Abuse Coverage	156	2.8%
	Private Insurance - No Substance Abuse Coverage	138	2.5%
	Private Insurance - Don't know if Substance Abuse Coverage	370	6.7%
	Don't Know	360	6.5%
TOTAL		**5,517**	

Source: Indiana Department of Correction, 2012

Substance Abuse Findings

Alcohol: Nearly all respondents in the sample reported lifetime use of alcohol (97.6%), and 66.9% said they consumed alcohol on a monthly basis. Most offenders initiated alcohol use between the ages of 11 and 20 years (84.9%) (see Table 3.7).

Marijuana: Marijuana was the most frequently used illicit substance in the sample, with 95.3% reporting lifetime use and 81.0% engaging in monthly use. Age at first use for most respondents was between 11 and 20 years (84.9%) (see Table 3.7).

Opiates: Nearly half of the sample had used opiates at least once in their life (46.7%), and 30.2% reported monthly use. Of those who use opioids, most initiated use between the ages of 11 and 20 years (62.3%) (see Table 3.7).

Cocaine/Crack: Reported lifetime use for cocaine or crack was 71.9%, and 35.1% of the respondents use the drug

on a monthly basis. Most offenders in our sample started first use between the ages of 11 and 20 years (60.3%) (see Table 3.7).

Speedball: The lifetime prevalence of the combined use of cocaine and heroin (or other opiate) was 20.8% in our sample, and 8.1% continue monthly use of speedballs. Most respondents reported age at initiation to be between 11 and 20 years (46.3%) (see Table 3.7).

Table 3.7 Substance Abuse Findings of Study Population, 2012 (SAMS II)

		Alcohol	Marijuana	Opiates	Cocaine/Crack	Speedballs
Prevalence	Lifetime use	97.6%	95.3%	46.8%	71.9%	20.8%
	Monthly use	66.8%	81.0%	30.2%	35.1%	8.1%
	Weekly use	60.9%	76.2%	27.4%	29.0%	6.2%
	Daily use	35.0%	63.1%	20.3%	15.7%	2.5%
Age at first use	0-10	11.3%	11.5%	1.2%	0.7%	0.9%
	11-20	84.9%	84.9%	62.3%	60.3%	46.3%
	21-30	3.5%	3.3%	27.9%	31.4%	41.0%
	31-40	0.3%	0.2%	6.6%	6.0%	9.5%
	> 40	0.1%	0.1%	2.0%	1.5%	2.4%

Source: Indiana Department of Correction, 2012

Focus Group Notes

Between May and June 2013, we conducted three focus groups with ex-offenders, i.e., individuals currently on parole or probation in Indiana. The groups were located in Indianapolis (seven participants), Bloomington (six participants), and Ft. Wayne (three participants). The following key themes were identified:

Experience with IDOC

The majority of respondents indicated a "revolving door" experience with the Correction system around Indiana. The general perception was that IDOC is not an effective rehabilitation experience: "the system is not there to help you."

Respondents reported that they would most likely not have been involved with Correction if not for substance use. While not all charges were drug-related, drug use was linked to the charge in every self-report. Alcohol was mentioned by one participant; the other substances mentioned were marijuana, cocaine, and heroin; "if I wasn't addicted to drugs, I probably wouldn't have done a lot of those things." No prescription drug abuse was reported.

Treatment

No respondent reported participating in court-ordered treatment. Comments included "if you don't want to do the program, you could just go through and do your time," "9 out of 10 people fail the programs," and "even if you are clean for two years and once you are past their doors, my addiction kicked in." Respondents described finding treatment through probation, through a recovery house, and independently. Respondents stated they feel the need for detox centers before treatment: "without detox, you are at these recovery meetings and they want you to express your feelings, which is hard to do when you are in withdrawal and slobbering all over yourself."

Relationships and Employment

All respondents reported that alcohol and drugs impacted relationships: "most of my relationships have been lost through alcohol." One respondent reported having difficulty supporting children without dealing drugs, while several others experienced severed relationships with children.

Finding and retaining employment was reported as more difficult due to having charges or a record (background checks) than due to alcohol and drugs. However, one individual stated that until receiving

treatment “every job I had in the past I messed up because of alcohol.” And drugs caused respondents to lose employment: “the place that I worked at but stole from was like family.”

Housing and receiving public assistance was a concern: “I hadn’t had an apartment in years because I smoked up all the rent.” Apartments also utilize background checks and check felony convictions. All respondents reported that food stamps cannot be obtained with a drug conviction.

Considerations for the SEOW

Substance use and mental illness are prevalent problems among offenders and frequently contribute to their incarceration and recidivism (Columbia University & National Center on Addiction and Substance Abuse, 2010; S. Hartwell, 2004). Hence, strategic efforts to provide evidence-based services to prevent and treat alcohol and drug abuse, combined with mental health promotion, within the prison system as well as for those re-entering society, will likely have a positive impact on this population (H. V. Miller & J. M. Miller, 2010).

The SEOW encourages strategic efforts through the following activities:

- Continue strong collaboration with the Indiana Department of Correction (IDOC is represented within the SEOW);
- Request annual data from IDOC to monitor substance abuse and mental health concerns within the offender population;
- Promote evidence-based substance abuse treatment and mental health promotion services; and
- Increase awareness of the substance abuse and mental health challenges within the offender population by disseminating study findings to policymakers, stakeholders, and the general public.

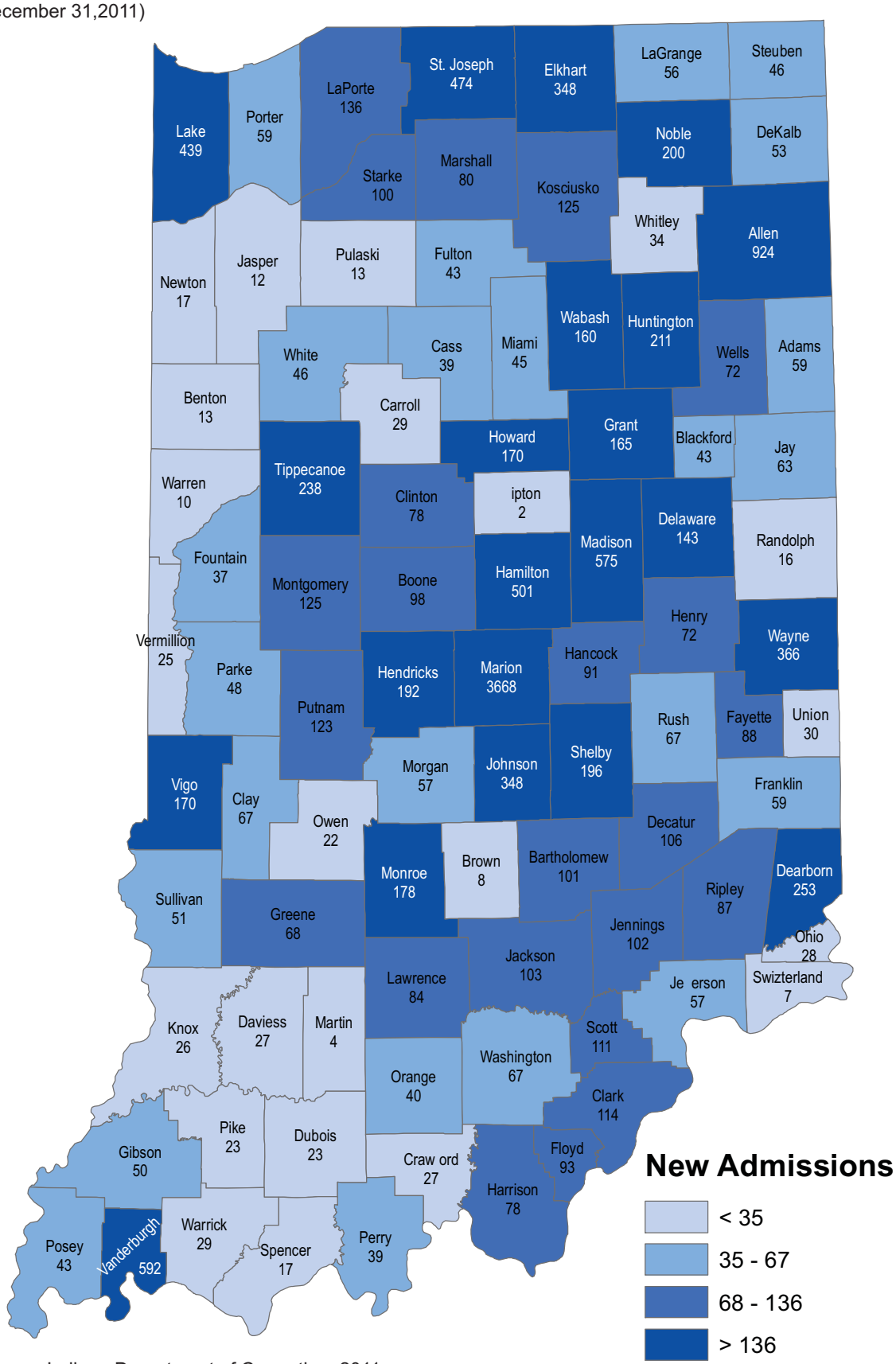
APPENDIX 3A

Adult and Juvenile New Admissions by County of Commit and Most Serious Offense Felony Level (January 1, 2011 - December 31, 2011)

	Adults			Juveniles		
County	**Males**	**Females**	**Total**	**Males**	**Females**	**Total**
Adams	43	16	59	2	0	2
Allen	817	107	924	41	4	45
Bartholomew	81	20	101	5	1	6
Benton	8	5	13	3	1	4
Blackford	36	7	43	3	0	3
Boone	85	13	98	8	1	9
Brown	7	1	8	1	0	1
Carroll	22	7	29	2	0	2
Cass	38	1	39	4	0	4
Clark	99	15	114	5	2	7
Clay	60	7	67	2	0	2
Clinton	64	14	78	23	6	29
Crawford	24	3	27	0	0	0
Daviess	20	7	27	2	2	4
Dearborn	204	49	253	5	1	6
Decatur	82	24	106	5	2	7
DeKalb	49	4	53	4	0	4
Delaware	119	24	143	19	6	25
Dubois	19	4	23	5	2	7
Elkhart	300	48	348	60	4	64
Fayette	63	25	88	0	0	0
Floyd	76	17	93	4	0	4
Fountain	34	3	37	0	0	0
Franklin	45	14	59	1	0	1
Fulton	38	5	43	3	0	3
Gibson	46	4	50	5	2	7
Grant	138	27	165	2	0	2
Greene	58	10	68	5	3	8
Hamilton	396	105	501	8	0	8
Hancock	78	13	91	6	0	6
Harrison	70	8	78	2	0	2
Hendricks	160	32	192	27	8	35
Henry	58	14	72	2	0	2
Howard	139	31	170	11	1	12
Huntington	167	44	211	8	0	8
Jackson	87	16	103	1	0	1
Jasper	11	1	12	4	1	5
Jay	51	12	63	4	0	4
Jefferson	46	11	57	1	0	1
Jennings	84	18	102	5	0	5
Johnson	257	91	348	7	3	10
Knox	22	4	26	1	1	2
Kosciusko	108	17	125	17	3	20
LaGrange	45	11	56	3	1	4
Lake	428	11	439	63	14	77
LaPorte	117	19	136	18	2	20
Lawrence	67	17	84	6	1	7
Madison	469	106	575	10	0	10
Marion	3,160	508	3,668	125	10	135
Marshall	69	11	80	13	3	16
Martin	3	1	4	0	0	0
Miami	38	7	45	3	0	3
Monroe	161	17	178	1	0	1
Montgomery	104	21	125	5	1	6
Morgan	51	6	57	9	0	9
Newton	16	1	17	0	0	0
Noble	161	39	200	6	0	6
Ohio	26	2	28	1	0	1
Orange	34	6	40	1	0	1
Owen	19	3	22	0	0	0
Parke	39	9	48	0	0	0
Perry	29	10	39	8	2	10
Pike	18	5	23	0	0	0
Porter	51	8	59	2	3	5
Posey	38	5	43	3	0	3
Pulaski	12	1	13	0	0	0
Putnam	102	21	123	1	1	2
Randolph	15	1	16	3	0	3
Ripley	72	15	87	7	1	8
Rush	55	12	67	2	0	2
Saint Joseph	419	55	474	110	22	132
Scott	86	25	111	1	0	1
Shelby	141	55	196	3	0	3
Spencer	15	2	17	3	1	4
Starke	82	18	100	1	1	2
Steuben	38	8	46	6	4	10
Sullivan	46	5	51	5	0	5
Switzerland	7	0	7	0	0	0
Tippecanoe	194	44	238	13	3	16
Tipton	2	0	2	1	0	1
Union	26	4	30	1	0	1
Vanderburgh	501	91	592	50	17	67
Vermillion	17	8	25	0	0	0
Vigo	147	23	170	5	0	5
Wabash	120	40	160	3	0	3
Warren	10	0	10	0	0	0
Warrick	25	4	29	3	2	5
Washington	58	9	67	2	0	2
Wayne	296	70	366	10	4	14
Wells	60	12	72	12	3	15
White	40	6	46	0	0	0
Whitley	29	5	34	0	0	0
Unknown	8	5	13	0	2	2
Indiana	**12,175**	**2,260**	**14,435**	**842**	**152**	**994**

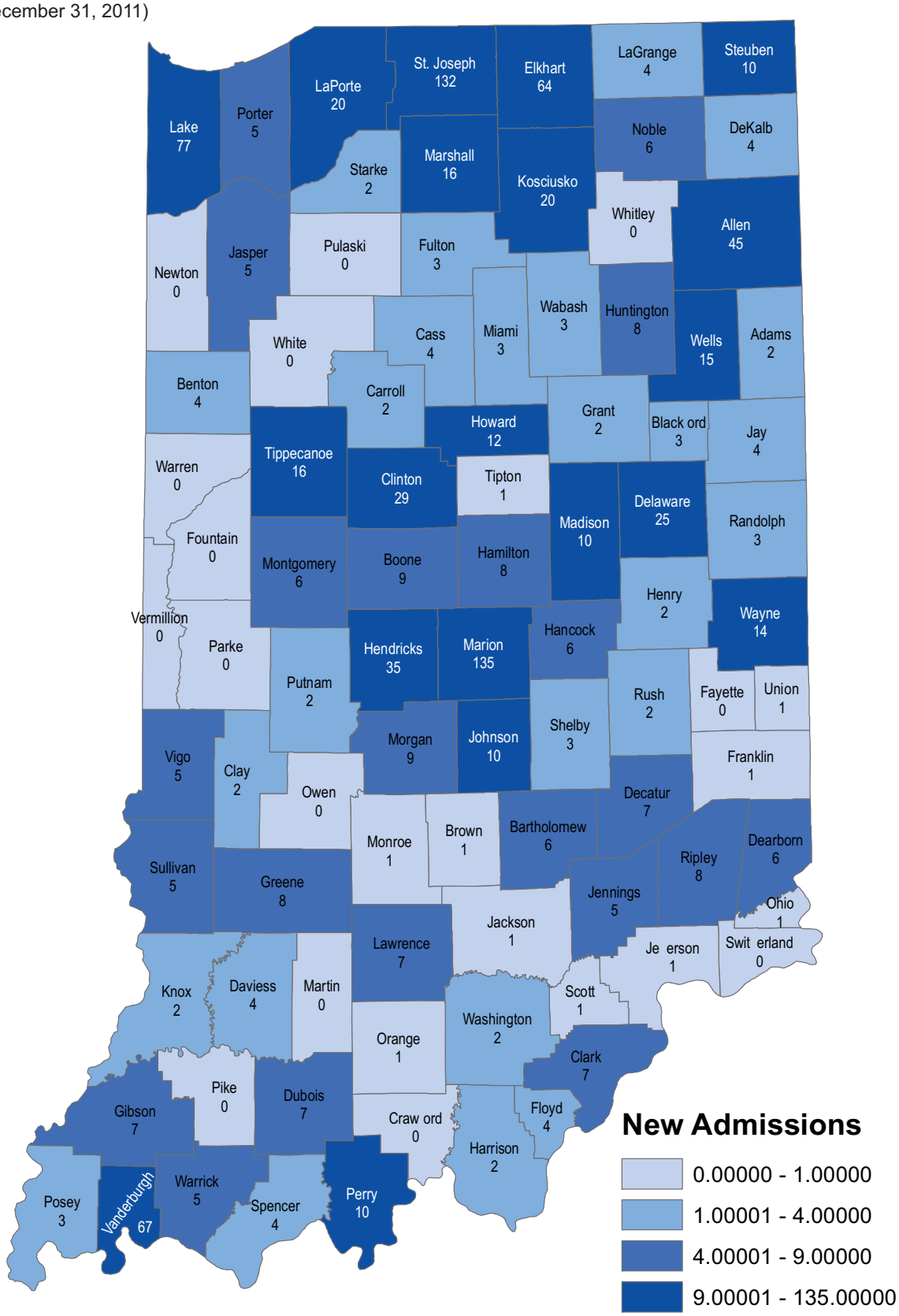
Source: Indiana Department of Correction, 2011

Map 3.1 Adult New Admissions by County of Commit and Most Serious Offense Felony Level (January 1, 2011 - December 31,2011)



Source: Indiana Department of Correction, 2011

Map 3.2 Juvenile New Admissions by County of Commit and Most Serious Offense Felony Level (January 1, 2011 - December 31, 2011)



Source: Indiana Department of Correction, 2011

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4 Co-Occurring Mental Illness and Substance Use Disorder in Indiana

Seven to ten million U.S. adults are living with both a diagnosable mental illness and a substance use disorder in any given year (Substance Abuse and Mental Health Services Administration, SAMHSA, 2002). Co-occurring mental illness and substance use disorder (COD) is a complex phenomenon with serious consequences for individuals and society; COD has not been appropriately addressed by the mental health and substance abuse treatment systems. Part of the reason for this is that relatively little is known about the patterns of COD within the population. Literature on COD in the United States is both dated and limited. To address this gap in knowledge, the SEOW analyzed information from the Data Assessment Registry Mental Health and Addiction (DARMHA) system, which was obtained from the Indiana Division of Mental Health and Addiction (DMHA). The data are reflective of Hoosiers enrolled in a DMHA-funded program providing mental health and/or substance abuse treatment services for individuals at or below the 200 percent federal poverty level.

CO-OCCURRING DISORDER IN THE UNITED STATES

Prevalence

Large community surveys have identified a significant overlap between mental illness and substance use disorders (SUD) within the United States. The Epidemiological Catchment Area (ECA) Survey (Regier et al., 1984), administered between 1980 and 1984, and its follow-up, the National Comorbidity Survey (NCS) (Kessler, 1994), administered between 1990 and 1992, together provided the first true understanding of the extent of COD in the broader population. Both studies demonstrated that 22 to 23 percent of the adult population (about 44 million people) had a diagnosable mental health disorder, and that 15 percent (about 6.6 million people) of those individuals have a co-occurring substance abuse disorder (as cited in Substance Abuse and Mental Health Services Administration, 2002).

The National Comorbidity Survey-Replication (NCS-R), conducted a decade after the NCS and often considered the most valid and reliable community mental health survey, found that nearly half of individuals surveyed (46 percent) met criteria for a mental health or substance use disorder during their lifetime, with possibility of comorbidity occurring over time (Kessler et al., 2005). Additionally, the National Epidemiological Survey on Alcohol and Related Conditions (NESARC), conducted between 2001 and 2002, reported that 19.7 percent of respondents displaying symptoms of a SUD within the past 12 months also met diagnostic criteria for a mood disorder, while 15.4 percent met criteria for an anxiety disorder (Grant et al., 2004). Furthermore, the researchers found that 20 percent of respondents with a mental illness also met criteria for substance dependence or abuse, compared to only 6.1 percent of the adult population with substance dependence or abuse who did not have a mental illness (SAMHSA, 2012).

Complications and Consequences

Researchers and practitioners have long recognized that consumers diagnosed with COD have more complex problems and require different approaches to treatment than individuals who are diagnosed with a singular disorder (Davidson & White, 2007). COD has also been linked to a variety of negative outcomes for consumers beyond those associated with mental illness or substance abuse problems alone. Negative outcomes include a more chronic and persistent course of illness than for single disorders (Kessler, 2002), poorer response to treatment (Bradizza, Stasiewicz, & Paas, 2006), and higher rates of substance abuse relapse (Bradizza et al., 2006). These negative outcomes and others result in significant costs to society through their impacts on the health, mental health, behavioral health, and criminal justice systems. Despite such negative COD-associated outcomes, research, policy, and treatment have largely considered mental illness and substance use disorders separately (Davidson & White, 2007).

Treatment

There is a recognized need for substance abuse and mental health service integration. The NCS-R found that only 19 percent of those with COD received treatment

for both disorders; further, 29 percent did not receive treatment for either their mental health or substance abuse disorder (as cited in SAMHSA, 2002). When they do receive treatment, consumers with COD have been found to respond at lower rates than consumers with a single disorder (Bradizza et al., 2006). The major reason for this is the lack of treatment options that integrate substance abuse and mental health services (SAMHSA, 2002).

The integration of treatment options for mental health with substance abuse services is important, given that mental health and substance abuse treatment systems tend to approach recovery quite differently, each from their respective disorders of focus. For instance, substance abuse treatment generally follows the 12-step model of recovery, which focuses on recovery as complete remission of symptoms (i.e., abstinence) (Sowers, 2007; White, 2007). In contrast, mental health treatment views recovery as an individualized process consumers engage in to address issues caused by their illness, regardless of symptom remission (Corrigan & Ralph, 2005; Davidson, 2003; Deegan & Drake, 2006). These differences are partly due to the tendency within policy and treatment circles to view and treat mental illness as a disability, while addiction is viewed and treated as a disease. Because mental illness is treated as a disability, its symptoms are viewed as something consumers need to learn to live with, while the disease symptoms of addiction (i.e., substance use) are viewed as something that can be avoided through abstinence.

This dissonance between mental health and addictions fields' views of recovery is problematic in light of the significant overlap between these types of disorders. Despite the fact that abstinence is the defining feature of recovery in the addictions field, research has demonstrated that consumers understand and experience mental health recovery in a similar way to substance abuse recovery. Furthermore, research has also found that substance abuse recovery is more personal and unique than the strict abstinence view asserts (Davidson & White, 2007; Sowers, 2007). For dually diagnosed individuals, this means developing a better understanding of recovery from mental illness and SUD as a co-occurring process. Differences between the ways in which mental health and substance abuse services operate are so pervasive that providers often refuse to serve consumers with a dual diagnosis (Anthony, 1993; Davidson & White, 2007; Frank & Glied, 2006).

Gaps in Research

While previous studies have shed light on COD as a significant problem in the United States, the research is limited. For instance, community studies have focused largely on the overall prevalence of COD in populations without taking a more detailed look at the COD population itself. Consequently there is little understanding of CODs as they relate to specific groups of people (e.g., men vs. women, whites vs. minorities, younger vs. older individuals). Furthermore, there is limited knowledge regarding CODs for people with more serious mental health problems. For instance, the NESARC, while measuring mood and anxiety disorders, fails to take account of psychotic disorders such as schizophrenia. The NSDUH measures illicit drug use and psychiatric symptoms, which might or might not be indicative of actual disorders. Additionally, low numbers of individuals diagnosed with what are considered to be some of the most severe mental disorders (e.g., schizophrenia, schizoaffective disorder), mean that they largely fail to show up in community surveys (Sacks, Chandler, & Gonzales, 2008). Most of the research that does account for individuals with more serious disorders is carried out in treatment populations. However, the majority of these studies are limited to a single setting and are concerned with clinical outcomes rather than patterns of illness in the population. Additionally, studies of treatment populations are often focused on either mental illness or substance abuse and often exclude individuals with CODs (see Bradizza et al., 2006). Finally, while community studies have provided an understanding of the patterns of COD in the larger population, knowledge is lacking regarding patterns within treatment populations (Bradizza et al., 2006). We attempt to address several of these gaps below through the analysis of data collected from an Indiana treatment population.

CO-OCCURRING DISORDER IN INDIANA

Data Assessment Registry Mental Health and Addiction

Methodology

State-level service data was obtained from Indiana's Division of Mental Health and Addiction's (DMHA) Data Assessment Registry: Mental Health and Addiction (DARMHA) system. The data are reflective of the entire Hoosier Assurance Plan (HAP) consumer population served by DMHA-contracted substance abuse and mental health providers in 2011. HAP consumers are at or below

the 200% federal poverty level and do not have insurance for mental health or addiction treatment. We restricted our analysis to those over the age of 18 for this study (N = 96,706). While the dataset is limited to consumers served in 2011, the information contained within is accurate through January 2013 (when the data were transferred to the research team).

We created four diagnostic categories using DSM IV and ICD 9 diagnostic codes (both of which were used in the administrative dataset):

1. *SMI (serious mental illness) only*, i.e., those with a serious mental disorder except for substance use disorders, developmental disorders, dementia, and mental disorders due to a general medical condition (Center for Substance Abuse Treatment, 2006);
2. *SUD only,* i.e., those with any SUD without any co-occurring SMI;
3. *COD*, i.e., those with both an SMI and SUD diagnosis; and
4. *Other mental illness (MI)*, i.e., those with developmental disorder, dementia, or a mental disorder due to a general medical condition without also having an SMI or SUD.

We calculated *length of treatment (LOT)* for consumers who had completed their treatment episode at the time data were collected by subtracting the first date a consumer's treatment episode began from the date it ended.

We used a field in the DARMHA system recording the discharge status of consumers to create a dichotomous variable *discharge status* for those whose treatment episode had ended sometime within the observation period and who had not ended treatment due to death, nursing home placement, moving out of the service area, or no longer being HAP-eligible. Those identified in the DARMHA system as "service completed" were labeled as having successfully completed treatment, and those identified as "administrative discharge", "consumer dropped/opted out", and "incarcerated" were labeled as having *unsuccessfully completed* treatment.

We ran four sets of analyses. In the first analysis, we calculated basic descriptive statistics to understand the overall characteristics of the DARMHA population. In the second analysis, we used logistic regression to understand the ability of key demographics to predict whether or not consumers had a COD diagnosis. The third analysis involved a series of negative binomial regressions to understand the association between diagnostic category and LOT, accounting for demographic characteristics of the sample. Finally, we ran a series of logistic regressions to understand the effect of diagnosis type on discharge status, also accounting for demographic characteristics. Because Hispanics only comprised about 5% of the population and a large number of consumers did not have information recorded for ethnicity, we did not include ethnicity in any analyses other than those describing the characteristics of the population.

Results

Population Characteristics: As shown in Table 4.1, slightly more than 50 percent of the DARMHA population were female, 81 percent were white, 5 percent identified as Hispanic, and the average age was around 38 years; these demographics are comparable to the larger Indiana population (U.S. Census Bureau, 2013). Almost half of the population, 49 percent, had SMI only; 23 percent had SUD only; 19 percent had COD; and 9 percent had another less serious mental illness. For those consumers who had completed their treatment episode and for whom there were appropriate data, the median length of treatment was 198 days (mean = 403.73), and 27 percent had completed that treatment successfully.

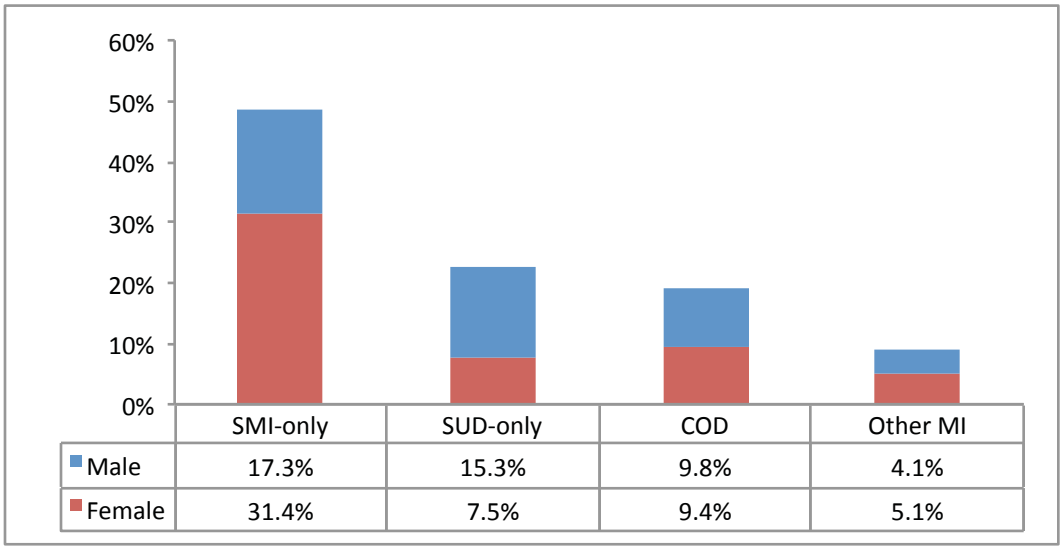
Table 4.1 Descriptive Statistics of Sample Related to Key Variables of Interest

	n	Percent	Mean	Median	Standard Deviation
Gender	96,706				
Female		53.42%			
Male		46.58%			
Race	96,706				
White		81.44%			
Black		13.59%			
Other		04.97%			
Ethnicity	91,997				
Hispanic		4.19%			
Non- Hispanic		95.81%			
Age	96,706		38.45	37.00	13.49
Diagnostic category	96,706				
SMI only		48.72%			
SUD only		22.82%			
COD		19.25%			
Other MI		9.21%			
Length of treatment (in days)	68,814		403.73	198.00	686.57
Discharge status	65,971				
Successful		27.72%			
Unsuccessful		72.28%			

Source: Indiana Division of Mental Health and Addiction, 2013

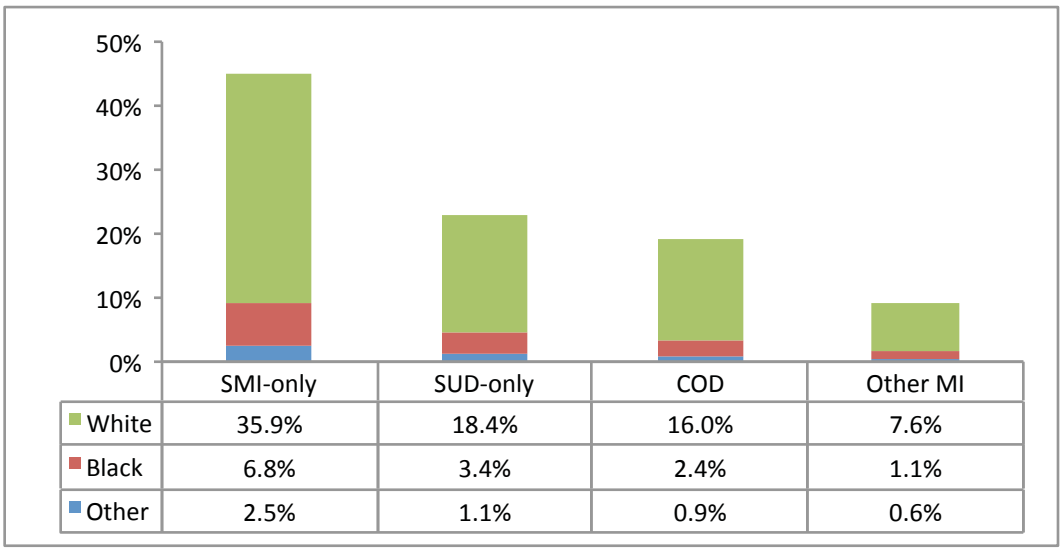
The four figures that follow show the percentage of the population for each demographic variable by diagnostic category. The graph in Figure 4.1 represents the percentage of men and women within the DARMHA population by diagnostic category. This is a particularly telling image of the data considering that the number of men and women comprise close to 50 percent of the population each. As shown in Figure 4.1, a greater percentage of women had SMI-only diagnoses than men, while men had a greater percentage of SUD-only diagnoses. Within the COD and other MI diagnosis categories, the percentage of men and women were about equal.

Figure 4.1 Percent of Men and Women in DARMHA by Diagnosis



Source: Indiana Division of Mental Health and Addiction, 2013

Figure 4.2 Percent of DARMHA Population in Each Racial Category by Diagnosis



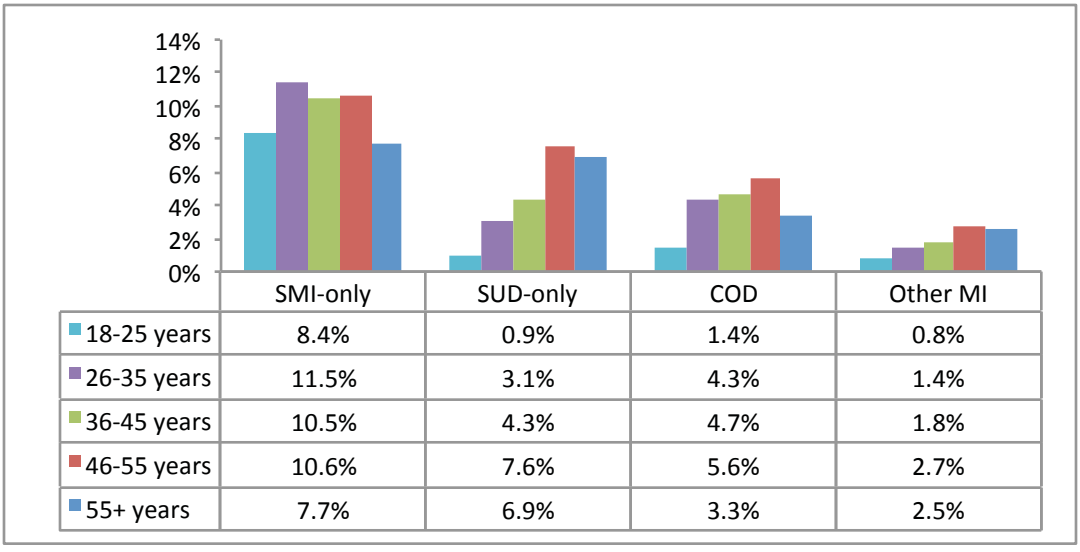
	SMI-only	SUD-only	COD	Other MI
White	35.9%	18.4%	16.0%	7.6%
Black	6.8%	3.4%	2.4%	1.1%
Other	2.5%	1.1%	0.9%	0.6%

Source: Indiana Division of Mental Health and Addiction, 2013

Figure 4.2 shows the percent of DARMHA consumers in each racial category by diagnosis. For all racial categories, the greatest percentage fell within the SMI-only diagnostic category, followed sequentially by SUD-only, COD, and other MI diagnosis.

The bar graph in Figure 4.3 shows the percent of the DARMHA population in each of five age categories (18-25, 26-35, 36-45, 46-55, and 55+) by diagnostic category. The trend here is similar to that in Figure 4.4 where the largest percentage of each age group fall within the SMI-only category; the percentages get progressively smaller moving across the diagnostic categories from left to right. The exception is that there are larger percentages of the 36-45, 46-45, and 55+ age groups in the COD category than in the SUD-only category.

Figure 4.3 Percent of DARMHA Population in Age Group by Diagnosis

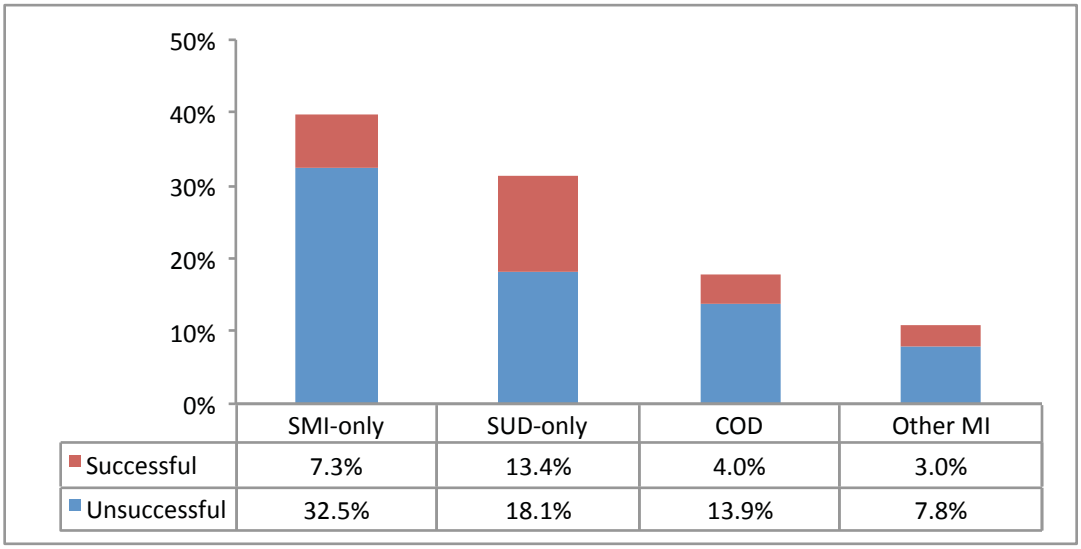


	SMI-only	SUD-only	COD	Other MI
18-25 years	8.4%	0.9%	1.4%	0.8%
26-35 years	11.5%	3.1%	4.3%	1.4%
36-45 years	10.5%	4.3%	4.7%	1.8%
46-55 years	10.6%	7.6%	5.6%	2.7%
55+ years	7.7%	6.9%	3.3%	2.5%

Source: Indiana Division of Mental Health and Addiction, 2013

Figure 4.4 shows the discharge status (i.e., successful or unsuccessful completion of the episode of treatment) of the DARMHA population by diagnostic category. Unsuccessful completions are higher than successful completions for all diagnostic categories. The diagnostic category with the greatest percent of successful completions is SUD only.

Figure 4.4 Percent of DARMHA Population with Successful and Unsuccessful Completion at Discharge from Treatment Episode by Diagnosis



Source: Indiana Division of Mental Health and Addiction, 2013

Relationship of Demographics to COD Diagnosis: All of the selected demographic variables were significantly associated with COD diagnosis (see Table 4.2). In the model, females are at about 20 percent less risk than males of being diagnosed with COD (Odds Ratio (OR)=0.80; Confidence limits (CL): 0.77-0.82). Non-whites' risk of being diagnosed with COD was 14 percent less than whites (OR=0.86; CL: 0.82-0.89). Each year a person increases in age marks one percent less risk of being diagnosed with COD (OR=0.99; CL: 0.99-0.99).

Table 4.2 Logistic Regression Coefficients: Association of Selected Demographics with COD Diagnosis

	B (SE)	x^{2*}
Independent variables		
(Intercept)	-1.195 (0.026)	2150.581
Female	-0.228 (0.016)	193.332
Non-white	-0.154 (0.022)	50.776
Age (years)	-0.002 (0.001)	15.895
**all p-values≤.0001*		

Association between Independent Variables and Length of Treatment (LOT): Table 4.3 displays the negative binomial regression results for four models investigating the association between the independent variables and LOT. The first three models demonstrate that each of the independent variables are significant predictors of LOT. The Akaike information criterion (AIC) assists in determining the quality of each of the statistical models; lower AIC values indicate the model is a better fit for the data. The lower AIC score for Model 1 in comparison to Model 2 indicates that the diagnostic categories are better predictors of LOT than the demographic characteristics. Model 3, which includes all of the independent variables, is an improvement over both of the previous models. Model 4, which includes all variables and all interactions between diagnostic category and the demographic variables, is the best of the four models at predicting LOT.

Table 4.3 Standardized Negative Binomial Regression Coefficients: Association between Key Variables and Length of Treatment

Independent Variables	Model 1		Model 2		Model 3		Model 4	
	B (SE)	x^2	B (SE)	x^2	B (SE)	x^2	B (SE)	x^2
(Intercept)	4.918 (0.012)	173456***	6.339 (0.006)	1139798***	5.528 (0.014)	160489***	5.364 (0.018)	87423.50***
Female	0.128 (0.008)	267.47***	--	--	-0.025 (0.008)	10.71**	-0.091 (0.012)	56.31***
Non-white	-0.038 (0.010)	14.18***	--	--	-0.040 (0.009)	17.60***	-0.039 (0.014)	7.11*
Age (years)	0.0263 (0.000)	8146.96***	--	--	0.018 (0.000)	4719.52***	0.025 (0.000)	3992.92***
Diagnostic category:a								
SUD only	--	--	-1.117 (0.009)	5120.20***	-0.934 (0.009)	9790.15***	-0.380 (0.028)	183.16***
COD	--	--	-0.181 (0.011)	286.78**	-0.111 (0.011)	111.40***	-0.210 (0.035)	73.70
Other MI	--	--	-0.663 (0.013)	2585.43***	-0.512 (0.013)	1582.08***	0.063 (0.038)	2.73
Female x SUD only	--	--	--	--	--	--	0.156 (0.019)	69.69***
Female x COD	--	--	--	--	--	--	0.065 (0.021)	9.56*
Female x Other MI diagnosis	--	--	--	--	--	--	0.043 (0.026)	2.73
Non-white x SUD only	--	--	--	--	--	--	0.027 (0.022)	1.46
Non-white x COD	--	--	--	--	--	--	0.057 (0.028)	3.47
Non-white x Other MI diagnosis	--	--	--	--	--	--	-0.090 (0.032)	7.87*
Age x SUD only	--	--	--	--	--	--	-0.018 (0.001)	661.78***
Age x COD	--	--	--	--	--	--	0.004 (0.001)	24.75***
Age x Other MI diagnosis	--	--	--	--	--	--	-0.017 (0.001)	318.32***
AIC	953866.501		949116.771		94333.681		943287.868	

*≤.01 **≤.001 ***≤.0001
[a] Reference category is SMI only.

Regarding Model 4, gender has a significant interaction with both SUD only and COD, where being female and in either of these diagnostic groups increases LOT (β=0.156 and B=0.065 respectively), The only significant interaction regarding race was with the other MI diagnostic category, with Non-whites predicting shorter LOT (β=-0.090). Age had significant interactions with all diagnoses. LOT decreases for each year a person ages for both SUD only and other MI (β=-0.018 and B=-0.017 respectively), while it increases with each year a person ages for COD (β=0.004).

Association between Independent Variables and Treatment Outcome: Table 4.4 displays the results of the logistic regressions investigating the association between the independent variables and treatment outcome, and Table 4.5 displays the adjusted odds ratios for the same analysis. All of the independent variables were significant predictors regarding whether treatment was successfully completed or not. The concordance statistic (c-statistic) is an indicator of a model's goodness of fit; the higher the c-statistic is above 0.05, the better the model is at predicting the outcome, vs. chance alone. Model 1, including only demographic variables, did not fit the data as well as Model 2, which included only the diagnostic categories as predictors. Model 3, including all of the independent variables, was an even better fit, and Model 4, including all variables and interactions between demographics and diagnostic categories, was the best.

Table 4.4 Logistic Regression Coefficients: Association between Key Variables and Treatment Outcome (Successful Completion)

Independent Variables	Model 1		Model 2		Model 3		Model 4	
	B (SE)	x^2	B (SE)	x^2	B (SE)	x^2	B (SE)	x^2
(Intercept)	-0.794 (0.27)	855.790***	-1.491 (0.016)	8748.456***	-1.732 (0.035)	2448.263***	-1.821 (0.052)	1226.345***
Female	-0.381 (0.018)	472.747***	--	--	-0.102 (0.019)	29.651***	-0.002 (0.034)	0.002
Non-white	-0.295 (0.023)	161.654***	--	--	-0.319 (0.024)	178.638***	-0.603 (0.046)	171.511***
Age (years)	0.0022 (0.001)	10.017*	--	--	0.0093 (0.001)	171.347***	0.011 (0.0011)	99.552***
Diagnostic category:a	--	--	--	--				
SUD only	--	--	1.188 (0.021)	3125.541***	1.213 (0.023)	2857.317***	1.264 (0.070)	330.576***
COD	--	--	0.251 (0.027)	84.801***	0.254 (0.028)	84.729***	0.510 (0.094)	29.698***
Other MI diagnosis	--	--	0.540 (0.031)	307.037***	0.565 (0.0311)	329.973***	0.811 (0.096)	72.105***
Female x SUD only	--	--	--	--	--	--	-0.203 (0.046)	19.694***
Female x COD	--	--	--	--	--	--	0.047 (0.056)	0.703
Female x Other MI diagnosis	--	--	--	--	--	--	-0.239 (0.063)	14.450**
Non-white x SUD only	--	--	--	--	--	--	0.466 (0.058)	63.900***
Non-white x COD	--	--	--	--	--	--	0.172 (0.081)	4.517*
Non-white x Other MI diagnosis	--	--	--	--	--	--	0.398 (0.083)	22.976***
Age x SUD only	--	--	--	--	--	--	-0.001 (0.002)	0.135
Age x COD	--	--	--	--	--	--	-0.008 (0.002)	12.601**
Age x Other MI diagnosis	--	--	--	--	--	--	-0.005 (0.002)	4.112*
c-statistic	0.558		0.636		0.651		0.653	

*≤.05 **≤.001 ***≤.0001
[a] Reference category is SMI only.

Model 4 demonstrates that there is a significant interaction between gender and SUD-only vs. gender and other MI diagnosis. Being female and having SUD-only decreases the odds of successful completion by 18 percent, and being female and having a diagnosis falling in the other MI diagnostic category decreases the odds of successful completion by 21 percent. There is no interaction between gender and COD. Race had significant interactions with all diagnostic categories. Being Non-white and having SUD-only decreased the odds of successful completion by 13 percent. The interaction between Non-white and COD decreased odds of successful completion by 35 percent. People who were Non-white and in the other MI diagnostic category saw decreased odds of successful completion by 18 percent. Age had significant interactions with the COD and other MI diagnostic categories with a one-year increase in age increasing the chances of successful completion by 1 percent.

Table 4.5 Adjusted Odds Ratios: Association of Selected Demographics and Diagnosis with Successful Completion of Treatment

Independent Variables	Model 1	Model 2	Model 3	Model 4
Female	0.683***	--	0.903***	0.998
Non-white	0.744***	--	0.727***	0.547***
Age (years)	1.002***	--	1.009***	1.011***
Diagnostic category:a				
SUD only	--	3.279***	3.362***	3.538***
COD	--	1.285***	1.289***	1.665***
Other MI diagnosis	--	1.715***	1.759***	2.251***
Female x SUD only	--	--	--	0.815***
Female x COD	--	--	--	1.046
Female x Other MI diagnosis	--	--	--	0.786**
Non-white x SUD only	--	--	--	0.872***
Non-white x COD	--	--	--	0.650*
Non-white x Other MI diagnosis	--	--	--	0.815***
Age x SUD only	--	--	--	1.010
Age x COD	--	--	--	1.003**
Age x Other MI diagnosis	--	--	--	1.006*

*≤.05 **≤.01 ***≤.0001
[a] Reference category is SMI only.

Focus Groups

Two focus groups were held with a co-occurring population in Ft. Wayne: one with six participants and one with eight participants.

Experience with mental health issues

Most participants reported a diagnosis (i.e. schizoaffective disorder, depression, bipolar, schizophrenia), however two participants stated they had not been diagnosed—one due to inability to pay to see a doctor and the other due to not seeking treatment. All participants were involved in the same area mental health clubhouse facility.

Experience with drugs and alcohol

Marijuana use as a youth was reported by half the participants; one person indicated receiving treatment for alcoholism, while four others reported drinking to self-medicate but not seeking treatment. All respondents reported taking psychotropic medications in the past; however, all were under doctor supervision and reported never using these drugs other than as prescribed. It was also repeatedly stated that the medication cocktail was constantly changing, primarily due to side effects and cost.

One of the groups discussed becoming aware that mixing alcohol, drugs, and psychotropic medications was not helping their mental illness: “The longer I’ve stayed off of other substances not prescribed to me, the more I am not in the hospital.”

Relationships and Employment

Respondents all reported relationship problems due to mental illness, not drugs or alcohol. One reported a family member stating “I was no good to society”; another stated “family is not supportive”; and additionally, “my family didn’t know how to deal with me, it seemed like I was deserted.” The group discussed losing friends due to mental illness, “people don’t know how to approach you and don’t know what to say.”

All participants have experienced job loss due to mental illness, not drugs or alcohol; all but three were unemployed and receiving aid at the time of the focus group.

Considerations for the SEOW

According to our results, close to 20 percent of the DARMHA population (around 19,341 individual consumers) has COD. These figures are comparable to those found in the NESARC discussed above, which found that 20 percent of those with a diagnosable mental health disorder had a co-occurring SUD. These numbers are concerning, considering that the system is not currently set up to identify COD. This leaves the identification of COD up to individual providers who are likely not trained in how to appropriately recognize and/or treat it.

Our analysis demonstrates that the odds of having a COD diagnosis are greater for men, whites, and younger individuals. While this could be interpreted as indicating that any initiative aimed at recognizing and treating COD in this population should focus on these groups, it is important to take the other findings into consideration. While being male was significantly associated with COD, women were demonstrated to have longer treatment episodes. Additionally, race seems to have direct effects on treatment outcomes regardless of diagnostic category, with non-Whites having longer treatment episodes and less successful outcomes. Therefore, while *men and whites are more likely to be diagnosed with COD,* evidence suggests that *women and minorities are not responding as well or as quickly to treatment.* Also, while older individuals with COD have significantly longer LOT, their chances of a successful completion of treatment are higher than for younger individuals.

The overall association between COD and longer LOT supports previous research demonstrating poor response to treatment among those with COD (Bradizza et al., 2006). However, despite longer LOT, we also found that consumers with COD were more likely to successfully complete treatment than consumers who had SMI only, though the effect did not hold when considering the interaction between COD and race, as minorities with COD had a higher risk of completing treatment unsuccessfully.

Like the majority of those living with mental and behavioral health problems in the United States, DARMHA consumers receive treatment from providers specializing in the provision of either substance abuse or mental health services, making it more likely that COD will go unrecognized and/or untreated. If COD is recognized and treated, this treatment is likely to be either 1) inadequate, because it is provided by clinicians with limited expertise in both types of disorder, or 2) fractured, because treatment for each disorder is received from multiple clinicians with expertise in their respective fields with relatively little coordination between them. Based on this, the system should incentivize organizations specializing in either substance abuse or mental health services to employ experts in co-occurring disorder or to develop approaches for coordinating care between them when working with the same clients.

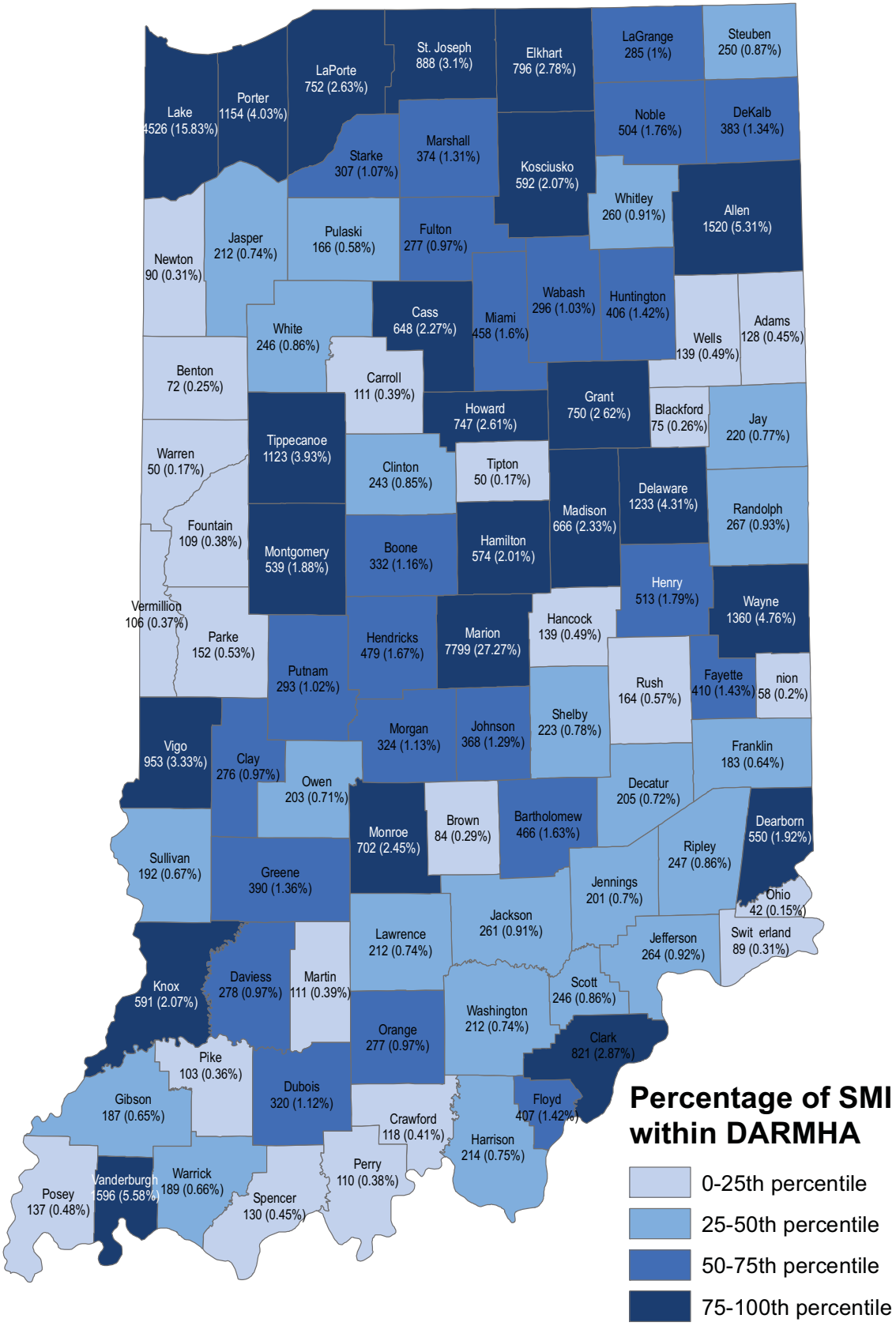
There are currently few evidence-based practices for the treatment of COD. However, the nuances described above demonstrate that any approach to improving the system should not be "one-size-fits-all". There are currently a number of approaches for the treatment of mental illness and substance abuse that focus on building the therapeutic relationship, offering supportive services to fit individuals' unique needs; these approaches might be especially appropriate for those with COD (see DiClemente & Velasquez, 2002; see Marlatt, 1996).

An improvement of the DARMHA data system may also be worth consideration. The system currently is set up to identify three broad classes of diagnoses (known as agreement types), SMI, SUD, and serous emotional disturbance (SED; a diagnosis applied to youth), and it is likely that consumers with COD are assigned to one of these categories based on the specialty of the providing agency they seek treatment at. In light of the identification of large number of individuals with COD, the DARMHA system should create a field for providers to identify (a) whether an individual has COD, and (b) whether he or she is receiving appropriate treatment. If receiving treatment, the system should track treatment type, e.g., integrated treatment for COD or treatment by separate mental health and substance abuse experts. Tracking such as this will be beneficial for identifying what types of treatment individuals best respond to.

As stated above, there was a large amount of missing data on ethnicity in the DARMHA system. This hindered our ability to understand the association between ethnicity and the outcomes of interest. It is likely that the missing fields were indicative of consumers being non-Hispanic or that the provider did not know the answer. The DARMHA system should force providers to complete fields to avoid future problems such as this, even if one of the forced choices is "don't know".

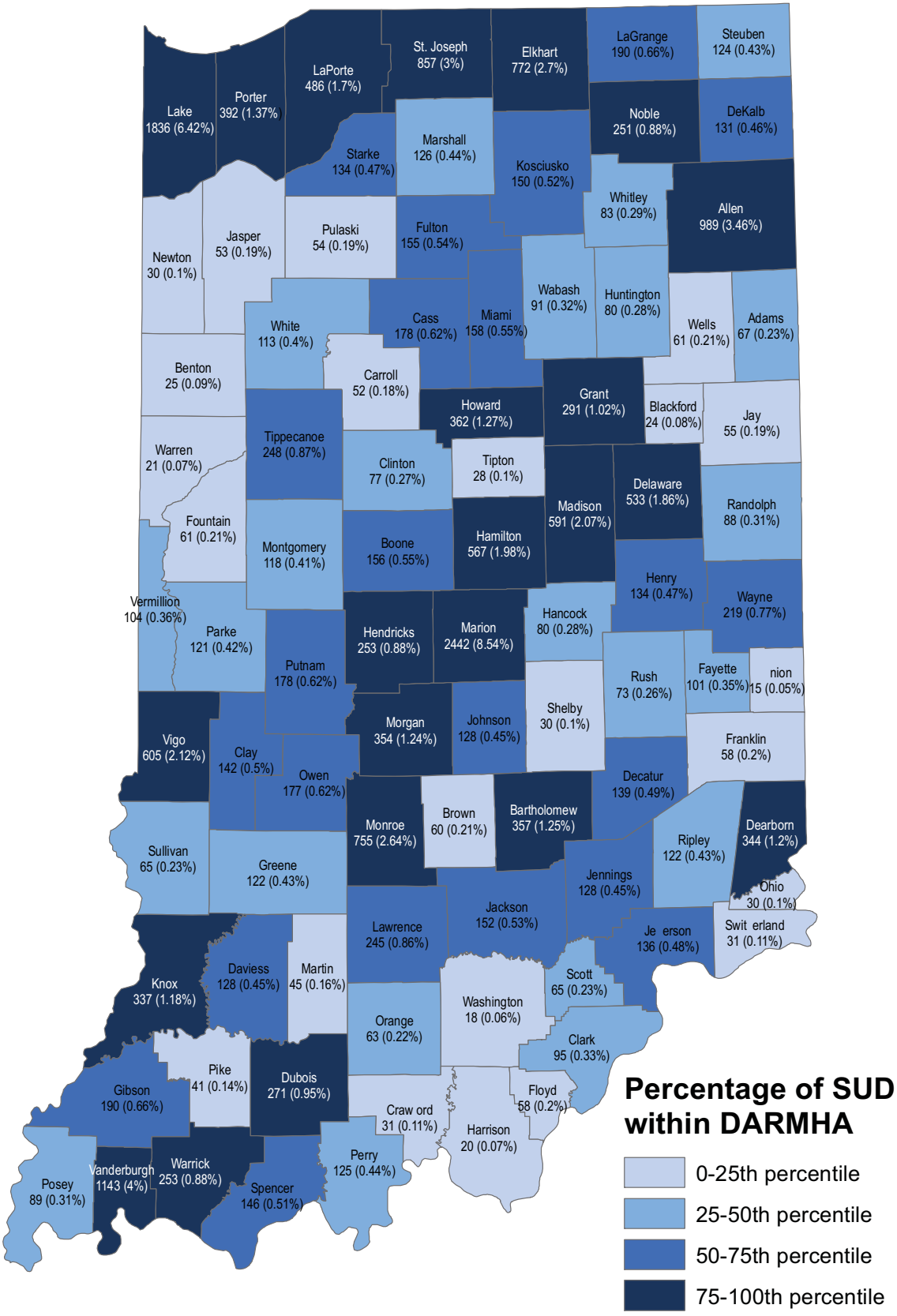
While the DARMHA system has its limitations, it was the only dataset with data on COD that was readily available to meet this project's needs. In addition to providing suggestions to improve the DARMHA system, the SEOW should also work to identify other sources of COD data, particularly sources that are generalizable to higher income and non-treatment populations.

Map 4.1 Number and Percentage of Clients with Serious Mental Illness (SMI) Only, by County (DARMHA, 2011)



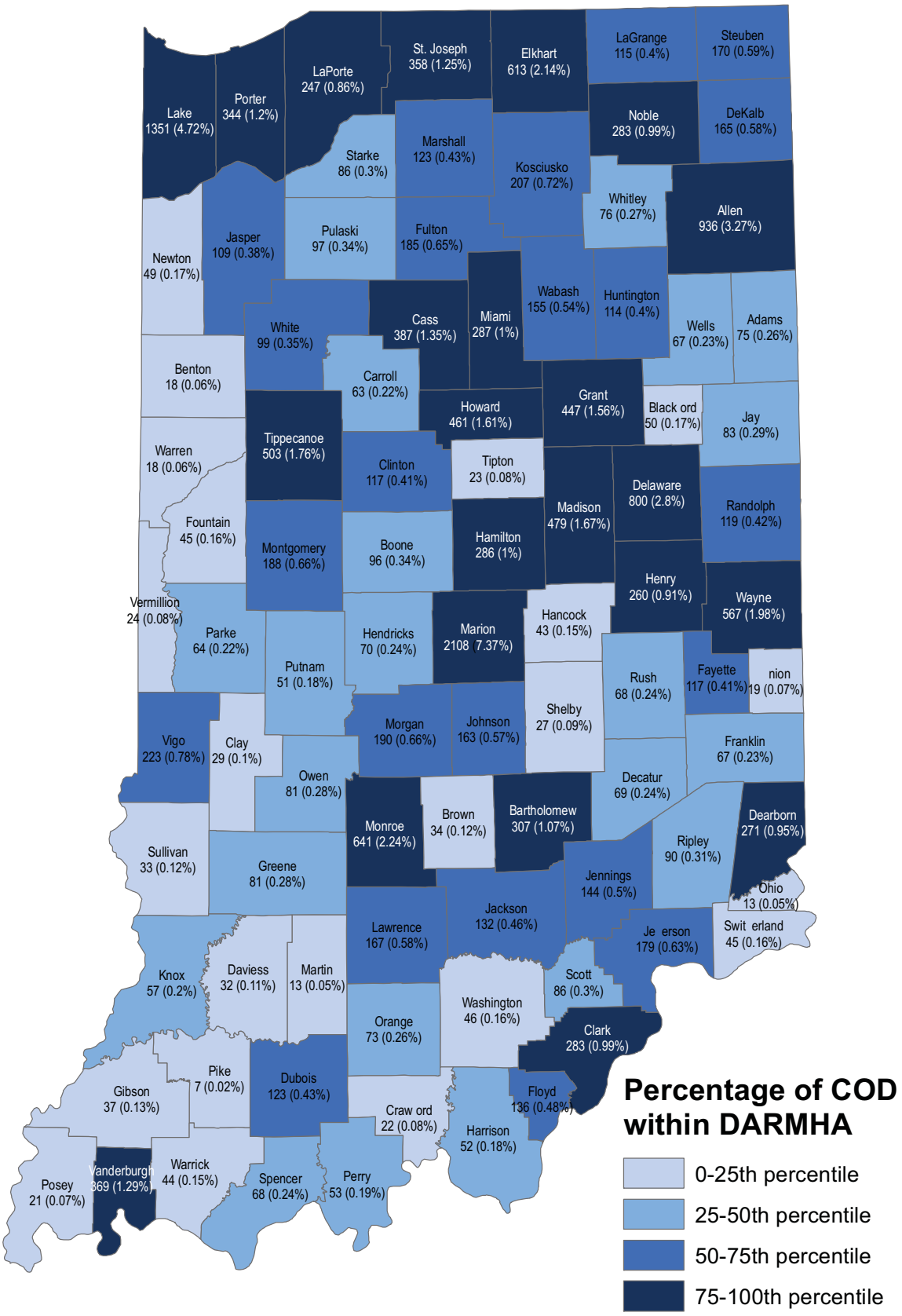
Source: Indiana Division of Mental Health and Addiction, 2013

Map 4.2 Number and Percentage of Clients with Substance Use Disorder (SUD) Only, by County (DARMHA, 2011)



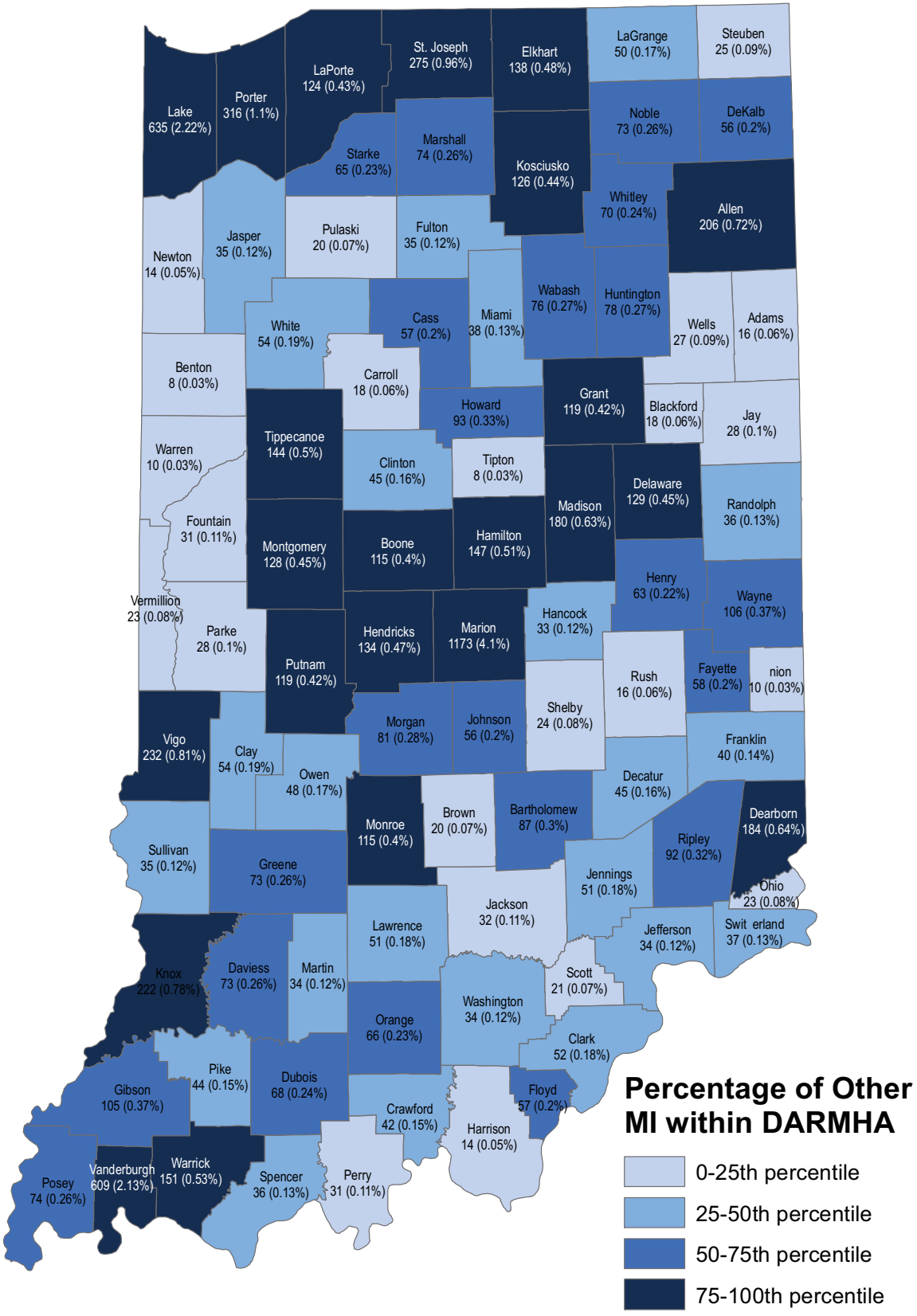
Source: Indiana Division of Mental Health and Addiction, 2013

Map 4.3 Number and Percentage of Clients with Co-occurring Disorder (COD), by County (DARMHA, 2011)



Source: Indiana Division of Mental Health and Addiction, 2013

Map 4.4 Number and Percentage of Clients with Other Mental Illness (MI), by County (DARMHA, 2011)



Source: Indiana Division of Mental Health and Addiction, 2013

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5 Lesbian, Gay, Bisexual and Transgender Hoosiers: Substance Use and Mental Health Issues

INTRODUCTION

In its recent publication, *The Health of Lesbian, Gay, Bisexual, and Transgender People: Building a Foundation for Better Understanding,* the Institute of Medicine (2011; IOM) raised the issue that little is known about how the overall health of the United States' lesbian, gay, bisexual, and transgender (LGBT) population compares to that of the rest of the nation. The IOM indicated that a primary reason for this lack of understanding is that the large, federally-funded, health surveillance projects, such as the Behavioral Risk Factor Surveillance Survey (BRFSS), Youth Risk Behavior Surveillance Survey (YRBSS), and the National Survey on Drug Use and Health (NSDUH), do not routinely require that participants be asked to report on either their sexual orientation or their gender status.

As a way to increase awareness of LGBT health issues, the U.S. Department of Health and Human Services made improving the health, safety, and wellbeing of LGBT individuals one of its goals for its national health improvement plan, *Healthy People 2020*. In response to this national call for more attention to be paid to LGBT health, in 2011, the Center for Substance Abuse Prevention made available a series of State Prevention Enhancement (SPE) grants that emphasized the study of alcohol use, prescription drug use, and mental health among a number of underserved or at risk populations including LGBTs. Indiana applied for and received a SPE grant to be used by the state and the SEOW to explore and enhance the data available on Indiana's LGBT population as well as three other at-risk groups: veterans returning from Iraq and Afghanistan, individuals leaving Indiana's Department of Corrections, and Hoosiers who have a dual diagnosis of severe mental illness and substance abuse. Lauman et al. (1994) estimated in their landmark study on sexuality that between two and four percent of the U.S. population is part of the LGBT community. Within Indiana, this estimate translates to approximately 128,000 to 256,000 Hoosiers.

DEFINITIONS

When considering issues related to LGBT health, it is helpful to define several concepts related to LGB individuals and individuals who are transgender.

Sexual Orientation

According to IOM (2011), sexual orientation refers to an individual's disposition to experience sexual or romantic desires for and relationships with, people of one's same sex, the other sex, or both sexes. Sexual orientation is typically discussed in terms of three main categories: heterosexuality, which refers to individuals whose sexual desires and behaviors focus exclusively or predominantly on members of the opposite sex; homosexuality, which refers to persons whose sexual desires and behaviors focus exclusively or predominantly on members of the same sex; and bisexuality, which refers to individuals whose sexual desires and behaviors are directed towards members of both sexes. Research which defines sexual orientation based on sexual behavior, sexual desire, or sexual attraction may ascribe a sexual orientation to a participant based on the gender of the participant's sexual partners or the gender the participant finds most sexually attractive or arousing or simply refer to a participant as a man who has sex with men, a woman who has sex with women, or a man or woman who has sex with men and women.

Sexual Orientation Identity

Sexual orientation identity refers to an individual's personal view or definition of him or herself as being heterosexual, homosexual, bisexual, or something else based on his or her pattern of sexual attraction and behavior. When researchers define sexual orientation according to sexual orientation identity, participants are typically asked to state whether they consider themselves to be straight, gay, lesbian, or bisexual. The method of using sexual orientation identity to define sexual orientation is the approach most commonly used by many large, population-based surveys including the BRFSS and YRBSS.

Sex

Sex is a biological construct composed of the genetic, hormonal, anatomical, and physiological characteristics that mark one at birth as being male or female. Although rare, there are individuals born who are genetically male or female but who have external genitalia that are neither clearly male nor clearly female. These individuals are referred to as intersex.

Gender, Gender Identity, Gender Expression, and Gender Role Conformity

Gender is a cultural construct that reflects what behaviors, experiences, and personality characteristics are considered masculine and feminine. Gender identity refers to one's internal sense of either being a man or a woman. Gender expression describes the presence of characteristics in one's personality, appearance, and behavior that are culturally defined as masculine or feminine. Gender role conformity refers to the extent to which an individual's gender expression conforms to the cultural norms typical for the person's sex.

Transgender

The term transgender is a broad term used to describe individuals whose gender identity, gender expression, or behavior run counter to the traditional, culturally defined categories of gender associated with sex at birth. Transgender individuals hold a gender identity that is different from their birth sex. Transgender individuals who are born male but who view themselves as having a female gender identity are often referred to as male-to-female (MTF) while individuals born female but who hold a male gender identity are typically referred to as female-to-male (FTM). Many MTF and FTM individuals choose to resolve the discrepancy they feel between their gender identity and anatomical sex by taking hormones, engaging in cosmetic surgery, or through gender confirmation surgery. Other transgender persons may decide not to transition but simply behave and present themselves in ways more consistent with their gender identity (Herbst et al., 2008).

LITERATURE REVIEW

The following literature review will highlight issues related to alcohol use, tobacco use, illicit drug use and mental health within the LGBT population. Information pertaining to LGBT youth and LGBT adults is presented separately. As transgender individuals have concerns and experiences that are distinct from individuals who are lesbian, gay, or bisexual, transgender-specific studies are described independently. The acronym LGB will be used to refer to studies that include lesbians, gay men, and bisexual men and women. The acronym LGBT will be used to refer to studies that include lesbians, gay men, bisexual men and women, and transgender individuals. An effort was made to review population-based studies that compared LGBT individuals to heterosexual individuals whenever possible as these studies provide the best evidence for whether sexual orientation and gender status are related to substance use and mental health symptoms.

Alcohol Consumption by Lesbian, Gay, and Bisexual Youth

Population surveys that have compared LGB young people to heterosexual young people seem to indicate that LGB youth do use alcohol more frequently than heterosexual youth. Data from the 1993 YRBSS indicates that youth who engage in same-sex sexual behavior are more likely to consume alcohol every day and to engage in binge drinking on 10 or more days in a month than youth who engage in opposite-sex sexual behavior. Similarly, in the 1995 YRBSS, the percentage of self-described LGB youth who reported drinking before the age of 13, drinking alcohol in the past 30 days, and binge drinking in the past 30 days was higher than that of self-described heterosexual youth.

Other studies using data from school-based surveys have also shown that LGB youth are more likely than heterosexual youth to report current use of alcohol (Bontempo & D'Augelli, 2002; Orenstein, 2001; Rostosky, Owens, Zimmerman, & Riggle, 2003), to report consuming more alcohol (Bontempo & D'Augelli, 2002), and to report more episodes of binge drinking (Orenstein, 2001). Two studies using data from various waves of the Growing Up Today Study found that male and female young people who described themselves as mostly homosexual along with females who described themselves as bisexual were significantly more likely than their heterosexual peers to report past-month alcohol use, significantly more likely to drink larger amounts of alcohol, and significantly more likely to engage in episodes of binge drinking. Gay males and lesbians were significantly more likely to drink larger quantities of alcohol when they did drink, while bisexual males were significantly more likely to report drinking in the past month than were heterosexual youth (Corliss, Rosario, Wypij, Fisher, & Austin, 2008; Ziyadeh et al., 2007).

In a recent report on findings from the YRBSS covering seven states and six large cities in which students were asked to describe their sexual orientation, the percentage of gay and lesbian youth reporting current alcohol use and binge alcohol use was consistently higher than that of heterosexual students. The percentage of bisexual students currently using alcohol and binge

drinking was higher than that of all other groups (Centers for Disease Control and Prevention, 2011b).

Currently, no large-scale population-based studies have included questions regarding gender status; thus, the alcohol consumption patterns of transgender youth are not known.

Alcohol Consumption by Lesbian, Gay, and Bisexual Adults

Researchers have conducted a number of large-scale population studies related to alcohol use, alcohol abuse, and alcohol dependence that included questions related to sexual orientation. The findings from these studies vary for gay men, lesbians, and bisexual individuals.

Whether gay men engage in more alcohol use compared to heterosexual men is unclear. In a recent study, Boehmer, Miao, Linkletter, and Clark (2012), using data from the California Health Interview Survey, reported that when compared to heterosexual men, a higher percentage of gay men indicated past-month use of alcohol. Similarly, Drabble, Midanik, and Trocki (2005), using data from the National Alcohol Survey, found that gay men were less likely than heterosexual men to report abstaining from alcohol in the past year. Other studies have found no differences in the drinking behaviors of gay and heterosexual men (Cochran, Keenan, Schober, & Mays, 2000; Gattis, Sacco, & Cunningham-Williams, 2012; Hughes, McCabe, Wilsnack, West, & Boyd, 2010; McCabe, Hughes, Bostwick, West, & Boyd, 2009), while one study indicated that gay men engaged in fewer episodes of heavy drinking than did heterosexual men (McCabe, Hughes, Bostwick, & Boyd, 2005).

Unlike the findings for gay men, the findings for lesbian women regarding alcohol consumption are more consistent. Women who describe themselves as lesbians and those who report having engaged in sexual activity with other women are more likely than heterosexual women to consume alcohol (Boehmer et al., 2012; Burgard, Cochran, & Mays, 2005; Cochran et al., 2000), more likely to drink larger amounts of alcohol when they do drink (Burgard et al., 2005; Cochran et al., 2000; Gattis et al., 2012), and more likely to drink to the point of intoxication (Wilsnack et al., 2008). Lesbian women and women who have sex with women are also more likely than heterosexual women to engage in binge or heavy episodic drinking (Boehmer et al., 2012; Burgard et al., 2005; Cochran et al., 2000; Wilsnack et al., 2008) and to binge drink on more days per month (Burgard et al., 2005). Heavy drinking is also more common among lesbian women and women who have sex with women than among heterosexual women (Cochran et al., 2000; Wilsnack et al., 2008).

Information on the alcohol consumption patterns of bisexual men and women is limited. Drabble et al. (2005) found that for men, bisexual men had alcohol consumption patterns that were similar to those of heterosexual men. Among women, Drabble et al. (2005) reported that when compared to heterosexuals and lesbians, the bisexual women in their sample had consumed more drinks in the past year, had consumed alcohol to the point of intoxication more often in the past year, and had consumed five or more drinks in a single day more frequently. Bisexual women have also been found to be more likely to engage in heavy drinking than either heterosexual women or lesbians (McCabe et al., 2005; McCabe et al., 2009).

There is some data to show that LGB individuals, particularly lesbian and bisexual women, may be at higher risk for alcohol-related disorders. Drabble et al. (2005) found that when compared to heterosexual women, both bisexual and lesbian women were more likely to meet DSM-IV criteria for alcohol dependence. Other studies have also shown that lesbians, bisexual women, and women who have sex with women are more likely than heterosexual women to receive a diagnosis of alcohol dependence (Cochran & Mays, 2000a; Gattis et al., 2012; McCabe et al., 2009; Wilsnack et al., 2008). Only one study found that gay and bisexual men were more likely than heterosexual men to meet the criteria for a diagnosis of alcohol dependence (McCabe et al., 2009).

Alcohol Consumption by Transgender Adults

The alcohol consumption patterns of adult transgender individuals have received little attention. Needs assessments of transgender persons indicate that problem alcohol use is common within certain groups of transgender individuals, particularly those who engage in commercial sex work (Bockting, Robinson, & Rosser, 1998; Xavier, Bobbin, Singer, & Budd, 2005). Survey-based studies of transgender individuals that lack comparison groups have reported that transgender individuals do consume alcohol and experience problems. The Virginia Transgender Survey indicated that 25.0% of their sample admitted to having had problems with alcohol during their lifetime. In their sample of MTF persons, Operario, Nemoto, Iwamoto, and Moore (2011)

stated that in the past three months 58% had used any alcohol, with 32% having drunk to intoxication at least once. Bockting, Huang, Ding, Robinson, and Rosser (2005) found that transgendered individuals were not any more likely to report having problems with alcohol abuse than men who have sex with men or women who have sex with men and women. The one population study available that specifically compared transgender persons to nontransgender persons on binge drinking found no differences (Conron, Scott, Stowell, & Landers, 2012).

Tobacco Use by Lesbian, Gay, and Bisexual Youth

Limited research exists on the use of tobacco products by LGB young people. In one early study using data from the 1993 Massachusetts YRBSS that asked youth to describe the gender of their sexual partners, no differences were found in tobacco use between youth who reported same-gender sexual partners and youth who reported opposite-gender sexual partners (Faulkner & Cranston, 1998). In 1995, when the Massachusetts YRBSS asked participants to describe their sexual orientation as heterosexual, gay, lesbian, or bisexual, R. Garofalo, Wolf, Kessel, Palfrey, and DuRant (1998) reported that high school students who described themselves as gay, lesbian, or bisexual were significantly more likely to have used cigarettes and smokeless tobacco products in the past 30 days than were heterosexual students.

More current studies of cigarette and tobacco use among LGB youth have found results consistent with R. Garofalo et al. (1998). In a recent investigation of tobacco use among LGB youth, Hatzenbuehler, Wieringa, and Keyes (2011), relying on data from the Oregon Healthy Teens Survey, determined that middle- and high school self-identified gay and bisexual boys were significantly more likely than heterosexual boys to report having smoked in the past 30 days. Similarly, lesbian and bisexual girls reported significantly higher smoking prevalence than did heterosexual girls.

Overall, bisexual girls had the highest level of current cigarette use followed by bisexual boys (Hatzenbuehler et al., 2011). The finding that bisexual young people, particularly bisexual girls, may be at heightened risk for tobacco use has been supported by other studies. Easton, Jackson, Mowery, Comeau, and Sell (2008) determined that both male and female participants in the Adolescent Health Study who reported being attracted to and having relationships with individuals of both genders had the highest smoking prevalence when compared to participants who reported only opposite sex attractions and relationships. Likewise, Austin et al. (2004) noted that girls and boys between the ages of 12 and 17 who participated in the Growing Up Today Study and who described themselves as mostly heterosexual were more likely to smoke weekly than were completely heterosexual participants. Lesbian/bisexual girls, however, had the highest weekly smoking prevalence of all groups (Austin et al., 2004).

The CDC, in a recent report comparing the health behaviors of LGB students across seven states and six large cities to the health behaviors of heterosexual students indicated that students who described themselves as LGB had higher prevalence rates of current cigarette use and higher prevalence rates for both moderate and frequent use of cigarettes. LGB students also had a higher prevalence rate for using other forms of tobacco products than did heterosexual students (Centers for Disease Control and Prevention, 2011b). To date, no studies of tobacco use within the LGBT community have included young people who describe themselves as transgender; thus, their cigarette and tobacco use patterns are not presently known.

Tobacco Use by Lesbian, Gay, and Bisexual Adults

The increased prevalence of cigarette use found in LGB youth continues into adulthood. As a group, individuals who describe themselves as LGB have been found to have higher rates of tobacco use than non-LGB individuals (B. A. King, Dube, & Tynan, 2012). Most research on tobacco use within the LGB community has focused on smoking. Parallel to what was seen in studies of youth tobacco use, lesbian women, bisexual women, and women who have sex with women are more likely than heterosexual women to report being current tobacco smokers (Burgard et al., 2005; Conron, Mimiaga, & Landers, 2008, 2010; Gruskin & Gordon, 2006; Gruskin, Greenwood, Matevia, Pollack, & Bye, 2007; Pizacani et al., 2009; Tang, Greenwood, Cowling, Lloyd, & Roeseler, 2004) and to report having a history of smoking (Gruskin & Gordon, 2006). Similarly, gay and bisexual men, when compared to heterosexual men, are more likely to currently smoke (Conron et al., 2008, 2010; Dilley et al., 2005; Gruskin & Gordon, 2006; Gruskin et al., 2007; Pizacani et al., 2009; Tang et al., 2004) or to have a history of smoking (Pizacani et al., 2009). The percentage of lesbian women estimated to be current smokers has ranged from 25.3% (Tang et al., 2004) to 29.5% (Pizacani et al., 2009) while

the percentage of gay men who currently smoke has been estimated from 27.3% (Gruskin et al., 2007) to 33.2% (Tang et al., 2004).

Tobacco Use by Transgender Adults

Little work on tobacco use has focused specifically on transgender individuals; however, a recent study by Conron et al. (2012) comparing transgender adults to a sample of nontransgender adults on the Massachusetts BRFSS found that 36.2% of their transgender sample currently smoked cigarettes, a percentage that was significantly larger than the 17.3% of nontransgender adults who reported smoking.

Illicit Drug Use by Lesbian, Gay, and Bisexual Youth

Youth who describe themselves as LGB or who report having same-sex relationships or attractions appear to be at higher risk for using illicit drugs than their heterosexual peers (Marshal et al., 2008). Evidence for this conclusion has mainly come from cross-sectional studies of adolescents in high school settings. Four early studies that used the Massachusetts YRBSS (Bontempo & D'Augelli, 2002; Faulkner & Cranston, 1998), a combination of the Massachusetts and the Vermont YRBSS (R. Garofalo et al., 1998), or a similar instrument (Orenstein, 2001) reported that youth who had engaged in same-sex relationships or who described themselves as LGB had higher prevalence rates for the current use of marijuana and cocaine as well as higher prevalence rates for the lifetime use of various other illicit drugs than did heterosexual students.

Outcomes from the Growing Up Today Study support these earlier findings and show that the prevalence of lifetime marijuana use, other illicit drug use, and the use of prescription drugs are higher among youth who identify as mostly heterosexual, lesbian, gay, or bisexual, with bisexual youth reporting the highest levels of use overall (Corliss et al., 2010). Findings from the CDC's (2011b) comparisons of LGB and heterosexual youth on the YRBSS across seven states and six cities provide further support that LGB youth are more likely to be current users of marijuana and cocaine and more likely to be lifetime users of inhalants, ecstasy, heroin, methamphetamine, and steroids. Population-based surveys have not as yet included questions regarding gender status; thus, the illicit drug use behaviors of transgender youth are not known.

Illicit Drug Use by Lesbian, Gay, and Bisexual Adults

The best source of data on the use of illicit substances by LGB individuals is from large, population-based surveys that compare LGB individuals to heterosexual individuals. In an early study using data from the National Survey of Drug Use and Health (NSDUH), Cochran, Ackerman, Mays, and Ross (2004) compared the use of illicit drugs by individuals who reported having had same-gender sexual partners to those individuals who reported only having opposite-gender sexual partners. Men with same-gender sexual partners were significantly more likely than men with opposite-gender sexual partners to report higher levels of lifetime and current use of cocaine and also higher lifetime use of hallucinogens, inhalants, analgesics, and tranquilizers. When all illicit drugs were considered together, men with same-gender partners reported higher rates of lifetime use of illicit drugs than did men with opposite-gender partners. Women who had same-gender sexual partners, when compared to those with only opposite-gender sexual partners were significantly more likely to report lifetime use of illicit drugs, particularly marijuana, cocaine, hallucinogens, inhalants, sedatives, and stimulants. Women with same-gender sexual partners were also significantly more likely to indicate higher rates of current marijuana and tranquilizer use and use of illicit drugs generally than women with opposite-gender sexual partners.

In a study of substance use within a large Midwestern university, McCabe, Hughes, Bostwick, and Boyd (2005) asked respondents to describe their sexual orientation identity, their level of sexual attraction to individuals of the same and the opposite sex, and whether they engaged in same-gender or opposite-gender sexual activity. The authors then compared the rates of substance use within the dimensions of identity, attraction, and behavior. For men, the strongest findings were that men who said they only had sex with men reported a significantly higher rate of past-month marijuana use than did men who only had sex with women. Men who said they engaged in sexual behavior equally with men and women were significantly more likely than men who only had sex with women to report past-year use of other illicit drugs. For women, the results indicated bisexual identity, attraction, and behavior were more strongly associated with substance use than was homosexual identity, attraction, and behavior. Regardless of the definition, women who expressed some level of bisexuality were more likely than either

homosexual or heterosexual women to report past-month marijuana use, to report past-year opioid analgesic use, past-year stimulant use, and past-year use of other illicit drugs.

Employing the same definitions of sexual attraction as in their earlier work, McCabe et al. (2009) analyzed data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Among men, the most significant findings indicated that gay men and behaviorally bisexual men were significantly more likely than heterosexual men to report past-year use of marijuana and that both gay and bisexually identified men were significantly more likely than heterosexual men to report past-year use of other illicit substances. Among women, lesbian and behaviorally bisexual women were found to be significantly more likely than heterosexually identified or behaviorally heterosexual women to report past-year marijuana use and past-year use of other illicit substances.

Taken together, these studies indicate that individuals who engage in same-sex behaviors or identify their sexual orientation as something other than heterosexual are more likely to report higher levels of illicit drug use than people who solely engage in heterosexual activity or who describe themselves as completely heterosexual.

There is also evidence demonstrating that individuals who are LGB experience higher rates of substance use disorders than do heterosexual individuals. Gay men, when compared to heterosexual men, have been shown to have higher lifetime prevalence of any type of substance use disorder (Bolton & Sareen, 2011) and higher rates of past-year dependence on marijuana (Cochran et al., 2004) and on illicit drugs other than marijuana (McCabe et al., 2009). When compared to heterosexual women, lesbians are significantly more likely to report a recent substance use disorder (Bolton & Sareen, 2011; Cochran, Mays, Alegria, Ortega, & Takeuchi, 2007), and to report higher rates of past-year marijuana dependence (Cochran et al., 2004; McCabe et al., 2009), higher rates of past-year dependence on an illicit drug other than marijuana (McCabe et al., 2009) and higher past-year rates of dependence on illicit drugs in general (Cochran et al., 2004; Hughes et al., 2010).

In a recent study by Gattis et al. (2012) using data from the NESARC, self-defined gay and lesbian individuals were compared to self-defined heterosexual individuals on the Alcohol Use Disorder and Associated Disabilities Interview Schedule for the DSM-IV (AUDADIS-IV) to determine lifetime substance use disorders. Analyses across the sexual orientation groups indicated that when compared to heterosexual men, gay men were more likely to receive a lifetime diagnosis of a substance use disorder involving depressants, stimulants, marijuana, hallucinogens, or inhalants. Similarly, lesbian women when compared to heterosexual women were also more likely to be rated as having a lifetime substance use disorder related to narcotics, depressants, stimulants, marijuana, or hallucinogens.

Very little information exists on the pattern of substance dependence among bisexual individuals. Results from McCabe et al. (2009) indicated that men who described themselves as bisexual were more likely than heterosexual men to meet criteria for dependence on a drug other than marijuana while men who were unclear about their sexual orientation were more likely than heterosexual men to meet the criteria for a past-year diagnosis of marijuana dependence. Among women, Bolton and Sareen (2011), using data from the NESARC, reported that the prevalence rate for substance use disorders for bisexual women was significantly higher than that found for heterosexual women.

Illicit Drug Use by Transgender Adults

To date, no large-scale population-based studies on drug use have included individuals who identify as transgender. Surveys carried out on convenience samples of transgender individuals drawn from the general population show that some level of illicit drug use is not uncommon in this population. Data from 350 individuals who completed the Virginia Transgender Survey (2007) indicate that 66.7% had a lifetime history of marijuana use, 41.7% had a lifetime history of prescription opioid use, and 31.5% had a lifetime history of powdered cocaine use. Regarding current illicit drug use, marijuana was used by 18.2% of the sample, with depressants and prescription opioids being used by 5.4% and 5.0% of respondents, respectively. In a recent survey of 155 transgender individuals, Bentosch et al. (2013) reported that 37.0% of their sample had used marijuana in the past three months while 26.5% had used prescription drugs non-medically in the past three months. In a third survey of 174 MTF individuals, Operario et al. (2011) indicated that 63.0% of their sample had used illicit drugs in the past three months, with 55.0% reporting marijuana use, 15.0% ecstasy use, 13.0% amphetamine use, and 10.0% cocaine use.

Bockting et al. (2005) compared a group of transgender men and women to a group of behaviorally

homosexual men and a group of behaviorally bisexual women on a number of psychosocial measures including current use of illicit substances. Bockting concluded that 16.0% of their transgender sample had engaged in recent use of marijuana and 3.0% had recently engaged in the use of other drugs; both percentages were significantly lower than the percentage of behaviorally homosexual men who had used either form of illicit drug.

The prevalence rate of substance use disorders within the transgender community is also unclear. Three early studies that assessed abuse of substances, including alcohol, within groups of transgender individuals seeking gender confirmation surgery reported prevalence rates that ranged from a low of 11.3% to a high of 50.0% for MTFs and from 3.8% to 61.5% for FTMs (Cole, O'Boyle, Emory, & Meyer, 1997; De Cuypere, Jannes, & Rubens, 1995; Verschoor & Poortinga, 1988). A more recent needs assessment of transgendered individuals living in Washington, D.C., indicated a prevalence rate of substance abuse problems of 48.0% (Xavier et al., 2005).

MENTAL HEALTH OUTCOMES FOR LESBIAN, GAY, BISEXUAL, AND TRANSGENDER YOUTH

Few studies have compared the mental health status of lesbian, gay, bisexual, and transgender youth to heterosexual youth. The available studies have focused primarily on whether LGB youth are more likely than heterosexual youth to experience depressive or anxiety-related symptoms. Three studies comparing youth who reported same-sex and both-sex attraction to youth who reported only opposite-sex attraction found that youth who were attracted to individuals of the same sex or to both sexes scored higher on self-report measures of current depression (Bos, Sandfort, de Bruyn, & Hakvoort, 2008; Galliher, Rostosky, & Hughes, 2004; Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008) and anxiety (Hatzenbuehler et al., 2008) than did youth who were only attracted to members of the opposite sex.

One study which defined sexual orientation in terms of the genders of a young person's romantic partners found that the two groups with the highest symptoms of depression were boys who had only had romantic relationships with other boys and girls who had engaged in romantic relationships with individuals of both genders (Udry & Chantala, 2002). Only two studies have attempted to assess LGB youth diagnostically. Using the Diagnostic Interview Schedule for Children, which uses criteria from the Diagnostic and Statistical Manual of Mental Disorders IV, Fergusson, Horwood, and Beautrais (1999) determined that when compared to heterosexual youth, LGB youth were 4.0 times more likely to be diagnosed with depression, 2.8 times more likely to be diagnosed with anxiety, 3.8 times more likely to be diagnosed with conduct disorder, and 5.0 times more likely to be diagnosed with nicotine dependence. The results of this study should be interpreted with caution; while they do suggest that LGB youth may be at increased risk for mental health disorders, the sample of LGB youth was made up of only 29 individuals.

More recently, Mustanski, Garofalo, and Emerson (2010) administered the Diagnostic Interview Schedule for Children to an ethnically diverse sample of LGBT young people between 16 and 20 years of age. In this particular sample of 246 youth, 33% met the criteria for any mental disorder, 17% for conduct disorder, 15% for major depression, and 9% for post-traumatic stress disorder. The prevalence rates of mental health problems for this group of LGBT youth were comparable to those found in other samples of urban, racial/ethnic minority youth but higher than prevalence rates reported for young people in national samples composed of fewer racial/ethnic minority participants.

Suicidal Thoughts and Attempts by Lesbian, Gay, Bisexual, and Transgender Youth

One mental health outcome of significant concern for youth in general is suicide as it is the third leading cause of death for young people between the ages of 10-24 (Centers for Disease Control and Prevention, 2011a). Suicide is an even greater concern for the LGB population; early research in this area using convenience samples of LGB youth indicated that they seemed to be at higher risk for both suicidal thinking and suicide attempts (D'Augelli & Hershberger, 1993; Grossman & Kerner, 1998; G. Remafedi, 1987; Gary Remafedi, Farrow, & Deisher, 1991; Rotheram-Borus & Fernandez, 1995; Schneider, Farberow, & Kruks, 1989). Data from population-based surveys appear to support these earlier findings. In a study using the 1995 YRBSS for Massachusetts, LGB youth and youth who were questioning their sexual identity were 2.3 times more likely than heterosexual youth to have attempted suicide in the past 12 months (Robert Garofalo, Wolf, Wissow, Woods, & Goodman, 1999). Data from the Longitudinal Study of Adolescent Health indicated that same-sex attracted youth were similarly twice as

likely as opposite-sex attracted youth to have made a suicide attempt in the past year (Russell & Joyner, 2001). Results from the Rhode Island YRBSS revealed that the prevalence rate for suicidal ideation within the LGB and questioning[1] population was approximately 33.5%, while the prevalence rate for planning suicide and attempting suicide was 26.8% and 31.0%. These estimates were all significantly higher than 9.6%, 9.7%, and 6.6% prevalence rates reported for heterosexual young people for these behaviors (Jiang, Perry, & Hesser, 2010).

One study based in Boston that used school-based survey data reported the prevalence rates for suicidal ideation for LGBT boys to be 29.2% and for LGBT girls to be 30.8%, both of which were significantly higher than the 3.7% and 7.6% prevalence rates reported for heterosexual boys and girls, respectively. In a review of school survey data from both Canada and various parts of the United States, Saewyc et al. (2007) concluded that across the surveys, gay, lesbian, and bisexual youth consistently had significantly higher rates of both suicidal thoughts and suicide attempts. A recent review of YRBSS data from the CDC (Centers for Disease Control and Prevention, 2011b) covering seven states and six cities reached similar conclusions: the median prevalence rate for suicidal thoughts for gay or lesbian students was 29.6% and for bisexual students was 40.3%, both estimates being higher than the median prevalence rate for heterosexual students of 11.7%. Similarly, the median prevalence rate for having attempted suicide was also higher for gay or lesbian students (25.8%) and for bisexual students (28.0%) than for heterosexual students (6.4%).

Although population-based surveys have not asked respondents about their gender status, some evidence exists that would suggest that like LGB youth, transgender youth may also be at higher risk for suicidal thoughts and actions. Grossman and D'Augelli (2007) found in their study of 51 transgender young people that 45% had thought seriously about suicide while Clements-Nolle, Marx, and Katz (2006) found that transgender individuals under the age of 25 were two times more likely than those over 25 to attempt suicide.

MENTAL HEALTH OUTCOMES FOR LESBIAN, GAY, AND BISEXUAL ADULTS

A large body of research exists suggesting that gay, lesbian, and bisexual (LGB) adults are at increased risk for significant mental health problems. Large, population-based studies that have compared LGB individuals to heterosexual individuals have determined that gay men report higher rates of depressive disorders (Bostwick, Boyd, Hughes, & McCabe, 2010; Cochran & Mays, 2000a, 2000b; Cochran, Sullivan, & Mays, 2003; Gattis et al., 2012; M. King et al., 2008), suicidal ideation and attempts (Cochran & Mays, 2000a; M. King et al., 2008), anxiety disorders (Bolton & Sareen, 2011; Bostwick et al., 2010; Cochran et al., 2003; Gattis et al., 2012; M. King et al., 2008), and schizophrenia or psychotic illness (Bolton & Sareen, 2011). Lesbian women, when compared to heterosexual women, display higher rates of depression (Bostwick et al., 2010; Case et al., 2004; Gattis et al., 2012; M. King et al., 2008), suicidal ideation and attempts (M. King et al., 2008), and generalized anxiety (Cochran et al., 2003; Gattis et al., 2012). Bisexual men and women may be at the highest risk for mental health problems. When compared to gay men, lesbians, and heterosexual men and women, bisexual men and women reported the highest rates of depression, anxiety, and suicidality (Bostwick et al., 2010).

MENTAL HEALTH OUTCOMES FOR TRANSGENDER ADULTS

Very little extant research is available that has explored the mental health status of individuals who are transgender. Studies of transgender individuals that have not used comparison samples seem to show that this group does suffer from high rates of depression (Clements-Nolle, Marx, Guzman, & Katz, 2001; Rotondi, Bauer, Scanlon, et al., 2011; Rotondi, Bauer, Travers, Scanlon, & Kaay, 2011). When compared to gay men and lesbians, Bockting et al. (2005) determined that transgender individuals were more likely than gay men to experience depression and more likely than gay men and lesbians to have considered or attempted suicide. In a recent survey of transgender individuals, Bockting, Miner, Swinburne-Romine, Hamilton, and Coleman (2013) reported that when compared to community samples, transgender individuals had higher rates of anxiety, depression, somatization, and overall psychological distress.

FACTORS ASSOCIATED WITH SUBSTANCE USE AND MENTAL HEALTH SYMPTOMS

Although there are many factors which have been explored in relation to substance use and mental health in the LGBT community, three that have received significant attention are adverse childhood experiences, minority stress, and family support.

[1]"Questioning" refers to individuals who are unsure about their sexual orientation

Adverse Childhood Experiences and LGBT Individuals

Adverse childhood experiences (ACEs) are trauma-related events that young people may be exposed to prior to the age of 18. A large body of research shows that adults who have experienced ACEs report a number of negative mental health outcomes (Afifi et al., 2008; Edwards, Holden, Felitti, & Anda, 2003; Waldman, Perlman, & Cinotti, 2011) including depressive disorders (Champan et al., 2004) and suicide attempts (Dube et al., 2001). Similarly, adults who experienced one or more ACE in childhood are more likely to report having problems with alcohol (Strine et al., 2012; Waldman et al., 2011) and illicit drugs (Dube et al., 2003).The most commonly assessed ACEs are: living with someone who was depressed, mentally ill, or suicidal; living with someone who was a problem drinker or alcoholic; living with someone who used illegal street drugs or abused prescription medication; living with someone who was sentenced to serve time in prison, jail or other correctional facility; having parents who were separated or divorced; having parents or adults in the home who engaged in domestic violence; being physically abused; being verbally/emotionally abused; and being sexually abused.

Although data regarding the prevalence of ACEs within the LGBT community are limited, LGBT adults do appear to report experiencing ACEs related to various forms of childhood abuse at higher rates than heterosexual individuals. Using data from the National Longitudinal Study of Adolescent Health, McLaughlin, Hatzenbuehler, Xuan, and Conron (2012) determined that when compared to heterosexual young adults between the ages of 18 and 27, lesbian, gay, and bisexual young adults had higher odds of experiencing childhood physical and sexual abuse. Similarly, Balsam, Rothblum, and Beauchaine (2005) demonstrated that when compared to their heterosexual siblings, lesbian, gay, and bisexual adults reported experiencing significantly higher levels of psychological, physical, and sexual abuse during childhood. In a recent study using data from three states that included the ACE questionnaire in their local BRFSS and also asked respondents to report their sexual orientation, Andersen and Blosnich (2013) determined that LGB individuals reported having experienced each individual ACE at a significantly higher rate and experiencing a significantly larger number of ACEs in comparison to heterosexual individuals. The most frequently reported ACEs by LGB individuals were household substance abuse, physical abuse, emotional abuse, and sexual abuse.

The impact ACEs have on LGB adults is similar to what has been reported in studies of adults in the general population. Several studies focusing on gay and bisexual men and men who have sex with men (MSM) show that those men who admit to experiencing childhood sexual abuse do report higher levels of substance use (Arreola, Neilands, & Diaz, 2009; Kalichman, Gore-Felton, Benotsch, Cage, & Rompa, 2004; Lloyd & Operario, 2012; McLaughlin et al., 2012; Mimiaga et al., 2009), risky sexual behaviors (Arreola et al., 2009; Arreola, Neilands, Pollack, Paul, & Catania, 2008; Friedman, Marshal, Stall, Cheong, & Wright, 2008; Jinich et al., 1998; Kalichman et al., 2004; Lloyd & Operario, 2012; Mimiaga et al., 2009; Paul, Catania, Pollack, & Stall, 2001), and mental health problems (Arreola et al., 2009; Arreola et al., 2008; Friedman et al., 2008; Kalichman et al., 2004; Mimiaga et al., 2009) such as depression and anxiety (Balsam, Lehavot, Beadnell, & Circo, 2010; James et al., 2012; McLaughlin et al., 2012). For lesbian women, Hughes, Johnson, Wilsnack, and Szalacha (2007) found that those who were victims of childhood sexual abuse had higher rates of lifetime alcohol abuse than non-victims while victims of childhood physical abuse had higher lifetime rates of psychological distress than non-victims. In studies of mixed samples of gay men, lesbians, and bisexual men and women, exposure to childhood emotional abuse, childhood physical abuse, or childhood sexual abuse were all strong predictors of adult symptoms of depression, stress (Balsam et al., 2010; McLaughlin et al., 2012), suicidality, and alcohol and drug abuse (McLaughlin et al., 2012).

Minority Stress

One model used to explain the higher rates of substance use and mental health concerns within the LGBT population is that of minority stress (Meyer, 1995, 2003). According to the minority stress model, LGBT individuals are exposed to the normal stressors of life that all people experience; however, because they are members of a stigmatized group, LGBT individuals also have to face three additional types of life stress. The first type of additional stress comes from experiences an LGBT person may have in their day-to-day life such as being discriminated against due to their sexual orientation or gender status, being threatened with harm due to their sexual orientation or gender status, or being victimized in some way due to their sexual orientation or gender status. The second type of additional stress for LGBT individuals comes from anticipating or expecting that they

will experience negative life events due to their sexual orientation or gender status. While this heightened level of vigilance can be stressful in and of itself, it can also motivate LGBT individuals to hide their minority status from others. Although the act of hiding one's identity may serve to protect the LGBT individual from harm, it can also create further stress for the LGBT person. The third type of additional stress for LGBT individuals comes from the extent to which they have internalized society's negative attitudes and prejudices about people who are LGBT. LGBT individuals who hold strongly to society's negative views of same-gender relationships or gender nonconforming behavior may develop internalized homophobia or internalized transphobia, which is a sense of self-hate regarding one's sexual orientation or gender status.

The minority stress model proposes that substance use problems and mental health symptoms develop as LGBT individuals of all ages attempt to cope with the additional external and internal stressors they are regularly forced to face (Goldbach, Tanner-Smith, Bagwell, & Dunlap, 2013; Hendricks & Testa, 2012; Meyer, 1995, 2003).

Family Support

Family support regarding one's sexual or gender orientation appears to be related to both substance use and mental health (Bouris et al., 2010). Most studies exploring this association have been retrospective in nature and have examined the relationship between current levels of mental health symptoms and substance use in relation to whether an individual received or did not receive support from one's parents and/or family members after coming out to them as being LGBT.

In one such study of LGBT young adults between the ages of 21 to 25, Ryan, Russell, Huebner, Diaz, and Sanchez (2010) had participants rate the extent to which they had experienced 55 positive family experiences related to their sexual orientation while they were teenagers. Those young adults who remembered experiencing high family support and acceptance of their sexual orientation were found to have lower scores on measures of depression, substance abuse, and suicide than young adults who recalled having low family support and acceptance (Ryan et al., 2010).

In a related study of LGB young adults, Ryan, Huebner, Diaz, and Sanchez (2009) found that those who recalled being subjected to high levels of parental rejection, defined by the frequency with which they had experienced 51 rejecting experiences, were 5.6 times more likely to report having suicidal thoughts, 8.4 times more likely to have attempted suicide, 3.4 times more likely to have used illicit substances in the past 6 months, and 2.3 times more likely to have ever had substance abuse related problems than were LGB young adults who recalled low levels of parental rejection.

Using a similar approach, the 2002 Massachusetts BRFSS asked LGB participants between the ages of 18 and 60 to indicate whether they had revealed their sexual orientation to their parents, and if so, to report whether they received the support they needed from their parents after they made their disclosure. An analysis of this data found that gay and bisexual men who had revealed their sexual orientation to their parents and had not received the support they needed were nearly 7.0 times more likely to report binge drinking and 6.0 times more likely to report current depression than were gay and bisexual men who had received appropriate support. Lesbian and bisexual women who were out to their parents about their sexuality and who had not received adequate support were 3.7 times more likely to have reported lifetime illicit drug use and 5.5 times more likely to report current depression than women who had received sufficient parental support (Rothman, Sullivan, Keyes, & Boehmer, 2012).

Studies assessing current levels of parental support and negative substance use and mental health outcomes have reported similar results. D'Augelli (2002), using a convenience sample of 542 LGB youth between the ages of 14 and 21, reported that those young people who had revealed their sexual orientation to their parents and currently had negative relationships with their parents reported more symptoms of psychological distress than did young people who were out to their parents and had positive relationships with them. In a large online survey of adolescent drug use, which included LGB young people between the ages of 12 to 17, Padilla, Crisp, and Rew (2010) asked LGB participants to indicate whether they had revealed their sexual orientation to their parents and if so, to indicate whether their parents reacted positively or negatively. LGB participants who described their mothers' reactions as positive were 35% less likely than those who described their mothers' reactions as negative to report using illegal drugs.

Additional studies comparing LGB individuals to heterosexual individuals provide further support for the role of family involvement in health outcomes. In a study

of the impact of protective factors on suicidal behaviors in adolescents, Eisenberg and Resnick (2006) determined that overall, LGB high school students experienced less family connectedness, defined as receiving caring, understanding, and respect from parents, than did non-LGB students. Compared to non-LGB high school students, LGB students reported higher levels of suicidal thoughts and suicide attempts. Family connectedness helped to explain this relationship. LGB students with high family connectedness were significantly less likely than those with low family connectedness to engage in suicidal thoughts or actions.

Two studies using data from the National Longitudinal Study of Adolescent Health have compared LGB youth and young adults to their heterosexual counterparts on parental support and its consequences. Teasdale and Bradley-Engen (2010) determined that high school adolescents who reported same-sex sexual attractions had less social support in their lives including support from their parents compared to adolescents with only opposite-sex attractions. Overall, when compared to adolescents with only opposite sex attractions, those with same-sex attractions reported higher levels of depression and suicidal tendencies. Parental caring was found to mediate the relationship between sexual attraction and mental health outcomes. Same-sex attracted adolescents reporting lower levels of parental caring encompassed the group that was more likely to report depressed mood and suicidal tendencies. Needham and Austin (2010), focusing on negative health outcomes and parental support among heterosexual and LGB young adults in their 20s, determined that lesbian and bisexual women had poorer parental support than did heterosexual women, while gay men reported poorer parental support than both heterosexual and bisexual men. Bisexual women were found to have higher odds of depressive symptoms and heavy drinking than heterosexual women. Lesbian and bisexual women, when compared to heterosexual women, were found to have higher odds of suicidal thoughts, marijuana use, and hard drug use. Parental support mediated the relationship between sexual orientation and depression, suicidal thoughts, marijuana use, and hard drug use, so that lesbian and bisexual women with lower parental support had higher odds of negative health outcomes. For men, gay men were found to have higher odds of suicidal thoughts than heterosexual men. Parental support mediated this relationship; gay men with less parental support had higher odds of suicidal thoughts.

As a group, these studies on parental support strongly suggest that a caring, nurturing, and supportive family environment is associated with better mental health outcomes for LGB individuals of all ages.

DATA AVAILATIBLITY IN INDIANA

Currently, very little publically available data exist on Indiana's LGBT population; however, this may be starting to change. In 2011, the Indiana State Department of Health (ISDH) included a question in Indiana's BRFSS asking respondents to describe their sexual orientation. Respondents were able to indicate their sexual orientation as heterosexual, gay or lesbian, bisexual, transgender, other, or not sure/do not know. The sexual orientation question was only asked of participants who completed the BRFSS survey using a land line telephone. In 2013, Indiana's YRBSS will ask youth respondents to report their sexual orientation using a similar self-report question. The ISDH has yet to decide whether the sexual orientation question will become a permanent addition to the BRFSS and YRBSS.

Although the inclusion of questions in the BRFSS and the YRBSS on sexual orientation are significant developments in attempting to gather data on LGBT Hoosiers, their ability to do so is limited. Both the BRFSS and YRBSS are general population surveys which gather data on a relatively small, representative sample of Indiana's adults and young people. Sexual orientation is not a variable that is used in determining the sampling strategy, therefore, the number of LGBT individuals interviewed in 2011 was quite small and sample sizes will likely not change in future years. The small number of LGBT individuals in the BRFSS data set is problematic as it results in large error estimates, making differences between the LGBT group and other groups difficult to determine and limiting the ability to generalize the findings to the LGBT population as a whole.

BEHAVIORAL RISK FACTOR SURVEILANCE SURVEY RESULTS

As indicated previously, the 2011 BRFSS landline survey included a question asking respondents to describe their sexual orientation. Due to the small number of individuals who described themselves as gay, lesbian, bisexual, other, or who did not know their sexual orientation, these individuals were collapsed into one category representing LGB individuals. Transgender individuals were not included as only four individuals endorsed this category

and because the designation of transgender is associated with gender identity and not with sexual orientation. A total of 6,074 respondents described themselves as heterosexual while 170 individuals described their sexual orientation as falling into the LGB spectrum.

Prevalence estimates for the heterosexual and LGB sample are being provided for descriptive purposes only; in cases where the confidence interval is large (i.e., where the difference between the midpoint of the confidence interval and the endpoints are greater than 10), the validity of the prevalence estimates for the LGB sample is questionable and prevents comparisons between the samples. Comparisons between heterosexual and LGB individuals were attempted on alcohol use indicators, tobacco use indicators, and mental health indicators when possible. All comparisons were made using weighted estimates.

Alcohol Consumption Patterns

The BRFSS provides three measures of alcohol use: current use, binge drinking, and heavy drinking. The BRFSS defines current alcohol use as consuming at least one drink of alcohol in the past 30 days. The BRFSS defines binge drinking as consuming on at least one occasion in the past 30 days five or more alcoholic beverages over a two-hour period for men and four or more alcoholic beverages over a two-hour period for women. The BRFSS defines heavy drinking as consuming on average over a 30-day period more than two drinks per day for men and more than one drink per day for women.

Due to the small number of LGB individuals and the large confidence intervals associated with the prevalence estimates, the only valid comparison that could be made was for heavy drinking. The percentages of LGB individuals and heterosexual individuals who reported heavy drinking in the past 30 days were not significantly different from one another (see Table 5.1).

Table 5.1 Percentage (95% Confidence Interval) of Indiana Adults Drinking Alcohol (BRFSS, 2011)

	Heterosexual Sample	LGB Sample
Alcohol use in the past 30 days	51.2% (49.2-53.3)	56.4% (42.9-69.8)
Binge drinking in the past 30 days	15.5% (13.8-17.1)	30.8% (15.8-45.7)
Heavy drinking in the past 30 days	5.2% (4.2-6.2)	3.4% (0.8-5.9)

Note: Data are being provided for descriptive purposes only. Due to small sample sizes and large confidence intervals, comparisons between the groups should not be made.

Table 5.2 Percentage (95% Confidence Interval) of Indiana Adults Using Tobacco (BRFSS, 2011)

	Heterosexual Sample	LGB Sample
Never smoked	51.2 (49.1-53.2)	45.6 (32.1-59.2)
Current smoker – smokes every day	18.4 (16.7-20.1)	34.2 (19.8-48.6)
Current smoker – smokes some days	5.9 (4.7-7.1)	4.4 (0.0-9.4)
Former smoker	24.5 (22.9-26.0)	15.8 (7.4-24.2)

Note: Data are being provided for descriptive purposes only. Due to small sample sizes and large confidence intervals, comparisons between the groups should not be made.

Adult Tobacco Consumption Patterns

To determine smoking status, the BRFSS asks respondents to indicate whether they smoked at least 100 cigarettes in their lifetime. The BRFSS considers individuals who smoked less than 100 cigarettes to be nonsmokers. Individuals who report smoking at least 100 cigarettes are asked to describe whether they currently smoke every day, some days, or not at all. Respondents who report that they currently do not smoke are labeled former smokers while the rest are determined to be active smokers. Table 5.2 lists the percentages and confidence intervals for the current smoking status of heterosexual and LGB respondents. The only valid comparisons that could be made were for individuals who reported being current smokers and who smoked some days and for individuals who reported being former smokers. The percentages of LGB individuals and heterosexual individuals who were current smokers and who smoked on some days and those who were former smokers were not significantly different from one another (see Table 5.2).

Mental Health Indicators

The BRFSS does not regularly include detailed indicators of mental health. The CDC requires that only two questions concerning mental health be asked by states on an annual basis. The first question requests respondents to think about their mental health which includes stress, depression, and problems with emotions and then indicate on how many of the past 30 days their mental health was not good. Respondents who report that their mental health was not good for 15 or more of the past 30 days are categorized as having poor mental health for the past 30 days. The second question related to mental health has respondents report whether they were ever diagnosed by a doctor, nurse, or other health care practitioner with a depressive disorder.

Poor Mental Health Days

The percentage of heterosexual participants that had 15 or more days of poor mental health in the past month was

11.9% (CI = 10.5-13.2), with the remaining 88.1% (CI = 86.8-89.5) reporting fewer than 15 days of poor mental health. Within the LGB sample, 22.2% (CI = 7.9-36.5) said they had 15 or more days of poor mental health while 77.8% (CI = 63.5-92.0) indicated having fewer than 15 days of poor mental health in the past month. Due to the small number of LGB respondents and the large confidence intervals associated with the prevalence estimates for the LGB participants, comparisons between the heterosexual respondents and the LGB respondents could not be made.

Lifetime Diagnosis of Depression

The percentage of heterosexual individuals who reported ever receiving a diagnosis of depression was 19.7% (CI = 18.2-21.3) with 80.3% (CI = 78.7-81.8) stating they had never been diagnosed with depression. For the LGB respondents, 42.0% (CI = 27.8-56.2) stated that they had been diagnosed with depression at some point in their lives while 58.0% (CI = 43.8-72.2) indicated never having been given a diagnosis of depression. Due to the small number of LGB respondents and the large confidence intervals associated with the prevalence estimates for the LGB participants, comparisons between the heterosexual respondents and the LGB respondents could not be made.

THE SEOW SURVEY

To enhance the available information on Indiana's LGBT community, the SEOW decided to collect additional quantitative and qualitative data through a web-based survey and focus groups specifically targeting LGBT Hoosiers. In late 2011, the SEOW created two surveys designed to gather health-related data from LGBT adults and LGBT young people. The surveys were modeled after the BRFSS and YRBSS, respectively. Both surveys included items to collect information on issues specific to LGBT individuals, such as exposure to sexual orientation-related violence, LGBT self-esteem, and high-risk sexual behaviors.

Beginning in June 2012, the SEOW marketed the surveys via the following outlets: advertisements in local LGBT publications, online at *NUVO Newsweekly*, e-mail listserves sponsored by LGBT organizations, flyer distribution at LGBT events and LGBT bars and clubs, and social media forums such as Facebook and Twitter. Survey participants said they learned about the survey from friends or a family member (30.0%), from other sources (24.6%), from e-mail listserves (16.7%), from *NUVO* or *The Word newspapers* (13.0%), or from a Pride event (9.5%). Twenty participants (6.3%) did not provide information regarding where they learned about the survey. Despite the marketing efforts, response to the surveys was low. The adult survey was completed by 352 individuals; however, only 317 respondents provided useable data. A total of 19 young adults completed the youth survey. Due to the very low response rate for young adults, only data from the adult survey will be presented.

Although the SEOW survey parallels the BRFSS, comparisons between the two surveys are not possible for two reasons: First, the BRFSS is a population-based survey using specific sampling criteria to select respondents in a way that accurately reflects the demographic makeup of a particular state, while the SEOW survey could only rely on a convenience sample of LGBT individuals. The SEOW's reliance on a convenience sample likely resulted in a skewed sample of LGBT individuals. Second, the BRFSS uses a weighting scheme to adjust the survey findings and account for over- and under-sampling of individuals with specific demographic characteristics. The SEOW survey did not employ any type of weighting scheme. The findings from the SEOW survey are being presented for descriptive purposes only; readers are cautioned against making comparisons to the BRFSS.

Participant Characteristics

The SEOW sample was composed nearly equally of natal males (47.9%) and natal females (51.4 %) with two individuals (0.6%) describing themselves as intersex. Regarding sexual orientation and transgender status, the majority of the sample was composed of lesbian women and gay men (72.9%). Transgender individuals and individuals questioning their gender status accounted for 10.7% of the sample. Of survey participants who described themselves as either transgender or questioning their gender identity, 15 (44.0%) considered themselves to be gay or lesbian; 9 (26.5%) listed their sexual orientation as queer[2]; 7 (20.6%) described themselves as bisexual; 2 stated they were heterosexual (5.9%); and 1 individual (2.9%) was questioning his or her sexual orientation.

Racially, the majority of participants listed themselves as white (87.1%). In terms of age, individuals in the categories of 18 to 24, 25 to 34, 35 to 44, and 45 to 54 accounted for approximately equal numbers of the sample, with the smallest categories represented being individuals 55 to 64 years of age and 65 years of age or older.

The majority of participants were well educated; with most indicating that they were college graduates (58.7%). In terms of employment, most respondents (66.6%) said they were employed for wages or self-employed. SEOW survey participants reported a relatively high annual income, with 46.4% indicating a salary of $50,000 or more (see Table 5.3).

[2]"Queer" is an umbrella term that refers to anyone who feels they are outside of traditional societal norms related to sexuality and/or gender expression.

Table 5.3 Participant Characteristics (SEOW LGBT Survey, 2012)

	N	Percent (95% CI)
Birth Gender		
Male	152	47.9 (42.4-53.5)
Female	163	51.4 (45.9-57.0)
Intersex	2	0.6 (0.0-1.5)
Sexual Orientation and Transgender Status		
Lesbian or Gay	231	72.9 (67.9-77.8)
Bisexual	52	16.4 (12.3-20.5)
Transgender	25	7.9 (4.9-10.9)
Questioning Gender Status	9	2.8 (1.0-4.7)
Race		
White	276	87.1 (83.4-90.8)
Black	6	1.9 (0.4-3.4)
Hispanic	7	2.2 (0.6-3.8)
Other	6	1.9 (0.4-3.4)
Multiracial	11	3.5 (1.4-5.5)
Missing	11	3.5 (1.4-5.5)
Age		
18-24 years	60	18.9 (14.6-23.3)
25-34 years	75	23.7 (19.0-28.4)
35-44 years	69	21.8 (17.2-26.3)
45-54 years	64	20.2 (15.7-24.6)
55-64 years	39	12.3 (8.7-15.9)
65+ years	8	2.5 (0.8-4.3)
Missing	2	0.6 (0.0-1.5)
Education		
Less than High School	2	0.6 (0.0-1.5)
High School or GED	25	7.9 (4.9-10.9)
Some College or Tech. School	92	29.0 (24.0-34.0)
College Graduate	186	58.7 (53.2-64.1)
Missing	12	3.8 (1.7-5.9)
Employment		
Employed for wages	194	61.2 (55.8-66.6)
Self-employed	17	5.4 (2.9-7.9)
Out of work >1 year	6	1.9 (0.4-3.4)
Out of work <1 year	14	4.4 (2.1-6.7)
A homemaker	2	0.6 (0.0-1.5)
A student	42	13.2 (9.5-17.0)
Retired	16	5.0 (2.6-7.5)
Unable to work	13	4.1 (1.9-6.3)
Missing	13	4.1 (1.9-6.3)
Income		
Less than $15,000	40	12.6 (8.9-16.3)
$15,000-$24,999	24	7.6 (4.6-10.5)
$25,000-$34,999	26	8.2 (5.2-11.2)
$35,000-$49,999	46	14.5 (10.6-18.4)
$50,000+	147	46.4 (40.9-51.9)
Missing	34	10.7 (7.3-14.2)

Alcohol Consumption Patterns

The SEOW paralleled the BRFSS by using its three measures of alcohol use: current use in the past 30 days, binge drinking in the past 30 days, and heavy drinking in the past 30 days. Most respondents reported having at least one drink of alcohol in the past 30 days (80.4%), and this was consistent across sexual orientation and gender status subgroups. Overall, 41.6% of participants had engaged in at least one episode of binge drinking in the past 30 days; this finding was consistent across sexual orientation and gender status subgroups. Nearly one quarter of all participants had engaged in a pattern of heavy drinking in the past 30 days, and the pattern was the same for sexual orientation and gender status subgroups (see Table 5.4).

Adult Tobacco Consumption Patterns

The SEOW survey followed the BRFSS methodology to determine current smoking status. The majority of survey participants (55.1%) reported having never smoked or at least having never smoked more than 100 cigarettes in their lifetime. There were no differences in terms of the percentages of sexual orientation and gender status subgroups that were nonsmokers, current smokers, or former smokers (see Table 5.5).

Adult LGBT Illicit Drug Use Patterns

The BRFSS does not assess the use of illicit substances; however, SEOW respondents were asked to indicate from a list of illicit drugs which ones they had ever used; of the drugs they had ever used, they were to indicate which they had used in the past 30 days. Due to an oversight, marijuana was not included in the list of illicit substances. A total of 55.8% (CI = 50.3-61.3) of the SEOW respondents reported lifetime use of at least one illicit substance other than marijuana. When compared to the full sample, transgender men and women were significantly less like to report lifetime use of illicit drugs other than marijuana. Of all the groups, gay men reported the highest levels of lifetime

Table 5.4 Percentage (95% Confidence Interval) of LGBT Reporting Alcohol Use (SEOW LGBT Survey, 2012)

	Full Sample	Lesbian Women	Gay Men	Bisexual Men and Women	Transgender Men and Women
Alcohol use in the past 30 days	80.4% (75.9-84.9)	80.6% (72.5-88.8)	81.5% (74.8-88.3)	78.4% (66.7-90.1)	76.7% (60.6-92.7)
Binge drinking in the past 30 days	41.6% (36.0-47.2)	32.3% (22.6-41.9)	46.9% (38.2-55.6)	49.0 (36.8-65.2)	34.5 (16.1-52.9)
Heavy drinking in the past 30 days	23.8% (19.1-28.5)	22.9% (14.4-31.5)	27.1% (19.4-34.7)	21.2% (9.7-32.6)	17.6 (4.1-31.1)

Table 5.5 Percentage (95% Confidence Interval) of LGBT Reporting Tobacco Use (SEOW LGBT Survey, 2012)

	Full Sample	Lesbian Women	Gay Men	Bisexual Men and Women	Transgender Men and Women
Never smoked	55.1 (49.5-60.7)	54.3 (44.0-64.7)	54.6 (45.9-63.3)	52.8 (37.7-66.3)	61.3 (43.1-79.5)
Current smoker – smokes every day	14.4 (10.5-18.4)	10.9 (4.4-17.4)	16.9 (10.4-23.5)	14.0 (4.0-24.0)	16.1 (2.4-29.8)
Current smoker – smokes some days	7.9 (4.8-10.9)	3.3 (0.0-7.0)	8.5 (3.6-13.3)	18.0 (7.0-29.0)	3.2 (0.0-9.8)
Former smoker	22.6 (17.9-27.3)	31.5 (21.8-41.2)	20.0 (13.0-27.0)	16.0 (5.5-26.5)	19.4 (4.6-34.1)

Table 5.6 Percentage (95% Confidence Interval) of LGBT Reporting Lifetime Illicit Drug Use (SEOW LGBT Survey, 2012)

	Full Sample	Lesbian Women	Gay Men	Bisexual Men and Women	Transgender Men and Women
Lifetime use of any illicit substance	55.8 (50.3-61.3)	45.8 (35.7-56.0)	68.4 (60.4-76.4)	57.7 (43.8-71.6)	29.4 (13.3-45.5)

illicit substance use other than marijuana; their level of use was significantly higher than both lesbian women and transgender individuals (see Table 5.6). The most frequently reported drugs were poppers[1], ecstasy, steroids, and cocaine.

Despite the rather high levels of lifetime illicit substance use, only a small percentage (14.8%, CI = 10.9-18.8) of respondents indicated any use of illicit substances in the past 30 days. Due to the small number of respondents admitting current illicit substance use, comparisons could not be made across sexual orientation and gender status subgroups.

Mental Health Indicators

The SEOW survey asked respondents the two standard BRFSS mental health questions regarding overall mental health in the past 30 days and lifetime diagnosis of depression. To enhance information on mental health, the SEOW survey included the supplemental mental health module from the BRFSS. The mental health module contains the eight-item Patient Health Questionnaire (PHQ-8) which determines an individual's current level of depression. Individuals who score 55 points or higher on the PHQ-8 are considered to be experiencing clinically significant levels of depression (Dhingra, Kroenke, Zack, Strine, & Balluz, 2011). The mental health module also asks respondents to indicate if they were ever diagnosed with an anxiety disorder and if they are currently taking medication for or receiving treatment for a mental health condition.

Within the overall SEOW survey sample, 17.7% reported having had 15 or more days of poor mental health in the past month. No differences were noted for sexual orientation and gender status subsamples in the segment that experienced 15 or more days of poor mental health. Over half (53.7%) of respondents noted that they had been diagnosed with depression at some point in their lives; this finding was consistent across the sexual orientation and gender status subgroups. Two-fifths of the sample (40.3%) indicated that at some point, a doctor or health professional had diagnosed them with an anxiety disorder. Lesbian women, gay men, bisexual men and women, and transgender men and women reported similar percentages for lifetime diagnosis of an anxiety disorder. Of the overall sample, 31.3% affirmed that they were currently taking medication or receiving treatment for a

[1]Poppers are organic nitrates and belong to the group of inhalants; i.e., substances that produce chemical vapors which can be inhaled to produce a psychoactive or mind-altering effect (http://www.drugabuse.gov/sites/default/files/rrinhalants.pdf).

mental health condition, with no differences noted across sexual orientation or gender status subgroups. Based on the PHQ-8, 13.2% of the SEOW sample was experiencing clinically significant levels of depression. The percentage of sexual orientation and gender status subgroups who were currently depressed was similar to that of the overall SEOW sample (see Table 5.7).

Measures of Factors Associated with Substance Use and Mental Health Outcomes

Due to the length of the SEOW survey, it was not possible to collect information on all factors associated with substance use and mental health outcomes for persons who are LGBT. The SEOW survey did incorporate questions regarding two factors related to substance use and mental health outcomes for LGBT individuals: ACEs and internalized homophobia/transphobia.

Adverse Childhood Experiences

Because ACEs have been shown in the literature to be correlated with adverse substance use and mental health outcomes for LGBT individuals, the SEOW chose to include the ACE module from the BRFSS as part of the survey. The ACE module asks respondents to indicate whether they had experienced any of 11 adverse situations prior to turning 18. Overall, one-fifth of the sample or more had experienced living with someone who had mental health problems, living with someone who was an alcoholic, having parents who were divorced, having witnessed domestic violence, having been physically abused, having been verbally abused, and having been touched sexually by an adult or someone who was five or more years older than they were. The pattern of experiences was similar across the sexual orientation and gender status subgroups (see Table 5.8).

Internalized Homophobia/Transphobia

As described in the minority stress model, feelings of internalized homophobia/transphobia are associated with adverse substance use and mental health outcomes (Meyer, 2003). The SEOW measured internalized homophobia/transphobia by asking respondents to complete the LGBT Distress Scale. The LGBT Distress Scale is a six-item instrument that assesses the extent to which an individual is distressed about being someone who is LGBT. Higher total scores on the LGBT Distress Scale indicate higher levels of distress. Factor analysis of the LGBT Distress Scale revealed that all six items loaded on one factor. The coefficient α for the six items was .77, indicating good internal consistency. Table 5.9 provides a breakdown of the survey participants' responses to the individual LGBT distress items as well as each item's factor loading.

Table 5.7 Percentage (95% Confidence Interval) of LGBT Reporting Mental Health Indicators (SEOW LGBT Survey, 2012)

	Full Sample	Lesbian Women	Gay Men	Bisexual Men and Women	Transgender Men and Women
15 or more days of poor mental health	17.7 (13.4-22.0)	9.7 (3.6-15.8)	19.5 (12.6-26.5)	21.6 (9.9-33.3)	25.8 (9.5-42.1)
Lifetime diagnosis of depression	53.7 (48.0-59.3)	57.6 (47.3-67.9)	56.5 (47.6-65.3)	61.5 (47.9-75.2)	43.3 (24.5-62.2)
Lifetime diagnosis of anxiety disorder	40.3 (34.8-45.9)	41.3 (31.1-51.6)	35.6 (27.3-43.9)	50.0 (35.6-64.4)	44.8 (25.6-64.1)
Currently taking medication or receiving treatment for a mental health condition	31.3 (26.0-36.5)	26.9 (17.7-36.1)	32.3 (24.3-40.4)	34.6 (21.2-48.0)	31.0 (13.1-48.9)
PHQ-8 Current Depression	13.2 (9.5-17.0)	7.3 (2.0-12.6)	15.8 (9.5-22.1)	15.4 (5.2-25.5)	17.6 (4.1-31.1)

Table 5.8 Percentage (95% Confidence Interval) of LGBT Reporting Occurrence of Adverse Childhood Experiences (ACEs) Prior to Age 18 (SEOW LGBT Survey, 2012)

Prior to Age 18	Full Sample	Lesbian Women	Gay Men	Bisexual Men and Women	Transgender Men and Women
Did you live with anyone who was depressed, mentally ill or suicidal?	46.0 (40.1-51.9)	44.8 (34.2-55.5)	41.4 (33.3-50.5)	64.4 (50.0-79.0)	42.9 (23.3-62.4)
Did you live with anyone who was a problem drinker or alcoholic?	37.4 (31.9-43.0)	32.2 (22.4-42.1)	42.3 (33.4-51.1)	42.9 (28.5-57.2)	26.7 (9.9-43.5)
Did you live with anyone who used illegal street drugs or who abused prescription medication?	18.9 (14.4-23.4)	18.7 (10.5-26.8)	17.1 (10.3-23.8)	26.0 (13.4-38.6)	16.7 (2.5-30.8)
Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?	11.11 (7.5-14.7)	6.7 (1.4-11.9)	11.8 (6.1-17.5)	16.3 (5.6-27.1)	13.8 (0.4-27.1)
Were your parents separated or divorced?	36.9 (31.5-42.4)	35.1 (25.3-44.9)	37.2 (28.8-45.7)	49.0 (34.8-63.2)	23.3 (7.3-39.4)
More than once, parents or adults in home slapped, hit, kicked, punched or beat each other up	20.4 (15.7-25.2)	19.0 (10.5-27.6)	21.7 (14.2-29.1)	18.8 (7.3-30.2)	19.2 (3.0-35.5)
More than once, parent or adult in home hit, beat, kicked, or physically hurt you in any way	24.9 (20.0-30.0)	21.3 (12.7-30.0)	24.6 (17.0-32.2)	23.1 (11.2-34.9)	39.3 (20.0-58.6)
More than once, parent or adult in home swore at you, insulted you, or put you down	57.8 (52.1-63.4)	54.4 (44.0-65.0)	54.4 (45.5-63.3)	66.0 (52.4-80.0)	69.0 (51.1-86.9)
More than once, anyone at least 5 years older than you or an adult touched you sexually	20.0 (15.4-24.6)	23.6 (14.6-32.6)	20.0 (12.9-27.1)	15.6 (4.5-26.6)	13.8 (0.4-27.1)
More than once, anyone at least 5 years older than you or an adult tried to make you touch them sexually	17.0 (12.7-21.3)	21.6 (12.8-30.4)	16.0 (9.5-22.5)	10.2 (1.4-19.0)	16.7 (2.5-30.8)
More than once, anyone at least 5 years older than you or an adult forced you to have sex	9.0 (5.7-12.3)	9.2 (3.0-15.4)	8.1 (3.2-13.0)	10.2 (1.4-19.0)	10.3 (0.0-22.1)

Table 5.9 LGBT Distress Scale Characteristics

	Strongly Agree	Agree	Mixed	Disagree	Strongly Disagree	Factor Loading
I have a positive attitude about being someone who is LGBT.	63.2%	25.3%	10.9%	0.4%	0.4%	0.83
I often feel ashamed that I am a person who is LGBT.	0.7%	2.8%	10.6%	25.5%	60.3%	0.70
For the most part, I enjoy being a person who is LGBT.	56.0%	34.4%	7.8%	1.8%	0.0%	0.79
I worry a lot about what others think about my being a person who is LGBT.	4.2%	13.4%	19.1%	25.8%	37.5%	0.67
I wish that I was not LGBT.	1.4%	3.2%	12.5%	22.9%	59.9%	0.70
I feel that being a person who is LGBT is a gift.	28.1%	25.5%	30.9%	12.2%	3.2%	0.52
	Mean	Std Dev				
Total LGBT Distress	10.9	3.8				

ADDITIONAL ANALYSES ON RISK FACTORS FOR SUBTANCE USE AND MENTAL HEALTH SYMPTOMS

Using supplemental data collected on the SEOW survey, the SEOW completed additional analyses to explore whether ACEs and a measure of internalized homophobia/transphobia would have an impact on substance use behaviors and mental health outcomes for the survey participants.

Analyses of Adverse Childhood Events

We first completed an ordinal least squares regression to determine whether any demographic variables predicted the number of ACEs experienced by survey participants. The demographic variables included in the model were age, race (nonwhite vs. white), gender (female vs. male), transgender status (transgender vs. not transgender), education level, income level, and partnered status (partnered vs. not partnered). The analysis indicated that two demographic variables predicted an individual's total number of ACEs: age and income. In terms of age, older age was associated with having experienced a larger number of ACEs. Having a lower self-reported income was associated with having experienced a higher number of ACEs (see Table 5.10).

Table 5.10 Predictors of Total Number of Adverse Childhood Events

	b	S.E.	*t*
Age	0.035	0.015	2.394*
Race	0.546	0.713	0.766
Gender	0.106	0.391	0.270
Transgender status	-0.438	0.591	-0.740
Education level	-0.534	0.292	-1.828
Income level	-0.339	0.091	-3.716***
Partnered status	-0.179	0.396	-0.453
R^2 = 0.133, S.E.E. = 2.51, F = 3.923* **			

* p<0.05
** p<0.01
***p<0.001

We then completed a series of regression analyses using the total number of ACEs and demographic variables to determine whether ACEs served as a significant predictor for 30-day alcohol use, 30-day binge drinking, 30-day heavy drinking, lifetime illicit drug use, 30-day illicit drug use, lifetime diagnosis of depression, lifetime diagnosis of anxiety, current treatment for a mental health problem, and current depression as assessed by the PHQ-8. The total ACEs experienced served as a significant predictor in the models for lifetime diagnosis of depression, lifetime diagnosis of an anxiety disorder, current treatment for a mental health condition and current depression. Respondents who had experienced a higher number of ACEs had a higher likelihood of having been diagnosed with depression at some point in their lifetime. Similarly, respondents with a higher number of ACEs also had a higher likelihood of having received a diagnosis of an anxiety disorder at some point in their lives (see Tables 5.11 and 5.12).

Respondents were more likely to report currently receiving medication or being treated for a mental health problem if they had a higher level of education and if they had experienced a higher number of ACEs (see Table 5.13).

Table 5.11 Predictors of Lifetime Diagnosis of Depression

	b	S.E.	*p*
Age	0.020	0.013	.124
Race	1.061	0.658	.107
Gender	-0.030	0.336	.929
Transgender status	-0.211	0.508	.810
Education level	0.249	0.259	.335
Income level	-0.092	0.082	.262
Partnered status	-0.288	0.342	.399
ACE Total Score	0.190	0.066	.004**
Nagelkerke R^2 = .123, χ^2= 17.531*			

* p<0.05
** p<0.01
***p<0.001

Table 5.12 Predictors of Lifetime Diagnosis of an Anxiety Disorder

	b	S.E.	*p*
Age	-0.016	0.013	.231
Race	0.797	0.642	.215
Gender	-0.077	0.345	.823
Transgender status	0.154	0.504	.760
Education level	0.064	0.253	.801
Income level	-0.149	-0.082	.071
Partnered status	0.086	0.347	.805
ACE Total Score	0.192	0066	.003**
Nagelkerke R^2 = .148, χ^2= 21.188**			

* p<0.05
** p<0.01
***p<0.001

Table 5.13 Predictors of Current Medication for or Treatment for a Mental Health Condition

	b	S.E.	*p*
Age	0.023	0.014	0.115
Race	2.017	1.084	0.063
Gender	0.450	0.371	0.226
Transgender status	-0.725	0.555	0.192
Education level	0.658	0.307	0.032*
Income level	-0.097	0.091	0.285
Partnered status	-0.353	0.373	0.343
ACE Total Score	0.160	0.068	0.019*
Nagelkerke R^2 = .154, χ^2= 20.971**			

* p<0.05
** p<0.01
***p<0.001

In terms of current depression as assessed by the PHQ-8, transgender status predicted higher levels of current depression as did having experienced a higher number of ACEs (see Table 5.14). Identical results were found when PHQ-8 scores were dichotomized into depressed versus not depressed.

Table 5.14 Predictors of Current Depression as Assessed by the PHQ-8

	b	S.E.	*t*
Age	-0.217	0.140	-1.548
Race	-8.433	6.676	-1.263
Gender	-6.158	3.698	-1.665
Transgender status	11.909	5.675	2.098*
Education level	1.122	2.779	0.404
Income level	-1.074	0.902	-1.191
Partnered status	-2.297	3.710	-0.619
ACE Total Score	2.838	0.700	4.057***
R^2 = .154, S.E.E. = 23.44, F = 4.006* **			

* p<0.05
** p<0.01
***p<0.001

Analyses of Internalized Homophobia/Transphobia

We initially completed an ordinal least squares regression to determine whether any demographic variables predicted an individual's level of LGBT distress. The demographic variables included in the model were age, race (nonwhite vs. white), gender (female vs. male), transgender status (transgender vs. not transgender), education level, income level, and partnered status (partnered vs. not partnered). The results of the analysis indicated that two demographic variables predicted LGBT distress: age and transgender status. Regarding age, younger individuals reported higher levels of LGBT distress. In terms of transgender status, transgender individuals reported higher levels of LGBT distress (see Table 5.15).

Table 5.15 Predictors of LGBT Distress

	b	S.E.	*t*
Age	-0.087	0.019	-4.567***
Race	-0.177	0.958	-0.185
Gender	-0.834	0.515	-1.621
Transgender status	2.217	0.914	2.425*
Education level	0.123	0.380	0.325
Income level	0.044	0.123	0.356
Partnered status	-0.494	0.527	-0.937
R^2 = .112, F = 4.207, p < .001			

* p<0.05
** p<0.01
***p<0.001

We completed a series of regression analyses using demographic variables and the LGBT distress scale to determine whether LGBT distress was a significant predictor of 30-day alcohol use, 30-day binge drinking, 30-day heavy drinking, lifetime illicit drug use, 30-day illicit drug use, lifetime diagnosis of depression, lifetime diagnosis of an anxiety disorder, current treatment for a mental health condition, and current depression. The only model where LGBT distress served as a significant predictor was for depression as measured by the PHQ-8. Respondents with higher levels of LGBT distress reported higher levels of depression as measured by the PHQ-8. Additionally, respondents with lower incomes reported higher levels of depression (see Table 5.16).

Table 5.16 Predictors of Current Depression, Based on PHQ-8

	b	S.E.	*t*
Age	0.162	0.132	1.229
Race	-6.573	6.364	-1.033
Gender	-1.615	3.466	-0.466
Transgender status	3.892	6.307	0.617
Education level	-1.231	2.554	-0.482
Income level	-2.060	0.827	-2.493*
Partnered status	-2.159	3.510	-0.615
LGBT Distress	1.804	0.442	4.080***
R^2 = 0.111, S.E.E. = 24.65, F = 3.603* **			

* p<0.05
** p<0.01
***p<0.001

FOCUS GROUP RESULTS

The SEOW conducted four focus groups with the LGBT community to gain additional perspectives on substance use and mental health issues. Facilitators completed three focus groups in Indianapolis, one with 4 participants, one with 10, and one with 21 participants. An attempt was made to complete a focus group in Bloomington, Indiana; however, only one participant attended. The participant completed a one-on-one interview with the facilitator.

Experience with Drugs and Alcohol

Most respondents reported smoking marijuana regularly and many indicated first using in their pre-teens. The second most prevalent drug was alcohol; however, only three reported drinking regularly or habitually. Snorting cocaine and smoking crack were mentioned by half the respondents, and one individual reported taking acid as a youth. No prescription drug use was reported. One respondent stated that prescription drugs, alcohol, and marijuana are popular in his LGBT community; however, he indicated that he personally did not use prescription drugs to get high. Participants referred to drug use as escapism and as a coping mechanism. One respondent stated, "I was using it to cope…once I figured out what my problem was, it went away." Another respondent felt that individuals in the LGBT community experience life differently and "may use to further their experience in the world…use to further their creativity, there is more exploration than in other populations".

Treatment

Participants were in agreement that treatment is more challenging for them because "we have extra issues." A few respondents indicated that some progress is being made. Fairbanks Hospital now allows transgender addicts to choose whether they wish to stay in the male or female wing. The University of Indianapolis has a sliding fee scale counseling service that uses providers trained to work with all LGBT populations.

Relationships and Employment

One respondent stated "your drug or alcohol is your support system." Another indicated that relationships are a "revolving crowd, when they stop [using] you stop hanging around them." This experience with losing friends when no longer using substances was a very common theme; no one reported losing friends when they started using substances. Drugs and alcohol did not emerge in any conversations as having an impact on familial relationships.

Most participants stated that substance use created problems with employment. The cause of the problem was mandatory drug tests by employers, which could start at the time of application.

Considerations for the SEOW

Data Recommendations

The state of Indiana needs to continue to integrate questions regarding sexual orientation into all of its state-level data collection efforts. Ideally, surveys would include questions that would cover sexual behavior, sexual attraction, and sexual orientation identity as risk behavior; mental health concerns have been shown to vary according to how sexual orientation is defined. Indiana also needs to incorporate questions regarding a person's transgender status separately from those regarding sexual orientation. Transgender individuals are a unique group who may or may not see themselves as part of the LGB community and whose substance use and mental health concerns should be treated separately from those of LGB persons.

Additionally, the state should explore alternative methods for selecting subjects for health surveys such as the BRFSS and NSDUH in order to enhance the participation of LGB and transgender individuals. Alternative methods could include networking with local agencies that serve LGBT individuals and developing agreements that would allow clients to be contacted for health research purposes.

Alcohol Use

While it is not clear from our data whether the drinking patterns of LGBT individuals are resulting in higher rates of alcohol abuse and dependence, many participants in the SEOW survey did report engaging in binge drinking and heavy drinking. These drinking behaviors can result in a higher chance for adverse consequences. Indiana's Division of Mental Health and Addiction (DMHA) may want to consider prevention campaigns and intervention services specifically targeting LGBT persons while agencies that serve LGBT clients could consider integrating alcohol programming into their standard service array.

Drug Use

Although few SEOW survey participants indicated that they were currently using substances, over 50% of the sample did indicate a lifetime history of using one or more illicit substances. Due to the nature of the SEOW survey, it is hard to say whether this finding indicates a significant drug use problem in Indiana's LGBT community. Still, it will be important for DMHA and other organizations to be aware of the potential risks for substance use within the LGBT community. As indicated by focus group participants, substance use prevention services may need to be developed that specifically address the unique concerns of Indiana's LGBT residents.

Mental Health

Over half of the SEOW survey participants (53.7%) reported a lifetime diagnosis of depression, 40.3% reported a lifetime diagnosis of an anxiety disorder, and 31.3% stated they were currently receiving medication or treatment for a mental health problem. These findings are consistent with what has generally been seen in the literature for LGBT persons. DMHA and other agencies that provide mental health services need to be aware of the increased risk for mental health problems within the LGBT population. DMHA and other providers should establish interventions that specifically target the issues that LGBT people regularly face such as discrimination, harassment, and violence; mental health providers should also implement approaches that help enhance LGBT people's sense of personal worth and pride in being someone who is LGBT.

It is also clear from the research literature that family factors affect outcomes for LGBT individuals. Within the SEOW survey, adverse childhood experiences predicted negative mental health outcomes for participants. Providing additional services for LGBT youth and especially their families will be essential in improving the long-term mental health outcomes for LGBT individuals in Indiana.

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6 Conclusion

The current lack of detailed state-level data on substance abuse and mental health issues among returning veterans; criminal offenders; and clients with co-occurring mental illness and substance use disorder; and lesbian, gay, bisexual, and transgender (LGBT) individuals, poses critical challenges for legislators, policy-makers, and the overall prevention community. For effective policy decisions to occur and adequate funding to be allocated, planners and stakeholders need to be aware of the scope of the problem facing each of these communities, so they can effectively assess prevention and treatment needs and address existing gaps.

To get a better understanding of the prevalence of these problems in Indiana, the State Epidemiology and Outcomes Workgroup (SEOW) compiled information through extensive literature reviews, collation of secondary data, and collection of primary data on alcohol and drug use as well as mental health disorders within these four high-risk groups. We employed the concept of "triangulation," i.e., the use of various methodologies and data sources, to strengthen the validity of our findings and the confidence in our conclusion.

The following section presents a summary of the findings. For a more detailed analysis, refer to Chapters 2 through 5.

SUMMARY OF CHAPTERS 2-5

Returning Veterans

Findings

- National VA data on OIF/OEF[1] veterans show that 21.8% are diagnosed with PTSD and 17.4% are diagnosed with depression.
- Personnel deployed to Iraq and Afghanistan between 2002 and 2005, compared to those who did not deploy, have higher rates of work and family stress.
- Families of Iraq and Afghanistan veterans with PTSD are more likely to experience domestic violence or intimate partner violence than families of veterans without PTSD.
- Less than one in five (18%) of OEF and OIF returnees who screened positive for alcohol abuse report using mental health services.
- Veterans with mental health disorders are faced with barriers to mental healthcare utilization resulting from stigma associated with accessing care and the fear of repercussions from leadership for using mental health services.
- National Guard and Reserve service members sometimes have difficulty meeting the Department of Veterans Affairs (DVA) criteria for active duty and length of service. These service members are not considered "veterans" and are not afforded DVA benefits. While a percentage of these individuals likely suffer from both alcohol and mental health concerns, their lack of access to benefits could impair their ability to receive substance use or mental health services.
- There is limited Indiana-specific information on military service members and veterans.

Considerations for the SEOW

- Develop a collaborative research agenda within the State of Indiana in order to obtain more specific information on Indiana service members and veterans.
- Develop a list of resources for military service members, veterans, and their families. These resources can be shared with providers of services to military personnel and their families.
- Develop further research on issues important to military service members, veterans, and their families, including: domestic violence, suicide prevention, military sexual trauma, traumatic brain injury, and services available to families of LGBT military service members.

Indiana's Offender Population

Findings

- More than 28,000 adults were incarcerated within the Indiana Department of Correction (IDOC) system in 2011, most of whom were male (nearly 26,000). Over half of the male inmates were white.
- Substance use and mental illness are prevalent problems among offenders, frequently contributing to their incarceration and recidivism.
- Indiana's recidivism rate for adults remained fairly stable between 2005 and 2011 (around 38 percent).

[1]OIF = Operation Iraqi Freedom
OEF = Operation Enduring Freedom

Recidivism is more likely to occur among ex-offenders with a co-occurring disorder.

- Data from IDOC's Substance Abuse Management System (SAMS) II show that over 5,500 of Indiana's inmates received substance abuse treatment services in 2012; most of them were male (87 percent), ages 27 through 37 (40 percent), white (64 percent), and never married (51 percent).
- Among inmates receiving substance abuse treatment within the IDOC system, marijuana was the illicit substance most frequently reported: 81 percent reported monthly use. Monthly use was also reported for alcohol (67 percent), cocaine/crack (35 percent), opiates (30 percent), and speedballs[2] (8 percent).

Considerations for the SEOW

- Consistent data surveillance, analysis, and dissemination of findings are recommended to assess patterns of substance use and mental illness within the incarcerated. Ideally, this information would also be systematically collected from those on parole and/or probation.
- Substance use and mental illness are prevalent among offenders and frequently contribute to their incarceration and recidivism. Evidence-based treatment services within the prison system as well as for those re-entering society should be a priority for this population.

Individuals with Co-occurring Disorder (COD)

Findings

- The COD treatment population we examined has rates of COD comparable to those found in national studies.
- Men, whites, and younger individuals demonstrated higher risk for COD.
- Women and minorities with COD may not respond as well to treatment as do men and whites with COD.

Considerations for the SEOW

- The Indiana Division of Mental Health and Addiction (DMHA) should improve the Data Assessment Registry Mental Health and Addiction (DARMHA) system to better track COD diagnosis and treatment.

LGBT

Findings

- Alcohol use may be a significant concern for LGBT Hoosiers as 80.4% of SEOW survey participants reported using alcohol in the past 30 days, 41.6% reported at least one episode of binge drinking in the past 30 days, and 23.8% reported a pattern of heavy drinking in the past 30 days.
- Although SEOW survey participants did not report high levels of current illicit drug use, 55.8% of the sample did indicate using illicit drugs in their lifetime, with gay men reporting the highest level of lifetime use (68.4%).
- LGBT Hoosiers may be at higher risk for depressive disorders or anxiety disorders; 53.7% of the SEOW sample reported having been diagnosed with a depressive disorder, and 40.3% reported having been diagnosed with an anxiety disorder at some point in their lives.
- Family factors may play a role in the development of mental health symptoms for LGBT Hoosiers. A sizeable percentage of SEOW survey participants reported facing various adverse childhood experiences including physical abuse (24.9%), childhood emotional abuse (57.8%), and some form of sexual abuse (20.0%). Within the SEOW survey sample, experiencing adverse childhood events was associated with lifetime and current mental health concerns.
- Social factors, particularly internalized homophobia or transphobia, may increase the risk for mental health problems for LGBT Hoosiers. Participants in the SEOW survey who reported higher levels of distress related to being LGBT reported higher levels of current depression.

Considerations for the SEOW

- To better understand the substance use and mental health issues facing LGBT Hoosiers, all state and local agencies involved in the collection of health-related data should permanently include questions related to both sexual orientation and gender status in all surveys and data collection instruments.
- Because the LGBT population is not easily accessible, state and local agencies should work with groups providing services to LGBT Hoosiers to develop methods for assuring greater inclusion of LGBT individuals in health-related data collection initiatives.
- The results of the SEOW survey point to alcohol use, depression, and anxiety as being areas of concern for LGBT Hoosiers. Substance use and mental health concerns may be a result of both family and social factors that are exclusive to the LGBT population. It is recommended that prevention and treatment efforts take into account the unique experiences, needs, and life histories of LGBT individuals.

[2]Speedballs refer to the combined use of cocaine and heroin (or other opioid).

Final Remarks

The availability of state-level mental health and substance abuse data is limited, particularly for "hidden" or hard-to-reach populations. This is unfortunate, since the limited available evidence clearly suggest that these groups are at a higher than average risk for experiencing such problems and would benefit greatly from targeted evidence-based programs designed to prevent, reduce, or treat such conditions.

State agencies have become more aware of the need to establish public health surveillance systems to monitor not only infectious diseases but also behavioral health trends. However, the establishment of such infrastructural components is resource-intensive, requiring time, money, and personnel. The SEOW, as a cooperative effort among various state agencies, is in the unique position to collaborate with the individual represented state agencies; to obtain and analyze de-identified data; and to make recommendations based on the findings to the agencies and the State as a whole.

This Supplemental Report is the first step in identifying some of the challenges surrounding these four high-risk populations. The SEOW's goal is to raise awareness among policymakers, funders, communities, and the general public on the substance abuse and mental health problems among Hoosiers. We do this by collecting, monitoring, and analyzing data, and disseminating the findings—or, as in some of these cases, by creating awareness of the lack of data and encouraging the State to take measures for data collection efforts.

Substance Abuse and Mental Health Concerns in Special Populations in Indiana: A Supplemental Report to the 2012 State Epidemiological Profile

Developed by the Indiana State Epidemiology and Outcomes Workgroup, 2013

The Indiana State Epidemiology and Outcomes Workgroup (SEOW) was established in April 2006 to review epidemiological data on the patterns and consequences of substance use and abuse in Indiana and to make recommendations to the Governor's Strategic Prevention Framework (SPF) Advisory Council regarding priorities for prevention funding for the following year. The priorities were developed based on a systematic analysis of available data, the results of which are detailed in this report.

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CHP CENTER FOR HEALTH POLICY

Our Vision

"Healthy, safe, and drug-free environments that nurture and assist all Indiana citizens to thrive."

Our Mission

"To reduce substance use and abuse across the lifespan of Indiana citizens."

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