THE ASSOCIATION BETWEEN JUSTICE SYSTEM CONTACT,

PSYCHOLOGICAL DISTRESS, AND PHYSICAL ILLNESS: AN EXAMINATION

OF ILLICIT DRUG USE

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by

Amber D. Griffin

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APPROVED:

Elisa L. Toman, PhD
Committee Director

Erin A. Orrick, PhD
Committee Member

Holly A. Miller, PhD
Committee Member

Julie M. Krupa, PhD
Outside Reader

Phillip M. Lyons, PhD
Dean, College of Criminal Justice

ABSTRACT

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Much of the existing literature equates drug use with crime. However, many individuals who use substances never formally come into contact with the justice system. Previous research has established links between illicit drug use and physical and mental health disorders. However, few studies of illicit drug use focus on both physical and mental health outcomes simultaneously. To contribute to the existing literature, this dissertation uses data from the 2014 National Survey on Drug Use and Health (NSDUH), to investigate the correlates of justice system involvement, the severity of psychological distress, and the variety of physical disorders experienced by a sample of illicit drug users, both justice-involved and not. Additionally, this study examines the interactions between sex and race that influence justice involvement, psychological distress, and physical health. Findings suggest sex and race are important correlates of justice involvement and important predictors of physical disorders, but only sex, not race, is a significant predictor of psychological distress. Research and policy implications include the need for more nuanced measures of race and ethnicity and resources for gender responsive and culturally competent programming.

KEY WORDS: Illicit drug use, Justice involvement, Intersectionality, Physical health, Mental health

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CHAPTER I

Introduction

Illicit drug use can have long-term, devastating consequences for both justice-involved and non-justice-involved individuals in terms of mental and physical health. Substance use disorder often co-occurs with other forms of mental illness (Begun et al., 2015; Mallik-Kane & Visher, 2008; Petersilia, 2003) and substance use is associated with physical disorders as well (Altice et al., 2010; Macy, 2018; McGreal, 2018). In addition to these negative health effects, justice-involved individuals who use drugs are more likely to engage in institutional misconduct when they are incarcerated (Semenza & Grosholz, 2019) and are more likely to recidivate when they resume drug use post-release (Binswanger et al., 2012; Durose et al., 2014, Hamilton & Belenko, 2016; Kubrin & Stewart, 2006; Mallik-Kane & Visher, 2008; Mowen & Boman, 2019; Mowen & Visher, 2015), which makes their drug use not simply an individual problem, but one that also affects their community. This dissertation will use the National Survey on Drug Use and Health (NSDUH) 2014 survey data to better understand correlates of justice involvement among illicit drug users, the physical and mental health effects of illicit drug use for both justice-involved and non-justice-involved illicit drug users, and how gender and race/ethnicity affect these relationships. Justice involvement is conceptualized as ever having been arrested and booked for any crime, barring minor traffic violations. For the purposes of this dissertation, the focus will be on illicit drug use, excluding alcohol and tobacco, but including marijuana[1].

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[1] Marijuana is included here, because, while policies are changing regarding its use, it remains an illicit substance in the majority of U.S. states (Hall & Weier, 2005). At the time of the data collection for this project, 46 states considered marijuana an illicit substance (Bestrashniy & Winters, 2015).

Intersectional Approach

Intersectionality is a framework first formulated by Kimberlé Crenshaw in 1990 to include the experiences of women of color in feminist research. It has since been expanded to apply more generally to multiple levels of disadvantage experienced by an individual simultaneously based on characteristics such as race, ethnicity, sex, class, age, sexual orientation, disability, etc. (Crenshaw, 1990; Nash, 2008). It has also been argued that illicit drug use and justice involvement can be added into the framework of intersectionality, because illicit drug users and justice involved individuals experience an additional layer of disadvantage not necessarily applied to non-users and non-justice-involved individuals (Gunn et al., 2018; Kulesza et al., 2016).

The evil woman and chivalry hypotheses provide a framework for the study in terms of justice involvement among female illicit drug users. The evil woman hypothesis suggests that women who engage in criminal activity are treated more harshly by the criminal justice system since they are failing to adhere to traditional gender norms (Crew, 1991). The chivalry hypothesis posits women are treated more leniently than men by the justice system, because they are in need of protection by men who control much of the criminal justice system (Moulds, 1978).

In addition, focal concerns theory helps situate the study in terms of gender, race/ethnicity, and justice involvement. Focal concerns theory uses three elements to justify assigning certain sentences to certain individuals: (1) blameworthiness of the offender, (2) protection of the community, and (3) practical constraints (Steffensmeier et al., 1998). These frameworks will be covered in more detail in Chapter 2.

Scope of Drug Use Among the General Population

Gender Differences

Over 31 million people aged 12 or older across the United States have used an illicit substance in the past 12 months (Substance Abuse and Mental Health Services Administration, 2019). In general, men use illicit substances at higher rates than women (Cotto et al., 2010; McCabe et al., 2008). However, it is still important to focus on gender differences in drug use, because the catalysts for and consequences of drug use are gendered. Frequently, drugs and alcohol are used recreationally. However, problems occur when individuals become dependent on illicit substances to function in everyday life.

Women who use drugs experience greater stigma in comparison to men who use drugs, due to what is perceived to be their failure to adhere to traditional gender norms (Wechsberg et al., 2008). The evil woman and chivalry hypotheses apply to women offenders more generally, but these theoretical frameworks can also be applied specifically to women who use drugs. Historically, women of color who use drugs have been stereotyped as "crack whores" and "welfare queens" (Arditti & Few, 2006, 2008; Carpenter, 2012; McCorkel, 2013; Robbins et al., 2009), making them less sympathetic characters deserving "chivalrous" treatment and more likely to be villainized as "evil women" in need of punishment.

Racial/Ethnic Differences

Since certain types of drug use have been racialized in the United States, it is important to understand actual drug using behaviors between racial groups. While drug use among people of color is often emphasized, McCabe and colleagues (2007) found

white and Hispanic college students are more likely than either Black or Asian college students to use and abuse illicit substances. What's more, among individuals who use illicit substances, there are few disparities in type of drug used by Black, Latinx, and white individuals (Bachman et al., 1991; SAMHSA, 2019). Yet, there are more barriers to receiving substance abuse treatment among people of color than among white individuals (Mennis & Stahler, 2016).

Despite this difference in frequency of use, types of drug use are treated differently by criminal justice actors based on their associated stigmas. This is most commonly illustrated by the difference in criminal justice treatment of crack cocaine versus powder cocaine, which are different versions of the same drug. Crack cocaine is more often used by low-income people of color in disadvantaged communities and powder cocaine is more frequently used by affluent White individuals. In the 1970s, users of crack cocaine were punished 100 times more harshly than powder cocaine users (Alexander, 2010; Belenko et al., 1991; Hartley et al., 2007; Mauer, 2006; Pfaff, 2017; Sirin, 2011). The Obama administration made changes to decrease this disparity in sentencing practices. However, crack cocaine users are still punished 18 times more harshly than powder cocaine users (Alexander, 2010; Sered & Norton-Hawk, 2014; Sirin, 2011).

Scope of Drug Use Among Justice-Involved Individuals

Crime and illicit drug use are closely linked. About 58% of individuals incarcerated in state prisons and 63% of those incarcerated in jails are drug dependent (Bronson et al., 2017). Among those sanctioned to community supervision, 10% are dependent on substances (Bronson et al., 2017). "As the level of illicit drug use increases,

so does criminal activity" (Wish & Johnson, 1986, p. 53). It is important to note that in some cases drug use is synonymous with criminal activity. In some instances, drug use is legal, in others it is a less serious status offense, and in still others it is a serious criminal offense. However, as illegal drug use increases, engagement in forms of other criminal activity generally follow (Hicks et al., 2020; Pierce et al., 2017; Wish & Johnson, 1986).

Gender Differences

In contrast to the norms regarding drug use in the general population, illicit drug use is more common among justice-involved women than among justice-involved men (Binswanger et al., 2010; Bronson et al., 2017; O'brien, 2007). About 70% of incarcerated women meet the criteria for drug dependence or abuse, while about 60% of incarcerated men meet the same criteria (Bronson et al., 2017). Additionally, women more often have co-occurring mental health and substance use disorders than men (Bakken & Visher, 2018; Binswanger et al., 2010; Spjeldnes & Goodkind, 2009), which may explain why drug-using women are more often justice-involved.

Racial/Ethnic Differences

As with the general population, white justice-involved individuals are more likely than any other racial group to use and abuse illicit drugs (Saloner et al., 2016). The differences between white, Black, and Latinx drug users are minimal, both in terms of rates of use and in types of drug use (Center on Addiction and Substance Abuse, 2010). Despite this, Black individuals are more likely to be arrested for a drug-related crime than white individuals (Dannerbeck et al., 2006). Importantly, rates and severity of substance use do not explain the overrepresentation of Black and Latinx individuals involved in the criminal justice system (Kautt & Spohn, 2002).

Correlates of Justice Involvement

Many factors influence the likelihood an individual will become involved with the criminal justice system. One major risk factor is substance use and abuse (Kopak et al., 2016; Roth, 2018). For example, Prince and Wald (2018) found having a substance use disorder increased the likelihood of being arrested for a violent offense in the past year sevenfold. In addition, individuals who relapse after release from prison or jail are at increased risk of recidivism (Kopak et al., 2016). Mental illnesses are also a salient predictor of justice involvement. Many individuals who suffer from mental illness also experience homelessness and a cyclical relationship with the criminal justice system. Individuals diagnosed with a serious mental illness, who are poor, and have limited support are more likely to end up in jail (Rosenberg, 2019).

Demographic characteristics influence the likelihood of justice involvement as well. People of color, particularly young, Black males are at increased risk of contact with the justice system (Alexander, 2010; Spohn & Holleran, 2000; Steffensmeier et al., 1998; Western, 2006). This is not due to any disproportionate involvement in crime, but instead to the disproportionate surveillance and law enforcement in predominantly Black neighborhoods (CASA, 2010) and in the harsher sentences imposed on Black individuals (Steffensmeier et al., 1998). Stereotypes associated with the typical drug offender also play a role in justice system involvement, with young men of color being punished most severely (Spohn & Sample, 2013).

Justice Involvement, Drug Use, and Health

Mental illness and drug use are heavily intertwined (Robertson et al., 2020; Roth, 2018), and both are salient predictors of justice involvement (Rosenberg, 2018). When an individual suffers from co-occurring mental illness and substance use disorder, the risk of justice system involvement increases exponentially (Prince & Wald, 2018). About three-fourths of incarcerated mentally ill individuals suffer from substance use disorders (Roth, 2018). These co-occurring mental illness and substance use disorders exacerbate one another (Robertson et al., 2020). Only in rare circumstances are there resources available in the community (Brandt, 2012) or the criminal justice system (Begun et al., 2015; Fontaine & Biess, 2012; Hamilton & Belenko, 2016) to provide treatment for these individuals. And, often, help is not forthcoming due to the stigmas surrounding mental illness and drug use (Rosenberg, 2018). It is important to treat co-occurring disorders simultaneously, in part because of the precarious nature of prescribing psychotropic medication to individuals with substance use disorders (Drake et al., 2020), but resources are limited for treating these complex issues both in the community and in correctional institutions.

There are also intensive physical health effects of drug use (Altice et al., 2010; Macy, 2018) and experiencing justice system involvement (Massoglia, 2008). Multiple physical illnesses are associated with drug use, including serious communicable diseases associated with injection drug use, such as Hepatitis and HIV (Altice et al., 2010). Justice-involved individuals lack access to preventative medical care in the community at disproportionately high rates in comparison to non-justice-involved individuals (Freudenberg, 2001; Williams et al., 2012).

To summarize, existing literature demonstrates men use drugs at higher rates than women, but justice-involved women use drugs at higher rates than justice-involved men. Black individuals, regardless of justice involvement, are more often stigmatized as drug users, but are less likely than both white and Latinx individuals to report using drugs. Regardless, Black and Latinx drug users are more likely to receive harsher treatment when they are justice-involved than white drug users. Justice involvement and drug use independently have negative health effects on both mental and physical health.

Current Focus

This dissertation will address four gaps in existing literature. First, few studies have examined both mental and physical health disorders among illicit drug users using the same sample of individuals. Second, much of the existing literature equates illicit drug use with crime. However, many individuals who use substances never formally come into contact with the justice system. Therefore, it is important to differentiate between justice-involved and non-justice-involved illicit drug users. Third, this dissertation will compare mental and physical health effects of illicit drug use for justice-involved and non-justice-involved individuals. While previous literature demonstrates that illicit drug users have poorer mental and physical health than non-drug users and that justice-involved individuals have poorer mental and physical health than non-justice-involved individuals, few studies have focused on the effects of both justice involvement and illicit drug use on individuals' health and even fewer have been able to compare a justice-involved sample of illicit drug users to a non-justice-involved sample of illicit drug users. Finally, the data used for this dissertation comes from a sample of illicit drug-using individuals, both justice-involved and not. The data used for this dissertation allows

for a comparison between multiple groups of illicit drug users based on sex, race/ethnicity, and justice-involvement.

To address the gaps in prior research, this study uses data from the 2014 wave of the National Survey on Drug Use and Health (NSDUH) to examine the differences in physical and mental health disorders between justice-involved illicit drug users and illicit drug users who have not had contact with the criminal justice system. In short, this dissertation aims to address three research questions:

1. What are correlates of justice system involvement for illicit drug users?

2. Is self-reported psychological distress more severe among justice-involved vs. non-justice-involved illicit drug users?

    2a. How do gender, race/ethnicity, and justice involvement influence psychological distress for illicit drug users?

3. Do justice-involved illicit drug users have a wider variety of physical health disorders than non-justice-involved individuals?

    3a. How do gender, race/ethnicity, and justice involvement affect the variety of physical disorders illicit drug users experience?

Hypotheses

In response to these research questions, there are potential outcomes that are expected based on intersectionality. Justification will be provided for each hypothesis in Chapter 2. Here, I list out the hypotheses for each research question:

1. Men and people of color are expected to be more likely to report justice involvement than women and white individuals.

2. Women, justice-involved individuals, and people of color are expected to report higher levels of psychological distress than men, non-justice-involved individuals and white individuals.

   a. Women of color are expected to report higher levels of psychological distress. Black justice-involved women are expected to report the highest levels of psychological distress. White non-justice-involved men are expected to report the lowest levels of psychological distress.

3. Women, justice-involved individuals, and people of color are expected to report more physical health conditions than men, non-justice-involved individuals, and white individuals.

   a. Women of color are expected to report a wider variety of physical health disorders. Black justice-involved women are expected to report the most physical health disorders. White non-justice-involved men are expected to report the fewest physical health disorders.

Significance of the Study

Examining mental and physical health of the drug-using population is important at the individual level for the user's personal health and safety. Diagnosis of a serious or terminal illness likely has negative influences on an individual's mental health (Marzuk, 1994). Maladaptive behaviors, such as drug use, may be a coping mechanism to handle the stress of an unfortunate diagnosis. Additionally, those who have serious forms of mental illness have decreased ability to physically care for themselves, increasing the likelihood of long-term physical health problems (Fagiolini & Goracci, 2009). Drug use may be a coping mechanism for this situation as well. A better understanding of the

relationship between drug use and health outcomes at the individual level is critical, because drug use is associated with numerous physical and mental health risks and drug overdose is one of the leading causes of death in the United States (Ho, 2020, Macy, 2018; Silver & Hur, 2020). Differentiating between those who become justice involved and those who do not come into contact with the system is critical, because, first, justice involvement often has negative mental and physical health effects for the individual. Second, individuals who use drugs will likely require additional support, such as access to substance abuse treatment. Resources will need to be allocated depending on if the individual is incarcerated or if they are free in the community. Finally, many individuals who have contact with the justice system are sanctioned in the community. That is, they are never incarcerated. Among those that are incarcerated, the vast majority are eventually released back to the community. In either case, their behaviors will likely affect the general public.

From a public health standpoint, several of these physical ailments are either contagious or have a detrimental effect on those around them. This affects others who are incarcerated as contagious diseases can be spread among incarcerated individuals or to correctional staff, particularly in overcrowded facilities, which are common in the United States (Restum, 2005). The majority of incarcerated individuals will eventually be released back into the community, which then introduces the possibility of transmission to members of the community who are not justice-involved (Mellow & Greifinger, 2006). Additionally, drug use directly impacts users' families. For example, children born to mothers who use drugs are often born addicted to illicit substances and are forced to endure painful symptoms of withdrawal (Lee et al., 2019).

Individuals, both justice-involved and not, rely on community resources for physical and mental illnesses. Those returning untreated to the community post-incarceration will place a heavier burden on public health resources, as well as other community resources. The cost of treating people in prison is generally less than treating them in the community (Webster et al., 2007). Providing mental and physical healthcare to incarcerated individuals in the facility provides treatment services to individuals who may not be able to access them in the community (Staton et al., 2003).

Much of the previous research has focused on captive populations of drug users (Denton & O'Malley, 2005). This study examines both individuals who have had contact with the justice system and those who have not. It is also not limited to individuals who are currently under some type of criminal justice supervision, whether in the community or in jail or prison. This is important, because captive populations may feel under some form of pressure to participate in surveys simply due to the fact that they are incarcerated whereas free individuals have the ability to speak more openly without fear of repercussions (Rennison & Hart, 2018).

Outline of Chapters

To accomplish the goals of the dissertation, the chapters will proceed as follows: Chapter Two discusses the current literature on drug use, mental health, physical health, and justice involvement. Within these sections, studies relevant to these topics as they relate to gender and race/ethnicity are discussed. This chapter is divided into five sections. The first addresses the scope of drug use in the general population and then the scope of drug use among justice-involved individuals. The second section discusses general correlates of justice involvement, of which drug use is one. In the third section,

the effect of justice involvement and the effect of drug use on mental health is discussed. The fourth section discusses the effects of justice involvement and drug use on physical health. The fifth and final section of Chapter Two outlines the studies that have focused on both mental and physical health effects of illicit drug use.

Chapter Three outlines the methods used for the study, including a description of the data set, the sample used for the current study, the dependent, independent, and control variables employed in the analyses, and the analytic plan for conducting the analyses for each research question. Chapter Four details the descriptive and bivariate statistics and the regression results of the study. Chapter Five summarizes the significant findings, outlines limitations of the study, discusses research and policy implications associated with the findings, and suggests avenues for future research.

Implications of the Dissertation

The results from this dissertation will have implications for theory, research, and practice. First, the results will contribute to theory by using an intersectional approach to contextualize the findings. It is expected the results will lend support for discussing these concepts from an intersectional perspective and that illicit drug use and justice involvement will be identified as specific identities that can further disadvantage individuals who may already be marginalized. Second, the results will contribute to literature concerning illicit drug use, mental and physical health, and justice involvement by simultaneously examining mental and physical health and by focusing on how justice involvement, physical health, and mental health are related at the intersection of race/ethnicity and sex. Third, the results of this dissertation will inform policy regarding

the populations most at risk for experiencing negative physical health effects associated with drug use and justice involvement.

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CHAPTER II

Literature Review

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Intersectionality

Intersectionality is a framework that can be used to explain the multiple levels of disadvantage an individual experiences based on characteristics such as race, ethnicity, sex, class, age, sexual orientation, disability, etc. (Crenshaw, 1990; Nash, 2008). Justice involvement and illicit drug use can be added into this framework, because these characteristics become an identity that also increases disadvantage (Gunn et al., 2018; Kulesza et al., 2016).

Research on drug abuse historically focused on men and it was viewed as a masculine behavior to use illicit drugs (Hunt & Antin, 2019). Even as research evolved to focus on women's substance use, women's willingness to engage in these perceived masculine behaviors drew criticism and were viewed more negatively than illicit drug use among men (Hunt & Antin, 2019). Previous research has called for the use of intersectional frameworks to consider additional identities, such as race and class, to help explain gender differences in illicit drug use (Miller & Carbone-Lopez, 2015).

The chivalry and evil woman hypotheses are theories that fit into this framework that specifically focus on individuals who are involved in the criminal justice system. Fulfillment of gender role expectations, especially among women, has had consequences for punishment within the criminal justice system, but research is mixed regarding whether or not women tend to be punished more harshly or more leniently than similarly situated men (Bernstein et al., 1977; Crew, 1991; Moulds, 1978; Robertson et al., 2020; Tillyer et al., 2015). The chivalry hypothesis posits that women are treated more

leniently than men due to "men's unwillingness to inflict harm on a woman" (Moulds, 1978, p. 60), plus a desire to believe that women are incapable of delinquency (Crew, 1991; Tillyer et al., 2015). As the chivalry hypothesis would suggest, women with dependent children have historically been known to receive more lenient sentences because judges may consider the harms a mother's incarceration would have on her children when determining punishment. The evil woman hypothesis suggests that women are punished more harshly than men because they fail to conform to traditional gender norms (Bernstein et al., 1977; Crew, 1991; Tillyer et al., 2015). However, this seems to have been taken into consideration more often for white women than for women of color (Daly, 1989) and more often for women who conform to traditional gender roles than for those who do not (Tillyer et al., 2015). In contrast, according to the evil woman hypothesis, women will be treated more harshly by the criminal justice system due to their perceived failure to adhere to traditional gender norms and the justice system's responsibility to set an example to deter other women (Crew, 1991).

In addition to the above theories, focal concerns theory also helps inform this dissertation specifically regarding racial/ethnic differences among individuals who are involved with the justice system. The theory proposes mechanisms which influence judges' decision-making and the ways in which race/ethnicity may play a role. Focal concerns theory posits that judges take into account three elements of a case when making a sentencing decision: (1) blameworthiness of the offender, (2) protection of the community, and (3) practical constraints (Steffensmeier et al., 1998).

Blameworthiness refers to an individual's culpability in the crime that was committed. Protection of the community is concerned with incapacitating violent

offenders or those that would be a threat to the communities to which they return. Previous research has suggested that people of color, specifically young, Black men, are most likely to be viewed as dangerous and culpable, which will result in harsher sentences for these defendants (Steffensmeier et al., 1998). In this framework, Steffensmeier and colleagues (1998) found women of color are less likely to be negatively affected by their race/ethnicity, but sentences for men of color are significantly harsher than sentences for white men.

Practical constraints refer to the organizational factors that need to be taken into consideration, such as "maintaining working relationships among courtroom actors, ensuring the stable flow of cases, and being sensitive to local and state correctional crowding and resources" (Steffensmeier et al., 1998, p. 767). This is when judges will often use perceptual shorthand to make sentencing decisions (Albonetti, 1991). The idea of perceptual shorthand is that judges will rely on stereotypes to make decisions about the offender's likelihood of reoffending, which disproportionately affects young men of color (Albonetti, 1991).

Another intersectional theory adds relevance to this dissertation: addiction stigma. "Addiction stigma is conceptualized as the endorsement of negative stereotypes, by members of the general public, towards individuals coping with SUDs [substance use disorders], including persons who inject drugs (PWIDs); thereby increasing marginalization and discriminatory behavior directed at this stigmatized group" (Kulesza et al., 2016, p. 85). This suggests stigma associated with illicit drug use may intersect with other forms of discrimination, such as racism and sexism. In other words, individuals who are illicit drug users may experience additional discrimination if they are

also a member of another marginalized group. This is important, particularly in the

context of illicit drug use, because these biases may limit the opportunities for an

individual to seek out treatment or medical services and it may be an attribute that serves

to further disadvantage them if they come into contact with the justice system. The

culmination of these intersectional theories may help inform the hypotheses and

contextualize the results of this dissertation.

Scope of Illicit Drug Use Among the General Population

This section will focus on individuals who have used illicit drugs, but who have

never been in contact with the justice system to understand differences in illicit drug use

among gender and racial/ethnic groups broadly. Illicit drug use has reached epidemic

proportions in the United States. The number of individuals who die from drug overdoses

has now surpassed motor vehicle accidents as a leading cause of death in the country (Ho,

2020). Additionally, much of the research on illicit drug use focuses on drug use as crime

and most existing research focuses exclusively on justice-involved illicit drug users.

What remains unknown are the differences in physical and mental health between justice-

involved illicit drug users and drug users who have not had contact with the criminal

justice system. Many individuals who use illicit drugs never come into contact with the

justice system. Of those surveyed with the National Survey of Drug Use and Health

(NSDUH, 2014), only about 15% had every been arrested and booked for breaking the

law. Of those who report having used drugs, 29% report contact with the criminal justice

system. Therefore, a substantial number of individuals self-report use of illicit substances

who have not been in formal contact with the justice system. These are the individuals

who will be discussed first: those who have engaged in illicit drug use but are not justice-involved.

Gender Differences in the General Population

Overall rates of substance use are higher for men than for women (Cotto et al., 2010; Ho, 2020; McCabe et al., 2007). Not only are men more likely to use illicit substances, they are also more likely to misuse or abuse them (Ho, 2020). The behavior is classified as misuse when the individual is initially prescribed a substance but fails to take it as directed. Abuse refers to the behavior when an individual uses a substance that was never prescribed to them. This may be a prescription medication that was prescribed to someone else or an illegal substance that was never prescribed at all. These higher rates of misuse and abuse among men are found across multiple studies, including ones that focus on specific drug types, such as marijuana (McCabe et al., 2007) and opioids (Silver & Hur, 2020), and others that focus on drug abuse more generally (Ho, 2020; McCabe et al., 2007). Even among samples of college students, men are more likely than women to engage in use and abuse of illicit substances (McCabe et al., 2007). Additionally, Silver and Hur (2020) found that women were more likely to use opioids, but men were still more likely to abuse them. Use and abuse are different than dependence. The DSM-V (American Psychiatric Association, 2013) characterizes substance dependence as an individual's physical need to use a specific drug in order to function. When an individual is dependent on an illicit substance, they will experience symptoms of withdrawal when they stop using it. They also build up a tolerance to the substance, leading them to use larger quantities to feel the same effects.

As a whole, gender differences in drug use patterns exist. In addition, scholarship has pointed to unique gender-specific pathways to drug use (Miller, 1987; Verona et al., 2015). Women more often use drugs as a way to self-medicate after experiencing victimization or they use substances to cope with stress, anxiety, or depression (Ataiants et al., 2020; Cotto et al., 2010). Women who have experienced some form of abuse are three times more likely to meet the criteria for a drug use disorder as women who have not experienced victimization (CASA, 2010). Both men and women may use drugs as a way to cope with negative emotions, however, men are more likely to externalize their emotions, which sometimes results in violent outbursts, whereas women more often internalize their emotions, which more often manifests as anxiety or depression (Cotto et al., 2010).

Studies show the long-term effects of drug use tend to be different for men and women. For example, women with a history of heroin use and dependence report more physical and mental health problems at a younger age than similarly situated men (Grella & Lovinger, 2012). In contrast, men made up over 70% of the opioid overdose deaths in 2017 (Silver & Hur, 2020). Women are more likely than men to experience what is known as the "triple threat," or the reality of experiencing a substance use disorder, one or more mental health disorders, and victimization experiences simultaneously (Arditti & Few, 2006). This culmination of experiences creates a cycle of drug use and justice involvement that is difficult to escape, particularly without outside treatment or support, to which drug users notoriously have little access (Falkin & Strauss, 2003; Kenny & Barrington, 2018).

Women who use drugs are often stereotyped as being unfit mothers and are threatened with having their children removed from the home (Stengel, 2014). This is particularly poignant since women, more often than men, are the primary caretakers of children (Benders-Hadi et al., 2012; Nelson-Zlupko et al., 1995). Drug use impedes the woman's ability to care for children which places the children at risk. Children of drug-involved mothers are at increased risk of being removed from the home and placed into foster care since she is commonly the primary caregiver (Stengel, 2014).

While all drug users are impacted by these issues, at least to some extent, the stigma associated with drug use may be heaviest for women of color. Low-income African American mothers are often stereotyped as "crack whores" and "welfare queens" (Arditti & Few, 2006, 2008; Carpenter, 2012; McCorkel, 2013; Robbins et al., 2009). These stigmas are exacerbated when these women are drug users. Instead of being viewed as deserving of help, women who use drugs are villainized and deemed unfit to be parents (Stengel, 2014).

Racial/Ethnic Differences in the General Population

While popular discourse highlights drug use among Black and Latinx individuals, extant literature suggests drug use among these persons is not more common or more severe than among white individuals (Evans et al., 2017; Muhuri & Gfroerer, 2009; SAMHSA, 2019).[2] The differences between these three racial groups are miniscule, even

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[2] Black, Latinx, and Asian individuals have lower rates of substance use disorder than white individuals and American Indian/Alaskan Native and Native Hawaiian/Pacific Islander individuals have higher rates of substance use disorder than white individuals (SAMHSA, 2019). Asian individuals use illicit substances overall at substantially lower rates than any other racial group. However, American Indian and Alaskan Native individuals have much higher rates of illicit drug use than Black, Latinx, Asian, or white individuals (SAMHSA, 2019). In much of the existing literature, many of the nuances between American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and, sometimes, Asian, individuals are grouped together into an all-encompassing "Other" category, obscuring the differences between and within these

among various types of drugs. However, the conversation about drug use in existing literature is generally confined to these three racial groups and minute differences are highlighted. Existing literature suggests white individuals generally use drugs more often than people of color (Evans et al., 2017; McCabe et al., 2008; Muhuri & Gfroerer, 2009). For example, in a study of college students, white and Latinx individuals were more likely to report drug use than Black students (McCabe et al., 2008). In a study of pregnant and parenting mothers, Muhuri and Gfroerer (2009) found white individuals reported higher rates of substance use, including marijuana, psychotherapeutics, and cocaine, than Black or Latinx individuals. In a study by Evans and colleagues (2017) focused on persistent drug use, white men were more likely than either Black or Latinx men to continue their illicit drug use over time.

There are also few disparities in drug use among Black, Latinx, and white individuals based on drug type (SAMHSA, 2019), despite popular discourse that highlights certain types of drug use among particular racial groups, such as crack cocaine use among Black individuals and opioid use among white women (Daniels et al., 2018). The largest discrepancy in drug type is marijuana. When measured by past year use focusing on individuals 12 years and older, it is used most often by Black individuals (17.8%), followed by Latinx individuals (17.1%), and white individuals (16.5%) (SAMHSA, 2019). Again, even though the greatest discrepancy between racial/ethnic groups is for marijuana, the difference is still minimal. Methamphetamine, cocaine, prescription stimulant misuse, benzodiazepines, and opioids are used relatively evenly across the three racial groups among individuals aged 12 and older in the United States

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groups and focusing the conversation on differences between, mainly, white, Black, and Latinx drug users. Unfortunately, the current study also faces this limitation due to small sample sizes.

(SAMHSA, 2019). In general, white individuals use drugs at least as often as Black and Latinx individuals and, often, they use drugs for more prolonged periods of time.

Differences in Correlates of Drug Use

While overall patterns of drug use are similar across racial/ethnic groups, there are varying predictors of drug misuse and abuse among these groups. For example, in a study focused specifically on prescription drug misuse, Harrell and Broman (2009) found age, marijuana use, and delinquent behavior predicted misuse among white individuals. In contrast, among Latinx individuals, inhalant use, and maternal warmth were predictive of misuse. Marijuana use actually served to decrease the likelihood of prescription drug misuse among Latinx individuals (Harrell & Broman, 2009). Nicholson and Ford (2018) found gender, socioeconomic status, and educational attainment to be predictive of prescription drug misuse among Black individuals, but these were not significant for any other racial/ethnic group. Family structure had no bearing on prescription drug misuse for either white or Black individuals, but it was a significant predictor for Latinx individuals in Harrell and Broman's (2009) study.

Previous research suggests variation in intravenous drug-using behaviors by race/ethnicity (Cooper et al., 2005; Fuller et al., 2005; Lundgren et al., 2001). White individuals tend to start both injection and non-injection drug use earlier than Black individuals (Fuller et al., 2005). Black individuals are more likely than white or Latinx individuals to eventually inject illicit substances, although there are more white injection drug users than Black injection drug users. Despite this, Black and Latinx injection drug users face greater physical health problems due to their injection drug use than white injection drug users (Cooper et al., 2005).

Differences in Drug Treatment

Drug treatment is not equally available among members of different racial and ethnic groups. White individuals who use drugs are more likely to complete drug treatment than any other racial/ethnic group. Mennis and Stahler (2016) conducted a study comparing drug treatment completion by racial group and by drug of choice. They found white individuals are more likely than Black individuals to complete outpatient substance abuse treatment for all types of substances and are more likely than Latinx individuals when their drug of choice is heroin. There is no difference in likelihood of completing treatment between white and Latinx individuals when the drug of choice is cocaine or methamphetamine. These differences in treatment completion likely have many causes, but one salient issue is disparity in healthcare (Mennis & Stahler, 2016). Wang and Xie (2016) found Latinx individuals are the most likely racial/ethnic group to lack health insurance coverage. Individuals of low socioeconomic status, disproportionately individuals of color, are also less likely to have access to treatment (Ahern et al., 2007; Pollack & Reuter, 2006). Overall, people of color experience more barriers to treatment in the community than white individuals despite the fact that their drug use is not more common or severe (Mennis & Stahler, 2016).

People of color who report chronic pain are more often dismissed by medical professionals as "trying to score" painkillers in comparison to white individuals (Dusenbery, 2018). However, Black and white individuals abuse opioids at the same rate and white individuals misuse prescription stimulants at higher rates than any other racial group (SAMHSA, 2019). Black individuals seeking medical attention are likely to receive lower doses of prescribed medication due to doctors' mistaken belief that people

of color have higher pain tolerances and are more likely to abuse prescription medication (Macy, 2018). This is ironic and problematic, considering what has been deemed the "opioid epidemic" has largely affected white individuals from middle- and upper-class communities (Drake et al., 2020; Macy, 2018; McGreal, 2018).

White injection drug users are also more likely than either Black or Latinx injection drug users to enroll in residential treatment or a methadone maintenance program (Lundgren et al., 2001). This suggests that white individuals inject illicit drugs at the same or higher rates than their Black and Latinx counterparts, but they likely have fewer barriers to treatment. Health risks associated with intravenous drug use, such as Hepatitis C, are more common among Black individuals than whites and Black individuals are less likely to receive treatment than white individuals (Melia et al., 2011; Sims et al., 2017). At least in the broader community, some studies suggest this disparity in treatment is due to racial discrimination (Sims et al., 2017).

Scope of Drug Use Among Justice-Involved Individuals

An individual can be considered justice-involved if they have a lengthy criminal history or if they have only been arrested once. However, an individual who experiences any justice involvement may arguably be different than individuals who have had no contact with the justice system. Extant research suggests that illicit drug use and criminal activity are linked and as drug use becomes more severe, so does an individual's engagement in crime (Wish & Johnson, 1986). In general, illicit drug use is a crime in and of itself. However, it is often behaviors associated with the effects of illicit drug use that lead to an individual's justice involvement, as opposed to the simple use of the substance. This section will focus on those individuals who use drugs and become justice

involved either as a direct result of such usage or as a result of engagement in criminal behavior to support their drug involvement.

Gender Differences Among Justice-Involved Individuals

Among the justice-involved population, illicit drug use is common. More than 1 in 3 justice-involved adults have diagnosable substance use disorders (Saloner et al., 2016). In contrast to the non-justice-involved population, illicit drug use is more prevalent among justice-involved women than among justice-involved men (Binswanger et al., 2010; CASA, 2010; Spjeldnes & Goodkind, 2009). Since 2000, about 25% of individuals on probation have been sanctioned for a drug offense each year (Kaeble et al., 2015). In 2017, 25% of women and 17% of men serving time in state prisons were originally incarcerated for drug offenses (Bronson et al., 2017). Among those incarcerated in state prisons in 2006, 57% of women and 47% of men were substance dependent. Among those incarcerated in local jails, 50% of women and 43% of men were substance dependent. Individuals who experience co-occurring disorders are more likely to be arrested and their illicit drug use tends to be more severe in comparison to individuals in the general population (Hunt et al., 2015). Justice-involved women also have co-occurring mental health and substance use disorders, along with a history of victimization, more often than justice-involved men, which increases their chances of initial and sustained contact with the justice system (Arditti & Few, 2006, 2008; CASA, 2010).

Routes into drug use among justice-involved individuals are also gendered. Justice-involved women often suffer abuse in childhood and adolescence. They may also grow up in environments that are unsafe and criminogenic (Ney et al., 2012). Their

substance use is commonly linked to their history of trauma or with mental illness (Ney et al., 2012). Miller (1987) found that most women began serious drug use only after they had begun engaging with other criminally involved individuals, particularly their romantic partners. Women then become more entrenched in crime due to their drug use and their need to make enough money to maintain their habit (Ney et al., 2012).

Daly's (1994) pathways into crime includes a pathway for drug-involved women. She argues that one pathway introduces women to a life of crime through their drug use. Another common route into justice-involvement for drug-involved individuals is engagement in sex work in exchange for money or drugs (Daly, 1994). While this is an avenue available to both men and women, it is more common among women (Golder & Logan, 2007). Men are more likely to promise protection of a female sex worker in return for a portion of the money or drugs she receives for her services than engage in sex work themselves. Justice-involved women are often forced into sex work as a way to survive while maintaining their drug use (Surratt et al., 2004).

Histories of violent and sexual victimization are more common among justice-involved women than among women in the general population (Ney et al., 2012) and justice-involved women are more likely to experience sexual victimization than justice-involved men (Ney et al., 2012). Mental illness, substance use disorders, and a history of victimization are all common among the criminal justice population, but women are more likely than men to accumulate all three (Arditti & Few, 2006, 2008; Clements-Nolle et al., 2009). Childhood trauma and abuse often predate women's involvement in crime and subsequent justice system involvement (Gaarder et al., 2004; Johnson, 2014; Mears & Cochran, 2015; Miller, 1987; Moloney et al., 2009; Salisbury et al., 2009; Visher &

Bakken, 2014). This amalgamation of issues often results in women using substances as a way to cope with their past traumas and current circumstances.

Racial/Ethnic Differences Among Justice-Involved Individuals

Commensurate with the general population, white justice-involved individuals are more likely than any other racial group to use and abuse illicit drugs (Saloner et al., 2016). However, there is a disconnect between justice involvement caused by drug use and justice-involved individuals who use drugs. Although there are few differences in drug use and abuse by race/ethnicity, Black individuals become more entangled in the justice system because of drug involvement than white individuals (Nunn, 2002). Despite this, over 50% of the justice-involved individuals who met criteria for a substance use disorder in 2014 were white (Saloner et al., 2016). This is significant considering people of color are vastly overrepresented in the United States justice-involved population (CASA, 2010; Clear, 2009; Pettit & Western, 2004; Spohn & Holleran, 2000; Steffensmeier et al., 1998; Tonry, 2011; Western, 2006). In 2018, the incarceration rate for Black men was 5.8 times higher than that of white men and Black women were incarcerated at a rate 1.8 times that of white women (Carson, 2020). Across the United States, Black individuals are more likely to be arrested for a drug-related crime than white individuals (Dannerbeck et al., 2006).

The Justice System

Importantly, rates and severity of substance use do not explain the overrepresentation of Black and Latinx individuals caught up in the criminal justice system (Kautt & Spohn, 2002). As discussed above, Black and Latinx individuals are not using drugs more often and their drug use is not more severe than that of white

individuals (CASA, 2010). However, Black individuals are more likely to be incarcerated on drug charges than white individuals even when they do not use drugs (e.g., for sale or manufacture of drugs) (CASA, 2010). There are a myriad of explanations for the inordinate rate of justice involvement among people of color as it relates to drugs including the disproportionate sentencing of crack versus powder cocaine (Palamar et al., 2015; Tonry, 1995), the existence of open air drug markets (Beckett et al., 2005; Rosenberg et al., 2017; Tonry, 2011), heavier policing of predominantly minority neighborhoods (Fellner, 2009; Mitchell & Caudy, 2015; Rosenberg et al., 2017), and harsher treatment of people of color by the judicial system (Beckett et al., 2005; CASA, 2010).

First, people of color are more often entangled in the criminal justice system due to drugs, because differences in drug use have been racialized to heavily sanction certain types of drug activity while being more lenient on others (Beckett et al., 2005; Palamar et al., 2015). This is most easily illustrated by the crack cocaine versus powder cocaine disparity. Crack cocaine and powder cocaine are the same illicit substance. The difference is crack cocaine is a derivation from traditional powder cocaine that can be sold in smaller quantities, thus making it more affordable to low-income individuals (Vagins & McCurdy, 2006; Palamar et al., 2015). This has been politicized and stigmatized in the United States, villainizing the use of crack cocaine and glamorizing the use of powder cocaine based on the demographic most likely to use it (Beckett et al., 2005). This is particularly unfortunate, considering both forms of the drug have the same physiological effects, the same effects on behavior, and the same risk of dependence (Palamar et al., 2015; Vagins & McCurdy, 2006). However, one is sanctioned 18 times

more harshly than the other by formal criminal justice processes (Alexander, 2010; Palamar et al., 2015; Sered & Norton-Hawk, 2014; Sirin, 2011)[3]. Latinx individuals have been found to receive even harsher sentences than Black individuals for drug-related crimes (Huebner & Bynum, 2008; Steffensmeier & Demuth, 2001).

Second, individuals residing in low income areas are often forced to buy and use drugs in public places which increases their chances of coming into contact with law enforcement. Individuals residing in low income areas are disproportionately people of color (Clear, 2009; Mauer, 2006; Western, 2006). Open-air drug markets are more likely to be sanctioned by the police than an individual buying or using in a private residence, both because they are in plain sight and because low income neighborhoods are policed more heavily than primarily white neighborhoods (Beckett et al., 2005; Tonry, 2011). Because people of color are more likely to live in low-income neighborhoods, they also more frequently encounter the criminal justice system as a result of their drug involvement (Beckett et al., 2005). However, this does not mean that individuals in low income areas are more likely to use illicit substances. As discussed, white individuals use drugs at higher rates than either Black or Latinx individuals (CASA, 2010), which suggests an even more alarming disparity in punishment. Interestingly, Beckett and colleagues (2005) found even when white individuals are buying drugs in public places, law enforcement often does not perceive them to be engaging in delinquent behavior, perhaps because they do not fit the stereotypical image of a drug offender.

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[3] Barack Obama's presidential administration made efforts to reduce this disparity. Prior to his tenure, crack cocaine was sanctioned 100 times more severely than powder cocaine (Alexander, 2010; Palamar et al., 2015; Sered & Norton-Hawk, 2014; Sirin, 2011).

People of color are sentenced more harshly for drug offenses than white individuals, resulting in longer periods of time in contact with the criminal justice system and more challenges navigating life after supervision (Kautt & Spohn, 2002; Spohn & Sample, 2013). White individuals are significantly more likely than Black individuals to graduate from drug court, as opposed to being removed from the program (Dannerbeck et al., 2006). Most notably, Black men convicted of drug offenses involving crack cocaine receive longer prison sentences than either white or Latinx men (Spohn & Sample, 2013). Further, people of color with mental illness are more likely to be seen by mental health professionals as needing higher doses of medication, being more dangerous, and belonging in jail (Macy, 2018). Even when individuals are engaging in the same types of behaviors, including deviance, white individuals are more often viewed as needing help, while people of color are viewed as dangerous and deserving of punishment (Spohn & Sample, 2013). This contributes to the disparity in criminal justice system involvement among people of color who use drugs in comparison to the justice system involvement experienced by white drug users.

Correlates of Justice Involvement

Demographic Characteristics

Many other characteristics influence the likelihood that an individual will come into contact with the justice system. For example, there are more men than women involved with the criminal justice system overall (Bronson et al., 2017). Despite this, the policy changes during the War on Drugs era beginning in the 1960s increased the number of women incarcerated due to drug-related offenses (McCorkel, 2013). Specifically, the incarceration rate of women rose 800% between 1978 and 2014 (Drug Policy Alliance,

2018) due to increases in arrests of drug-involved women, mandatory minimum

sentences for drug offenders, and mandatory arrest for domestic violence incidents

(Miller & Meloy, 2006). Women are introduced to crime due to victimization, poverty, or

substance abuse more often than men (Bloom et al., 2003; Daly, 1994; Salisbury & Van

Voorhis, 2009; Spjeldnes & Goodkind, 2009).

   Younger individuals are more likely than older individuals to get caught up in the

criminal justice system. In particular, young, Black males are at the highest risk of justice

system involvement (Alexander, 2010; Spohn & Holleran, 2000; Steffensmeier et al.,

1998; Western, 2006). People of color are at increased risk of justice system involvement

in comparison to white individuals (Mears & Cochran, 2015; Pettit & Western, 2004;

Spohn & Holleran, 2000; Steffensmeier et al., 1998; Western, 2006). Punitive policies

were enacted during the War on Drugs which devastated disadvantaged communities

(Alexander, 2010; Clear, 2007; Western, 2006). New laws, such as three strikes,

mandatory minimum, and truth in sentencing laws were adopted that disproportionately

sanctioned people of color (Bloom et al., 2004; Enders et al., 2019). Continuing into

present day, people of color more often reside in neighborhoods that are heavily policed

and are sanctioned more harshly than white individuals when they do come into contact

with the criminal justice system. This results in people of color spending longer periods

of time involved with the justice system and experiencing more difficulty transitioning

out of it (Western, 2006).

Substance Use

As discussed, both justice-involved and non-justice-involved individuals use illicit substances. However, substance use and abuse are salient predictors of justice involvement (Durose et al., 2014; Hamilton & Belenko, 2019). While large portions of the individuals incarcerated in prisons and jails meet the criteria for a substance use disorder, only about 11% actually receive some form of treatment behind bars (Taylor et al., 2019). This is an especially acute problem considering the most pressing reason for recidivism post-release is untreated or undertreated drug addiction (Nowotny, 2015). Thus, not only does illicit drug use increase the likelihood of initial justice system involvement, it also perpetuates it (Nowotny, 2015).

Mental Illness

Mental illness is also correlated with justice system involvement. With deinstitutionalization, or the closure of asylums for the mentally ill, in the 1960s more individuals in need of mental health treatment were released to the community. This change, while originally a positive way to keep mentally ill individuals out of institutions with limited resources, placed many individuals on the street with nowhere to go. Mentally ill individuals now get caught up in the criminal justice system, routinely cycling in and out of prison institutions across the country (Fontaine & Biess, 2012). Irwin (1985) posits jails have become institutions responsible for housing individuals that make middle- and upper-class people uncomfortable, such as those suffering from a mental health disorder. Prisons are not equipped to deal with many of the unique needs of mentally ill individuals and there are multiple barriers to treatment in the community (Begun et al., 2015; Hamilton & Belenko, 2016). Without access to treatment resources,

this makes it possible, and probable, for mentally ill individuals to continuously cycle in and out of the criminal justice system.

Additionally, comorbid mental health and substance use disorders also increase the risk of justice involvement, and these issues often begin in adolescence (Peters et al., 2015). It is more difficult and more expensive to treat comorbid disorders than substance abuse on its own (Rowe et al., 2004). Comorbid disorders have been linked to substance use treatment failure (Peters et al., 2015; Rowe et al., 2004).[4] This, in combination with the slim chance of receiving substance use treatment in correctional institutions, increases the likelihood of reoffending and continued justice system involvement.

Social Bonds and Social Support

One factor that has the potential to decrease the risk of justice involvement is social support. Positive, prosocial bonds decrease the risk of justice involvement, while negative, antisocial bonds increase the risk. Prosocial bonds can include marital relationships (Sampson & Laub, 1990, 2003; Warr, 1998; Wyse et al., 2014), employment (Sampson & Laub, 1990, 2003; Uggen & Kruttschnitt, 1998), or educational attainment (Sampson & Laub, 1990). These bonds give an individual ties to conventional life they would not want to risk losing by engaging in delinquent activity. However, when these bonds are lacking, there may be increased risk of justice system involvement (Sampson & Laub, 1990; Western, 2006).

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[4]A caveat, however, is that justice involvement is also often a way for individuals to receive some form of substance abuse treatment when resources are lacking in the community (Staton et al., 2003). This is especially true for young or first-time offenders who may be more likely to be sentenced to diversion programs or treatment services as opposed to incarceration (Cocozza et al., 2005).

Social support is not only important for predicting initial justice involvement; it is also predictive of recidivism. For example, an individual who does not have family contact during incarceration is at risk for reoffending post-release (Barrick et al., 2014; Cochran, 2014; Mears & Cochran, 2015) and women have higher levels of social support than men throughout the duration of their sentence (Jiang & Winfree, 2006). Social support from both family and peers after release from incarceration is also important to prevent an individual from recidivating (Boman & Mowen, 2017). Importantly, negative relationships and family conflict can be a risk factor for continued justice involvement post-release (Mowen & Boman, 2018; Mowen & Visher, 2015).

Justice Involvement, Drug Use, and Mental Health

In the United States, there is a lack of resources in the community to effectively treat mental illness, both in terms of therapeutic resources and access to medication (Brandt, 2012). The closure of psychiatric hospitals in the United States in the 1960s limited the number of psychiatric beds available to treat individuals with mental illness in the community (Fontaine & Biess, 2012). This resulted in the increased likelihood that individuals with serious mental illness will come into contact with the criminal justice system, often repeatedly (Fontaine & Biess, 2012). About 46.2% of mentally ill individuals receive mental health care in the community (Rosenberg, 2018). The individuals who do not receive care in the community often become homeless and/or justice involved as a direct result of their inability to seek and receive help (Rosenberg, 2018). This contributes to a cyclical nature of criminal justice involvement for mentally ill offenders (Fontaine & Biess, 2012; Roth, 2018).

Drug use and mental illness are heavily intertwined, especially among the justice-involved population. About three-fourths of mentally ill individuals detained in prison or jail suffer from a substance use disorder as well as a severe mental health disorder (Peters et al., 2015; Roth, 2018), while about nine percent of the general population suffer from both (Cloud, 2014; Peters et al., 2015). These co-occurring disorders serve to exacerbate each other (Robertson et al., 2020). Justice involvement, mental illness, and illicit drug use carry stigma that accumulates and creates challenges to accessing help in the community (Hartwell, 2004).

Medication compliance is more likely to fail in terms of medicating both mental and physical disorders when an individual has co-occurring mental health and substance use disorders (Herbeck et al., 2005), which may also increase the risk of contact with the justice system. Additionally, prescribing medication for mental illness becomes more difficult when the individual is known to use and abuse illicit substances (Herbeck et al., 2005). Both disorders need to be treated simultaneously in integrated models in order to successfully treat the individual (Drake et al., 2004). Previous research suggests successful treatment of co-occurring mental health and substance use disorders includes both psychosocial and pharmacological interventions (Drake et al., 2007). Effective programs first focus on motivating and engaging the individual in treatment prior to moving to active treatment programs (Drake et al., 2004). Comprehensive treatment programs and services are essential to the success of dually diagnosed patients (Drake et al., 2004; Drake et al., 2007).

Victimization and mental illness are also commonly experienced together. Substances are often used as a negative coping mechanism for dealing with past trauma

or victimization (Ayres, 2020; Giarratano et al., 2020; Hoskins & Morash, 2020; McGreal, 2018) and exacerbate symptoms of mental illness (Macy, 2018). This also contributes to what researchers have dubbed the "victim-offender overlap" which refers to individuals engaging in criminal behavior due to their victimization experiences and their increased risk of victimization due to criminal involvement (Berg, 2012; Jennings et al., 2012; Pyrooz et al., 2014; von Hentig, 1948). These victimization experiences lead to deteriorating mental health outcomes and increasing risk of substance abuse.

Comorbid mental health disorders and substance use disorders have far-reaching effects. Many justice-involved individuals with mental illness are homeless or housing insecure (Rosenberg, 2019). Poor people with serious mental illness who do not have social support are more likely to end up in contact with the criminal justice system (Rosenberg, 2019). This is also often the case for individuals with drug use disorders (Hwang et al., 2009). The stigma associated with mental illness and the stigma associated with illicit drug use both contribute to a lack of social support for individuals suffering with these disorders (Coumans & Spreen, 2003). Deaths of despair, such as accidental drug overdoses and suicide, can both be linked to poverty and homelessness (McGreal, 2018).

Overall, justice involvement, drug use, and mental health disorders disadvantage individuals. These individuals are forced to cope with a multitude of issues with limited support from either the community or the criminal justice system. This often leads to a cycle of criminal justice involvement that is difficult to navigate.

Justice Involvement, Drug Use, and Physical Health

Justice involvement alone, and coupled with drug use, can increase negative physical health outcomes. Justice-involved individuals lack access to medical care in the community at disproportionately high rates in comparison to non-justice-involved individuals (Freudenberg, 2001; Williams et al., 2012). One salient reason for this is lack of medical insurance among the justice-involved population (Barnert et al., 2020; Farrell & Gottlieb, 2020). This decreases the likelihood of receiving routine care to help prevent more severe forms of physical illness and limits the care individuals with chronic conditions can receive. Relatedly, with the exception of emergency services, drug users generally do not receive the treatment for physical maladies they need (Narevic et al., 2006). Physical issues, such as chronic pain, are a catalyst for continued drug use, such as use of unprescribed pain medication and other opioids (Bicket et al., 2020). Access to medication assisted therapy for drug use disorders, such as methadone or suboxone maintenance therapy, is also limited, especially for those who have had contact with a criminal justice agency (Friedmann et al., 2013).

There is also a myriad of ways drug use itself is associated with physical illnesses. This is perhaps most easily illustrated in the case of intravenous drug use. For example, it is common among intravenous drug users to share needles, which increases the likelihood of contracting Hepatitis C, tuberculosis, or HIV (Avants et al., 2000; Estrada, 2002; Hahn et al., 2002). It is also not uncommon for intravenous drug users to use dirty needles (i.e., repeat use of the same needle by the same person), which can result in painful abscesses at the injection site (Altice et al., 2010). These same diseases can be contracted by individuals who do not inject drugs, but who instead engage in risky sexual behaviors

(Grella et al., 2000), which is also common among individuals who use illicit substances and can increase the number of people these behaviors affects.

Drug overdose is the leading cause of death for Americans under the age of 50 (Macy, 2018). There has been much attention paid to the use of Narcan or naloxone to combat opioid overdoses in recent years (Macy, 2018; McGreal, 2018; Meier, 2003; Quinones, 2016). Certain types of drugs also suppress the respiratory system, which can lead to overdose (McGreal, 2018). The effects drugs have on the respiratory system can be exacerbated by other physical disorders, such as contracting the COVID-19 virus (Melamed et al., 2020).

Among justice-involved, drug-using men, extensive criminal histories are associated with higher rates of physical illness, but not mental illness (Mateyoke-Scrivner et al., 2003). In contrast, women's physical symptoms are more often dismissed as psychological than men's (Dusenbery, 2018). In other words, even women's physical ailments are often mischaracterized as mental illness. This is exacerbated when the woman is a known drug user due to the stigma associated with illicit drug use (Dusenbery, 2018). Women of color are further disadvantaged and disproportionately neglected by much of the medical community (Dusenbery, 2018), leaving them on their own to handle chronic physical symptoms and chronic pain. Overall, physical illness, mental illness, and substance use are heavily intertwined in both the justice-involved and non-justice-involved populations, which highlights the necessity of understanding how both justice-involved and non-justice-involved individuals' health is affected by drug use.

Mental and Physical Health Effects of Illicit Drug Use

Most studies do not examine the effect of illicit drug use on both physical and mental health disorders simultaneously. Only a handful of studies have focused on both mental and physical health outcomes for illicit drug users in the United States. Han and colleagues (2010) made connections between the duration of multiple types of drug use and physical and mental health disorders using the National Survey on Drug Use and Health (NSDUH) from 2005 to 2007. They found that longer duration of marijuana use was associated with lifetime anxiety, depression, sexually transmitted infections (STIs), bronchitis, and lung cancer. Longer duration of cocaine use was associated with lifetime anxiety and pancreatitis. Longer duration of heroin use was associated with lifetime anxiety, hepatitis, and tuberculosis. Longer duration of hallucinogen use was associated with lifetime tinnitus and STIs. Finally, longer duration of inhalant use was associated with lifetime anxiety, depression, HIV/AIDS, STIs, tuberculosis, bronchitis, asthma, sinusitis, and tinnitus.

Grella and Lovinger (2012) found gender differences in physical and mental health outcomes specifically associated with heroin dependence. Women who were dependent on heroin reported more chronic physical and mental health issues at younger ages in comparison to men in the same circumstances. They were also worse off in terms of both mental and physical health than women in the general population. Heroin dependent men who had used in the past year reported more physical health concerns than non-users. Heroin dependent women who had used in the past year reported more mental health concerns than non-users (Grella & Lovinger, 2012).

Young and colleagues (2005) found discrimination due to illicit drug use played a role in both mental and physical health outcomes for active users of cocaine, crack, or heroin in New York City. Specifically, illicit drug users who experienced discrimination also experienced higher rates of depression and more chronic physical disorders in comparison to illicit drug users who did not report experiencing discrimination (Young et al., 2005). Similarly, Ahern and colleagues (2007) also found a link between discrimination and negative physical and mental health outcomes for illicit drug users. Specifically, illicit drug users who had experienced discrimination due to their drug use had higher scores on a scale of depressive symptoms and reported more physical disorders than illicit drug users who had not experienced discrimination (Ahern et al., 2007). Unfortunately, this dissertation is unable to control for discrimination or stigma associated with illicit drug use.

Current Study

To examine the relationships outlined above, this dissertation uses data from the National Survey on Drug Use and Health (NSDUH) 2014 to examine the differences in mood symptoms and physical health disorders between justice-involved illicit drug users and illicit drug users who have not had contact with the criminal justice system. Three research questions are examined:

1. What are correlates of justice system involvement for illicit drug users?

2. Is self-reported psychological distress more severe among justice-involved vs. non-justice-involved illicit drug users?

    2a. How do gender, race/ethnicity, and justice involvement influence psychological distress for illicit drug users?

3. Do justice-involved illicit drug users have a wider variety of physical health disorders than non-justice-involved individuals?

   3a. How do gender, race/ethnicity, and justice involvement affect the variety of physical disorders illicit drug users experience?

Hypotheses

In response to the above research questions, there are potential outcomes that are expected based on prior research regarding illicit drug use, physical and mental health, and intersectionality.

Hypothesis 1: Justice Involvement

It is expected that men will be more likely to report justice involvement than women, considering overall more men are involved in the justice system than women (Bronson et al., 2017). People of color are expected to be more likely to report justice involvement than white individuals, not because they are more likely to engage in crime, but because they are more often sanctioned for it.

Hypothesis 2: Psychological Distress

For the second research question, it is expected non-justice-involved women will be more likely to report more severe psychological distress than men, considering women have higher rates of depression and anxiety in comparison to men (Ataiants et al., 2020; Cotto et al., 2010). Non-justice-involved white individuals are expected to report more severe psychological distress than people of color. White non-justice-involved men are expected to report the lowest levels of psychological distress.

Justice-involved women are expected to be more likely to report more severe psychological distress than men, regardless of race/ethnicity. In contrast, justice-involved

people of color are expected to report more severe psychological distress than white justice-involved individuals. Justice-involved Black women are expected to be the group most likely to report severe psychological distress.

Hypothesis 3: Physical Health

It is expected that non-justice-involved women will have a wider variety of physical disorders than men, since previous research suggests women suffer from more chronic conditions than men (Munce & Stewart, 2007). Non-justice-involved people of color are expected to have a wider variety of physical disorders than white individuals, due to a potential lack of access to healthcare and treatment services (Mennis & Stahler, 2016). White non-justice-involved men are expected to report the fewest physical health disorders of any group.

Justice-involved women, regardless of race/ethnicity, are expected to have a wider variety of physical disorders than men. Justice-involved women of color are expected to have a wider variety of physical disorders than white women. Non-justice-involved Black women are expected to have the widest variety of physical disorders in comparison to all other racial/ethnic groups. Prior research has established that women suffer from more chronic conditions than men and Black women may be the most disadvantaged group when it comes to access to healthcare and treatment services.

CHAPTER III

Data and Methodology

Data

The data come from the National Survey on Drug Use and Health (NSDUH), 2014 (ICPSR 36361), which is the most recent publicly available version of this cross-sectional survey. Respondents completed the survey using computer assistance, in an effort to keep the responses private and confidential and were given a $30 incentive to participate. Individuals were selected to participate in the survey using a multistage, deeply stratified sample design that consisted of five stages. First, state sampling regions were created to form equally sized regions within each state; second, adjacent census block groups were aggregated so that one block group could be selected per census tract; third, the selected census block groups were divided into smaller areas, called segments; fourth, dwelling units within the segments were selected; and fifth, individuals from the selected dwelling units were picked based on the age of the residents.[5] The purpose of the survey is to collect data on alcohol, tobacco, and illegal drug use for a population of individuals not currently incarcerated in jail or prison. The respondents consist of both male and female individuals 12 years of age and older. The survey is a respondent's self-report of their own lifetime drug using habits. The number of respondents selected to participate from each U.S. state was chosen to be nationally representative. A total of 55,271 individuals completed the survey.

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[5] Sample weights were included in the original dataset, but they were not used in this dissertation since I was not trying to extrapolate to the larger population.

Sample

The sample used for this study is limited to adults, age 18 and over, who reported

some type of illicit drug use in their lifetime. This excludes alcohol and tobacco use but

includes a host of other illicit substances used non-medically: marijuana, cocaine, crack

cocaine, heroin, hallucinogens, inhalants, pain relievers, tranquilizers, stimulants, and

sedatives. Both men and women were included in the analyses. Adolescents, respondents

under the age of 18, were excluded. This resulted in a sample size of 23,149. Since this is

a cross-sectional survey, any respondents who did not provide responses to the key

variables of interest were excluded. The average amount of missing data across all

variables was about 2.7%. The total sample size was reduced to 22,533.

Measures

Dependent Variables

The dependent variables are criminal justice involvement, psychological distress

in the past month, and physical health conditions affecting the respondent in the past

year. Criminal justice involvement is a dichotomous indicator of whether or not an

individual has ever been arrested and booked for anything other than a minor traffic

violation (0 = no, 1 = yes). This variable is included as a dependent variable for the first

research question and then becomes an independent variable in subsequent analyses. The

mental health measure used is the Kessler Psychological Distress Scale (K6). This is a 6-

item scale that asks how often in the past 30 days, (1) did you feel nervous, (2) did you

feel hopeless, (3) did you feel restless or fidgety, (4) did you feel so depressed that

nothing could cheer you up, (5) did you feel that everything was an effort, (6) did you

feel worthless? The question is answered using a 5-point Likert scale: 0 (none of the

time), 1 (a little of the time), 2 (some of the time), 3 (most of the time), and 4 (all of the time). The scale items are summed. The maximum possible score is 24. Scores ranging from 0 to 8 indicate no or low psychological distress, scores between 9 and 12 indicate moderate psychological distress, and scores between 13 and 24 indicate serious psychological distress (see e.g., Barnes & Bates, 2017; Ferdinand et al., 2015). This variable is included as a control in analyses for research questions 1 and 3. Physical health disorders are included using a variety score. The variety score includes the following disorders: bronchitis, hepatitis, HIV, pneumonia, sexually transmitted infections, tuberculosis, asthma, cirrhosis of the liver, diabetes, heart disease, high blood pressure, lung cancer, pancreatitis, sleep apnea, sinusitis, stroke, tinnitus, and ulcers. This variable measures the number of physical health disorders an individual reports experiencing in the past year. This variable was top coded due to the skewed nature of the data (0 = 0 physical health disorders, 1 = 1 physical disorder, 2 = 2 physical disorders, 3 = 3 or more physical disorders).This variable is included as a control in analyses for research questions 1 and 2.

Independent Variables

The independent variables are criminal justice involvement (0 = no, 1 = yes), gender, and race/ethnicity. Gender is a dichotomous indicator where "0" is male and "1" denotes female.[6] To measure race/ethnicity, the analyses employ four mutually exclusive variables: White, Black, Latinx, and Other Race. The Other Race category consists of individuals who identify as Non-Hispanic Native American/Alaska Native (23.3%),

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[6] While there has been a recent push to differentiate between gender and sex, the dataset refers to this variable as "gender" even though there are only two response options: male and female.

Native Hawaiian/Other Pacific Islander (5.9%), Asian (27.0%), and more than one race

(43.8%).

Control Variables

A host of relevant control variables are included in the analyses. These measures

are important to include, because previous research demonstrates their importance in

influencing physical and mental health (Macy, 2018; Mears & Cochran, 2015) and

working to prevent involvement in delinquent behavior (Sampson & Laub, 1990, 2003).[7]

The analyses control for the respondent's age, which is divided into three categories in

the data (0 = 18 – 25 years old, 1 = 26 – 34 years old, and 2 = 35 years and older). A

dichotomous variable indicates whether a respondent is married (0 = married, 1 =

unmarried). Educational attainment is coded as "0" if the respondent completed less than

high school, "1" for high school graduate, "2" for completion of some college, and "3" if

the respondent is a college graduate. Employment status captures whether the respondent

was unemployed in the week prior to the survey (0 = employed, 1 = unemployed).

Household income in the past year is categorized into seven groups (0 = less than

$10,000, 1 = $10,000 - $19,999, 2 = $20,000 - $29,999, 3 = $30,000 - $39,999, 4 =

$40,000 - $49,999, 5 = $50,000 - $74,999, 6 = $75,000 or more). A measure of whether

or not the individual is covered by insurance is also included, which helps determine an

individual's access to medical care. This is a dichotomous indicator where anyone who is

covered by private health insurance, Medicare, Medicaid, CHIP, CHAMPUS, or the VA

are counted as "1" and anyone who is not covered by any of these is counted as "0."

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[7] Analyses will be unable to include a measure of offense type due to missing data. This is addressed
further in the limitations section.

The type of drug used and a measure of drug use recency are also important to include to start to assess the severity of a respondent's drug use and to begin to untangle the relationship between drug use and mental and physical health disorders. A measure of type of drug use is included where 0 = polydrug use, 1 = marijuana only, 2 = cocaine only, 3 = hallucinogens only, 4 = inhalants only, 5 = pain relievers only, and 6 = tranquilizers only.[8] Respondents were considered polydrug users if they reported using more than one type of drug in their lifetime. They were included in one of the other categories if they reported having only used that one type of drug. For example, those in the "marijuana only" category reported ever using marijuana, but never using any other type of illicit drug. Recency of drug use is measured where "0" represents a respondent reported drug use within the past month, "1" represents drug use in the past year, but not in the past month, and "2" indicates a respondent reported lifetime drug use, but no use in the past year.

Additional control variables include dichotomous indicators for first using illicit drugs prior to the age of 18 (0 = no, 1 = yes), a measure of whether or not the individual thought they had abused or been dependent on illicit drugs in the past year (0 = no, 1 = yes), whether or not the respondent reported receiving any form of treatment (inpatient or outpatient) for illicit drug use in the past year (0 = no, 1 = yes), whether or not the respondent reported receiving any form of mental health treatment (inpatient or outpatient) in the past year (0 = no, 1 = yes), whether the respondent reported that they felt they needed mental health treatment, but that they had not received it in the past year

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[8] The analyses also include individuals who used crack cocaine, heroin, stimulants, and sedatives, but none of the respondents reported having ever used only these illicit substances. Therefore, anyone who reported using any of these illicit drugs is included in the "polydrug use" category.

(0 = no, 1 = yes), and whether an individual has ever injected illicit drugs (0 = no, 1 = yes).

Finally, a more detailed measure of injection drug use behavior is included in the analyses only for research question 3, as they are most relevant to the physical health analyses[9]. Instead of using the dichotomous variable measuring if the respondent has ever used injection drugs, this variable controls for use of a dirty needle (i.e., a needle that has been used before). This is included since some of the physical health disorders included in the variety score are communicable and can be spread through injection drug use. This variable is coded "0" for individuals who report never having injected drugs, "1" if the respondent has injected drugs, but only with a clean needle, and "2" if the respondent has injected drugs using a dirty needle. See Table 1 for complete descriptive statistics.

The Kessler Psychological Distress scale discussed in the dependent variable section is included as a control variable in analyses for research questions 1 and 3. The physical health variety score discussed in the dependent variable section is included in analyses as a control variable for research questions 1 and 2.

Analytic Strategy

First, descriptive and bivariate statistics will be used to highlight relationships and determine statistical association between variables. Specifically, chi-square tests will be used to determine relationships between dichotomous variables and correlation coefficients will be used to determine relationships between continuous variables.

Next, to answer research question 1, logistic regression will be used due to the dichotomous nature of the dependent variables. For research questions 2 and 3, negative

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[9] The "injection drug use" variable is substituted for this more detailed "injection drug use behavior" measure in the physical health models.

binomial regression will be utilized due to the nature of the dependent variables. Split models are also used for questions 2 and 3 to differentiate between non-justice-involved and justice-involved subsets of the full sample. To answer research questions 2a and 3a, a series of interaction terms are examined to test the relationships between criminal justice involvement, race/ethnicity, and gender and physical and mental health disorders among drug-using individuals.

For the interaction effects, average marginal effects and second differences are also calculated. When average marginal effects are interpreted, they present the average change in a probability when the variable increases by one unit. For research question 2, the results of the average marginal effects indicate whether or not gender differences within race or racial differences within gender significantly affect the likelihood of reporting more severe psychological distress. The tests of second differences indicate (1) whether the probability of reporting more severe psychological distress significantly differs for men and women in different racial groups and (2) whether the probability of reporting more severe psychological distress significantly differs for men and women in different racial/ethnic groups as compared to other same sex groups.

Similarly, for research question 3, the results of the average marginal effects indicate whether or not gender differences within race or racial differences with gender significantly affect the likelihood of reporting more physical disorders. The tests of second differences indicate (1) whether the probability of reporting more physical disorders significantly differs for men and women in different racial groups and (2) whether the probability of reporting more physical disorders significantly differs for men and women in different racial/ethnic groups as compared to other same sex groups.

CHAPTER IV

Results

The goal of this dissertation is to examine the correlates of justice involvement among illicit drug users and the differences in self-reported mood symptoms and physical health disorders between justice-involved illicit drug users and illicit drug users who have not had contact with the criminal justice system. Based on the intersectionality framework, it is expected that illicit drug use and justice involvement will serve as an identity that further disadvantages individuals who may already experience disadvantage based on their sex or race/ethnicity. Table 1 presents descriptive statistics for (1) the full sample of illicit drug users, (2) only those illicit drug users who were never arrested (non-justice-involved individuals), and (3) only those illicit drug users who have ever been arrested (justice-involved individuals).

First, the full sample includes all respondents who reported ever having used an illicit substance. Among this group, 29% report involvement with the justice system. The average score on the Kessler psychological distress scale is 4.95, which falls in the no to low psychological distress category. Among the full sample, 71% reported no physical health disorders. Fifty percent of the full sample is female, 68% is white, 11% is Black, 13% is Latinx, and 8% are in the Other Race category. Forty-five percent of the full sample is at least 35 years old. Among the full sample, 61% of respondents are married, 28% are college graduates, 43% are unemployed, 29% make an income of less than $10,000 per year, and 81% are covered by insurance. In terms of drug use among the full sample, 55% report polydrug use, 39% report only ever using marijuana, less than 1% report using only cocaine or only hallucinogens, 1% report using only inhalants or only

tranquilizers, and 4% report using only pain relievers. Six percent of the full sample used

an illicit substance less than 30 days prior to the survey and 9% used an illicit substance

more than 30 days, but less than 12 months prior to the survey. Sixty percent of the full

sample reports using illicit drugs prior to the age of 18. Seven percent of illicit drug users

reported abuse of or dependence on an illicit substance in the past year. Only 1% of the

full sample reported receiving either inpatient or outpatient drug treatment in the past

year, but 10% reported receiving either inpatient or outpatient mental health treatment in

the past year. Another 9% reporting feeling like they needed mental health treatment in

the past year, but that they had not received it. Three percent report having ever injected

illicit drugs. The majority, 97%, did not use a needle, clean or dirty, to inject illicit drugs

the last time they used an illicit substance.

Table 1

Descriptive Statistics

	Full Sample (n = 22,533)				Non-Justice-Involved (n = 16,065)				Justice-Involved (n = 6,468)			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Dependent Variables												
Criminal Justice Involvement	0.29	-	0	1	-	-	-	-	-	-	-	-
K6 Psychological Distress Scale	4.95	4.79	0	24	4.81***	4.68	0	24	5.31	5.05	0	24
Physical Health Variety Score												
0 Health Concerns	0.71	-	0	1	0.71**	-	0	1	0.69	-	0	1
1 Health Concern	0.22	-	0	1	0.22**	-	0	1	0.22	-	0	1
2 Health Concerns	0.05	-	0	1	0.05**	-	0	1	0.05	-	0	1
3 or more	0.03	-	0	1	0.02**	-	0	1	0.03	-	0	1
Independent Variables												
Female	0.50	-	0	1	0.57***	-	0	1	0.32	-	0	1

(continued)

	Full Sample (n = 22,533)				Non-Justice-Involved (n = 16,065)				Justice-Involved (n = 6,468)			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
White	0.68	-	0	1	0.69***	-	0	1	0.65	-	0	1
Black	0.11	-	0	1	0.10***	-	0	1	0.14	-	0	1
Latinx	0.13	-	0	1	0.12***	-	0	1	0.12	-	0	1
Other Race	0.08	-	0	1	0.08***	-	0	1	0.09	-	0	1
Control Variables												
Age							0	1				
18-25 years	0.33	-	0	1	0.35***	-	0	1	0.27	-	0	1
26-34 years	0.22	-	0	1	0.21***	-	0	1	0.26	-	0	1
35 years or older	0.45	-	0	1	0.44***	-	0	1	0.48	-	0	1
Unmarried	0.61	-	0	1	0.59***	-	0	1	0.66	-	0	1
Education		-				-				-		
Less than High School	0.12	-	0	1	0.09***	-	0	1	0.19	-	0	1
High School Grad	0.29	-	0	1	0.27***	-	0	1	0.34	-	0	1
Some College	0.31	-	0	1	0.31***	-	0	1	0.30	-	0	1
College Grad	0.28	-	0	1	0.32***	-	0	1	0.18	-	0	1

(continued)

	Full Sample (n = 22,533)				Non-Justice-Involved (n = 16,065)				Justice-Involved (n = 6,468)			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Unemployed	0.43	-	0	1	0.43	-	0	1	0.43	-	0	1
Income		-				-				-		
Less than $10,000	0.29	-	0	1	0.29***	-	0	1	0.29	-	0	1
$10,000 - $19,999	0.20	-	0	1	0.19***	-	0	1	0.22	-	0	1
$20,000 - $29,999	0.12	-	0	1	0.12***	-	0	1	0.13	-	0	1
$30,000 - $39,999	0.10	-	0	1	0.10***	-	0	1	0.11	-	0	1
$40,000 - $49,999	0.08	-	0	1	0.08***	-	0	1	0.08	-	0	1
$50,000 - $74,999	0.10	-	0	1	0.11***	-	0	1	0.10	-	0	1
More than $75,000	0.11	-	0	1	0.11***	-	0	1	0.09	-	0	1
Insured	0.81	-	0	1	0.84***	-	0	1	0.75	-	0	1
Polydrug Use	0.55	-	0	1	0.48***	-	0	1	0.71	-	0	1
Marijuana Only	0.39	-	0	1	0.45***	-	0	1	0.26	-	0	1
Cocaine Only	0.00	-	0	1	0.00***	-	0	1	0.00	-	0	1
Hallucinogens Only	0.00	-	0	1	0.00***	-	0	1	0.00	-	0	1
Inhalants Only	0.01	-	0	1	0.01***	-	0	1	0.00	-	0	1

(continued)

	Full Sample (n = 22,533)				Non-Justice-Involved (n = 16,065)				Justice-Involved (n = 6,468)			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Pain Relievers Only	0.04	-	0	1	0.04***	-	0	1	0.02	-	0	1
Tranquilizers Only	0.01	-	0	1	0.01***	-	0	1	0.00	-	0	1
Recency of Drug Use												
Less than 30 days	0.06	-	0	1	0.07***	-	0	1	0.05	-	0	1
(continued)												
> 30 days, but less than 12 months ago	0.09	-	0	1	0.10***	-	0	1	0.06	-	0	1
> 12 months ago	0.85	-	0	1	0.83***	-	0	1	0.89	-	0	1
Drug Use Prior to Age 18	0.60	-	0	1	0.55***	-	0	1	0.72	-	0	1
Abuse/Dependence in Past Year	0.07	-	0	1	0.05***	-	0	1	0.11	-	0	1
Drug Treatment in Past Year	0.01	-	0	1	0.00***	-	0	1	0.02	-	0	1
Mental Health Treatment in Past Year	0.10	-	0	1	0.10**	-	0	1	0.11	-	0	1

	Full Sample (n = 22,533)				Non-Justice-Involved (n = 16,065)				Justice-Involved (n = 6,468)			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Needed Mental Health Treatment	0.09	-	0	1	0.08**	-	0	1	0.10	-	0	1
Injection Drug Use	0.03	-	0	1	0.01***	-	0	1	0.08	-	0	1
IV Behavior		-				-				-		
Never used a needle	0.97	-	0	1	0.99***	-	0	1	0.92	-	0	1
Used a needle, but not dirty	0.03	-	0	1	0.01***	-	0	1	0.07	-	0	1
Used a dirty needle	0.01	-	0	1	0.00***	-	0	1	0.01	-	0	1

Note: Bivariate analyses show that all variables significantly differ between the non-justice-involved and justice-involved samples at the p < .001 level with the exception of Mental Health Treatment in the Past Year and Needed Mental Health Treatment which differ at the p < .01 level and employment which is not significantly different between the two groups; Bivariate significance level is recorded on the mean in the non-justice-involved column; *** p < .001, ** p < .01

Bivariate Differences

When comparing the non-justice-involved and justice-involved samples, there are

numerous significant differences at the bivariate level. Scores on the psychological

distress scale are higher among the justice-involved sample. There is a negligible, but

significant, difference in the physical health disorder variety score. For example, 71% of

the non-justice involved sample reports 0 health concerns, compared to 69% of the justice

involved sample. The two samples look very different in terms of gender. Fifty-seven

percent of the non-justice-involved sample is female, but only 32% of the justice-

involved sample is female. Race is also significantly different between the two samples.

The main difference in terms of race is there are fewer white individuals and more Black

individuals in the justice-involved sample. Sixty-nine percent of the non-justice-involved

sample is white and 65% of the justice-involved sample is white. Ten percent of the non-

justice-involved sample is Black, but 14% of the justice-involved sample is Black.

Some differences emerge when looking at the control variables as well. In

comparison to the justice-involved sample, more of the non-justice-involved sample is

younger and more are married. The non-justice-involved sample has more college

graduates, more reported annual incomes in the $75,000 or more category, and more

reported insurance coverage. More of the non-justice-involved sample reported use of

only marijuana and reported using illicit drugs in the past 30 days.

More of the justice-involved sample reported polydrug use, use of illicit drugs

prior to the age of 18, and illicit drug abuse or dependence in the past year. The justice-

involved sample also had more reports of drug treatment and mental health treatment, but

also more need for mental health treatment that was not received. The justice-involved

sample scored higher on injection drug use and reusing a needle to inject illicit drugs.

Justice Involvement

The first research question involves associations with justice involvement. Table

2 presents two logistic regression models: the main model and an interaction model, both

using the full sample of illicit drug users. To explore the intersection of race and gender,

the interaction model includes two-way interactions between race/ethnicity and sex.

Results from model 1 show women (b = -1.058, O.R. = 0.347) and Latinx individuals (b

= -0.178, O.R. = 0.837), have decreased odds of justice involvement. Black individuals (b

= 0.483, O.R. = 1.620), however, have increased odds of justice involvement. In terms of

the first research question, race/ethnicity and sex are significantly associated with justice

involvement and there are nuances between racial/ethnic groups in the likelihood of

justice system involvement. These results partially confirm the first hypothesis: men and

Black individuals are more likely to report justice involvement than men and white

individuals. However, Latinx individuals are less likely than white individuals to report

justice involvement.

In terms of control variables, older individuals (26-34-year age group b = 0.760,

O.R. = 2.138; 35 years + age group b = 0.789, O.R. = 2.201) have increased odds of

justice involvement compared to the youngest age group. Those who are unmarried (b =

0.295, O.R. = 1.343) have increased odds of justice system involvement. Those with

higher levels of education (b = -0.321, O.R. = 0.725), those who make an income of

$75,000 or more (b = -0.321, O.R. = 0.726), and those who are insured (b = -0.275, O.R.

= 0.760) have decreased odds of justice system involvement. In terms of correlates of

justice system involvement then, older and unmarried individuals are more likely to be justice-involved, but individuals with higher incomes, those who are insured, and those with higher educational attainment are less likely to be justice-involved.

Drug use patterns are also associated with justice involvement. Individuals who report using marijuana only (b = -0.675, O.R. = 0.509), cocaine only (b = -0.687, O.R. = 0.503), inhalants only (b = -1.536, O.R. = 0.215), pain relievers only (b = -1.034, O.R. = 0.356), or tranquilizers only (b = -1.076, O.R. = 0.341) have decreased odds of justice system involvement as compared to polydrug users. Individuals who used illicit drugs more than 30 days, but less than 12 months prior to the survey (b = -0.307, O.R. = 0.736) have decreased odds of justice system involvement in comparison to individuals who used drugs within 30 days prior to completing the survey. Individuals who used illicit drugs before the age of 18 (b = 0.415, O.R. = 1.514), those who abused or depended on illicit drugs in the past year (b = 0.299, O.R. = 1.348), and those who received either inpatient or outpatient drug treatment in the past year (b = 0.662, O.R. = 1.939) have increased odds of justice involvement. Individuals who received either inpatient or outpatient mental health treatment in the past year (b = 0.143, O.R. = 1.154) and individuals who have ever injected illicit drugs (b = 1.113, O.R. = 3.045) have increased odds of justice involvement. In other words, individuals with more severe or acute forms of drug use may be more likely to be justice-involved.

To examine the potential interactive effect of race and gender, model 2 includes an interaction term between race and sex. To aid with interpretation of the results of this model, predicted probabilities are presented in Figure 1. Figure 1 shows the predicted probability of justice involvement for white, Black, Latinx, and Other Race males and

females. Within each of the racial/ethnic groups, men have higher predicted probabilities of justice involvement than women. Among men, Black and Other Race men have higher predicted probabilities of justice involvement than white men. There is about an 11% difference in the probability of justice involvement between Black men and white men and a 4% difference between Latino men and white men. Latino men have lower predicted probabilities of justice involvement than white, Black, or Other Race men. Among women, a similar pattern emerges. Black women and Other Race women have higher predicted probabilities of justice involvement than white women. There is about an 8% difference in the probability of justice involvement between Black women and white women. Latina women have lower predicted probabilities of justice involvement than either Black or Other Race women. There is about a 6% difference in the probability of justice involvement between Latina and Other Race women.

Overall, women and Latinx individuals have decreased likelihood of justice system involvement. Black individuals are more likely to be justice-involved. In terms of the interactions between race/ethnicity and sex, among men, Black men are the most likely racial/ethnic group to report justice involvement and Latino men are the least likely. This is the same among women: Black women are the most likely racial/ethnic group to report justice involvement and Latina women are the least likely. These results partially support the first hypothesis: men and Black individuals are more likely to report justice involvement than women and white individuals. However, Latino men and Latina women are less likely than white men and white women to report justice involvement.

Table 2

Logistic Regression Predicting Justice Involvement among Illicit Drug Users (n = 22,533)

	Model 1: Main Model			Model 2: Interaction Model		
	b	S.E.	O.R.	b	S.E.	O.R.
Interactions						
Black x Sex	-	-	-	-0.013	0.10	0.987
Latinx x Sex	-	-	-	0.074	0.10	1.077
Other Race x Sex	-	-	-	0.319**	0.12	1.375
Main Effects						
Female	-1.058***	0.04	0.347	-1.903***	0.04	0.335
Black	0.483***	0.05	1.620	0.489***	0.07	1.630
Latinx	-0.178***	0.05	0.837	-0.207***	0.06	0.813
Other Race	0.135*	0.06	1.145	0.008	0.08	1.008
Controls						
Age						
26-34 years old	0.760***	0.05	2.138	0.760***	0.05	2.137
35 years or older	0.789***	0.05	2.201	0.789***	0.05	2.202
Unmarried	0.295***	0.04	1.343	0.296***	0.04	1.344
Education	-0.321***	0.02	0.725	-0.321***	0.02	0.725
Unemployed	-0.066	0.04	0.937	-0.066	0.04	0.936
Income						
$10,000 - $19,999	0.064	0.05	1.067	0.064	0.05	1.066
$20,000 - $29,999	-0.052	0.06	0.950	-0.053	0.06	0.948
$30,000 - $39,999	-0.074	0.07	0.928	-0.074	0.07	0.929
$40,000 - $49,999	-0.051	0.08	0.950	-0.053	0.08	0.949
$50,000 - $74,999	-0.140	0.07	0.870	-0.142	0.07	0.867

	Model 1: Main Model			Model 2: Interaction Model		
	b	S.E.	O.R.	b	S.E.	O.R.
$75,000 or more	-0.321***	0.08	0.726	-0.324***	0.08	0.723
Insured	-0.275***	0.04	0.760	-0.275***	0.04	0.760
Drug Use Type						
Marijuana Only	-0.675***	0.04	0.509	-0.675***	0.04	0.509
Cocaine Only	-0.687*	0.29	0.503	-0.686*	0.29	0.504
Hallucinogens Only	-0.415	0.27	0.660	-0.429	0.27	0.651
Inhalants Only	-1.536***	0.25	0.215	-1.536***	0.25	0.215
Pain Relievers Only	-1.034***	0.11	0.356	-1.035***	0.11	0.355
Tranquilizers Only	-1.076***	0.22	0.341	-1.077***	0.22	0.341
Recency of Drug Use						
> 30 days, but < 12 months ago	-0.307***	0.09	0.736	-0.309***	0.09	0.734
More than 12 months ago	-0.016	0.07	0.984	-0.016	0.07	0.984
Drug Use Prior to Age 18	0.415***	0.04	1.514	0.415***	0.04	1.514
Abuse/Dependence in Past Year	0.299***	0.06	1.348	0.297***	0.06	1.346
Drug Treatment in Past Year	0.662***	0.16	1.939	0.664***	0.16	1.943
Mental Health Treatment in Past Year	0.143*	0.06	1.154	0.143*	0.06	1.154
Needed Mental Health Treatment	0.055	0.06	1.057	0.055	0.06	1.057
Physical Health Variety Score	0.006	0.02	1.007	0.006	0.02	1.006
K6 Psychological Distress Scale	0.005	0.00	1.005	0.005	0.00	1.005
Injection Drug Use	1.113***	0.09	3.045	1.113***	0.09	3.044

(continued)

	Model 1: Main Model			Model 2: Interaction Model		
	b	S.E.	O.R.	b	S.E.	O.R.
Constant	-0.434	0.11	0.648	-0.418	0.11	0.658
Log Pseudolikelihood	-11576.5			-11572.7		
Pseudo R^2	0.14			0.14		

Note: White, Age 18-25, Income less than $10,000, Polydrug use, and recency in the past 30 days serve as reference variables. ***$p<.001$, **$p<.01$, *$p<.05$

Figure 1

Predicted Probabilities of Justice System Involvement by Race/Ethnicity and Sex
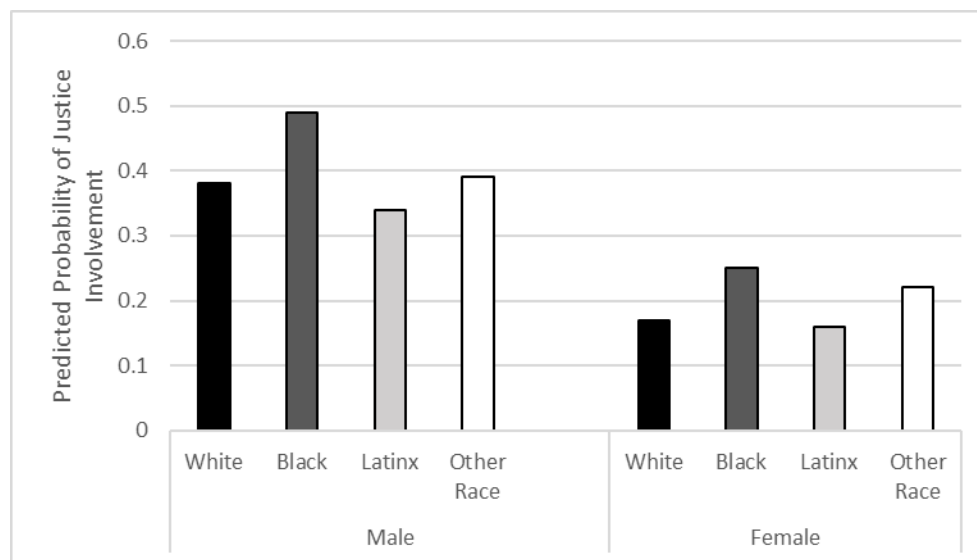
Psychological Distress

The second research question asks if psychological distress is more severe among justice-involved individuals than among non-justice-involved individuals. Accordingly, results concerning the second dependent variable, the Kessler Psychological Distress Scale, are presented in table 3. There are three negative binomial regression models presented in table 3. The first is the main model which consists of the full sample of

illicit drug users (n = 22,533) and provides a response to research question 2. To answer research question 2a, a split sample is used and interactions between sex and race/ethnicity are presented (see models 2 and 3). The second model includes only the non-justice-involved respondents (n = 16,065) and the third model includes only the justice-involved respondents (n = 6,468). The split model design is used to compare race/ethnicity and sex effects within the non-justice-involved model and race/ethnicity and sex effects within the justice-involved model.

In the main model, the effect of justice involvement is in the expected direction, but it does not reach significance (b = 0.013, I.R.R. = 1.014). Females (b = 0.117, I.R.R = 1.014) score higher on the psychological distress scale than males. No significant race/ethnicity effects emerge in the main model. In other words, among this sample of illicit drug using individuals, race/ethnicity appear to not significantly influence psychological distress.

Several control variables emerge as significant. Older individuals (26-34-year age group b = -0.062, O.R. = 0.940; 35 years + age group b = -0.204, O.R. = 0.815) score lower on the distress scale compared to the youngest age group (18-25 years old). Those who are unmarried (b = 0.139, O.R. = 1.149) score higher on the distress scale. Individuals with higher levels of education (b = -0.040, I.R.R. = 0.960) have lower scores on the psychological distress scale. Unemployed individuals (b = 0.053, I.R.R. = 1.055) score higher on the psychological distress scale. Individuals whose incomes are in any of the categories representing $10,000 or more (b = -0.042, -0.119, -0.120, -0.175, -0.243, -0.277; I.R.R. = 0.959, 0.888, 0.887, 0.839, 0.784, 0.758) have lower scores on the psychological distress scale.

Patterns of drug use are associated with psychological distress. Individuals who report using only marijuana (b = -0.210, I.R.R = 0.811) or only cocaine (b = -0.282, I.R.R = 0.755) versus poly-drug users score lower on the psychological distress scale. Individuals who used drugs more than 12 months ago (b = -0.084, I.R.R = 0.920) compared to those who used in the month prior to the survey score lower on the distress scale. Those who report meeting criteria for drug abuse or dependence in the past year (b = 0.304, I.R.R = 1.355) score higher on the psychological distress scale. Those who have received inpatient or outpatient mental health treatment in the last year (b = 0.512, I.R.R = 1.669) and those who report needing mental health treatment in the past year but not receiving it (b = 0.687, I.R.R = 1.987) score higher on the psychological distress scale. Individuals who report ever injecting illicit drugs score higher on the distress scale (b = 0.115, I.R.R. = 1.122). Those with more physical disorders (b = 0.091, I.R.R. = 1.095) score higher on the psychological distress scale. In sum, using multiple drugs is associated with higher distress than using marijuana or cocaine only. Drug abuse and dependence and more recent use of illicit drugs are associated with higher distress. Mental health treatment needs and experiencing a wider variety of physical disorders are associated with higher levels of distress.

In terms of the second research question, justice involvement does not significantly affect self-reported psychological distress. Psychological distress is not more severe among justice-involved versus non-justice-involved illicit drug users. This was an unexpected finding, so to examine this relationship in more detail, a series of stepwise regression models were run to determine the other variables that may be overshadowing the effect of justice involvement. These models can be found in Appendix

Table 1, which includes four models. The first includes justice involvement as the only independent variable and justice involvement is significant (b = 0.098, IRR = 1.103). The second model includes only justice involvement, sex, and race/ethnicity as independent variables and justice involvement remains significant (b = 0.158, IRR = 1.171). The third model includes all control variables except for the mental health treatment variable, the physical disorder variety score, or the variable measuring that the respondent needed mental health treatment in the last 12 months but did not receive it. Justice involvement remains significant (b = 0.032, IRR = 1.033). The fourth model is the full model where justice involvement is no longer a significant predictor of psychological distress (b = 0.013, IRR = 1.014). Justice involvement does not reach significance in the model when any of the following three control variables are included: the mental health treatment variable, the physical disorder variety score, or the variable measuring that the respondent needed mental health treatment in the last 12 months but did not receive it. In terms of the second research question, then, this means the influence of justice involvement on psychological distress may be overshadowed by the effects of these mental and physical health variables.

To examine how various gender and race/ethnicity combinations influence psychological distress, after the main model, table 3 includes two gender x race interaction models, one for the non-justice-involved sample and one for the justice-involved sample. To examine the interactions in these split models, figure 2 plots the predicted scores on the psychological distress scale for non-justice-involved individuals and figure 3 plots the predicted scores on the psychological distress scale for justice-involved individuals. Figure 2 shows the predicted psychological distress scores for

white, Black, Latinx, and Other Race non-justice-involved males and females. Among the non-justice-involved sample, females, from all racial and ethnic groups, have higher predicted scores on the psychological distress scale than males. Predicted scores are highest for both Other Race men and Other Race women. Among men, Other Race men have the highest predicted scores (4.37) on the psychological distress scale, followed by white men (4.25), Black men (4.09), and Latino men (3.99). Among women, Other Race women have the highest predicted scores (5.67) on the psychological distress scale, followed by Latina women (5.54), white women (5.29) and Black women (5.28).

To make comparisons between gender and race/ethnicity among the non-justice-involved sample, average marginal effects were calculated, and significant effects are discussed next. The predicted score for white women is 1.05 points higher than for white men, it is 1.18 points higher for Black women than for Black men, 1.55 points higher for Latina women than Latino men, and 1.30 points higher for Other Race women than for Other Race men. The second difference test for gender differences within race is significant ($p < .05$). This means the probability of reporting more severe psychological distress differs for men and women across these racial groups.

None of the average marginal effects comparing racial/ethnic differences within gender are significant. The second difference test for racial/ethnic differences within gender does not reach significance ($p < .05$), therefore the probability of reporting more severe distress does not differ for men and women within racial groups as compared to other same sex groups. In this instance, women are more likely to report psychological distress than men regardless of racial/ethnic group.

Figure 3 shows the predicted scores on the psychological distress scale for white, Black, Latinx, and Other Race justice-involved males and females. Similar to the non-justice-involved sample, justice-involved females have higher predicted distress scores than males regardless of racial/ethnic group. Among justice-involved men, white men have the highest predicted scores (4.77) on the psychological distress scale, followed by Other Race men (4.63), Latino men (4.59), and Black men (4.40). Among justice-involved women, white females have the highest predicted scores (7.06) on the psychological distress scale, followed by Other Race females (6.72), Latina females (6.67), and Black females (6.55).

Among the justice-involved sample, the average marginal effects for gender differences within race are significant (p<.05). Among the justice-involved sample, the predicted score for white women is 2.29 points higher than for white men, it is 2.15 points higher for Black women than for Black men, 2.08 points higher for Latina women than for Latino men, and 2.09 points higher for Other Race women than for Other Race men. The second difference test for gender differences within race is significant (p < .05). This means the probability of reporting more severe psychological distress differs for men and women in different racial groups. Therefore, gender differences within race significantly affect the likelihood of reporting more severe psychological distress.

Only one of the average marginal effects comparing racial/ethnic differences within gender is significant. The predicted psychological distress scale score for white men is 0.37 points higher than for Black men. The second difference test for racial/ethnic differences within gender does not reach significance (p < .05), therefore the probability

of reporting more severe distress does not significantly differ for men and women within racial groups as compared to other same sex groups.

To summarize the results of figures 2 and 3, research question 3a is focused on how intersections of race/ethnicity and gender affect levels of psychological distress. Findings among the non-justice-involved sample indicate Other Race men and women report the highest levels of psychological distress and Latino men and Black women report the lowest levels of psychological distress. Findings among the justice-involved sample indicate white men and women report the highest levels of psychological distress and Black men and women report the lowest levels of psychological distress. While statistical comparisons cannot be made between the results of figures 2 and 3, it is evident that justice-involved drug users score higher on the distress scale regardless of sex or race/ethnicity.

Overall, in terms of the second research question, justice involvement was not significantly associated with psychological distress. For research question 2a, women have higher levels of psychological distress than men. Race was not a significant predictor of psychological distress in the main model, however some differences emerged in the interaction models. Justice-involved white men and women and non-justice-involved Other Race men and women report the highest levels of psychological distress. Black justice-involved men and women and non-justice-involved Latino men and Black women report the lowest levels of psychological distress. Justice involvement did not significantly affect psychological distress and results indicate the hypothesis that Black justice-involved women would have the highest levels of psychological distress and that

white, non-justice-involved men would report the lowest levels of psychological distress

is not supported.

Table 3

Negative Binomial Regression Predicting Psychological Distress among Illicit Drug Users

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
Interactions									
Black x Sex	-	-	-	0.034	0.05	1.034	0.005	0.07	1.005
Latinx x Sex	-	-	-	0.107*	0.04	1.113	-0.018	0.08	0.983
Other Race x Sex	-	-	-	0.041	0.05	1.041	-0.030	0.05	0.971
Main Effects									
Criminal Justice Involvement	0.013	0.01	1.014	-	-	-	-	-	-
Female	0.117***	0.01	1.124	0.090***	0.02	1.094	0.140***	0.03	1.150
Black	-0.035	0.02	0.966	-0.037	0.04	0.964	-0.080	0.04	0.923
Latinx	-0.012	0.02	0.988	-0.061	0.03	0.940	-0.039	0.04	0.962
Other Race	0.026	0.02	1.027	0.029	0.04	1.029	-0.030	0.05	0.971
Controls									
Age									
26-34 years old	-0.062***	0.02	0.940	-0.089***	0.02	0.915	-0.001	0.03	0.999
35 years or older	-0.204***	0.02	0.815	-0.249***	0.02	0.780	-0.099**	0.03	0.906
Unmarried	0.139***	0.01	1.149	0.132***	0.02	1.141	0.138***	0.03	1.148
Education	-0.040***	0.01	0.960	-0.045***	0.01	0.956	-0.033**	0.01	0.968
Unemployed	0.053***	0.02	1.055	0.021	0.02	1.021	0.129***	0.03	1.138
Income									
$10,000 - $19,999	-0.042*	0.02	0.959	-0.028	0.02	0.973	-0.065*	0.03	0.937
$20,000 - $29,999	-0.119***	0.02	0.888	-0.117***	0.03	0.889	-0.112**	0.04	0.894

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
$30,000 - $39,999	-0.120***	0.03	0.887	-0.120***	0.03	0.887	-0.108*	0.05	0.898
$40,000 - $49,999	-0.175***	0.03	0.839	-0.168***	0.03	0.846	-0.173***	0.05	0.841
$50,000 - $74,999	-0.243***	0.03	0.784	-0.241***	0.03	0.786	-0.239***	0.05	0.788
$75,000 or more	-0.277***	0.03	0.758	-0.285***	0.04	0.752	-0.246***	0.06	0.782
Insured	-0.031	0.02	0.970	-0.034	0.02	0.967	-0.030	0.03	0.971
Drug Use Type									
Marijuana Only	-0.210***	0.01	0.811	-0.220***	0.02	0.803	-0.174***	0.03	0.840
Cocaine Only	-0.282*	0.12	0.755	-0.389**	0.15	0.678	-0.038	0.21	0.963
Hallucinogens Only	-0.024	0.10	0.976	0.004	0.11	1.004	-0.154	0.21	0.857
Inhalants Only	0.077	0.07	1.080	0.047	0.07	1.048	0.231	0.20	1.260
Pain Relievers Only	0.013	0.03	1.013	-0.024	0.04	0.976	0.190*	0.09	1.209
Tranquilizers Only	-0.029	0.06	0.972	-0.011	0.06	0.989	-0.166	0.19	0.847
Recency of Drug Use									
> 30 days, but < 12 months ago	-0.048	0.03	0.953	-0.081*	0.04	0.922	0.072	0.07	1.075
More than 12 months ago	-0.084**	0.03	0.920	-0.088**	0.03	0.916	-0.044	0.06	0.957
Drug Use Prior to Age 18	0.009	0.01	1.009	-0.002	0.02	0.998	0.045	0.03	1.046
Abuse/Dependence in Past Year	0.304***	0.02	1.355	0.300***	0.03	1.350	0.315***	0.04	1.370
Drug Treatment in Past Year	-0.058	0.06	0.943	-0.037	0.10	0.964	-0.055	0.07	0.946
Mental Health Treatment in Past Year	0.512***	0.02	1.669	0.525***	0.02	1.690	0.479***	0.04	1.615

(continued)

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
Needed Mental Health Treatment	0.687***	0.02	1.987	0.693***	0.02	2.000	0.676***	0.04	1.967
Physical Health Variety Score	0.091***	0.01	1.095	0.089***	0.01	1.093	0.096***	0.02	1.101
Injection Drug Use	0.115***	0.03	1.122	0.105	0.06	1.111	0.108**	0.04	1.114
Constant	1.614	0.04	5.023	1.692	0.05	5.431	1.446	0.08	4.244
Log Likelihood	-58096.1			-41045.2			-17019.7		
Pseudo R^2	0.04			0.04			0.05		

Note: White, Age 18-25, Income less than $10,000, Polydrug use, and recency in the past 30 days serve as reference variables. ***$p<.001$, **$p<.01$, *$p<.05$

Figure 2

Predicted Scores on the Psychological Distress Scale by Race/Ethnicity and Sex for Non-Justice-Involved Illicit Drug Users
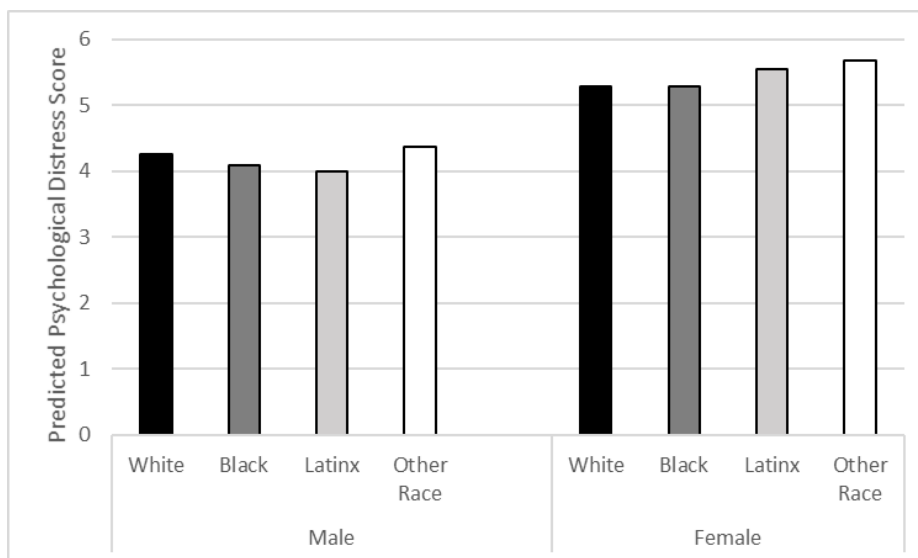
Figure 3

Predicted Scores on the Psychological Distress Scale by Race/Ethnicity and Sex for Justice-Involved Illicit Drug Users
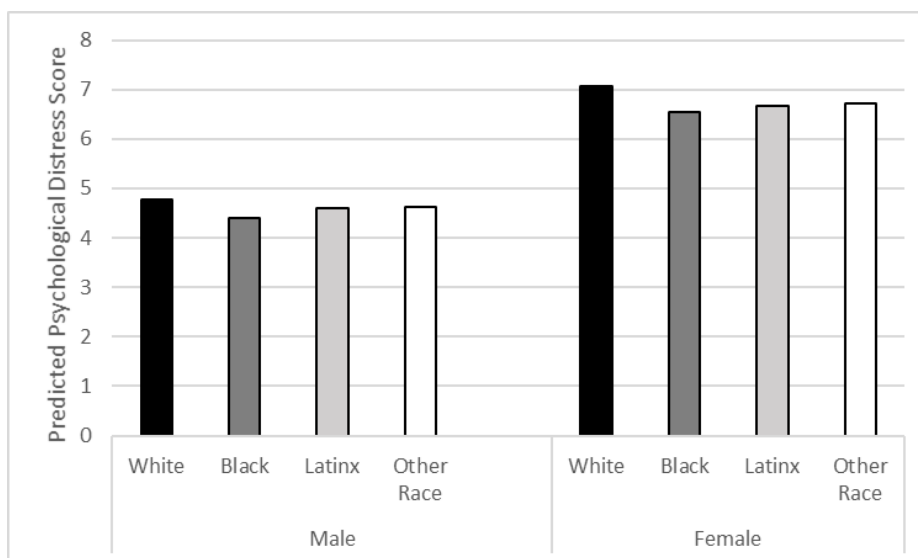
Physical Health

The third research question asks if justice-involved illicit drug users report a wider variety of physical disorders than non-justice-involved illicit drug users. The physical health dependent variable is the number of self-reported physical disorders among illicit drug users. As with the psychological distress table (Table 3), there are three models presented in Table 4. The first is the main model which consists of the full sample of illicit drug users (n = 22,533). For the second and third models, a split sample is used. The second model includes only the non-justice-involved respondents (n = 16,065) and the third model includes only the justice-involved respondents (n = 6,468). Again, the split model design is used to compare race/ethnicity and sex effects within the non-justice-involved model and race/ethnicity and sex effects within the justice-involved model.

In the first model, justice involvement does not reach significance and the effect is in the opposite direction of what was expected (b = -0.010, I.R.R. = 0.990). Females (b = 0.128, I.R.R. = 1.137) and Black individuals (b = 0.254, I.R.R. = 1.289) compared to white individuals report a wider variety of physical health disorders. Latinx individuals (b = 0.134, I.R.R. = 0.875) report fewer physical health disorders in comparison to white individuals.

Several control variables reach significance. Individuals older than 25 (b = 0.251, 0.995; I.R.R. = 1.285, 2.704) report more physical health disorders than individuals in the 18-25 age group category. Individuals with higher levels of education (b = -0.085, I.R.R. = 0.918) have fewer physical health disorders. Individuals who are unemployed (b = 0.261, I.R.R. = 1.299) report a wider variety of physical health disorders. Individuals

whose incomes are $10,000 to $19,999 (b = 0.128, I.R.R. = 1.136), $20,000 to $29,999 (b = 0.129, I.R.R. = 1.138), and $50,000 to $74,999 (b = 0.101, I.R.R. = 1.107) have more physical health disorders. Individuals who are covered by insurance (b = 0.246, I.R.R. = 1.278) report a wider variety of physical health disorders.

Drug use patterns are also associated with justice involvement. Those who report using marijuana only (b = 0.070, I.R.R. = 1.073) or tranquilizers only (b = 0.206, I.R.R. = 1.229), and those who last used drugs more than 12 months prior to the survey (b = 0.215, I.R.R. = 1.240) report a wider variety of physical health disorders. Those who first used drugs prior to the age of 18 (b = -0.083, I.R.R. = 0.920) report fewer physical health disorders. Individuals who received inpatient or outpatient mental health treatment in the past 12 months (b = 0.165, I.R.R. = 1.180), those who report needing mental health treatment, but not receiving it in the past 12 months (b = 0.101, I.R.R. = 1.106), and those who score higher on the Kessler Psychological Distress Scale (b = 0.029, I.R.R. = 1.030) report a wider variety of physical health disorders.

In terms of research question 3, justice involvement does not significantly affect self-reported physical health, which is not in line with the stated hypotheses. To examine this relationship in more detail, a series of stepwise regression models were run to determine the other variables that may be overshadowing the effect of justice involvement. These models can be found in Appendix Table 2, which includes four models. The first includes only justice involvement as an independent variable and justice involvement is significant (b = 0.058, IRR = 1.060). The second model includes only justice involvement, sex, and race as independent variables and justice involvement is significant (b = 0.100, IRR = 1.105). The third model includes all control variables

except for the K6 psychological distress scale, the intravenous drug use behavior variable, education, employment, and income. Justice involvement remains significant (b = 0.058, IRR = 1.060). The fourth model is the full model where justice involvement is no longer a significant predictor of physical disorder (b = -0.010, IRR = 0.990). Justice involvement does not reach significance in the model when any of the following control variables are included: the K6 psychological distress scale, the intravenous drug use behavior variable, education, employment, and income. In terms of the third research question, then, this means the influence of justice involvement on physical health may be overshadowed by other variables. Potentially, mental health, injection drug use behaviors, and socioeconomic status may have a stronger influence on physical health than justice involvement. Based on these results, the third hypothesis is not supported.

To examine the interactions in the split models, figure 4 plots the predicted scores on the physical health variety score among non-justice-involved individuals and figure 5 plots the predicted scores on the physical health variety score among justice-involved individuals. Figure 4 shows the predicted scores on the physical disorder variety score for white, Black, Latinx, and Other Race non-justice-involved males and females. In the non-justice-involved samples, overall, the predicted scores on the physical health variety score are highest among females, regardless of race or ethnicity. Among non-justice-involved men, Black men (0.40) have the highest predicted scores on the physical health variety score, followed by Other Race (0.36) and white men (0.36), and Latino men (0.28). Among non-justice-involved women, Black women (0.58) have the highest predicted score on the physical health variety score, followed by Other Race females (0.44), white females (0.41), and Latinx females (0.39).

To make comparisons between gender and race/ethnicity among the non-justice-involved sample, average marginal effects were calculated. The predicted score for white women is 0.05 points higher than for white men, it is 0.19 points higher for Black women than for Black men, 0.11 points higher for Latina women than for Latino men, and 0.08 points higher for Other race women than for Other race men. The second difference test for gender differences within race is significant ($p < .05$). This means the probability of reporting more severe psychological distress significantly differs for non-justice-involved men and women in different racial groups.

Many of the average marginal effects comparing racial/ethnic differences within gender are significant. Black women score 0.17 points higher on the physical health variety score than white women, 0.19 points higher than Latina women, and 0.14 points higher than Other Race women. Latino men score 0.08 points lower on the physical health variety score than white men, 0.12 points lower than Black men, and 0.08 points lower than Other Race men. The second difference test for racial/ethnic differences within gender also reaches significance ($p < .05$), therefore the probability of reporting more physical disorders significantly differs for non-justice-involved men and women within racial groups as compared to other same sex groups.

Figure 5 shows the predicted scores on the physical health variety score for white, Black, Latinx, and Other Race justice-involved males and females. In the justice-involved samples, as in the non-justice-involved sample, the predicted scores for physical health disorders are higher among females, regardless of race or ethnicity. Among justice-involved men, Black men (0.44) have the highest predicted score, followed by Other Race men (0.39), white men (0.37), and Latino men (0.31). Among justice-involved

women, Black women (0.69) have the highest predicted scores, followed by Other Race women (0.55), white women (0.49), and Latinx women (0.31).

To make comparisons between gender and race/ethnicity among the non-justice-involved sample, average marginal effects were calculated. The predicted score for white women is 0.12 points higher than for white men, it is 0.25 points higher for Black women than for Black men, 0.15 points higher for Latina women than Latino men, and 0.16 points higher for Other Race women than for Other Race men. The second difference test for gender differences within race is significant ($p < .05$). This means the probability of reporting more physical health disorders significantly differs for non-justice-involved men and women in different racial groups.

Some of the average marginal effects comparing racial/ethnic differences within gender are significant. Black women score 0.21 points higher on the physical health variety score than white women. Latina women score 0.23 points lower than Black women. Black men score 0.07 points higher on the physical health variety score than white men. Latino men score 0.06 points lower than white men, 0.14 points lower than Black men, and 0.09 points lower than Other Race men. The second difference test for racial/ethnic differences within gender does not reach significance ($p < .05$), therefore the probability of reporting more physical health disorders does not differ for men and women within racial groups as compared to other same sex groups.

Once again, while statistical comparisons cannot be made between the results of figures 4 and 5, it is evident that justice-involved drug users report a wider variety of physical disorders regardless of sex or race/ethnicity. Justice-involved Black men have the highest probabilities of physical disorders, while non-justice-involved Latino men

have the lowest number of physical disorders. The same pattern emerges for women: justice-involved Black women have the highest number of physical disorders and non-justice-involved Latina women have the lowest number of physical disorders.

Overall, in terms of the third research question, justice involvement was not significantly associated with physical health. For research question 3a, women have more physical disorders than men. Black individuals have more physical health disorders and Latinx individuals have fewer physical health disorders than white individuals. Justice involvement did not significantly affect physical health and results indicate the hypothesis that Black justice-involved women would have the widest variety of physical disorders and that white, non-justice-involved men would report the fewest physical health disorders is not supported.

Table 4

Negative Binomial Regression Predicting Variety of Physical Health Disorders among Illicit Drug Users

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
Interactions									
Black x Sex	-		-	0.259**	0.09	1.296	0.173	0.12	1.189
Latinx x Sex	-		-	0.200*	0.09	1.221	0.129	0.15	1.138
Other Race x Sex	-		-	0.078	0.10	1.081	0.061	0.15	1.063
Main Effects									
Criminal Justice Involvement	-0.010	0.03	0.990	-	-	-	-	-	-
Female	0.128***	0.02	1.137	0.026	0.03	1.027	0.178***	0.06	1.195
Black	0.254***	0.04	1.289	0.088	0.07	1.092	0.181*	0.08	1.199
Latinx	-0.134***	0.04	0.875	-0.255***	0.07	0.775	-0.187*	0.09	0.829
Other Race	0.051	0.04	1.052	-0.018	0.08	0.982	0.066	0.10	1.068
Controls									
Age									
26-34 years old	0.251***	0.04	1.285	0.284***	0.05	1.328	0.159*	0.07	1.172

(continued)

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
35 years or older	0.995***	0.03	2.704	1.038***	0.04	2.825	0.895***	0.06	2.448
Unmarried	-0.013	0.03	0.987	0.014	0.03	1.014	-0.092*	0.05	0.912
Education	-0.085***	0.01	0.918	-0.099***	0.02	0.906	-0.048*	0.02	0.953
Unemployed	0.261***	0.03	1.299	0.257***	0.03	1.293	0.268***	0.05	1.307
Income									
$10,000 - $19,999	0.128***	0.03	1.136	0.133**	0.04	1.142	0.111	0.06	1.117
$20,000 - $29,999	0.129**	0.04	1.138	0.176***	0.05	1.193	0.000	0.08	1.000
$30,000 - $39,999	0.060	0.05	1.062	0.116*	0.06	1.123	-0.086	0.09	0.918
$40,000 - $49,999	-0.019	0.05	0.981	0.013	0.06	1.013	-0.117	0.10	0.890
$50,000 - $74,999	0.101*	0.05	1.107	0.148*	0.06	1.159	-0.065	0.09	0.937
$75,000 or more	0.037	0.05	1.038	0.038	0.06	1.038	-0.013	0.10	0.987
Insured	0.246***	0.03	1.278	0.249***	0.04	1.282	0.235***	0.05	1.265
Drug Use Type									
Marijuana Only	0.070**	0.03	1.073	0.055	0.03	1.057	0.129*	0.05	1.138
Cocaine Only	-0.171	0.22	0.842	-0.383	0.29	0.682	0.227	0.33	1.255

(continued)

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
Hallucinogens Only	0.023	0.17	1.023	0.002	0.20	1.002	0.079	0.36	1.083
Inhalants Only	0.076	0.13	1.079	0.120	0.13	1.127	-0.319	0.40	0.727
Pain Relievers Only	-0.069	0.07	0.934	-0.057	0.07	0.944	-0.228	0.19	0.796
Tranquilizers Only	0.206*	0.10	1.229	0.259*	0.10	1.296	-0.237	0.35	0.789
Recency of Drug Use									
> 30 days, but < 12 months ago	0.096	0.07	1.101	0.036	0.08	1.036	0.319*	0.15	1.376
More than 12 months ago	0.215***	0.06	1.240	0.140*	0.07	1.150	0.448***	0.12	1.565
Drug Use Prior to Age 18	-0.083***	0.02	0.920	-0.075**	0.03	0.928	-0.094	0.05	0.911
Abuse/Dependence in Past Year	0.021	0.05	1.021	0.002	0.07	1.002	0.043	0.07	1.044
Drug Treatment in Past Year	-0.045	0.12	0.956	0.076	0.19	1.079	-0.100	0.14	0.905
Mental Health Treatment in Past Year	0.165***	0.04	1.180	0.125*	0.05	1.133	0.103	0.06	1.108
Needed Mental Health Treatment	0.101*	0.04	1.106	0.125*	0.05	1.133	0.053	0.07	1.054

	Full Sample (n =22,533)			Non-Justice-Involved (n = 16,065)			Justice-Involved (n = 6,468)		
	b	S.E.	I.R.R.	b	S.E.	I.R.R.	b	S.E.	I.R.R.
K6 Psychological Distress Scale	0.029***	0.00	1.030	0.028***	0.00	1.029	0.031***	0.00	1.031
IV Behavior									
Used a needle, but not a dirty needle	0.389	0.42	1.475	0.559	0.77	1.749	0.329	0.49	1.390
Reused a needle	0.558	0.44	1.748	0.287	0.82	1.333	0.616	0.51	1.852
Constant	-2.199	0.08	0.111	-2.108	0.10	0.122	-2.314	0.16	0.099
Log Likelihood	-17805.6			-12564.8			-5209.6		
Pseudo R^2	0.06			0.06			0.06		

Note: White, Age 18-25, Income less than $10,000, Polydrug use, IV Behavior – did not use a needle, and recency in the past

30 days serve as reference variables. ***$p<.001$, **$p<.01$, *$p<.05$

Figure 4

Predicted Scores on the Physical Health Variety Score by Race/Ethnicity and Sex for

*Non-Justice-Involved Illicit Drug Users*
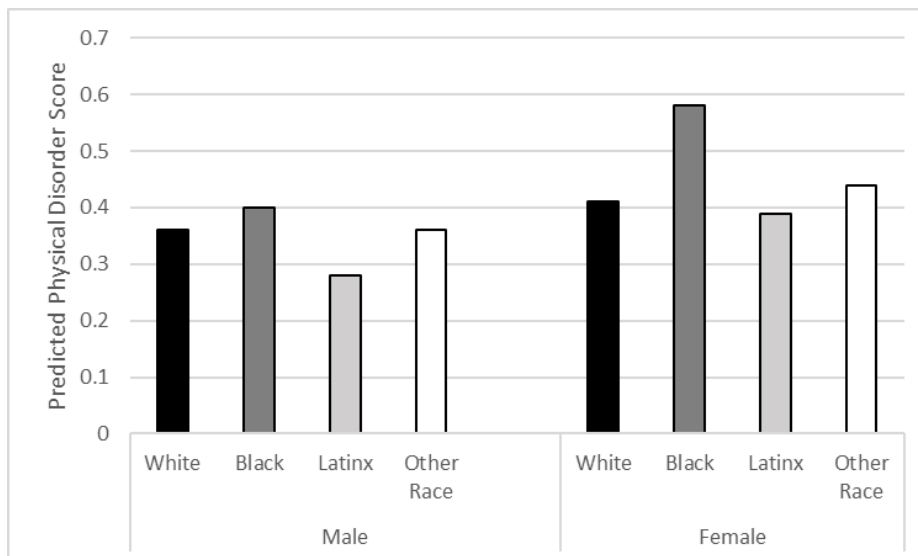
Figure 5

Predicted Scores on the Physical Health Variety Score by Race/Ethnicity and Sex for

Justice-Involved Illicit Drug Users
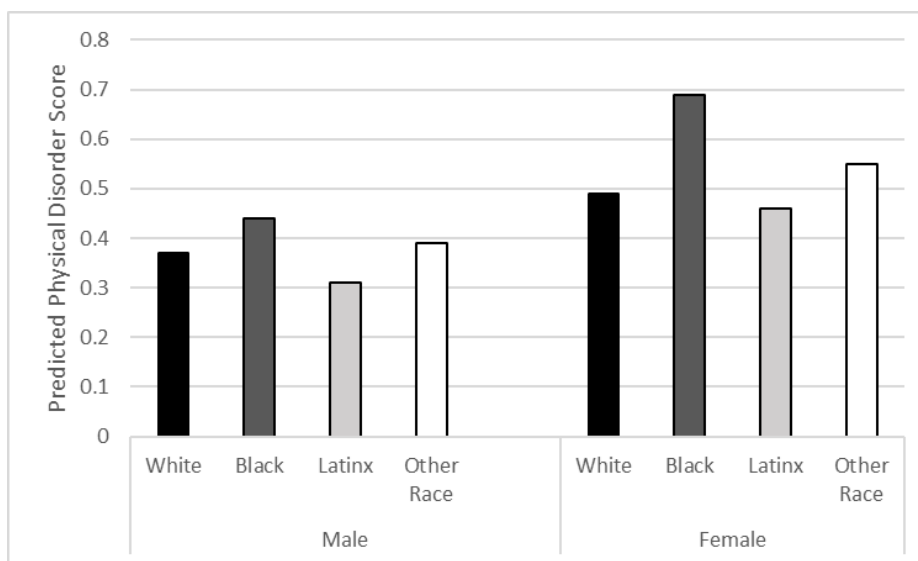
CHAPTER V

Discussion and Conclusions

Summary of Findings

The goal of this dissertation was to examine the correlates of justice involvement, the severity of psychological distress, and the variety of physical disorders for a sample of illicit drug users. Three research questions were examined:

1. What are correlates of justice system involvement for illicit drug users?

2. Is self-reported psychological distress more severe among justice-involved vs. non-justice-involved illicit drug users?

   2a. How do gender, race/ethnicity, and justice involvement influence psychological distress for illicit drug users?

3. Do justice-involved illicit drug users have a wider variety of physical health disorders than non-justice-involved individuals?

   3a. How do gender, race/ethnicity, and justice involvement affect the variety of physical disorders illicit drug users experience?

Justice Involvement

The main findings for the first research question indicated women were less likely to report justice involvement than men. Black individuals were more likely to report justice involvement and Latinx individuals were less likely to report justice involvement than white individuals. Overall, these findings align with the hypotheses outlined in Chapter 2. However, it is unexpected that Latinx individuals were less likely to report justice involvement in comparison to white individuals. This may partially be explained by previous research suggesting white individuals engage in illicit drug use more often

than any other racial/ethnic group (Evans et al., 2017; McCabe et al., 2008; Muhuri &

Gfroerer, 2009). Black men and women were the most likely to report justice

involvement and Latinx men and women were the least likely to report justice

involvement. This may be caused by the variation in individuals that belong to the

"Latinx" racial/ethnic group. Overall, these results support prior research that men and

Black individuals are more likely to be justice involved, even when controlling for

various measures of drug use.

Psychological Distress

In regard to the second research question, justice involvement was not associated

with psychological distress. As expected, however, women were more likely to report

more severe psychological distress in comparison to men, regardless of racial/ethnic

group or justice involvement. Both Other Race men and Other Race women had the

highest levels of psychological distress. Latino men and Black women had the lowest

levels of distress. Unexpectedly, among the justice-involved sample, white men and

women had the highest levels of psychological distress and Black men and women had

the lowest. White justice-involved individuals may experience higher levels of

psychological distress due to the higher threshold of bad behavior that is required before

white individuals are sanctioned by the justice system. Perhaps white individuals who

become justice-involved are already experiencing more severe forms of illicit drug use,

so by the time they become justice-involved, they are in more distress than individuals in

other racial/ethnic groups.

Physical Health

Finally, for the third research question, justice involvement was not significantly associated with the variety of physical health disorders a respondent reported, which was not expected. However, as expected, women were more likely to report more physical health disorders than men. Black individuals reported a wider variety of physical disorders and Latinx individuals reported fewer physical disorders in comparison to white individuals. Both justice-involved and non-justice-involved women had more physical health problems. Among all groups, Black men and women, justice-involved and not, had more physical disorders and Latinx men and women, justice-involved and not, had the fewest physical disorders. I expected to find more differences between non-justice-involved and justice-involved individuals. One possibility is Black individuals are especially disadvantaged in terms of physical health. This disparity may stem from lack of access to preventative medical care, which is experienced more commonly among marginalized individuals in disadvantaged areas (Ahern et al., 2007; Pollack & Reuter, 2006).

Implications for Theory

Based on the intersectional framework outlined in Chapter 2, it was expected that illicit drug users with more marginalized statuses would also be more likely to experience justice involvement, have more severe psychological distress, and have more physical illness. These hypotheses were only partially supported by the results of this dissertation.

As expected, Black men and women were the most likely to report justice involvement. These findings support the intersectional framework and the idea that multiple levels of marginalization compound to create higher levels of disadvantage, at

least in the case of justice involvement. Focal concerns theory and the chivalry hypothesis may apply here as well. Black illicit drug users may be seen as more dangerous and blameworthy than their white counterparts, thus increasing their justice involvement. Women may receive more chivalrous treatment, resulting in fewer instances of justice involvement.

Justice-involved white men and women and non-justice-involved Other Race men and women report the highest levels of psychological distress. This is unexpected considering marginalization based on race, gender, and justice involvement were expected to further disadvantage illicit drug users. However, previous research has identified different predictors of psychological distress for different racial/ethnic groups. For example, Chang (2002) found significant differences in the link between depression and pessimism for Asian and white college students and Bratter and Eschbach (2005) found chronic stress increased psychological distress more for more disadvantaged racial/ethnic groups than for white individuals. Perhaps individuals often lumped into an "Other Race" category are less likely to receive culturally competent mental health services. The results of the psychological distress analyses deserve further research to disentangle the differences between race, gender, and justice involvement to inform an intersectional framework.

Black men and women, regardless of justice involvement, reported the most physical health disorders. Justice involvement was expected to play a larger role in the variety of physical disorders an individual experienced. This finding suggests the marginalization associated with justice involvement may not necessarily be a driving force behind physical illness or that the status of belonging to the Black racial/ethnic

group overshadows the effect of justice involvement. Despite all of the control variables included in these analyses, Black men and women still experience worse physical health than any other racial/ethnic group. This could potentially be explained by larger societal forces that have lasted generations, such as institutional and systemic racism. Here, the definition of justice involvement should also be noted. A potentially single contact with the justice system likely would not have any measurable effect on physical health, especially long-term.

Considering the findings that do not align with the intersectional theories presented here, perhaps there are other factors at play with regard to reported psychological distress and physical illness beyond what intersectionality can explain. One aspect that may be missing from this dissertation is a biological component. Family history of mental and physical illness could be an important aspect to consider that may explain why there were not as many differences in health between non-justice-involved and justice-involved individuals as expected. It also suggests an intersectional framework may need to account for some marginalized statuses invoking more disadvantage than others.

Implications for Research

This dissertation identified significant relationships between gender and mood symptoms and gender and physical health disorders for illicit drug users and differences in psychological distress and physical health between men and women illicit drug users in different racial/ethnic groups. Future research can build upon the findings identified in this dissertation by differentiating between more racial/ethnic groups, including trauma

and victimization histories, examining the influence of stigma, including measures of social support, and expanding the measures of mental and physical health disorders.

While I challenge previous studies in the literature review for failing to include racial and ethnic groups besides white, Black, and Latinx, this dissertation could only include an "Other Race" category, which is not as specific as it should be. Future research should strive to include larger samples of individuals from other racial and ethnic groups, such as Asian Americans and Native Americans. It should also include more nuanced measurements for Latinx individuals. Latinx is a broad category that can include individuals with varied ancestry. The findings from this dissertation indicate there are differences, particularly in terms of psychological distress, for Other Race individuals. It is expected there could be more nuanced differences among these individuals, because of cultural differences in psychological distress (Chang, 2002; Johnson & Caldwell, 2011) and physical health (Dusenbery, 2018; Macy, 2018) that are not accounted for when a variety of individuals are combined into one group. There are also cultural differences in the likelihood of reporting symptoms, specifically mental health symptoms, indicating people of color may be less likely to report psychological symptoms in comparison to white individuals (Sauceda et al., 2021). Previous research has also established there are differences in illicit drug use between racial/ethnic groups. For example, Native American individuals have higher rates of substance use disorder than white individuals while Asian American individuals use substances at lower rates than most other racial/ethnic groups (SAMHSA, 2019). These differences cannot be accounted for when these individuals are included in the same racial/ethnic category.

Future research should expand the conceptualization of race/ethnicity to disentangle these differences in illicit drug use and mental and physical health.

There are also a few concepts that, based on prior literature, are important to control for in future research that were unable to be accounted for here. For this dissertation, the data did not include measures of trauma and victimization history, experiences with stigma, or measures of social support, all of which are potentially important in explaining the relationships between illicit drug use, justice involvement, and the presence of physical and mental health disorders.

One salient predictor of both justice involvement and illicit drug use is histories of trauma and victimization. Individuals who were abused or neglected as children are more likely to use drugs in adulthood than individuals without this experience (Allem et al., 2015; Dube et al., 2003; LeTendre & Reed, 2017; Widom & Marmorstein, 2006). Mental illness, substance use disorders, and a history of victimization are all common among the criminal justice population, but women are more likely than men to accumulate all three (Arditti & Few, 2006, 2008; Clements-Nolle et al., 2009). Childhood trauma and abuse often predate women's involvement in crime and subsequent justice involvement (Gaarder et al., 2004; Johnson, 2014; Mears & Cochran, 2015; Miller, 1987; Moloney et al., 2009; Salisbury et al., 2009; Visher & Bakken, 2014). This amalgamation of issues may result in women using substances as a way to cope with their past traumas and current circumstances. Future research may find more severe illicit drug use among women who have experienced victimization, which could increase their likelihood of justice involvement and psychological distress, as well as the prevalence of physical disorders among this group.

Previous research has suggested as trauma experiences accumulate, drug use tends to become more severe and dependence more likely (Ataiants et al., 2020; Clements-Nolle et al., 2009; Cotto et al., 2010). For example, previous research has suggested that drug-using women who endure multiple victimizations have higher drug overdose risks in comparison to drug-using women with fewer victimization experiences (Ataiants et al., 2020) and that childhood trauma increases a woman's likelihood of attempting suicide in prison above and beyond the effect of illicit drug use (Clements-Nolle et al., 2009). In circumstances like these, drug use may be a temporary coping mechanism that is unsuccessful long-term. The use of illicit drugs as a temporary coping mechanism as it relates to victimization experiences should be examined more directly. Future research should further explore the relationship between victimization and illicit drug use and should include measures of victimization in studies focused on illicit drug use, justice involvement, and various health outcomes.

Experiences with stigma are another salient issue associated with illicit drug use that can affect both physical and mental health. Individuals labeled as drug users are subject to more stigma and more negative attitudes than individuals with mental illness alone (Barry et al., 2014; Corrigan et al., 2009) and they are considered more culpable and dangerous than those with other mental disorders (Corrigan et al., 2009).

Stigma may also be particularly salient for women due to the perception that women drug users are failing to adhere to traditional gender norms (Tillyer et al., 2015). The reason stigma is such an intense problem is because it discourages and prevents illicit drug users from asking for and receiving help to stop their drug use (Stengel, 2014). Women who use drugs are often stereotyped as being unfit mothers and are threatened

with having their children removed from the home (Stengel, 2014). This is particularly poignant since women, more often than men, are the primary caretakers of children (Benders-Hadi et al., 2012; Nelson-Zlupko et al., 1995; Stengal, 2014). Drug use impedes the woman's ability to care for children which places the children at risk (Stengal, 2014).

While all drug users are impacted by these stigmas, at least to some extent, this stigma may be heaviest for women of color, which is in line with tenets of intersectionality. Low-income African American mothers are often stereotyped as "crack whores" and "welfare queens" (Arditti & Few, 2006, 2008; Carpenter, 2012; McCorkel, 2013; Robbins et al., 2009). These stigmas are exacerbated when these women are drug users. Instead of being viewed as deserving of help, women who use drugs are villainized and deemed unfit to be parents (Stengel, 2014). Future research should account for the negative effect stigma can have on mental and physical health for illicit drug users, justice-involved and not.

Relatedly, the stigma associated with drug use can also make it difficult for illicit drug users to find personal sources of social support (Barry et al., 2014). This dissertation does include measures of social bonds, such as marriage, employment, and education that can increase an individual's prosocial ties to the community (Sampson & Laub, 1990). However, it would also be beneficial for future research to include specific social support measures as well. Previous research has demonstrated that there are two main types of social support: emotional and instrumental. Emotional support broadly refers to an individual's relationships with family and friends and the encouragement and comfort they provide. Instrumental support refers to concrete aspects, such as monetary support or providing shelter (Mowen & Boman, 2019; Mowen & Visher, 2015, 2016; Taylor, 2016).

Measures of instrumental support, specifically, would be important to include in a study of illicit drug users, because prior research has suggested it is possible for this type of support to actually be counterproductive for individuals with a drug use problem (Mears & Cochran, 2015; Schroeder et al., 2007). Future research should include the influence of social support on mental and physical health outcomes among illicit drug users.

For the purposes of this dissertation, a variety score was created to measure the quantity of physical health disorders an individual experienced in the past year. Originally, I intended to use two variety scores, one for infectious physical illnesses and one for non-infectious physical illnesses, considering the ramifications of the two could potentially be different, particularly for justice-involved illicit drug users. However, based on the distribution of the data, the variety score was collapsed into one physical disorder measure. Future research should examine this relationship more closely to identify differences in effects of illicit drug use and justice involvement on infectious versus non-infectious physical disorders. It is important to disentangle the differences between infectious and non-infectious disorders, because the two may have vastly different consequences from a public health perspective.

This dissertation used the Kessler psychological distress scale to measure mental health. Much of the existing literature on substance use and mental health focuses on more severe forms of mental illness, such as bipolar disorder and schizophrenia. This scale is measuring something more akin to a mood disorder, although it should not be substituted for a professional diagnosis. It is important to consider a variety of mental health disorders, because different mental health struggles presumably have different effects on the likelihood of illicit drug use, justice involvement, and physical health.

Because of this, future research should continue to account for a variety of mental health measures in the context of justice involvement, illicit drug use, and health outcomes.

Implications for Policy

The findings of this dissertation also have six implications for policy, many rooted in a harm reduction approach which has been applied to substance abuse treatment services with the goal of reducing negative consequences for drug users specifically (MacMaster, 2004). The harm reduction perspective suggests that, while abstinence from illicit drugs is ideal, it is important to meet individuals where they are and that reducing the harm associated with illicit drug use is better than providing illicit drug users with no help at all (MacMaster, 2004).

First, this dissertation aligns with previous research that has established men and Black individuals have an increased likelihood of justice involvement (Alexander, 2010; Spohn & Holleran, 2000; Steffensmeier et al., 1998; Western, 2006). Previous research has established numerous reasons why Black individuals are more likely than white individuals to be justice-involved, despite similar rates of illicit drug use (Bachman et al., 1991; SAMHSA, 2019), including the disproportionate surveillance and law enforcement in predominantly Black neighborhoods (CASA, 2010) and the harsher sentences imposed on Black individuals (Steffensmeier et al., 1998). This suggests a need for oversight of criminal justice actors to prevent discrimination of Black individuals, specifically Black individuals who use illicit drugs, within the criminal justice system.

Second, Latinx illicit drug users were found to be less likely to report justice involvement than white illicit drug users. This may reflect more severe forms of drug use among white individuals than Latinx individuals or that white individuals use drugs more

frequently than Latinx individuals (Evans et al., 2017; McCabe et al., 2008; Muhuri & Gfroerer, 2009), which, in turn, may influence justice involvement. This should be noted, considering stereotypes associated with the "typical" drug offender tend to play a role in justice system involvement, which ordinarily impacts young men of color (Spohn & Sample, 2014).

Third, women scored the highest on the Kessler Psychological Distress Scale, regardless of race or justice involvement. This suggests there is a crucial need for gender-responsive programming for female illicit drug users. These services need to take into account the prevalence of co-occurring substance use and mental health disorders among women from various backgrounds (Bakken & Visher, 2018; Binswanger et al., 2010; Spjeldnes & Goodkind, 2009). Additional community resources are also important since women are more often the primary caretakers of dependent children (Benders-Hadi et al., 2012; Nelson-Zlupko et al., 1995). Women should not have to fear losing custody of their children if they seek mental health treatment. Previous research suggests women may also benefit from services provided by mental health professionals of the same gender (Johnson & Caldwell, 2011; Lam & Sue, 2001). Providing these services while meeting women where they are in terms of their drug use is one way to reduce the harm associated with illicit drug use (MacMaster, 2004).

Fourth, particular attention also needs to be paid to Other Race individuals in terms of mental health. Non-justice-involved, Other Race men and women had the highest levels of psychological distress. This needs to be considered among treatment providers in order to provide culturally competent mental health services. One way this could be achieved would be to provide individual patients with therapists and mental

health workers of the same race/ethnicity. Previous research has found links between this practice and more regular therapy sessions for some racial/ethnic groups (Johnson & Caldwell, 2011; Lam & Sue, 2001). However, mental health workers have also been cautioned to avoid assuming similarities in experiences based solely on race (Johnson & Caldwell, 2011). It may also help to mandate educational courses in culturally competent care for all staff working in the mental health field. These services also need to be provided in the community for illicit drug users. Individuals should not have to have contact with the criminal justice system to be referred to mental health services. In general, barriers to seeking mental health treatment need to be minimized for all populations. Providing services to individuals before they have made contact with the justice system would also be beneficial from a harm reduction perspective.

Fifth, women have a wider variety of physical health disorders than men. This suggests increased attention needs to be paid to the association between women's illicit drug use and their physical health outcomes. Generally, women's physical complaints are more often dismissed as psychological than men's (Dusenbery, 2018). Gender-responsive medical care needs to be provided for women who use illicit drugs. This approach has been successful in terms of substance abuse treatment. Messina and colleagues (2010) found gender-responsive substance abuse treatment provided to incarcerated women decreased women's drug use and decreased the likelihood of reincarceration within 12 months of release. Cost-benefit analyses of gender-responsive substance abuse treatment programs in the community have found that, while these programs tend to be more expensive, the results of the treatment almost always offset the costs (Grella, 2008). This indicates that the same policies would be beneficial in terms of women's medical care

and that gender-responsive medical services could potentially be provided in the same environment as substance abuse treatment. It is also important to note that reducing women's drug use while treating physical disorders is also beneficial from a harm reduction perspective, even if abstinence is not yet possible (MacMaster, 2004).

Sixth, Black individuals have a wider variety of physical health disorders than white individuals. Some of this disparity may be explained by lack of access to preventative healthcare, considering people of color are more often relegated to disadvantaged communities. This disparity may also be partially attributed to the treatment Black individuals often receive in healthcare settings where their physical complaints are more often met with suspicion and their pain is disregarded (Dusenbery, 2018; Macy, 2018). Healthcare should be expanded and made more readily available for all individuals, but perhaps especially in targeted, disadvantaged areas.

Gender responsive and culturally competent programming is necessary and important for illicit drug users and providing this programming using a harm reduction perspective is essential. This dissertation could not determine if illicit drug use or justice involvement cause these increased physical and mental health issues, but there is an association between the concepts that suggests women and Black illicit drug users are particularly vulnerable to negative health outcomes.

Limitations

There were two major limitations to this dissertation that have likely influenced the results found here. First, this dissertation cannot establish time order due to the cross-sectional nature of the data. I cannot determine if the onset of physical health issues and mood symptoms respondents report occurred before or after their illicit drug use and/or

their justice involvement. It is also impossible to determine if criminal justice involvement was caused by a respondent's illicit drug use, or vice versa, since both variables were measured as "ever" occurring. Therefore, the results of this dissertation can only be understood in the context of correlation, not causation. There is a relationship between illicit drug use, justice involvement, and physical and mental health, but the results of this dissertation cannot say if one causes the other.

Second, it is also important to note the loose definition of justice involvement used in this dissertation. Justice involvement here only referred to having ever been arrested and booked for anything other than a minor traffic violation. There is no measure of whether or not the individual experienced incarceration included in the data. The length of any term of incarceration is not available and there is no measure of criminal history. While the survey does ask about the offense for which the respondent was arrested for, missing data prevented the use of this measure for this study. Therefore, those who are considered justice-involved in this dissertation are not individuals that have necessarily spent time in jail or prison. They may not have a lengthy history of criminal behavior. They could have been arrested once for something as benign as shoplifting and been immediately released. This also may help explain why justice involvement was not significantly associated with mental or physical health disorders. These are not necessarily individuals who have spent much, if any, time incarcerated. Future research should include more robust measures of justice involvement than simply a (potentially single) contact with the justice system.

Conclusion

This dissertation informs theory and policy and suggests avenues for future research. Overall, race/ethnicity, gender, and justice involvement should be examined further to understand how these attributes affect physical and mental health. Based on the results of this dissertation, resources in the community and in the criminal justice system need to be expanded to implement a gender-responsive and culturally competent approach to treating individuals for illicit drug use, mental illness, and physical disorders.

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APPENDIX

Appendix Table 1. Stepwise Negative Binomial Regression Model Predicting Psychological Distress among Full Sample (n = 22,533).

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude MH and PH			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Criminal Justice Involvement	0.098***	0.02	1.103	0.158***	0.02	1.171	0.032*	0.02	1.033	0.013	0.01	1.014
Female	-	-	-	0.257***	0.01	1.292	0.210***	0.01	1.234	0.117***	0.01	1.124
Black	-	-	-	0.012	0.02	1.013	-0.090***	0.02	0.914	-0.035	0.02	0.966
Latinx	-	-	-	0.067***	0.02	1.069	-0.049*	0.02	0.952	-0.012	0.02	0.988
Other Race	-	-	-	0.083***	0.03	1.087	0.002	0.02	1.002	0.026	0.02	1.027
Age												
26-34 years	-	-	-	-	-	-	-0.019	0.02	0.981	-0.062***	0.02	0.940
35 years or older	-	-	-	-	-	-	-0.119***	0.02	0.887	-0.204***	0.02	0.815
Unmarried	-	-	-	-	-	-	0.181***	0.02	1.198	0.139***	0.01	1.149
Education	-	-	-	-	-	-	-0.031***	0.01	0.969	-0.040***	0.01	0.960
Unemployed	-	-	-	-	-	-	0.112***	0.02	1.119	0.053***	0.02	1.055

(continued)

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude MH and PH			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Income												
$10,000 - $19,999	-	-	-	-	-	-	-0.046*	0.02	0.955	-0.042*	0.02	0.959
$20,000 - $29,999	-	-	-	-	-	-	-0.147***	0.02	0.863	-0.119***	0.02	0.888
$30,000 - $39,999	-	-	-	-	-	-	-0.159***	0.03	0.853	-0.120***	0.03	0.887
$40,000 - $49,999	-	-	-	-	-	-	-0.237***	0.03	0.789	-0.175***	0.03	0.839
$50,000 - $74,999	-	-	-	-	-	-	-0.289***	0.03	0.749	-0.243***	0.03	0.784
More than $75,000	-	-	-	-	-	-	-0.332***	0.03	0.717	-0.277***	0.03	0.758
Insured	-	-	-	-	-	-	-0.005	0.02	0.995	-0.031	0.02	0.970
Marijuana Only	-	-	-	-	-	-	-0.270***	0.15	0.763	-0.210***	0.01	0.811
Cocaine Only	-	-	-	-	-	-	-0.393**	0.13	0.675	-0.282*	0.12	0.755
Hallucinogens Only	-	-	-	-	-	-	-0.111	0.10	0.895	-0.024	0.10	0.976
Inhalants Only	-	-	-	-	-	-	0.072	0.07	1.075	0.077	0.07	1.080

(continued)

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude MH and PH			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Pain Relievers Only	-	-	-	-	-	-	-0.069	0.04	0.933	0.013	0.03	1.013
Tranquilizers Only	-	-	-	-	-	-	-0.041	0.07	0.960	-0.029	0.06	0.972
Recency of Drug Use												
> 30 days, but less than 12 months ago	-	-	-	-	-	-	-0.040	0.03	0.960	-0.048	0.03	0.953
> 12 months ago	-	-	-	-	-	-	-0.094***	0.03	0.910	-0.084**	0.03	0.920
Drug Use Prior to Age 18	-	-	-	-	-	-	0.001	0.01	1.001	0.009	0.01	1.009
Abuse/Dependence in Past Year	-	-	-	-	-	-	0.403***	0.03	1.496	0.304***	0.02	1.355
Drug Treatment in Past Year	-	-	-	-	-	-	0.069	0.06	1.071	-0.058	0.06	0.943
Mental Health Treatment in Past Year	-	-	-	-	-	-	-	-	-	0.512***	0.02	1.669

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude MH and PH			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Needed Mental Health Treatment	-	-	-	-	-	-	-	-	-	0.687***	0.02	1.987
Physical Health	-	-	-	-	-	-	-	-	-	0.091***	0.01	1.095
Injection Drug Use	-	-	-	-	-	-	0.159***	0.04	1.173	0.115***	0.03	1.122
Constant	1.571	0.01	4.810	1.401	0.01	4.058	1.687	0.04	5.404	1.614	0.04	5.023
Log Pseudolikelihood	-60640.5			-60466.0			-59312.2			-58096.1		
Pseudo R^2	0.00			0.00			0.02			0.04		

Note: White, Age 18-25, Income less than $10,000, Polydrug use, IV Behavior – did not use a needle, and recency in the past 30 days serve as reference variables.

***p<.001, **p<.01, *p<.05

Appendix Table 2. Stepwise Negative Binomial Regression Model Predicting Physical Disorders among Full Sample (n = 22,533).

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude 5 Variables			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Criminal Justice Involvement	0.058*	0.03	1.060	0.100***	0.03	1.105	0.058*	0.03	1.060	-0.010	0.03	0.990
Female	-	-	-	0.215***	0.24	1.240	0.177***	0.02	1.194	0.128***	0.02	1.137
Black	-	-	-	0.165***	0.04	1.179	0.277***	0.04	1.319	0.254***	0.04	1.289
Latinx	-	-	-	-0.315***	0.04	0.730	-0.098*	0.04	0.907	-0.134***	0.04	0.875
Other Race	-	-	-	-0.059	0.04	0.943	0.073	0.04	1.075	0.051	0.04	1.052
Age												
26-34 years	-	-	-	-	-	-	0.181***	0.04	1.199	0.251***	0.04	1.285
35 years or older	-	-	-	-	-	-	0.946***	0.03	2.575	0.995***	0.03	2.704
Unmarried	-	-	-	-	-	-	0.051*	0.02	1.052	-0.013	0.03	0.987
Education	-	-	-	-	-	-	-	-	-	-0.085***	0.01	0.918
Unemployed	-	-	-	-	-	-	-	-	-	0.261***	0.03	1.299
Income												
$10,000 - $19,999	-	-	-	-	-	-	-	-	-	0.128***	0.03	1.136

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude 5 Variables			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
$20,000 - $29,999	-	-	-	-	-	-	-	-	-	0.129**	0.04	1.138
$30,000 - $39,999	-	-	-	-	-	-	-	-	-	0.060	0.05	1.062
$40,000 - $49,999	-	-	-	-	-	-	-	-	-	-0.019	0.05	0.981
$50,000 - $74,999	-	-	-	-	-	-	-	-	-	0.101*	0.05	1.107
More than $75,000	-	-	-	-	-	-	-	-	-	0.037	0.05	1.038
Insured	-	-	-	-	-	-	0.176***	0.03	1.192	0.246***	0.03	1.278
Marijuana Only	-	-	-	-	-	-	0.052	0.03	1.053	0.070**	0.03	1.073
Cocaine Only	-	-	-	-	-	-	-0.130	0.22	0.878	-0.171	0.22	0.842
Hallucinogens Only	-	-	-	-	-	-	0.029	0.18	1.029	0.023	0.17	1.023
Inhalants Only	-	-	-	-	-	-	0.085	0.13	1.089	0.076	0.13	1.079
Pain Relievers Only	-	-	-	-	-	-	-0.027	0.07	0.974	-0.069	0.07	0.934
Tranquilizers Only	-	-	-	-	-	-	0.221*	0.10	1.247	0.206*	0.10	1.229

(continued)

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude 5 Variables			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Recency of Drug Use												
> 30 days, but less than 12 months ago	-	-	-	-	-	-	0.085	0.07	1.088	0.096	0.07	1.101
> 12 months ago	-	-	-	-	-	-	0.184**	0.06	1.202	0.215***	0.06	1.240
Drug Use Prior to Age 18	-	-	-	-	-	-	-0.062**	0.02	0.940	-0.083***	0.02	0.920
Abuse/Dependence in Past Year	-	-	-	-	-	-	0.131**	0.05	1.140	0.021	0.05	1.021
Drug Treatment in Past Year	-	-	-	-	-	-	0.054	0.12	1.055	-0.045	0.12	0.956
Mental Health Treatment in Past Year	-	-	-	-	-	-	0.303***	0.03	1.354	0.165***	0.04	1.180
Needed Mental Health Treatment	-	-	-	-	-	-	0.278***	0.04	1.321	0.101*	0.04	1.106
K6 Psychological Distress Scale	-	-	-	-	-	-	-	-	-	0.029***	0.00	1.030

	Model 1: Only Justice Involvement			Model 2: Includes Key IVs			Model 3: Exclude 5 Variables			Model 4: Full Model		
	b	SE	IRR	b	SE	IRR	b	SE	IRR	b	SE	IRR
Used a needle, but not a dirty needle							-	-	-	0.389	0.42	1.475
Reused a needle							-	-	-	0.558	0.44	1.748
Constant	-0.927	0.01	1.060	-1.032	0.02	0.356	-2.016	0.08	0.133	-2.199	0.08	0.111
Log Pseudolikelihood	-18913.9			-18822.3			-18008.1			-17805.6		
Pseudo R^2	0.00			0.01			0.05			0.06		

Note: White, Age 18-25, Income less than $10,000, Polydrug use, IV-Behavior – did not use a needle, and recency in the past 30 days serve as reference variables.

***p<.001, **p<.01, *p<.05

VITA

AMBER D. GRIFFIN

Sam Houston State University
Department of Criminal Justice and Criminology

EDUCATION

Expected 2021   **Ph.D., Criminal Justice**
Sam Houston State University, Huntsville, TX
Department of Criminal Justice and Criminology
Dissertation: *The association between justice system contact, psychological distress, and physical illness: An examination of illicit drug use.*
Committee: Elisa Toman (Chair), Erin Orrick, Holly Miller, Julie Krupa

2016   **M.S., Criminology and Criminal Justice**
Arizona State University, Phoenix, AZ
School of Criminology and Criminal Justice
Thesis: *Heroin Use and Recidivism: The Impact of Familial Social Support.*
Committee: Danielle Wallace (Chair), Kevin Wright, and Alyssa Chamberlain

2013   **B.A., Sociology**
University of Wisconsin-La Crosse, La Crosse, WI

2013   **B.A., English Literature**
University of Wisconsin-La Crosse, La Crosse, WI

HONORS AND AWARDS

2020   Association of Doctoral Programs in Criminology and Criminal Justice (ADPCCJ) Fellowship

2019   Association of Doctoral Programs in Criminology and Criminal Justice (ADPCCJ) Fellowship

2018   Graduate Research Summer Fellowship, Gender differences in the relationship between social support and stressors on post-release drug use. College of Criminal Justice, Sam Houston State University.

2018   Association of Doctoral Programs in Criminology and Criminal Justice (ADPCCJ) Fellowship

2014   First Year Graduate Fellowship, Arizona State University.

AREAS OF INTEREST

Consequences of Incarceration   Race, Gender, and Crime
Reentry and Recidivism   Substance Use and Misuse

PUBLICATIONS

Peer-Reviewed Publications

Griffin, A. D., Tasca, M., & Orrick, E. A. (2020). **"**Getting high after getting out: Understanding the relationship between support, stressors, and drug use among men and women in early reentry." *Crime & Delinquency*, forthcoming.

Manuscripts in Progress

Griffin, A. D. & Orrick, E. A. Offender perceptions of community supervision officer behavior: Implications for racial/ethnic minorities.

Griffin, A. D., & Toman, E. L. Unable to comply: The effect of race, sex, and class on community supervision practices among drug users.

Griffin, A. D., & Toman, E. L. Substance use and prison misconduct: The gendered effect of treatment availability.

RESEARCH EXPERIENCE

2018-present   **Research Assistant,** Sam Houston State University
Project: Correctional officer attrition at TDCJ. PI: Erin Orrick, Ph.D., Co-PI: H. Daniel Butler, Ph.D. Partnership with the Correctional Management Institute of Texas (CMIT).

       Research Assistant, Sam Houston State University
Project: An interdisciplinary evaluation of restorative justice through the Bridges to Life program: An examination of how participant outcomes influence stakeholder buy-in. PI: Erin Orrick, Ph.D., Co-PI: John Newbold, Ph.D. Partnership with the Correctional Management Institute of Texas (CMIT).

2017-2018   **Interviewer and Project Manager,** Sam Houston State University
Project: Measuring the effects of correctional officer stress on the well-being of the officer and the prison workplace and developing a practical index of officer stress for use by correctional agencies. PI: John Hepburn, Ph.D., Texas Site Coordinator: Melinda Tasca, Ph.D., Texas Site Co-Coordinator: H. Daniel Butler, Ph.D. Funded by the National Institute of Justice (Award No. 2014-IJ-CX00026). SHSU Subcontract: $127,194.

2016   **Research Assistant**, Arizona State University
Project: The public safety clinic: Theft on and around ASU's Tempe campus. Funding from Arizona State University, PI: Michael Scott, J.D.

2015-2016   **Research Analyst,** City of Tempe Police Department, Arizona
       Strategic Planning and Resource Center (SPARC)

TEACHING EXPERIENCE

2021	**Doctoral Teaching Fellow,** Sam Houston State University *Undergraduate*: Correctional Systems and Practices Introduction to Methods of Research
2020	**Doctoral Teaching Fellow,** Sam Houston State University *Undergraduate*: Introduction to Methods of Research
2018	**Guest Lecturer**, Sam Houston State University Topic: "Measuring Crime"; Introduction to Methods of Research.
2017	**Guest Lecturer**, Sam Houston State University Topic: "Juvenile Probation"; Correctional Systems and Practices. Topic: "Adult Probation"; Correctional Systems and Practices.
2016	**Teaching Assistant**, Sam Houston State University *Undergraduate*: Correctional Systems and Practices *Graduate:* Critical Analysis of Justice Administration
2014-2016	**Teaching Assistant**, Arizona State University *Undergraduate:* Research Methods Statistical Analysis Race, Ethnicity, Crime and Criminal Justice Advanced Criminological Theory Law and Social Control Domestic Violence Organized Crime Crime Control Policies

SERVICE

Sam Houston State University

2018-2019	President, Criminal Justice Graduate Student Organization, Sam Houston State University. Academic Peer Mentor: Addison Kobie
2017-2018	Treasurer, Criminal Justice Graduate Student Organization, Sam Houston State University. Academic Peer Mentor: Sarah McGuire (Bostrom)

CONFERENCE PRESENTATIONS

2019   **Griffin, A. D.,** & Toman, E. L. (2019, November). Substance use and prison misconduct: The gendered effect of treatment availability. Paper presented at the American Society of Criminology Conference, San Francisco, CA.

       Griffin, A. D., & Orrick, E. A. (2019, November). Correctional officer recruit's mental health, training, and retention concerns. Paper presented during Roundtable at the annual meeting of the American Society of Criminology, San Francisco, CA.

       Griffin, A. D., & Toman, E. L. (2019, March). Using race, class, and gender to predict probation revocation for drug users. Paper presented at the Academy of Criminal Justice Sciences Conference, Baltimore, MD.

2018   **Griffin, A. D.,** Tasca, M., & Orrick, E. A. (2018, November). Gender differences in the relationship between social support and stressors on post-release drug use. Paper presented at the American Society of Criminology Conference, Atlanta, GA.

       Niebuhr, N., Orrick, E. A., **Griffin, A. D.,** & Butler, H. D. (2018, November). Job satisfaction and dissatisfaction among correctional officers. Paper presented at the American Society of Criminology Conference, Atlanta, GA.

2017   **Griffin, A. D.,** & Blasko, B. L. (2017, October). Substance use patterns among justice-involved men convicted of sexual offenses: Different pathways to sexual offending and implications for corrections policy. Poster presented at the Association for the Treatment of Sexual Abusers Conference, Kansas City, MO.

       Griffin, A. D., & Blasko, B. L. (2017, October). Understanding the intersection of drug use and violence: Intimate partner violence among criminal justice involved individuals. Poster presented at the Addiction Health Services Research Conference, Madison, WI.

       Griffin, A. D., Blasko, B. L., Jeglic, E. L., Calkins, C., & Taxman, F. S. (2017, March). Substance use patterns among sexual offenders: Pathways to offending and implications for treatment policy. Paper presented at the Academy of Criminal Justice Sciences Conference, Kansas City, MO.

PROFESSIONAL DEVELOPMENT

      2019   "Spring Graduate Studies Leadership Training," SHSU.
                "16th Annual Teaching and Learning Conference," PACE, SHSU.

      2018   "Teaching Online with Blackboard Certification," SHSU.
                "Spring Graduate Studies Leadership Training," SHSU.
                "15th Annual Teaching and Learning Conference," PACE, SHSU.

"Fall Graduate Studies Leadership Training," SHSU.

2017   "Fall Graduate Studies Leadership Training," SHSU.
        "Inside-Out Prison Exchange Program Workshop," Temple University.

PROFESSIONAL MEMBERSHIPS

American Society of Criminology
Division on Corrections and Sentencing

Academy of Criminal Justice Sciences
Corrections Section
Restorative and Community Justice Section
Drugs and Alcohol Research Section