DISTRIBUTION AGREEMENT

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

_____ _____

Melissa C. Podolsky Date

Trajectories of stigma among opioid dependent individuals in Ukraine: A comparison between individuals currently receiving opioid agonist treatment and those not in treatment

By

Melissa C. Podolsky
Master of Public Health

Global Health

_____

Dr. Carlos del Rio
Committee Chair

_____

Dr. Frederick Altice
Committee Member

_____

Dr. Rachel Waford
Committee Member

Trajectories of stigma among opioid dependent individuals in Ukraine: A comparison between individuals currently receiving opioid agonist treatment and those not in treatment

By

Melissa C. Podolsky
B.A., Emmanuel College, 2015

Thesis Committee Chair: Carlos del Rio, MD

An abstract of a thesis submitted to the faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health in Global Health
2019

ABSTRACT

Trajectories of stigma among opioid dependent individuals in Ukraine: A comparison between individuals currently receiving opioid agonist treatment and those not in treatment

By Melissa C. Podolsky

Background: Treatment for opioid use disorder is critical in the prevention of infectious diseases, including HIV and viral hepatitis. While opioid agonist therapy (OAT) is effective in treating substance use, stigma and fear of harassment towards people who inject drugs in Ukraine serves as barriers. We evaluate differences among individuals receiving OAT in comparison to those not receiving OAT and address factors associated with three types of stigma (enacted, anticipated, and internalized).

Methods: We conducted a cross-sectional study of opioid dependent individuals in seven sites with high burdens of injection drug use and HIV in Ukraine. Participants were either receiving OAT for at least 3-months or not receiving OAT. We assessed participant characteristics, injection drug use behaviors, police encounters, and stigma through a self-administered quantitative survey.

Results: Among 418 participants, 192 were receiving OAT for at least 3-months and 226 were not receiving OAT. The likelihood of being in a relationship, employed, enrolled in the AIDS clinic, having Hepatitis C, and encountering police brutality significantly differed between study groups. Participants not receiving OAT were significantly more likely to have internalized stigma (OR=2.029, CI=1.370, 3.005; $p<0.01$), while both groups had similar enacted and anticipated stigma. Being in a relationship served as a protective factor towards enacted stigma, while having Hepatitis C increased the odds of having enacted and internalized stigma.

Conclusions: While OAT is effective in reducing substance use and improving quality of life, stigma towards opioid dependent individuals is commonly reported. A multisectoral approach to reduce stigma and link individuals to care is recommended.

Trajectories of stigma among opioid dependent individuals in Ukraine: A comparison between individuals currently receiving opioid agonist treatment and those not in treatment

By

Melissa C. Podolsky
B.A., Emmanuel College, 2015

Thesis Committee Chair: Carlos del Rio, MD

A thesis submitted to the faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health in Global Health
2019

ACKNOWLEDGEMENTS

This research could not have been possible without support and encouragement from others. I would like to thank Dr. Carlos del Rio for his support in the development of this research, constructive feedback, and invaluable guidance throughout my graduate career. Dr. Frederick Altice for welcoming me into his research team, conceptualizing this research, and encouraging me to think critically. Dr. Rachel Waford for her unwavering encouragement, constructive feedback, and willingness to help. I would like to extend my appreciation to Katherine LaMonaca, Iryna Pykalo, and Myroslavia Filippovych for their support in developing this research, being willing to talk through writing blocks, assisting in translation and survey development, and their invaluable hospitality while in Ukraine. The support and inspiration from others could not be understated.

I am thankful for my family and friends for their overwhelming support, love, and advice. For my fiancé for his willingness to move with me so I can progress my education, encouragement when times felt difficult, and patience beyond belief. I could not thank you all enough.

To my dear friend, who left us to soon. May your struggles fade and mind find peace.
Our cherished memories will continue to guide me through.

TABLE OF CONTENTS

CHAPTER I. INTRODUCTION

1.1. INTRODUCTION AND RATIONALE

Ukraine holds the highest prevalence of Human Immunodeficiency Virus (HIV) among Eastern Europe and Central Asia (Avert, 2017). The rate of HIV-infection among people who inject drugs (PWID) in Ukraine is high and injection drug use (IDU) is the leading cause of HIV transmission; not surprisingly, nearly a quarter of people living with HIV (PLWH) in Ukraine are PWID (Avert, 2017; UNAIDS, 2016a). PWID are also at a greater risk of morbidity and mortality than non-injectors due to overdose, as well as acute and chronic diseases (Parashar et al., 2016). To impact the transmission of HIV and other infectious diseases such as hepatitis C in Ukraine, it is critical to understand the behaviors that increase the risk of infection and the role substance use treatment may have in disrupting this path of transmission.

As with many countries, substance use is illegal in Ukraine and individuals are penalized when caught (DeBell & Carter, 2005). With fear of being caught by the police, individuals may choose to rush injections (Booth et al., 2013), putting themselves at risk for obtaining or spreading an infection. Bacterial and viral infections are often transmitted via unsterile injection practices, also described as risk-behaviors. For instance, sharing drug preparation equipment and injecting from pre-loaded syringes is a high-risk practice for disease transmission (Makarenko et al., 2017). This practice has been commonly reported, as previous literature found that one in six PWID in Ukraine reported re-using a syringe after another person (Mazhnaya et al., 2018).

Medication Assisted Treatments (MAT) have been recognized as a successful approach to treat opioid use disorders (OUD) and a critical strategy to prevent an opioid overdose (Carroll et al., 2018).The World Health Organization identifies methadone maintenance therapy (MMT) to be the most effective treatment for OUD (World Health Organization, 2009). The effectiveness of

this treatment appears to be robust, as previous literature in Ukraine has shown that nearly all individuals approached to enroll in MMT agreed to participate and continued their treatment upon study conclusion (Dvoriak et al., 2014). Despite having low salaries in Ukraine, literature found that PWID were even willing to pay a large percentage of their monthly income for treatment (Makarenko et al., 2017).

MAT can assist in reducing overall drug use and also improve treatment retention of those with infectious diseases, such as HIV. To illustrate this, PWID who received opioid agonist therapy (OAT), a form of MAT, were more likely to be linked to and retained in HIV treatment (Mazhnaya et al., 2018). In a comparison of women either prescribed OAT or not, those receiving OAT generally engaged in less sexual risk-behaviors and had an improved mental wellbeing (Hoff et al., 2017). Given the acceptability of OAT as a method of reducing substance use, and benefits of OAT being well documented, we question why this treatment isn't widely utilized among PWID, in addition to those living with HIV and inject drugs.

Though expanding OAT accessibility is fundamental, it is critical to understand why individuals refrained from accessing treatment in prior years. Despite the accessibility of OAT programs, PWID face a number of barriers to utilizing treatment. In general, PWID in Ukraine are often hesitant to seek treatment due to the burden of societal stigma and discrimination, despite the high risk of infection. Those who seek treatment are added to law enforcement and/or narcology registries that denote the individual as a drug user (Mazhnaya et al., 2016; Shields, 2009). Once receiving treatment, the individual is still at risk for harassment. Police often frequent treatment sites to interrogate or arrest individuals (Mazhnaya et al., 2016). Along with this already challenging path of breaking an addiction is a cycle of oppression. Being a registered drug user prohibits individuals from obtaining a driver's license, applying for certain jobs, and mandates

regular check-ups by a physician (Shields, 2009). Stigma towards PWID appears to be an underlying barrier to seeking and receiving treatment.

Confronting stigma is not a simple process because it presents in a number of forms. The Stigma Framework outlines three measurable types of stigma: enacted stigma, anticipated stigma, and internalized stigma (Earnshaw & Chaudoir, 2009; Smith et al., 2016). Enacted stigma results from personal experiences of discrimination in the past or present. Anticipated stigma influences perceptions of how individuals may be viewed by others in the future. Internalized stigma occurs when an individual self-discriminates and endorses feelings based on societal views (Smith et al., 2016). Societal-stigma can have detrimental effects on individual's retention to treatment and can trigger issues of internalized stigma, where individuals assume the negative inferences about themselves that were implied by others (Matthews et al., 2017).

Through the use of substances, fear of encountering police, and engagement in risk-behaviors, PWID become subject to stigma and discrimination that could ultimately challenge their social stability. To support individuals in substance use treatment, or for those interested, we must understand challenges of stigma, risk-behaviors, and additional lifestyle factors between individuals on treatment and those who are entering treatment.

1.2. PROBLEM STATEMENT

Stigma and discrimination towards PWID are barriers to seeking care and those who receive treatment may be subject to police interrogation. There is a need to reduce stigma of PWID by integrating addiction treatment into a less stigmatized healthcare facility, such as a primary care clinic. A recent pilot study integrated OAT into primary care clinics and found that patients were more satisfied with treatment, retained in care, and perceived a better well-being when receiving

OAT from primary care rather than from narcology clinics (Morozova et al., 2017). To prepare for a further understanding of integrating treatment into less stigmatized facilities, it is imperative to first understand the types of stigma faced by PWID and how stigma this stigma presents. While previous literature has focused on stigma among individuals with HIV, this study will examine stigma among PWID who are living with HIV. Through the present study, based on OAT enrollment status (patients currently receiving OAT for at least three months and patients not receiving OAT), participants can provide greater insight to the underlying stigma that could influence behaviors.

1.3. PURPOSE STATEMENT

We seek to understand the types of stigma experienced by participants. IDU, fear of encountering police, and engaging in risk-practices may lead to perceptions of stigma that could deter individuals from engaging in recovery. By understanding stigma differences among those currently receiving OAT in comparison to those not receiving OAT, we have the opportunity to shed light on underlying factors of stigma that could be addressed to engage others in treatment, improve social stability, and reduce drug use as well as police encounters.

1.4. RESEARCH QUESTION

The current research addresses the following questions:

1. How do social stability, drug use behavior, and police encounters differ between individuals by OAT enrollment status (currently receiving OAT or not receiving OAT)?
2. How does stigma manifest among participants by OAT enrollment status?

3. What are the relationships between types of stigma, social stability, and drug use behavior among opioid dependent participants?

Specific research objectives are as followed:

1. Determine the characteristics and behaviors of PWID who are currently receiving OAT and those who are not receiving OAT.
2. Understand the types of stigma (enacted, anticipated, and internalized) that participants encounter and examine differences between study groups.
3. Understand how stigma relates to social stability among opioid dependent participants.

1.5. SIGNIFICANCE STATEMENT

Stigma and discrimination towards PWID in Ukraine serve as a barrier to seeking treatment, and high-risk drug use practices have adverse health implications. PWID are stigmatized for their drug use and they often avoid treatment services in fear of arrest or harassment. To reduce further drug use, in addition to transmission of bacterial and viral infections, it is fundamental to evaluate differences between individuals enrolled in OAT in comparison to those who are not and are likely still injecting substances. In addition, by understanding and reducing stigma, individuals may be more likely to continue on OAT, improve upon treatment adherence, and reduce risk-behavior that can contribute to the spread of bacterial and viral infections. Efforts to reduce underlying stigma should be taken to ensure that individuals can safely receive treatment for their OUD. Through reducing stigma among PWID, we anticipate individuals will be more willing to engage in substance use treatment, thus reducing IDU and possible risk-behaviors to the spread of diseases.

1.6. ACRONYMS AND DEFINITION OF TERMS

AIDS	Acquired Immunodeficiency Syndrome
HCV	Hepatitis C virus
HIV	Human Immunodeficiency Virus
IDU	Injection Drug Use
MAT	Medication Assisted Treatments
MMT	Methadone Maintenance Therapy
OAT	Opioid Agonist Therapy
Oblast	A region within Ukraine
OST	Opioid Substitution Therapy
OUD	Opioid Use Disorder
SUD	Substance Use Disorder
PEPFAR	Presidents Emergency Plan for AIDS Relief
PLWH	People Living with HIV
PWID	People Who Inject Drugs
WHO	World Health Organization

CHAPTER II. LITERATURE REVIEW

2.1. HIV IN UKRAINE

Upon the fall of the Soviet Union and declaring independence in the early 1990s, Ukraine experienced a decline in its ability to manage the country's health. Cases of Human Immunodeficiency Virus (HIV) and deaths due to Acquired Immunodeficiency Syndrome (AIDS) increased drastically (DeBell & Carter, 2005). Economic instability and poverty amplified throughout the country (Rhodes et al., 1999). Poverty, homelessness, and limited access to hygienic practices welcomed the opportunity for adverse health impacts. Corruption among country borders and increased drug trafficking from the Black Sea enabled the flow of drugs and contributed to the spread of infections (DeBell & Carter, 2005).

Of Eastern Europe and Central Asia, Ukraine has the highest prevalence of HIV (Avert, 2017; Booth et al., 2003). The burden of HIV continues to rise and is heavily driven by injection drug use (IDU) (Nieburg & Carty, 2012; PEPFAR; UNAIDS, 2017). Approximately 22% of people who inject drugs (PWID) had HIV in 2015 (Dumchev et al., 2018). While nearly a quarter of PWID tested positive for HIV, this rate may be higher than reported as. HIV incidence is often measured by the number of people registered in an AIDS center, though not all PLWH are registered (PEPFAR). In addition, only a little over half of people living with HIV (PLWH) in Ukraine know their HIV status (UNAIDS, 2017). Those who know their status may even choose to hide their status because of high levels of stigma towards HIV (Green, 2017).

HIV is treatable with antiretroviral therapy (ART) and treatment can prevent further development of health consequences (HIV, 2017). ART is available at the AIDS clinics, funded by local budgets and international donors (World Health Organization, 2013; PEPFAR). Despite high rates of HIV among PWID, a lack of HIV treatment engagement exists among PWID. For

instance, PWID were found to be 85% less likely to be receiving ART than those who do not inject drugs (Nieburg & Carty, 2012). Disparities of treatment among HIV-positive PWID in comparison to non-injectors creates an injustice to a vulnerable population in need. The World Health Organization (WHO) recommends HIV healthcare reform in Ukraine, seeking resources from Ukrainian health administrations to restructure the system for those in need (World Health Organization, 2013).

While receiving resources from donor organizations, largely from the Global Fund and PEPFAR (Nieburg & Carty, 2012; PEPFAR), Ukraine's Director General of the Ministry of Health's Public Health Center stated a significant increase in government funding for HIV. By 2020, the government aims to increase ART for PLWH throughout the country. The director noted that she is optimistic that the HIV epidemic in Ukraine can be reconciled with aid from the government (Green, 2017). Through an increase in government funding and support, PLWH may have an increased opportunity for aid. Increases in funding and support are fundamental, though human resources and infrastructure play a critical role in treatment outcomes.

Through the present war between Ukraine and Russia, the public health of the country has been largely impacted. Donetsk and Lugansk regions, known in Ukraine as oblasts, had a large displacement of the population due to their close proximity to the war (Vasylyeva et al., 2018). These areas were found responsible for high rates of HIV-transmission to other regions due to the displacement (Vasylyeva et al., 2018). Due to the current conflict, these oblasts are no longer under the control of Ukrainian government, which resulted in a decline of prevention programs and of treatment supply since 2015 in these regions (Pizzi, 2015). Individuals on Medication Assisted Treatment (MAT) for their substance use are at risk of losing their treatment based on limited

resources, including the supply of mechanisms to prevent further spreading diseases (i.e. condoms, clean syringes) (Pizzi, 2015).

Ukraine is in need of healthcare reform through shifting responsibilities from international donors to their government, though this could take decades to establish. Influencing the infrastructures in which health care delivery takes place, however, may be an efficacious step to reducing further transmission of infections. With the increased risk of disease transmission in the current situation of Ukraine, it is necessary to improve upon existing healthcare infrastructures and prevention methods. Improving upon access to treatment, care, and quality of life for PWID can improve upon the burden of HIV throughout the country.

2.2. INJECTION DRUG USE

HIV transmission is largely driven by IDU. It is estimated that over 340,000 people inject drugs in Ukraine (UNAIDS, 2017). Shirka is a commonly used, self-made, liquid opioid that is a derivative from poppy straw and is more frequently injected than heroin (Bruce et al., 2007). Shirka and other injection drugs are typically sold in pre-loaded syringes (where the substance is purchased already within a syringe). If poppy straw is unavailable, individuals may seek other substances, such as desomorphine (*Desomorphine*, 2013; Grund et al., 2013). Desomorphine, commonly known as “krokodil” or "Russian Magic", is a potent homemade codeine derivative that is widely used throughout Ukraine and Russia (*Desomorphine*, 2013; Grund et al., 2013). Krokodil is widely known for its damaging effects to skin, described to create a “scale-like” appearance, but also for its negative effects on bodily functions (*Desomorphine*, 2013; Grund et al., 2013).

Many substances used to prepare krokodil are easily accessible and can be purchased over the counter at the pharmacy (Grund et al., 2013), allowing for easy access to substances. Other

drugs that are purchased from a drug dealer are often prepared in a shared container and injected into a syringe. The dealer preparing the drug may unknowingly, or knowingly, contaminate the batch via inserting a used syringe into the batch (Booth, 2013; Bruce et al., 2007; Grund et al., 2013; Schaub et al., 2010). Through remaining blood within the used syringe from the dealer, inserting the syringe into the batch will release some of their blood (Baggaley et al., 2006). Thus, individuals are at a greater risk for obtaining viral infections via the transfer of blood from one to another (Patel et al., 2014). PWID become at risk of infection as soon as they use the pre-loaded syringe, and highlights the importance of decreasing practices of IDU altogether.

In addition to the use of pre-loaded syringes, another high-risk practice for obtaining infection is through sharing injection equipment (Des Jarlais et al., 1988; Patel et al., 2014). Between 2007-2013 researchers found a decrease in the prevalence of sharing injection equipment (Makarenko et al., 2017). Injecting drugs with pre-loaded syringes, however, remained consistent throughout the study period. With heightened IDU risk-behaviors, PWID are at risk for a number of bacterial and viral infections, including endocarditis, abscesses, cellulitis, hepatitis A, B, C, and D, and others (Dumchev et al., 2009; Stein, 1999).

Through partaking in risk-behaviors, bacterial and viral infections can become inescapable. Predictors of obtaining skin infections include, but are not limited to, poor hygienic practices prior to injecting (lack of washing hands and cleaning skin), injection frequency, re-using needle, and subcutaneous and intramuscular injection (Stein, 1999). In an interview of 51 PWID, researchers found that 54.9% reported to ever have an abscess, a skin infection often caused by IDU (Phillips & Stein, 2010). Moreover, participants washed their hands and/or cleaned their injection site only half of the time before injecting, putting them at risk via bacteria entering the skin (Phillips & Stein, 2010). Injecting drugs in public places, unstable housing, and sharing syringes serve as risk

factors for HIV (Mazhnaya et al., 2018). In fact, chances of engaging in risk-behaviors when injecting in public is four-times higher than when injecting in private places (Mazhnaya et al., 2018). It can be speculated that this is to due factors such as the illegal nature of substance use, rushing to not get caught, and having limited access to hygienic practices (i.e. sink to wash hands).

Harm reduction methods are valuable in reducing the risk of obtaining and transmitting infections. For instance, upon re-using or sharing injection syringes, cleaning the syringe with bleach is effective at reducing risk of HIV transmission (Abdala et al., 2001), Reducing overall drug use and increasing access to prevention programs could result in a reduction of disease transmission. Limited surveillance, education, and prevention methods existed in the early 2000s (DeBell & Carter, 2005), and may have been a contributing factor to the historically high rates of HIV. Though nearly two decades later, limited initiatives have reduced the high rates of infectious diseases. For Ukraine to see a reduction in transmittable diseases and substance use, individuals need access to treatment and harm-reduction approaches. Providing support to individuals in need and vulnerable populations is fundamental to strengthen the healthcare of the country.

2.3. STIGMA

"You are not a human. Doctors like to say, 'it is your fault.

You should have known. You have had enough of life'."

– A woman in Ukraine with an abscess left untreated based on her history of drug use.

(Booth, 2013)

Substance use stems from a number of influences, including behavioral, biological, and societal factors. While substance use is treatable, the effects of stigma among PWID become long-

lasting and continue to oppress this population. To address a population in need of aid, we must also consider the non-physical factors that could influence their heath, such as stigma. The challenge in addressing stigma is that it shows up in a number of forms, such as stigma of the self or experiencing societal stigma and requires a multifaceted approach.

While stigma varies by source, feelings of stigma towards one-self could deplete confidence and motivation. Flanagan (2013) conceptualizes stigma as having and accepting a sense of shame. He proposes the idea that an individual who is battling a SUD often becomes entangled in the idea of pleasing others by what they define to be successful: no longer using substances. Through this effort of pleasing others, the person using substances faces an internal struggle with the promise that they made to stop using substances and becomes too distracted to enact the necessary lifestyle changes to remain free of substances. Feelings of shame through disappointing others creates a sense of self-stigmatization; thoughts of not working hard enough, not being good enough, not healing fast enough, and others may occur. Additionally, the thought of using a substance regardless of the promises made to others could easily make one feel like they will fail others; the internal struggle of doing "right and wrong" can be overwhelming (Flanagan, 2013).

Other forms of stigma emerge from external sources and could influence feelings of internalized stigma. Matthews et al. (2017) note that experiencing stigma from the public contributes to the development of self-stigmatization. Previous literature found that PWID felt others may mischaracterize them as someone who would steal or do harm (Matthews et al., 2017). A guilty conscious then emerges from the fear of being blamed for actions they may have not done.

Rooted from past literature, Earnshaw and Chaudoir (2009) conceptualize stigma towards PWID using a framework originally developed to describe stigma among PLWH. This framework consolidates perceptions of stigma into three levels that can be felt in PWIDs: enacted stigma,

anticipated stigma, and internalized stigma (Earnshaw & Chaudoir, 2009; Smith et al., 2016). Through enacted stigma, one perceives acts of prejudice, stereotypes, and/or discrimination from the community. Upon perceiving stigma from the community, one begins to anticipate that they will receive similar treatments from others in the future. Finally, stigma becomes internalized, where one begins to relate with the negative views others feel towards them (Earnshaw & Chaudoir, 2009).

Stigma towards HIV and PWID is common among the community and family members of those infected. According to the UNAIDS Data report in 2017, approximately 65% of participants in Ukraine reported that they would not purchase vegetables from an HIV+ shopkeeper (UNAIDS, 2017). This notion of stigma creates a sense of fear; participants mentioned that they do not disclose their HIV status with family members in fear of rejection (Mimiaga et al., 2010).

Stigma and perceptions are also characterized through encounters with people within their environment. For instance, prior research found that individuals who are incarcerated reported higher optimism towards their recovery from substance use than those who have been released (Polonsky et al., 2016). Being released into a community with stigma towards PWID could interfere with treatment, as feelings of optimism are a strong predictor of intention to remain free of substances (Polonsky et al., 2016). Through being released into society, where stigma towards PWID in Ukraine is strong and substances are readily available, this built-up optimism could diminish.

While Ukraine is pursuing aid for PWID and PLWH, the quality of healthcare towards these populations may not be sufficient. PWID have reported being neglected treatment when sick and seeking care from clinics (Booth et al., 2016). Other individuals feel a sense of stigmatization towards MAT (Bojko et al., 2015) and thus may never seek treatment. Through an initiative to

increase the number of PWID on ART, providers and medical personnel may receive incentives when an individual initiates ART (Dmitrieva et al., 2019). Although this approach has the opportunity to link patients to treatment, it does not address underlying factors of stigma and discrimination that could deter the patient from adhering treatment.

Approaches to enroll PWID in treatment appear to be a promising start to engaging this population in care. Reducing underlying feelings of stigma that prevent individuals from engaging in care should be considered to improve treatment adherence. For individuals who feel they are not deserving of treatment due to their history of substance use (Booth, 2013), it becomes challenging to be motivated to change the lifestyle that they are familiar with.

2.4. LAW ENFORCEMENT

Illicit drug use remains criminalized in Ukraine (DeBell & Carter, 2005). To that extent, it has become well reported that law enforcement, specifically police officers, misuse their position of power towards PWID and hold strong perceptions of stigma (Booth et al., 2013; Kutsa et al., 2016; Mazhnaya et al., 2016; Mimiaga et al., 2010). Police brutality towards PWID is commonly reported, although law enforcement will often deny the accusations (Booth et al., 2013). Through heightened power and stigma from the police, the voices of PWID often go unheard leaving the authority of law enforcement unchanged.

Law enforcement hold a status of power that could serve to be a driver of stigmatization (Link & Phelan, 2001). Through the illicit nature of drug use, PWID are often considered a vulnerable population and could be an easy target for police to arrest or interrogate. Cases of planting drugs on users to meet arrest quotas have been reported, as well as incidents of police requesting bribery from users (Booth et al., 2013). In fact, 61% of research participants reported

that they had to pay police monetary or sexual bribery to avoid arrest (Booth et al., 2013). In addition to having to pay bribery to police, men reported a higher prevalence of physical harassment while women reported a higher prevalence of sexual harassment or violence from police (Kutsa et al., 2016).

Due to the power of law enforcement, PWID often sacrifice harm reduction with the fear of being caught using substances. Over half of research participants in a qualitative study of 200 participants claimed to rush an injection in fear of police and thus neglected harm reduction methods (e.g. cleaning skin prior to injection) (Booth et al., 2013). Sharing syringes has been commonly reported as a way to quickly use substances (Booth et al., 2003), which is a high risk practice for obtaining or transmitting diseases. While rushing injection increases the odds of HIV-infection (Booth et al., 2013), fear of police often trumps this decision-making process. For instance, in discussion about receiving HIV through risk-behaviors, an individual mentioned that he was less concerned of obtaining HIV but rather he was concerned about withdrawals and being caught by the police (Booth, 2013).

Police have also been known to target those who seek harm reduction methods or treatment. For instance, police have been reported to wait outside of pharmacies for PWID, where a prescription is not needed to purchase syringes, to search them for drugs (Booth et al., 2013). Some participants find that when on medication to treat SUD, they feel "free", becoming less of a suspect to police. Others, however, continue to feel targeted by police who make frequent visits to treatment centers (Mazhnaya et al., 2016; Mimiaga et al., 2010). Entering a treatment site puts individuals at risk to appear to be a criminal. Nearly a quarter of research participants reported to be uninterested in receiving OAT because of police harassment (Kutsa et al., 2016).

The cycle of addiction includes law enforcement confrontation and becomes a volatile path to disrupt. Committing crimes to obtain substances often leads to a forced detox upon incarceration (Mazhnaya et al., 2016). Though upon release, and the instability of returning to society, relapse is commonly reported (Mazhnaya et al., 2016). To maintain abstinence, breaking the vicious cycle of addiction, misconduct practices from police and unwarranted surveillance towards PWID must be addressed.

2.5. MEDICATION ASSISTED TREATMENT

Medication Assisted Treatment (MAT) is widely known for its success in managing and treating opioid use disorders (OUD). MAT is recognized to be an effective strategy by leading public health agencies, such as the World Health Organization and the Centers for Disease Control and Prevention (Carroll et al., 2018; World Health Organization, 2009). The uptake, accessibility, and general interest of this medication has grown. Ukraine has been offering MAT since 2004, and Methadone Medication Treatment (MMT) since 2007, though a limited number of individuals seek treatment (Avert, 2017; Dvoriak et al., 2014). Despite the 340,000 PWID in Ukraine (UNAIDS, 2017), approximately 9,000 were enrolled on MAT in 2017 (Green, 2017).

Historically, addiction treatment was limited to mental health facilities or via counseling services (DeBell & Carter, 2005). Now, however, the Ukrainian government has become increasingly interested in supporting MAT. While treatment has been funded by international donors and agencies, the government decided to fund treatment throughout health care facilities across Ukraine in 2018 ("Ukraine to finance expanded opioid substitution therapy programme", 2018). This expansion of substance use treatment will provide access to treatment for over 10,000 individuals ("Ukraine to finance", 2018).

OAT, a form of MAT, benefits the health of those in recovery in ways other than its purpose to reduce drug use and cravings. On a population scale, the burdensome HIV epidemic could be impacted by the uptake of treatment. Focus-group participants reported that by being on OAT, they are less focused on finding a drug supply and are able to focus on their HIV treatment (Mimiaga et al., 2010). Another study found those who were prescribed OAT more likely to be diagnosed, linked, retained, and in treatment for HIV (Mazhnaya et al., 2018). Additionally, individuals enrolled on MMT were found to have greater adherence to tuberculosis treatment and for a longer duration of time (Morozova et al., 2013). Thus, retention to OAT is critical to limit the amount bacterial and viral infections (Dumchev et al., 2017).

Through a mixed-methods study, Hoff et al. (2017) reviewed behaviors of women who inject drugs in Ukraine that were enrolled on OAT in comparison to those not. Those enrolled on OAT reported a lower drug use and cravings. These women also practiced less sexual risk-behaviors, though through qualitative focus groups, researchers learned that sexual drive is decreased while on OAT. HIV-testing was reported higher among women on OAT. Mental well-being, such as depression, was lower among those on OAT (Hoff et al., 2017). Consistent with this research, additional literature found that illegal activities, engaging in risk-behaviors, and other illicit drug use was also improved among persons receiving treatment in as little as six-months (Schaub et al., 2010).

The health behaviors while taking OAT are clearly understood, but it is noteworthy that adherence to treatment can be largely dependent on OAT dosage and is not a one-size fits all solution. Concurrent drug use while receiving OAT was found to be correlated with the dose of OAT prescribed (Makarenko et al., 2018). With adequate OAT dosages, however, individuals reported reduced concurrent drug use and improved treatment retention (Dumchev et al., 2017;

Makarenko et al., 2018). Dumchev et al. (2017) found that individuals who received a medium to high dose of OAT were more likely to be engaged in treatment than those who receive a lower dose. Of note, approximately 65% of participants were retained on OAT across a 12-month period (Dumchev et al., 2017) and offers an opportunity to research factors influencing these rates.

While enrolling on OAT has limitations, one study researched the willingness to enroll in treatment and found that over half of research participants reported that they would be willing to pay out-of-pocket for OAT (Makarenko et al., 2017). Interestingly, those not previously enrolled on OAT were willing to pay more than those who have enrolled (Makarenko et al., 2017), which may be speculated to be due to not knowing the market prices for OAT, having a strong desire to enter recovery, or knowing the benefits of OAT.

Despite the advantages of OAT, individuals need to register themselves as a drug user in order to enroll on treatment. Registering as a drug user comes with limitations, such as being restrained from applying to specific jobs and receiving a driver's license (Shields, 2009). Being a registered drug can also make one a target to be under constant surveillance by police (Mazhnaya et al., 2016). When seeking treatment, individuals often wait long durations for appointment availability but never receive a return-call (Bojko et al., 2015). Once eligible for treatment, individuals continue to face hurdles to gain certificates that approve they have been a registered drug user for a number of years (Bojko et al., 2015). In order to enroll individuals in treatment, it is imperative to understand and reduce barriers to receiving treatment and the associated stigma.

2.6. SUMMARY

Ukraine is in the midst of an HIV epidemic that is predominantly driven by through IDU. In order to control this epidemic it is necessary to reduce the number of PWID and engage them

in substance use treatment. The need to change the structural systems of treatment and reduce associated stigma has been long vocalized (Mazhnaya et al., 2016). Reducing stigma among healthcare workers and law enforcement invites the opportunity to reduce fear of negative implications among PWID seeking treatment or harm reduction practices.

Through IDU, individuals are at a heightened risk of encountering police and engaging in risk practices. PWID often feel stigmatized when seeking care or from the community, which may result in lower social stability or motivation. With known benefits of MAT, we hope that engaging individuals in treatment can ultimately disrupt this cycle. Past research has clearly outlined IDU, police encounters, and risk-behaviors among PWID in Ukraine. This study will contribute to past research and examine of how stigma presents and relates to behavioral factors and social stability, thus potentially continuing a cycle of IDU.

The present study will serve to characterize people who are currently enrolled on OAT in comparison to those who are not. This study will research perceptions of stigma among both study groups and its relationship with risk-behaviors and social stability factors. Previous literature, and endorsements of OAT from leading public health agencies, leads us to believe this treatment is effective in reducing substance use. As stigma plays a large role treatment seeking and harm reduction, it is fundamental to understand how stigma presents among groups and its association with behaviors.

CHAPTER III. MANUSCRIPT

3.1. CONTRIBUTION OF THE STUDENT

The student was responsible for conceptualizing and designing a survey that incorporates relevant questions to this analysis on stigma among opioid dependent participants. This survey was added to a larger survey, for a study seeking to integrate OAT into primary care clinics. The student was not responsible for the development of the parent survey and study protocol. She was, however, responsible for cleaning, analyzing, and writing the analyses as well as constructing tables and figures for this thesis and manuscript.

This manuscript will be submitted to Drug and Alcohol Dependence for peer-reviewed publication.

Trajectories of stigma among opioid dependent individuals in Ukraine: A comparison between individuals currently receiving opioid agonist treatment and those not in treatment

Melissa Podolsky,[1] Rachel Waford,[1] Carlos del Rio,[1] and Frederick Altice[2]

[1]Emory University and [2]Yale University

Corresponding Author:
Melissa Podolsky
Emory University
Melissacpodolsky@emory.edu

Target Journal: Drug and Alcohol Dependence

Word Limit: 4000

Keywords: People who inject drugs, opioid agonist therapy, substance use, stigma, law enforcement, HIV, HCV, addiction

Role of Funding Source: Nothing declared

Conflict of Interest: Nothing declared

Acknowledgments: We would like to acknowledge Katherine LaMonaca, Iryna Pykalo, and Myroslavia Filippovych for their invaluable support and guidance in this research. We would also like to thank the social workers who recruited participants and the participants who completed this survey who made this research possible.

Abbreviations:

HCV	Hepatitis C
HIV	Human Immunodeficiency Virus
IDU	Injection Drug Use
IRB	Institutional Review Board
MAT	Medication Assisted Treatment
PWID	People Who Inject Drugs
SU-SMS	Substance Use Stigma Mechanism Scale
OAT	Opioid Agonist Therapy
OUD	Opioid Use Disorder

3.2. ABSTRACT

Trajectories of stigma among opioid dependent individuals in Ukraine: A comparison between individuals currently receiving opioid agonist treatment and those not in treatment

By Melissa C. Podolsky

Background: Treatment for opioid use disorder is critical in the prevention of infectious diseases, including HIV and viral hepatitis. While opioid agonist therapy (OAT) is effective in treating substance use, stigma and fear of harassment towards people who inject drugs in Ukraine serves as barriers. We evaluate differences among individuals receiving OAT in comparison to those not receiving OAT and address factors associated with three types of stigma (enacted, anticipated, and internalized).

Methods: We conducted a cross-sectional study of opioid dependent individuals in seven sites with high burdens of injection drug use and HIV in Ukraine. Participants were either receiving OAT for at least 3-months or not receiving OAT. We assessed participant characteristics, injection drug use behaviors, police encounters, and stigma through a self-administered quantitative survey.

Results: Among 418 participants, 192 were receiving OAT for at least 3-months and 226 were not receiving OAT. The likelihood of being in a relationship, employed, enrolled in the AIDS clinic, having Hepatitis C, and encountering police brutality significantly differed between study groups. Participants not receiving OAT were significantly more likely to have internalized stigma (OR=2.029, CI=1.370, 3.005; $p<0.01$), while both groups had similar enacted and anticipated stigma. Being in a relationship served as a protective factor towards enacted stigma, while having Hepatitis C increased the odds of having enacted and internalized stigma.

Conclusions: While OAT is effective in reducing substance use and improving quality of life, stigma towards opioid dependent individuals is commonly reported. A multisectoral approach to reduce stigma and link individuals to care is recommended.

3.3. INTRODUCTION

It is estimated that over 340,000 people inject drugs in Ukraine (UNAIDS, 2017). People who inject drugs (PWID) are at a greater risk of morbidity and mortality than non-injectors due to overdose, in addition to acute and chronic diseases (Parashar et al., 2016). As Ukraine continues to have remarkably high rates of HIV, PWID largely contribute to the amount of infections (Avert, 2017; UNAIDS, 2016a). Approximately 21.9% of the estimated 240,000 people living with HIV inject drugs (Avert, 2017; UNAIDS, 2016b). To reconcile the spread of infections in Ukraine, it is critical to understand the behaviors that could increase risk of infection and the role substance use treatment may have in disrupting this path of transmission.

Leading public health agencies, including the World Health Organization and the Centers for Disease Control and Prevention, endorse Medication Assisted Treatment (MAT) to be effective for treating opioid use disorders (OUD) (Carroll et al., 2018; World Health Organization, 2009). Opioid Agonist Therapies (OAT), a form of MAT, have shown to be effective in reducing drug use, risk-behaviors, and transmittable diseases (Hoff et al., 2017; Jones et al., 2015; Schwartz et al., 2013; Tsui et al., 2014). Although Ukraine has been offering OAT for OUD since 2004, a limited number of individuals seek treatment (Avert, 2017; Dvoriak et al., 2014). In 2018, the government decided to expand OAT by funding it throughout health care facilities across Ukraine ("Ukraine to finance", 2018). While expansion of OAT is important, reducing the barriers to seeking treatment is essential.

Despite known advantages of OAT, enrolling in treatment is not a simple process and the burden of stigma and harassment could deter one from seeking treatment altogether. Stigma, characterized by feelings of shame (Flanagan, 2013), is well-reported and continues to challenge this population from engaging in care. In order to enroll in treatment, individuals need to register

themselves as a ‘drug user’, though this comes with a number of limitations (Shields, 2009). For instance, being a registered drug user prohibits individuals from obtaining a driver’s license and applying for certain jobs, and it mandates regular check-ups by a physician and puts individuals on a law enforcement and/or narcology registry that denotes them as a drug user (Mazhnaya et al., 2016; Shields, 2009).

Seeking substance use treatment thus becomes depreciated by stigma across multiple sectors. Being a known ‘drug user’ puts individuals at risk to be a target for police and these individuals are under constant surveillance; police often frequent OAT sites to interrogate or arrest individuals (Mazhnaya et al., 2016). Cases of physical and/or sexual harassment and requests for bribery by police are well reported (Hoff et al., 2017; Kutsa et al., 2016). The burden of police harassment can deter individuals from seeking harm reduction. For instance, rushing injections in fear of police is common to avoid being caught, though this could increase the risk of HIV-infection (Booth et al., 2013). While clean syringes are accessible at pharmacies, police see this as an opportunity to search an individual for drugs upon leaving (Booth et al., 2013).

Through fear and limited resources, it can be tempting to engage in risk-behaviors to inject quickly. Sharing syringes, for instance, puts individuals at a greater risk for obtaining viral infections via the transfer of blood from one to another (Patel et al., 2014). PWID are at risk for infections such as such as endocarditis, abscesses, cellulitis, Hepatitis B, C, and D, and others (Dumchev et al., 2009; Stein, 1999). Predictors of obtaining skin infections include factors such as poor hygienic practices prior to injecting (lack of washing hands and cleaning skin), injection frequency, re-using needle, and subcutaneous and intramuscular injection (Stein, 1999). OAT, in addition to risk mitigation, may prevent risk of infection and adverse health issues.

Stigma can also suppress unseen issues such as perceptions, confidence, and motivation. The Stigma Framework documents three types of stigma that are felt among PWID: enacted stigma, anticipated stigma, and internalized stigma (Earnshaw & Chaudoir, 2009; Smith et al., 2016). Earnshaw and Chaudoir (2009) explain stigma as followed: Through enacted stigma one perceives acts of prejudice, stereotypes, and/or discrimination. Upon perceiving stigma from the community, one begins to anticipate that they will receive similar treatments from others in the future. Finally, stigma becomes internalized, where one begins to associate with the negative views others feel towards them (Earnshaw & Chaudoir, 2009). Oppression through stigma challenges individuals from adhering to recovery and should be addressed. Limited research examines factors associated with stigma at a number of levels, though it is imperative to understand and reduce stigma barriers to enrolling in treatment.

Through this study, we examine stigma and factors associated with stigma among patients not currently receiving OAT, and patients currently receiving OAT for at least three months, in Ukraine. We describe stigma through a multifaceted lens, exploring the types of stigma felt. We also ask about police encounters, as they play a critical role in treatment seeking and harm reduction practices, potentially contributing towards the stigmatization of PWID.

3.4. STUDY DESIGN

We conducted a cross-sectional study of 418 participants from July 2018 through February 2019 in seven sites with high burdens of injection drug use (IDU) and HIV: Cherkasy, Dnipro, Mykolaiv, Kryvyi Rig, Zhytomyr, Kropyvnytskyi and Kramatorsk. Two groups of participants were recruited for this study: patients currently receiving OAT for at least three months and patients not currently receiving OAT. Clinic social workers at the narcology clinic conducted

enrollment. Eligible patients were at least 18 years old, met ICD-10 criteria for opioid dependence, were interested in beginning or continuing MMT, and resided within the area of care. Patients were excluded from the study if they were under police investigation, planning to move, unable to provide informed consent, or currently receiving OAT but for less than three months. Upon enrollment, participants completed a self-administered survey on a tablet via RedCAP. All data were stored in a RedCAP database. All study participants were compensated with 270 UAH ($9-11 USD) for their travel time and completing the survey.

This research survey and protocol was approved by the Institutional Review Boards (IRB) at Yale School of Medicine and the Ukrainian Institute on Public Health Policy. This cross-sectional data analysis was exempt from Emory University IRB.

3.5. SURVEY MEASURES

Participant characteristics, IDU frequency and risk-behaviors, and police encounters were reported for this study and compared between study groups. We used the Substance Use Stigma Mechanism Scale (SU-SMS) to assess experiences of stigma. The SU-SMS is an 18-item validated scale designed to ask about past and current drug and/or alcohol use history (Smith et al., 2016). This scale evaluates types of stigma (enacted, anticipated, and internalized) in regards to substance use history through a series of 6 questions each using a five-point Likert scale (1=Never, 5=Very Often). To develop a composite subscale, we reported on the mean and standard deviation for responses on each level of stigma. We then developed a binary variable to assess whether or not stigma is experienced, on average, with mean scores of >=2.5 indicating yes.

3.6. STATISTICAL ANALYSIS

Descriptive statistics were used to assess the characteristics and behaviors of participants, stratified by OAT enrollment status (currently receiving OAT or not receiving OAT). We report on the frequency with percentage for categorical variables and the mean with standard deviation for numerical variables. Bivariate analyses were used to compare characteristics and behaviors via chi-square tests, Fisher's exact test, and independent sample t-tests. Average enacted, anticipated, and internalized stigma scores were reported with standard deviations for the SU-SMS. To ensure internal consistency of the SU-SMS for this population, we found a reliable Cronbach's alpha of 0.901. Total stigma scores per type were computed by averaging the sum of all score in its respective subscale. We compared stigma between study groups via independent sample t-tests. Initial bivariate logistic regressions were conducted on participant characteristics, IDU behaviors, and police encounters to understand associations with each level of stigma. We incorporated explanatory variables from the bivariate analysis if there were associations at $p<.20$. Each level of stigma served as a separate outcome variable (yes/no).

Exploratory logistic regressions were then produced, and the final model included variables with a $p<.20$. Three multivariate models were produced, one for each outcome variable (level of stigma), using a parsimonious selection model. Independent variables included participant characteristics, IDU, and police encounters. Variables were included in the final model if there were significant association with the outcome variable ($p<0.05$) or were found to have a significant influence on the final model. The lowest Akaike Information Criterion was utilized to determine the best model fit. The estimate, standard error, Wald chi-square, p-value, odds ratio, and 95% Wald confidence limits are reported. All analyses were conducted in SAS version 9.4.

3.7. RESULTS

3.7.1. STUDY PARTICIPANTS

Table 1 reports participant demographics, IDU behaviors, and police encounters among study participants in Ukraine. Participants were stratified by whether they were currently receiving OAT (n=192) or not receiving OAT (n=226) at the time of study enrollment. Study participants were predominantly male (82.30%) in their late 30s (mean=38.63, SD=7.22). In comparison to those not on OAT, individuals receiving OAT were significantly more likely to be in a relationship (46.88% vs. 30.09%, $p<0.001$), live in stable housing (100.00% vs. 96.46%, $p<0.01$) (not shown in table due to few individuals not in stable housing), be employed (67.71% vs. 52.21%, $p=0.001$), registered in the AIDS clinic if HIV+ (100.00% vs. 93.14%, $p<0.05$), and had people they live with supportive of OAT (93.55% vs. 83.78%, p=0.01). Individuals not on OAT had a higher frequency of Hepatitis C (HCV) (74.12% vs. 55.24%, $p<0.05$).

Individuals receiving OAT were significantly less likely to have injected drugs in the past 30-days (6.77% vs. 92.00%, $p<0.001$). Though not statistically significant, participants not on OAT were more likely to engage in injection risk-behaviors (i.e. received/bought an injection from a pre-filled syringe, used a syringe refilled by someone from their used syringe, and used common instruments for sharing/preparing drugs) than those on OAT. A greater number of participants not on OAT reported to ever experiencing a drug overdose than those currently receiving OAT (54.02% vs. 35.94%, $p<0.001$). In addition, individuals not on OAT reported significantly greater frequencies of police encounters in their lifetime and in past-6 months. For instance, people not on OAT reported greater lifetime physical assault by police (69.91% vs. 51.04%, $p<0.001$), and demanded money in the form of a bribe (68.75% vs. 52.08%, $p=0.001$). In the past 6-months, a greater number of participants not on OAT reported to have been physically assaulted by police

(11.06% vs. 4.69%, $p<0.05$), demanded money in the form of a bribe by police (11.50% vs. 3.13%, $p=0.001$), and threatened by the police with arrest or violence (10.18% vs. 4.17%, $p<0.05$).

3.7.2. OAT AND STIGMA

Table 2 describes the types of stigma (enacted, anticipated, and internalized) experienced among participants, stratified by patient enrollment status. Higher levels of stigma were reported for internalized stigma, followed by enacted and anticipated stigma. In general, participants from both study groups reported similar rates of stigma. Significant differences, however, were found for internalized stigma. Participants currently receiving OAT reported less stigma than those not on OAT for the following internalized stigma questions: "Having used alcohol and/or drugs makes me feel like I am a bad person", "I feel I am not as good as others are because I used alcohol and/or drugs.", "I feel ashamed of having used alcohol and/or drugs.", "I think less of myself because I used alcohol and/or drugs.", and "Having used alcohol and/or drugs makes me feel unclean." The composite internalized stigma scale was lower among those on OAT in comparison to those not (mean=2.504, SD=0.978 vs. mean=2.863, SD=1.040, $p<0.001$). Consistent averages were found between groups for enacted and anticipated stigma, with no statistically significant differences.

3.7.3. BIVARIATE FACTORS ASSOCIATED WITH STIGMA

We conducted bivariate logistic regression to determine the relationship between each factor and level of stigma (Table 3). Individuals with enacted stigma were significantly less likely to be in a relationship (OR=0.585, CI=0.385, 0.887, $p<0.05$) and more likely to have HCV (OR=1.843, CI=1.115, 3.047, $p<0.05$). Though not statistically significant, individuals with enacted stigma and anticipated stigma were more likely to engage in IDU risk-behaviors.

Individuals with anticipated stigma were significantly twice as likely to have HCV (OR=2.318, CI=1.312, 4.095, $p<0.01$) and had experienced a drug overdose (OR=1.440, CI=0.947, 2.189, $p<0.001$). Individuals with internalized stigma were more likely to not be on OAT (OR=2.029, CI=1.370, 3.005, $p<0.001$), and test positive for HIV (OR=1.723, CI=1.138, 2.608, $p<0.05$).

3.7.4. MULTIVARIATE FACTORS ASSOCIATED WITH STIGMA

We constructed multivariate models of participant demographics and experiences with each level of stigma (Table 4). Explanatory variables were included in the final model if there were significant association with the outcome variable ($p<0.05$) or were found to have a significant influence on the final model.

For enacted stigma, the final predictive model included the following variables: being in a relationship, having HCV, and have been demanded money in the form of bribe by the police in the past 6-months. Individuals in a relationship were significantly less likely to have enacted stigma (OR=0.591, CI=0.384, 0.911, $p<0.05$). Having HCV was significantly associated with enacted stigma (OR=1.744, CI=1.149, 2.647, $p<0.01$). The final predictive model for anticipated stigma included the following variables: being registered in AIDS clinic, having HCV, and experienced a drug overdose. Interestingly, individuals registered in the AIDS clinic were significantly less likely to have enacted stigma (OR=0.164, CI=0.027, 0.992, $p<0.05$). Lastly, the final predictive model for internalized stigma included the following variables: OAT enrollment status, being HIV+, and having HCV. It is noteworthy to include that OAT enrollment status (not being enrolled) was no longer significantly associated with internalized stigma in the final model. Individuals with HCV were significantly more likely to have internalized stigma (OR=2.52, CI=1.494, 4.251, $p<0.001$).

3.8. DISCUSSION

Opioid dependent individuals in Ukraine continue to face stigma and discrimination, and those who continue to use substances are at a greater risk of disease and mortality (Parashar et al., 2016). PWID are oppressed by a number of sectors that could interfere with the willingness to initiate treatment or maintain recovery. This paper encapsulates the differences among opioid dependent individuals who are currently receiving OAT and those who are not receiving OAT. Stigma by enrollment status was also evaluated.

Our study found that individuals receiving OAT appeared to have more stable social stability factors such as employment, stable living conditions, registered in the AIDS clinic, and support from people they live with. In addition, the frequency of individuals who have experienced an overdose was greater among those not receiving OAT in comparison to those currently receiving OAT. Our findings were consistent with previously literature. For instance, receiving OAT has been associated with reduced substance use and cravings, as well as reduced behaviors that put individuals at risk for infectious diseases and overdose, improved physical and emotional well-being, and increased adherence to other treatments (Carroll et al., 2018; Hoff et al., 2017; Lawrinson et al., 2008; Mimiaga et al., 2010). OAT has also been shown to be effective regardless of the country and its economic status (Lawrinson et al., 2008).

OAT can additionally serve as a protective factor to reduce risk of diseases. We found that individuals receiving OAT were substantially less likely to inject drugs, and thus less likely to engage in risk-behaviors. In our sample of 226 participants currently receiving OAT, 13 participants (6.77%) reported IDU in the past 30 days. Interestingly, despite groups having a

similar average number of years injecting drugs, participants not receiving OAT reported high rates of ever experiencing a drug overdose.

We found HCV to be common among study participants, with approximately 70% reporting to test positive. This was a consistent finding to past literature from 2009, where HCV was found among 73% of study participants in central Ukraine (Dumchev et al., 2009). IDU is a main transmission route of HCV (Dumchev et al., 2009), though OAT has been associated with a reduction in HCV (Tsui et al., 2014). HCV screening and HCV treatment initiatives should be enhanced, particularly among this population. Nonetheless, our research does indicate that individuals receiving OAT had lower rates of HCV and thus OAT may offer an opportunity to indirectly reduce risk of HCV among non-infected individuals.

While the benefits of OAT are well documented, stigma associated with substance use could have lasting implications. Interestingly, both groups generally reported experiencing some degree of stigma. Internalized stigma ranked the highest, followed by enacted stigma, and lastly anticipated stigma. Individuals not on OAT reported significantly greater experiences of internalized stigma. Beginning to associate oneself with the view's others feel towards them could limit one's confidence, motivation, and decision-making practice. Through negative feelings about oneself, feeling like they are not as good as others, or being ashamed, individuals could be less motivated to seek treatment. In addition, having HCV was found to significantly predict internalized stigma. While PWID as well as people living with an infectious disease may feel subject to stigma, having both issues may increase the likelihood of feeling stigmatized. This idea of increasing stigma is known as "layering stigma", when one belongs to more than one marginalized groups and thus experiences stigma repeatedly (Lekas et al., 2011). This enhanced stigma may remain with individuals, thus becoming a part of their identity.

The SU-SMS was limited to measuring stigma only from family, healthcare, and self. Feeling stigmatized by healthcare providers appears within our data. In past literature, healthcare stigma has been reported to interfere with receiving treatment (Booth, 2013). Thus, targeted reduced stigma from healthcare providers should be considered in future interventions in order to engage individuals in healthcare seeking. For instance, having providers outside of addiction sites be eligible to maintain OAT for their patients is an approach that could enhance OAT utilization (Bachireddy et al., 2015; Mazhnaya et al., 2016). In addition, integrating care in less stigmatized settings, such as primary care clinics rather than narcology clinics, has been piloted and showed positive outcomes on patient's perceived well-being and satisfaction with care provided (Morozova et al., 2017).

Our sample, however, may additionally indicate high levels of stigma by police that was not captured by the SU-SMS. For instance, over half of our sample reported being physically assaulted by the police, being demanded money in the form of a bribe by police, and/or being threatened with arrest or physical violence if not cooperating with police. Due to substance use being illegal, PWID frequently become targeted. To avoid being caught by police individuals may engage in behaviors that could put them at risk for transmitting or obtaining infections. For instance, a focus group participant noted that he was less concerned of the risk of HIV but rather about withdrawals and being caught by the police (Booth, 2013. In addition, interest in avoiding the police is a motivator to pursue OUD treatment, yet also a barrier due to fear of harassment (Mazhnaya et al., 2016). Ultimately, police harassment and confrontation can interfere with other treatment adherence as well. In a focus group of 16 participants in Ukraine, all participants reported to being interrogated by police when carrying HIV medication, with a subset of participants having their medication confiscated (Mimiaga et al., 2010).

While police are often among the first to respond to an overdose victim (Davis et al., 2014; Davis et al., 2018), they could have a significant role in reducing the risk of fatality. Police have the opportunity to assist PWID in linking them to care or harm reduction facilities. As police harassment may indirectly disengage individuals from seeking treatment (Kutsa et al., 2016), interventions targeted at reducing stigma from police may improve treatment utilization. There is potential to use a collaborative approach between public health and law enforcement to provide education on substance use and stigma. Through increased education and awareness, we may be able to reduce stigma associated with PWID. A multisectoral approach should be considered to reduce substance use, overdose, and the spread of infectious diseases.

This study is subject to limitations that should be addressed when interpreting findings. We used a cross-sectional study design and thus cannot make casual inferences. Findings could be subject to recall bias, as we ask about the past 30-days and 6-months. In addition, we do not know the duration of time the participant has been receiving OAT, in addition to the three months required to enroll in the study, as well as the type of OAT received. Our sample of participants who were not on OAT may not be representative of the general population of PWID, as participants enrolled were willing to initiate OAT. We did not include participants receiving OAT for <3 months and thus are unable to generalize to this population of individuals newly receiving OAT. Not including this population, however, allowed us to better capture feelings of individuals stable on OAT, as their perceptions and experiences may change after being on OAT for a number of months.

Despite limitations, our findings suggest that stigma is prevalent among opioid dependent participants and that internalized stigma is heightened among individuals not receiving treatment. Individuals receiving OAT had reduced substance use and risk behaviors. Further research should

seek to reduce stigma towards opioid dependent individuals among police, in addition to health care providers, to prevent further substance use and disease transmission.

3.9. CONCLUSIONS

For Ukraine to see a reduction in transmittable diseases and substance use, individuals need access to treatment and harm-reduction approaches. Providing support to those in need and marginalized populations is fundamental to strengthen the overall healthcare of the country. Engaging in a multisectoral approach to improve the health of opioid dependent individuals is recommended. Police officers can have an immediate role in reducing fatal overdoses and linking individuals to care. Educational interventions on substance use, treatment, and stigma for police officers could be valuable. Thus, working together with law enforcement to reduce stigma and harassment towards opioid dependent individuals, and increase their role in linking individuals to care, may be a step to improve upon the recovery process.

CHAPTER IV. CONCLUSION AND RECOMMENDATIONS

Injection drug use (IDU) remains to be a driver of Human Immunodeficiency Virus (HIV) in Ukraine. For the country to have notable changes in rates of disease transmission, accessible substance use treatment is necessary. Opioid Agonist Therapy (OAT) has been shown to improve quality of life, physical and mental well-being, in addition to reducing substance use and cravings (Carroll et al., 2018; Hoff et al., 2017; Lawrinson et al., 2008; Mimiaga et al., 2010). While Ukraine has been increasing efforts to make OAT accessible ("Ukraine to finance", 2018), barriers of stigma and harassment may prevent individuals from initially seeking treatment.

This study served to better understand enacted, anticipated, and internalized stigma experienced between opioid dependent individuals currently receiving OAT or not currently receiving OAT. We examined the factors associated with each type of stigma. Through this study, we found that individuals currently receiving OAT had reported greater social stability factors, such as employment, stable living conditions, registered in the AIDS clinic, and support from people they live with. Individuals not receiving OAT had reported higher rates of injection drug use, overdose experience, infectious diseases, police encounters, and internalized stigma. Enacted and anticipated stigma were present and consistent among both groups.

To reduce stigma from interfering with treatment access and the recovery process, we recommend a multisectoral approach, such as the collaboration between public health and law enforcement. Negative police encounters and harassment are frequent among people who inject drugs (PWID) and should be reduced. As police are also often among the first to arrive to an overdose scene (Davis et al., 2014; S. Davis et al., 2018), they can play a significant role in preventing fatality. They can also aid in linking individuals to treatment care.

For Ukraine to improve upon current rates of diseases and substance use, we recommend taking the following strategies:

- Integrate opioid use treatment in less stigmatized settings, such as primary care clinics.
- Understand the perceptions of law enforcement towards PWID.
- Engage police in aiding opioid dependent individuals through preventing fatal overdoses and in the recovery process through linking individuals to care.
- Determine additional predictors of internalized stigma and understand better understand how this stigma associates with the willingness to enroll in treatment.
- Consider alternatives to registering individuals as drug users with the state to limit barriers to receiving treatment.

By understanding and reducing stigma among opioid dependent individuals, individuals may be more likely to continue on treatment, improve upon treatment adherence, and reduce risk-behavior that can contribute to the spread of bacterial and viral infections. Yet for individuals to be interested in initiating treatment, it is essential to ensure they can receive treatment safely and without harassment. Ultimately, a collaborative approach is needed in Ukraine to reduce the stigma that can result in adverse health effects.

REFERENCES

1. Abdala, N., Gleghorn, A. A., Carney, J. M., & Heimer, R. (2001). Can HIV-1-contaminated syringes be disinfected? Implications for transmission among injection drug users. *J Acquir Immune Defic Syndr, 28*(5), 487-494.

2. Avert. (2017). HIV and AIDS in Ukraine. Retrieved from https://www.avert.org/professionals/hiv-around-world/eastern-europe-central-asia/ukraine#footnote1_l6z40y9.

3. Bachireddy, C., Weisberg, D.F., & Altice, F.L. (2015). Balancing access and safety in prescribing opioid agonist therapy to prevent HIV transmission. *Addiction, 110*(12), 1869-1871. doi:10.1111/add.13055

4. Baggaley, R.F., Boily, M.C., White, R.G., & Alary, M. (2006). Risk of HIV-1 transmission for parenteral exposure and blood transfusion: a systematic review and meta-analysis. *AIDS, 20*(6), 805-812. doi:10.1097/01.aids.0000218543.46963.6d

5. Bojko, M.J., Mazhnaya, A., Makarenko, I., Marcus, R., Dvoriak, S., Islam, Z., & Altice, F.L. (2015). "Bureaucracy & Beliefs": Assessing the Barriers to Accessing Opioid Substitution Therapy by People Who Inject Drugs in Ukraine. *Drugs (Abingdon Engl), 22*(3), 255-262. doi:10.3109/09687637.2015.1016397

6. Booth, R.E. (2013). 'Krokodil' and other home-produced drugs for injection: a perspective from Ukraine. *Int J Drug Policy, 24*(4), 277-278. doi:10.1016/j.drugpo.2013.05.009

7. Booth, R.E., Davis, J. M., Brewster, J. T., Lisovska, O., & Dvoryak, S. (2016). Krokodile Injectors in Ukraine: Fueling the HIV Epidemic? *AIDS Behav, 20*(2), 369-376. doi:10.1007/s10461-015-1008-z

8. Booth, R.E., Dvoryak, S., Sung-Joon, M., Brewster, J.T., Wendt, W.W., Corsi, K.F., . . . Strathdee, S.A. (2013). Law enforcement practices associated with HIV infection among injection drug users in Odessa, Ukraine. *AIDS Behav, 17*(8), 2604-2614. doi:10.1007/s10461-013-0500-6

9. Booth, R.E., Kennedy, J., Brewster, T., & Semerik, O. (2003). Drug injectors and dealers in Odessa, Ukraine. *J Psychoactive Drugs, 35*(4), 419-426. doi:10.1080/02791072.2003.10400488

10. Bruce, R.D., Dvoryak, S., Sylla, L., & Altice, F.L. (2007). HIV treatment access and scale-up for delivery of opiate substitution therapy with buprenorphine for IDUs in Ukraine--programme description and policy implications. *Int J Drug Policy, 18*(4), 326-328. doi:10.1016/j.drugpo.2006.12.011

11. Carroll, J.J., Green, T.C., and Noonan, R.K. (2018). *Evidence-Based Strategies for Preventing Opioid Overdose: What's Working in the United States*. Retrieved from https://www.cdc.gov/drugoverdose/pdf/pubs/2018-evidence-based-strategies.pdf

12. Davis, C.S., Ruiz, S., Glynn, P., Picariello, G., & Walley, A.Y. (2014). Expanded access to naloxone among firefighters, police officers, and emergency medical technicians in Massachusetts. *Am J Public Health, 104*(8), e7-9. doi:10.2105/AJPH.2014.302062

13. Davis, S., Rafia, R., Carroll, C., Hamilton, J., & Essat, M. (2018). Pirfenidone for Treating Idiopathic Pulmonary Fibrosis: An Evidence Review Group Perspective of a NICE Single Technology Appraisal. *Pharmacoeconomics*. doi:10.1007/s40273-018-0727-1

14. DeBell, D. & Carter, R. (2005). Impact of transition on public health in Ukraine: case study of the HIV/AIDS epidemic. *BMJ, 331*(7510), 216-219. doi:10.1136/bmj.331.7510.216

15. Des Jarlais, D.C., Friedman, S.R., & Stoneburner, R.L. (1988). HIV infection and intravenous drug use: critical issues in transmission dynamics, infection outcomes, and prevention. *Rev Infect Dis, 10*(1), 151-158.

16. *Desomorphine*. (2013). Retrieved from https://www.deadiversion.usdoj.gov/drug_chem_info/desomorphine.pdf

17. Dmitrieva, A., Stepanov, V., Lukash, I.G., & Martynyuk, A. (2019). Performance indicator as the main and the only goal: a "dark side" of the intervention aims to accelerate HIV treatment entry among people who inject drugs in Kyiv, Ukraine. *Harm Reduct J, 16*(1), 8. doi:10.1186/s12954-019-0279-5

18. Dumchev, K., Dvoryak, S., Chernova, O., Morozova, O., & Altice, F.L. (2017). Retention in medication-assisted treatment programs in Ukraine-Identifying factors contributing to a continuing HIV epidemic. *Int J Drug Policy, 48*, 44-53. doi:10.1016/j.drugpo.2017.05.014

19. Dumchev, K., Sazonova, Y., Salyuk, T., & Varetska, O. (2018). Trends in HIV prevalence among people injecting drugs, men having sex with men, and female sex workers in Ukraine. *Int J STD AIDS, 29*(13), 1337-1344. doi:10.1177/0956462418784096

20. Dumchev, K.V., Soldyshev, R., Qian, H.Z., Zezyulin, O.O., Chandler, S.D., Slobodyanyuk, P., . . . Schumacher, J.E. (2009). HIV and hepatitis C virus infections among hanka injection drug users in central Ukraine: a cross-sectional survey. *Harm Reduct J, 6*, 23. doi:10.1186/1477-7517-6-23

21. Dvoriak, S., Karachevsky, A., Chhatre, S., Booth, R., Metzger, D., Schumacher, J., . . . Woody, G. (2014). Methadone maintenance for HIV positive and HIV negative patients in Kyiv: acceptability and treatment response. *Drug Alcohol Depend, 137*, 62-67. doi:10.1016/j.drugalcdep.2014.01.008

22. Earnshaw, V.A., & Chaudoir, S.R. (2009). From conceptualizing to measuring HIV stigma: a review of HIV stigma mechanism measures. *AIDS Behav, 13*(6), 1160-1177. doi:10.1007/s10461-009-9593-3

23. Flanagan, O. (2013). The shame of addiction. *Front Psychiatry, 4*, 120. doi:10.3389/fpsyt.2013.00120

24. Green, A. (2017). The HIV response in Ukraine: at a crossroads. *The Lancet, 390*, 347-348.

25. Grund, J.P., Latypov, A., & Harris, M. (2013). Breaking worse: the emergence of krokodil and excessive injuries among people who inject drugs in Eurasia. *Int J Drug Policy, 24*(4), 265-274. doi:10.1016/j.drugpo.2013.04.007

26. HIV. (2017). HIV Treatment Overview. Retrieved from https://www.hiv.gov/hiv-basics/staying-in-hiv-care/hiv-treatment/hiv-treatment-overview

27. Hoff, E., Marcus, R., Bojko, M.J., Makarenko, I., Mazhnaya, A., Altice, F.L., & Meyer, J.P. (2017). The effects of opioid-agonist treatments on HIV risk and social stability: A mixed methods study of women with opioid use disorder in Ukraine. *J Subst Abuse Treat, 83*, 36-44. doi:10.1016/j.jsat.2017.10.003

28. Jones, C.M., Campopiano, M., Baldwin, G., & McCance-Katz, E. (2015). National and State Treatment Need and Capacity for Opioid Agonist Medication-Assisted Treatment. *Am J Public Health, 105*(8), e55-63. doi:10.2105/AJPH.2015.302664

29. Kutsa, O., Marcus, R., Bojko, M.J., Zelenev, A., Mazhnaya, A., Dvoriak, S., . . . Altice, F. L. (2016). Factors associated with physical and sexual violence by police among people who inject drugs in Ukraine: implications for retention on opioid agonist therapy. *J Int AIDS Soc, 19*(4 Suppl 3), 20897. doi:10.7448/IAS.19.4.20897

30. Lawrinson, P., Ali, R., Buavirat, A., Chiamwongpaet, S., Dvoryak, S., Habrat, B., . . . Zhao, C. (2008). Key findings from the WHO collaborative study on substitution therapy for opioid dependence and HIV/AIDS. *Addiction, 103*(9), 1484-1492. doi:10.1111/j.1360-0443.2008.02249.x

31. Lekas, H.M., Siegel, K., & Leider, J. (2011). Felt and enacted stigma among HIV/HCV-coinfected adults: the impact of stigma layering. *Qual Health Res, 21*(9), 1205-1219. doi:10.1177/1049732311405684

32. Link B.G. & Phelan, J.C. (2001). Conceptualizing Stigma. (27), 363-385.

33. Pizzi, M. (2015) War in Ukraine threatens to worsen HIV crisis. Retrieved from March 10, 2019, from america.aljazeera.com/articles/2015/1/26/war-in-ukraine-threatens-to-worsen-hiv-crisis.html

34. Makarenko, I., Mazhnaya, A., Marcus, R., Bojko, M.J., Madden, L., Filippovich, S., . . . Altice, F. L. (2017). Willingness to pay for opioid agonist treatment among opioid dependent people who inject drugs in Ukraine. *Int J Drug Policy, 45*, 56-63. doi:10.1016/j.drugpo.2017.05.037

35. Makarenko, I., Mazhnaya, A., Marcus, R., Pykalo, I., Madden, L., Filippovich, S., . . . Altice, F. L. (2018). Concurrent drug injection during opioid agonist treatment among people who inject drugs in Ukraine. *J Subst Abuse Treat, 87*, 1-8. doi:10.1016/j.jsat.2018.01.007

36. Makarenko, I., Ompad, D. C., Sazonova, Y., Saliuk, T., DeHovitz, J., & Gensburg, L. (2017). Trends in Injection Risk Behaviors among People Who Inject Drugs and the Impact of Harm Reduction Programs in Ukraine, 2007-2013. *J Urban Health, 94*(1), 104-114. doi:10.1007/s11524-016-0119-9

37. Matthews, S., Dwyer, R., & Snoek, A. (2017). Stigma and Self-Stigma in Addiction. *J Bioeth Inq, 14*(2), 275-286. doi:10.1007/s11673-017-9784-y

38. Mazhnaya, A., Bojko, M.J., Marcus, R., Filippovych, S., Islam, Z., Dvoriak, S., & Altice, F.L. (2016). In Their Own Voices: Breaking the Vicious Cycle of Addiction, Treatment and Criminal Justice Among People who Inject Drugs in Ukraine. *Drugs (Abingdon Engl), 23*(2), 163-175. doi:10.3109/09687637.2015.1127327

39. Mazhnaya, A., Marcus, R., Bojko, M.J., Zelenev, A., Makarenko, I., Pykalo, I., . . . Altice, F.L. (2018). Opioid Agonist Treatment and Improved Outcomes at Each Stage of the HIV Treatment Cascade in People Who Inject Drugs in Ukraine. *J Acquir Immune Defic Syndr, 79*(3), 288-295. doi:10.1097/QAI.0000000000001827

40. Mazhnaya, A., Tobin, K.E., & Owczarzak, J. (2018). Association between injection in public places and HIV/HCV risk behavior among people who use drugs in Ukraine. *Drug Alcohol Depend, 189*, 125-130. doi:10.1016/j.drugalcdep.2018.04.036

41. Mimiaga, M.J., Safren, S.A., Dvoryak, S., Reisner, S.L., Needle, R., & Woody, G. (2010). "We fear the police, and the police fear us": structural and individual barriers and facilitators to HIV medication adherence among injection drug users in Kiev, Ukraine. *AIDS Care, 22*(11), 1305-1313. doi:10.1080/09540121003758515

42. Morozova, O., Dvoriak, S., Pykalo, I., & Altice, F.L. (2017). Primary healthcare-based integrated care with opioid agonist treatment: First experience from Ukraine. *Drug Alcohol Depend, 173*, 132-138. doi:10.1016/j.drugalcdep.2016.12.025

43. Morozova, O., Dvoryak, S., & Altice, F.L. (2013). Methadone treatment improves tuberculosis treatment among hospitalized opioid dependent patients in Ukraine. *Int J Drug Policy, 24*(6), e91-98. doi:10.1016/j.drugpo.2013.09.001

44. Nieburg, P. & Carty, L. (2012). *Injection Drug Use in Ukraine: The Challenges of Providing HIV Prevention and Care*. Retrieved from https://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/120314_Nieburg_InjectionDrugUkraine_web.pdf

45. Parashar, S., Collins, A.B., Montaner, J.S., Hogg, R.S., & Milloy, M.J. (2016). Reducing rates of preventable HIV/AIDS-associated mortality among people living with HIV who inject drugs. *Curr Opin HIV AIDS, 11*(5), 507-513. doi:10.1097/COH.0000000000000297

46. Patel, P., Borkowf, C.B., Brooks, J.T., Lasry, A., Lansky, A., & Mermin, J. (2014). Estimating per-act HIV transmission risk: a systematic review. *AIDS, 28*(10), 1509-1519. doi:10.1097/QAD.0000000000000298

47. PEPFAR. *Ukraine Country Operational Plan (COP) 2018 Strategic Direction Summary*. Retrieved from https://www.pepfar.gov/documents/organization/285850.pdf

48. Phillips, K.T., & Stein, M.D. (2010). Risk practices associated with bacterial infections among injection drug users in Denver, Colorado. *Am J Drug Alcohol Abuse, 36*(2), 92-97. doi:10.3109/00952991003592311

49. Polonsky, M., Rozanova, J., Azbel, L., Bachireddy, C., Izenberg, J., Kiriazova, T., . . . Altice, F.L. (2016). Attitudes Toward Addiction, Methadone Treatment, and Recovery Among HIV-Infected Ukrainian Prisoners Who Inject Drugs: Incarceration Effects and Exploration of Mediators. *AIDS Behav, 20*(12), 2950-2960. doi:10.1007/s10461-016-1375-0

50. Rhodes, T., Ball, A., Stimson, G.V., Kobyshcha, Y., Fitch, C., Pokrovsky, V., . . . Andrushchak, L. (1999). HIV infection associated with drug injecting in the newly independent states, eastern Europe: the social and economic context of epidemics. *Addiction, 94*(9), 1323-1336.

51. Schaub, M., Chtenguelov, V., Subata, E., Weiler, G., & Uchtenhagen, A. (2010). Feasibility of buprenorphine and methadone maintenance programmes among users of home made opioids in Ukraine. *Int J Drug Policy, 21*(3), 229-233. doi:10.1016/j.drugpo.2009.10.005

52. Schwartz, R.P., Gryczynski, J., O'Grady, K.E., Sharfstein, J.M., Warren, G., Olsen, Y., . . . Jaffe, J. H. (2013). Opioid agonist treatments and heroin overdose deaths in Baltimore, Maryland, 1995-2009. *Am J Public Health, 103*(5), 917-922. doi:10.2105/AJPH.2012.301049

53. Shields, A. (2009). The Effects of Drug User Registration Laws on People's Rights and Health: Key Findings from Russia, Georgia, and Ukraine. *New York: International Harm Reduction Development Program*.

54. Smith, L.R., Earnshaw, V.A., Copenhaver, M.M., & Cunningham, C.O. (2016). Substance use stigma: Reliability and validity of a theory-based scale for substance-using populations. *Drug Alcohol Depend, 162*, 34-43. doi:10.1016/j.drugalcdep.2016.02.019

55. Stein, M.D. (1999). Medical consequences of substance abuse. *Psychiatr Clin North Am, 22*(2), 351-370.

56. Tsui, J.I., Evans, J.L., Lum, P.J., Hahn, J.A., & Page, K. (2014). Association of opioid agonist therapy with lower incidence of hepatitis C virus infection in young adult injection drug users. *JAMA Intern Med, 174*(12), 1974-1981. doi:10.1001/jamainternmed.2014.5416

57. Ukraine to finance expanded opioid substitution therapy programme. (2018). Retrieved March 10, 2019 from http://www.euro.who.int/en/countries/ukraine/news/news/2018/01/ukraine-to-finance-expanded-opioid-substitution-therapy-programme

58. UNAIDS. (2016a). AIDSinfo. Retrieved from http://aidsinfo.unaids.org/

59. UNAIDS. (2016b). Country Fact Sheets: Ukraine. Retrieved from http://www.unaids.org/en/regionscountries/countries/ukraine

60. UNAIDS. (2017). *UNAIDS Data 2017*. Retrieved from Geneva, Switzerland:

61. Vasylyeva, T.I., Liulchuk, M., Friedman, S.R., Sazonova, I., Faria, N.R., Katzourakis, A., . . . Magiorkinis, G. (2018). Molecular epidemiology reveals the role of war in the spread of HIV in Ukraine. *Proc Natl Acad Sci U S A, 115*(5), 1051-1056. doi:10.1073/pnas.1701447115

62. World Health Organization. (2009). *Guidelines for the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence*. Geneva, Switzerland: World Health Organization.

63. World Health Organization. (2013). *HIV/AIDS treatment and care in Ukraine*. Retrieved from Copenhagen, Denmark: http://www.euro.who.int/__data/assets/pdf_file/0004/194071/Evaluation-report-on-HIV-AIDS-treatment-and-care.pdf

APPENDICES

Appendix 1. IRB exemption for study analysis from Emory University

EMORY UNIVERSITY | Institutional Review Board

February 5, 2019

Melissa Podolsky
SPH: Global Health

RE: **Determination: No IRB Review Required**
Title: Stigma and Support among Methadone Recipients
Project Leader: Melissa Podolsky

Dear Ms. Podolsky,

Thank you for requesting a determination from our office about the above-referenced project. Based on our review of the materials you provided, we have determined that it does not require IRB review because it does not meet the definition of "research" with "human subjects" as set forth in Emory policies and procedures and federal rules, if applicable. Specifically, in this project, you will be exploring the trajectories of stigma and social support, and how they differ among individuals newly and previously enrolled on opioid agonist therapy (OAT). You will only be analyzing de-identified data received from the study team at the Ukrainian Institute of Public Health Policy (UIPHP), who will be translating and sending the data with only study ID, and not names or any other identifiable information of these individuals. And your intent is not to generalize your findings beyond your MPH thesis, and manuscript will later be submitted for peer review publication.

Please note that this determination does not mean that you cannot publish the results. This determination could be affected by substantive changes in the study design, subject populations, or identifiability of data. If the project changes in any substantive way, please contact our office for clarification.

Thank you for consulting the IRB.

Sincerely,

Sara Choe
IRB Analyst Assistant

Emory University
1599 Clifton Road, 5th Floor - Atlanta, Georgia 30322
Tel: 404.712.0720 - Fax: 404.727.1358 - Email: irb@emory.edu - Web: http://www.irb.emory.edu
An equal opportunity, affirmative action university

Ver. 1/17/2014

Appendix 2. Survey addition developed by student that was included in a larger survey

Patient Questionnaire:
Stigma and the Willingness to Enroll in Medication Assisted Therapies
Note: Questions will be included on baseline and 6-month follow-up questionnaires unless noted otherwise

A. Opioid Antagonist Treatments

Instructions: The following questions will ask you about perceptions of opioid agonist treatments (OAT). By OAT, we mean a state or government program (i.e. not a private program).

A1. [Baseline only] Have you ever been on OAT prior to this current treatment?
a. Yes
b. No

Using the following scale, *in general* how do you think the following individuals view OAT?

		Negative	Neutral	Positive
A2.	Family members	1	2	3
A3.	Friends/Peers	1	2	3
A4.	Community members	1	2	3
A5.	Healthcare providers	1	2	3
A6.	Other people who inject drugs	1	2	3
A7.	Police	1	2	3

A8. How important are your close relationships in making decisions about your health, including for addiction treatment?
a. Not important
b. Slightly important
c. Important
d. Very important

A9. Who is the person that is most important in helping you make decisions about your health, including for addiction treatment?
a. No one helps me make decisions
b. Spouse
c. Child
d. Unmarried sexual partner
e. Mother
f. Father
g. Sibling
h. Extended family member

i. Spouse's family
j. Friends
k. Other: _____

A10. [Baseline only] Which of the following reasons prevented you from starting OAT, prior to this treatment? Select all that apply.

- ☐ I was unaware of my treatment options
- ☐ I had transportation issues
- ☐ I did not want to register as a drug user
- ☐ I did not consider treatment
- ☐ I felt that I did not need treatment
- ☐ I was not ready to quit using
- ☐ People around me did not approve of OAT
- ☐ I was worried about possible side effects from OAT
- ☐ I feared police interrogation
- ☐ I wanted to stop using drugs without OAT
- ☐ OAT seemed like a last resort
- ☐ I didn't know much information about OAT
- ☐ Other (please specify): _____

A11. How would you rate the way you are treated by the healthcare staff at the site you currently receive your OAT? By this, we mean how they may act towards you or speak to you.

a. Poor
b. Fair
c. Good
d. Excellent

A12. In regard to receiving OAT, how supportive are the people close to you about you starting it?

a. Not at all supportive
b. Somewhat supportive
c. Very supportive

A13. How long do you intend to stay on OAT?

a. Less than 1 year
b. 1-3 years
c. 3-5 years
d. Greater than 5 years

A14. [ONLY IF A9 RESPONSE DOES NOT EQUAL "a"] Previously, you said that [FILL IN RESPONSE TO A9] was the most important person in helping you make decisions about your health. How long do you think this individual wants you to stay on OAT?

a. Less than 1 year
b. 1-3 years
c. 3-5 years
d. Greater than 5 years

A15. What would you need to achieve before you would consider tapering off of OAT? Select all that apply.

- ☐ A defined time period
- ☐ You are feeling better
- ☐ You get a job
- ☐ Your family or friends tell you to taper off
- ☐ Your healthcare staff tell you to taper off
- ☐ You are in a stable relationship
- ☐ You settle legal issues
- ☐ You become a parent
- ☐ You reconnect with people you used to be close with
- ☐ You see others who have successfully tapered off OAT
- ☐ Other (please specify): _____

NOTE: Most patients should stay on OAT for at least three years before considering tapering off.

B. OAT Retention [Follow-up only]

B16. Are you currently receiving OAT?

a. Yes → **SKIP TO C18**
b. No

B17. For how long did you take OAT before stopping?

a. Less than one month
b. 1-3 months
c. 4-5 months
d. 6 months or more

C. Substance Use Stigma Mechanism Scale (SU-SMS) (Smith et al., 2016)

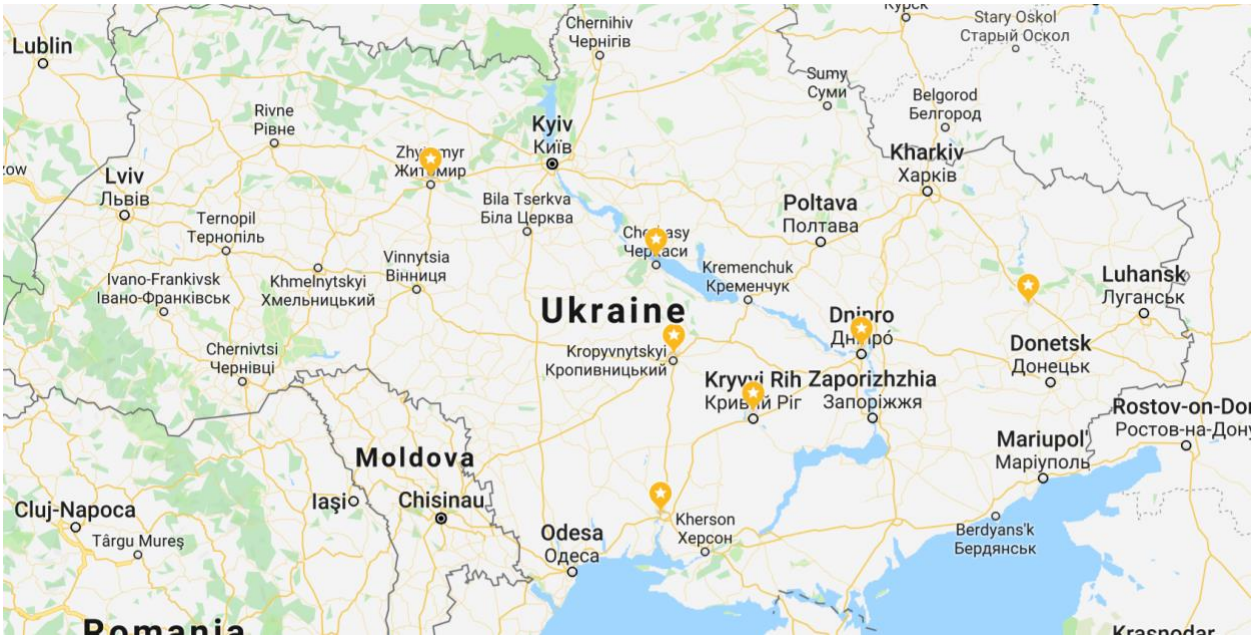
Instructions: The following questions ask about your **alcohol and/or drug use history,** this includes any past or current experiences using alcohol and/or drugs**.** Please think about each question and circle your answer. The first group of questions asks about how people have treated you **in the past** because of alcohol and/or drug use history. The second group of questions asks about how people will treat you **in the future** because of your alcohol and/or drug use history.

How often have people treated you this way **in the past** because of your alcohol and/or drug use history?		**Never**	**Not often**	**Somewhat often**	**Often**	**Very Often**
C18.	Family members have thought that I cannot be trusted.	1	2	3	4	5
C19.	Family members have looked down on me.	1	2	3	4	5
C20.	Family members have treated me differently.	1	2	3	4	5
C21.	Healthcare workers have not listened to my concerns.	1	2	3	4	5
C22.	Healthcare workers have thought that I am pill shopping, or trying to con them into giving me prescription medications to get high or sell.	1	2	3	4	5
C23.	Healthcare workers have given me poor care.	1	2	3	4	5

How likely is it that people will treat you in the following ways **in the future** because of your alcohol and/or drug use history?		**Never**	**Not often**	**Somewhat often**	**Often**	**Very Often**
C24.	Family members will think that I cannot be trusted.	1	2	3	4	5
C25.	Family members will look down on me.	1	2	3	4	5
C26.	Family members will treat me differently.	1	2	3	4	5
C27.	Healthcare workers will not listen to my concerns.	1	2	3	4	5
C28.	Healthcare workers will think that I am pill shopping, or trying to con them into giving me prescription medications to get high or sell.	1	2	3	4	5
C29.	Healthcare workers will give me poor care.	1	2	3	4	5

How do you **feel** about your alcohol and/or drug use history?		**Never**	**Not often**	**Somewhat often**	**Often**	**Very Often**
C30.	Having used alcohol and/or drugs makes me feel like I am a bad person.	1	2	3	4	5
C31.	I feel I am not as good as others are because I used alcohol and/or drugs.	1	2	3	4	5
C32.	I feel ashamed of having used alcohol and/or drugs.	1	2	3	4	5
C33.	I think less of myself because I used alcohol and/or drugs.	1	2	3	4	5
C34.	Having used alcohol and/or drugs makes me feel unclean.	1	2	3	4	5
C35.	Having used alcohol and/or drugs is disgusting to me.	1	2	3	4	5

Appendix 3. Study sites in Ukraine included in analysis



TABLES AND FIGURES

Table 1. Participant characteristics stratified by OAT enrollment status

	Total (N=418)		**Currently Enrolled (n=192)**		**Not Enrolled (n=226)**		**p-value**
	n (%)						
Region							
Kropyvnytskyi	96	(22.97%)	60	(31.25%)	36	(15.93%)	**<0.0001***
Kryvyi Rih	46	(11.00%)	0	(0.00%)	46	(20.35%)	
Dnipro	41	(9.81%)	20	(10.42%)	21	(9.29%)	
Cherkasy	29	(6.94%)	2	(1.04%)	27	(11.95%)	
Mykolaiv	66	(15.79%)	3	(1.56%)	63	(27.88%)	
Mykolaiv	93	(22.25%)	62	(32.29%)	31	(13.72%)	
Zhytomyr	47	(11.24%)	45	(22.44%)	2	(0.99%)	
Gender							
Male	344	(82.30%)	155	(80.73%)	189	(83.63%)	0.439
Female	74	(17.70%)	37	(19.27%)	37	(16.37%)	
Age - *mean (SD)*	38.63	(7.22)	38.26	(7.04)	38.93	(7.36)	0.346
In a relationship	158	(37.80%)	90	(46.88%)	68	(30.09%)	**0.000***
Highest level of education							
High school education or less	150	(36.32%)	67	(35.45%)	83	(37.05%)	0.736
Higher education	263	(63.68%)	122	(64.55%)	141	(62.95%)	
Live alone	78	(18.66%)	37	(19.27%)	41	(18.14%)	0.768
Currently employed	248	(59.33%)	130	(67.71%)	118	(52.21%)	**0.001**
HIV+	172	(45.62%)	70	(41.92%)	102	(48.57%)	0.200
Registered in AIDS clinic (if HIV+)	165	(95.93%)	70	(100.00%)	95	(93.14%)	**0.042***
Currently taking ART medication (if HIV+)	144	(94.12%)	63	(95.45%)	81	(93.10%)	0.733
HCV+	230	(70.34%)	104	(66.24%)	126	(74.12%)	**0.031***
People live with supportive of OAT							
All or some are supportive	300	(88.24%)	145	(93.55%)	155	(83.78%)	**0.003***
None are supportive	19	(5.59%)	8	(5.16%)	11	(5.95%)	
No one knows	21	(6.18%)	2	(1.29%)	19	(10.27%)	
Age of first drug injection - *mean (SD)*	19.13	(4.44)	19.27	(4.26)	19.01	(4.6)	0.258
Years of injection drug use - *mean (SD)*	19.46	(8.23)	18.95	(7.69)	19.89	(8.66)	0.245
Injection drug use in past 30 days	220	(52.76%)	13	(6.77%)	207	(92.00%)	**<0.0001***
If injection drug use in the past 30 days:							
Number of days injecting drugs - *mean (SD)*	11	(12.78)	1	(3.13)	21	(10.22)	**<0.0001***
Injected a drug with a syringe previously used by another person	33	(15.00%)	3	(23.08%)	30	(14.49%)	0.419
Received/bought an injection from an already filled syringe	75	(34.09%)	3	(23.08%)	72	(34.74%)	0.550
Used a syringe refilled by someone from their already used syringe, on days that you injected drugs	35	(15.91%)	1	(7.69%)	34	(16.43%)	0.698
Used common instruments for sharing/preparing a drug at least once	37	(16.82%)	2	(15.38%)	35	(16.91%)	0.887
Ever experienced a drug overdose	190	(45.67%)	69	(35.94%)	121	(54.02%)	**0.000***
Lifetime police encounter:							

Been physically assaulted by the police	256	(61.54%)	98	(51.04%)	158	(69.91%)	**<0.0001***
Been demanded money in the form of bribe by the police	254	(61.06%)	100	(52.08%)	154	(68.75%)	**0.001***
Been forced by the police for any kind of sex against your will	6	(1.44%)	2	(1.04%)	4	(1.77%)	0.533
Been threatened by the police with arrest or physical violence if you will not cooperate with police	236	(56.73%)	102	(53.13%)	134	(59.29%)	0.205
Past six-months police encounter:							
Been physically assaulted by the police	34	(8.13%)	9	(4.69%)	25	(11.06%)	**0.018***
Been demanded money in the form of bribe by the police	32	(7.66%)	6	(3.13%)	26	(11.50%)	**0.001***
Been forced by the police for any kind of sex against your will	2	(0.48%)	1	(0.52%)	1	(0.44%)	0.464
Been threatened by the police with arrest or physical violence if you will not cooperate with police	31	(7.42%)	8	(4.17%)	23	(10.18%)	**0.019***

*Statistically significant at $p < 0.05$; Chi-square, fisher exact test, or independent sample t-test significance value reported

Table 2. Types of stigma experienced among participants stratified by OAT enrollment status

	Total (N=418)		Currently Enrolled (n=192)		Not Enrolled (n=226)		p-value
	mean (SD)						
Enacted Stigma:							
How often have people treated you this way in the past because of your alcohol and/or drug use history?							
Family members have thought that I cannot be trusted.	3	(1.26)	2.98	(1.25)	3.02	(1.27)	0.756
Family members have looked down on me.	2.45	(1.30)	2.45	(1.23)	2.45	(1.36)	0.994
Family members have treated me differently.	2.55	(1.35)	2.57	(1.33)	2.54	(1.37)	0.807
Healthcare workers have not listened to my concerns.	1.95	(1.19)	1.93	(1.18)	1.96	(1.21)	0.812
Healthcare workers have thought that I am pill shopping, or trying to con them into giving me prescription medications to get high or sell.	1.57	(1.02)	1.57	(1.05)	1.57	(1.00)	0.976
Healthcare workers have given me poor care.	1.73	(1.14)	1.74	(1.15)	1.73	(1.13)	0.932
Average Enacted Stigma	2.208	(0.868)	2.206	(0.811)	2.21	(0.915)	0.958
Anticipated Stigma:							
How likely is it that people will treat you in the following ways in the future because of your alcohol and/or drug use history?							
Family members will think that I cannot be trusted.	2.26	(1.36)	2.22	(1.35)	2.29	(1.37)	0.584
Family members will look down on me.	2.08	(1.30)	2.03	(1.23)	2.12	(1.37)	0.466
Family members will treat me differently.	2.27	(1.41)	2.35	(1.42)	2.20	(1.41)	0.251
Healthcare workers will not listen to my concerns.	1.79	(1.10)	1.8	(1.13)	1.79	(1.08)	0.964
Healthcare workers will think that I am pill shopping, or trying to con them into giving me prescription medications to get high or sell.	1.58	(1.03)	1.56	(1.05)	1.60	(1.01)	0.729
Healthcare workers will give me poor care.	1.69	(1.11)	1.66	(1.08)	1.72	(1.14)	0.58
Average Anticipated Stigma	1.945	(0.985)	1.936	(0.941)	1.952	(1.024)	0.866
Internalized Stigma:							
How do you feel about your alcohol and/or drug use history?							
Having used alcohol and/or drugs makes me feel like I am a bad person.	2.92	(1.29)	2.72	(1.25)	3.08	(1.30)	**0.004***
I feel I am not as good as others are because I used alcohol and/or drugs.	2.65	(1.29)	2.48	(1.22)	2.79	(1.33)	**0.017***
I feel ashamed of having used alcohol and/or drugs.	2.78	(1.27)	2.52	(1.18)	3.00	(1.30)	**<0.0001***
I think less of myself because I used alcohol and/or drugs.	2.51	(1.31)	2.18	(1.23)	2.78	(1.32)	**<0.0001***
Having used alcohol and/or drugs makes me feel unclean.	2.56	(1.32)	2.39	(1.31)	2.70	(1.33)	**0.014***
Having used alcohol and/or drugs is disgusting to me.	2.78	(1.33)	2.73	(1.30)	2.82	(1.35)	0.518
Average Internalized Stigma	2.698	(1.026)	2.504	(0.978)	2.863	(1.040)	**0.000***

*Statistically significant at $p < 0.05$; Independent sample t-test significance value reported

Table 3. Factors associated with each level stigma among study participants in Ukraine through bivariate logistic regression

	Enacted Stigma (n=162)		Anticipated Stigma (n=129)		Internalized Stigma (n=235)	
	OR (95% CI)	**p-value**	**OR (95% CI)**	**p-value**	**OR (95% CI)**	**p-value**
OAT Enrollment status						
Not enrolled	1.197 (0.805, 1.778)	0.3743	1.021 (0.667, 1.534)	0.957	2.029 (1.370, 3.005)	**0.0004***
Currently enrolled	ref	-	-	-	-	-
In a relationship	0.585 (0.385, 0.887)	**0.0117***	0.834 (0.542, 1.286)	0.4118	0.854 (0.574, 1.271)	0.4366
Currently employed	0.916 (0.614, 1.366)	0.6656	1.233 (0.805, 1.889)	0.3363	0.682 (0.458, 1.015)	0.059
HIV+	1.359 (0.895, 2.064)	0.1503	0.995 (0.639, 1.550)	0.9823	1.723 (1.138, 2.608)	**0.0101***
Registered in AIDS clinic (if HIV+)	0.958 (0.208, 4.419)	0.9563	0.299 (0.064, 1.386)	0.1228	0.284 (0.033, 2.416)	0.2493
HCV+	1.843 (1.115, 3.047)	**0.0171***	2.318 (1.312, 4.095)	**0.0038***	1.469 (0.911, 2.369)	0.1142
People live with are supportive of OAT	1.021 (0.391, 2.670)	0.9658	1.711 (0.553, 5.296)	0.9658	0.991 (0.387, 2.534)	0.9844
Injection drug use in past 30 days	1.154 (0.777, 1.713)	0.4773	0.892 (0.588, 1.353)	0.5906	1.424 (0.965, 2.100)	0.0748
Ever experienced a drug overdose	1.383 (0.930, 2.056)	0.1094	1.440 (0.947, 2.189)	**<0.0001***	1.246 (0.844, 1.840)	0.2876
Lifetime police encounter	1.126 (0.709, 1.790)	0.6153	0.895 (0.554, 1.446)	0.6508	0.989 (0.629, 1.553)	0.96
Past 6-months police encounter	1.707 (0.977, 2.980)	0.0602	1.445 (0.812, 2.572)	0.2108	1.121 (0.639, 1.967)	0.6914
Ever in lifetime been physically assaulted by the police	1.070 (0.689, 1.660)	0.7645	0.952 (0.600, 1.508)	0.8326	1.038 (0.675, 1.596)	0.8643
Ever in lifetime been demanded money in the form of bribe by the police	1.214 (0.809, 1.821)	0.3487	1.079 (0.704, 1.653)	0.7266	1.340 (0.903, 1.991)	0.1464
In past six months been physically assaulted by the police	0.976 (0.475, 2.009)	0.9483	1.638 (0.799, 3.354)	0.1776	0.761 (0.377, 1.536)	0.4467
In past six months been demanded money in the form of bribe by the police	1.884 (0.913, 3.886)	0.0866	1.593 (0.761, 3.332)	0.2166	1.150 (0.552, 2.395)	0.7083
In past six months been threatened by the police with arrest or physical violence if you will not cooperate with police	1.761 (0.845, 3.667)	0.1308	1.458 (0.685, 3.100)	0.3278	1.234 (0.836, 1.822)	0.2903

*Statistically significant at $p < 0.05$; Chi-square significance value reported

Table 4. Multivariate models of factors associated with stigma among study participants

	Estimate	Standard Error	Wald Chi-Square	OR	p-value
Enacted Stigma					
In a relationship	-0.5259	0.2206	5.6836	0.591 (0.384, 0.911)	**0.0171***
HCV+	0.5561	0.213	6.8147	1.744 (1.149, 2.647)	**0.009***
In the past six months been demanded money in the form of bribe by the police	0.6699	0.3829	3.0609	1.954 (0.923, 4.139)	0.0802
Anticipated Stigma					
Registered in AIDS clinic	-1.8072	0.9178	3.8772	0.164 (0.027, 0.992)	**0.0489***
HCV+	0.8941	0.5088	3.0874	2.445 (0.902, 6.628)	0.0789
Ever experienced a drug overdose	0.5257	0.3561	2.1799	1.692 (0.842, 3.399)	0.1398
Internalized Stigma					
OAT Enrollment status (not enrolled)	0.1832	0.2354	0.6053	1.201 (0.757, 1.905)	0.4366
HIV+	-0.2875	0.2467	1.3582	0.75 (0.463, 1.217)	0.2439
HCV+	0.9243	0.2668	12.0002	2.52 (1.494, 4.251)	**0.0005***

*Statistically significant at $p < 0.05$