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# Methamphetamine Use among HIV-Positive Men Who Have Sex with Men (MSM)

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METHAMPHETAMINE USE AMONG HIV-POSITIVE MEN WHO HAVE SEX  
WITH MEN (MSM)

By

Alexandria Markel

B.A., Southern Illinois University, 2010

A Research Paper  
Submitted in Partial Fulfillment of the Requirements for the  
Master of Science Degree.

Rehabilitation Counselor Training Program  
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RESEARCH PAPER APPROVAL

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A Research Paper Submitted in Partial  
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in the field of Rehabilitation Counseling

Approved by:  
Dr. Thomas D. Upton, Chair

Graduate School  
Southern Illinois University Carbondale  
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AN ABSTRACT OF THE RESEARCH PAPER OF

ALEXANDRIA MARKEL, for the Masters of Science degree in REHABILITATION COUNSELING, presented on APRIL 9, 2013, at Southern Illinois University Carbondale.

TITLE: METHAMPHETAMINE USE AMONG HIV-POSITIVE MEN WHO HAVE SEX WITH MEN (MSM)

MAJOR PROFESSOR: Dr. Thomas D. Upton

The highly addictive drug methamphetamine has been associated with impairments in social and neurological functioning. With assistance from previous studies on methamphetamine use and HIV, the theory that the risk of HIV is increased with the use of methamphetamine will be supported. The purpose of this paper is to educate and illustrate the dangerous effects of methamphetamine use among individuals with HIV. The paper will conclude with an examination of possible HIV treatment and prevention options to better assist individuals who use methamphetamine.

## CHAPTER I

### INTRODUCTION

For years substance abuse in the United States was overlooked, and individuals who abused these substances were labeled as drunks and druggies. Society often treated these individuals as scapegoats and continually wondered how individuals could put such substances into their body. Other individuals overlooked the problems associated with addiction and hid this dark secret. Over time, the face of addiction has begun to change and many individuals have sought treatment. Nevertheless, in today's society, substance use continues to grow as a major issue with new drugs coming into the market every day. However, some of the older drugs are still major contributors to the growing concern in the substance use world. Compared to marijuana, opiates, or cocaine, methamphetamine does not share the same national profile. Methamphetamine, compared to these other substances, is a relatively new drug; however, the abuse of methamphetamine is not new (Hunt, Kuck, & Truitt, 2005). Methamphetamine is perhaps one of the most misunderstood major drugs of abuse in the United States (Hunt, Kuck, & Truitt, 2005). The highly addictive synthetic drug, methamphetamine, is a destructive substance that has been associated with impairments in social and neurological functioning. It can drastically alter the "pleasure pathway" within the brain. This substance, acting as a central nervous system stimulant, has the ability to dramatically alter an individual's physical, mental, and emotional state. With the highly addictive nature of this drug, methamphetamine is becoming a frequent drug of choice among individuals of a wide age range.

Within the past decade, the use of methamphetamine has increased in the general population. Methamphetamine is a substance that was seen as early as the 1800's by German chemists. However, this drug did not appear on the market until 1920. In the beginning, amphetamine was formed into tablets and used to treat a variety of disorders. Methamphetamine became widely available in the United States throughout the 1940's and 1950's. The production of amphetamines grew, and by 1970 the legal production of methamphetamine reached over 10 billion tablets. Prior to today, methamphetamine was produced to assist soldiers in fighting fatigue and staying awake for long periods of time. With the changing laws, now making the drug an illegal substance, many thought this substance would disappear. However, beginning in the 1980's the use of methamphetamine resurfaced in the United States (Hunt, Kuck, & Truitt, 2005). Despite the efforts to control the supply and distribution, approximately 33 million people worldwide use methamphetamine and 1.3 million reported using it in the past 12 months. It is estimated that, in the United States, 5% of the adult population has used methamphetamine on at least one occasion (Salo, Nordahl, Galloway, Moore, & Waters, 2009). In addition, the supply and demand of methamphetamine is increasing in the United States. From July 2007 to September 2010, the price per gram of methamphetamine decreased 61%, from \$270.10 to \$105.49. However, the purity of the product increased by 114%, from 39% to 83% (Maxwell & Brecht, 2011).

Methamphetamine is known as a Schedule II drug that acts as a central nervous system stimulant. It is also known as crank, ice, crystal, tine, or glass. The substance can be made into a liquid, powder, a clear rock, or a waxy solid. Methamphetamine is also known as crank, ice, crystal, tine, or glass. It can be produced in various ways with the

use of simple household chemicals. The main ingredient in this drug is ephedrine or pseudoephedrine. This is combined with products of battery acid, iodine crystals, red phosphorous and anhydrous ammonia (Maxwell & Brecht, 2011). Methamphetamine can be injected, smoked, snorted, swallowed, or a suppository (Center For Disease Control and Prevention, 2007). Individuals who inject this deadly drug are at risk of spreading, or contracting, HIV through contaminated needles, syringes, or any other form of an injection tool (National Institute on Drug Abuse, 2010). It has been estimated that more than 12 million individuals in American have injected, snorted, or smoked methamphetamine at least once (Ricks, Chang-Arratia, Lansinger, & Dziegielewski, 2010). Individuals who are using this substance increase their risk of becoming dependent on the drug. It dramatically alters the brain, and without the presence of the substance in the body, the individual will have dramatic decreases of dopamine in their brain. In order to increase the amount of dopamine in the brain, and feel a sense of euphoria again, individuals who use methamphetamine will do almost anything in their power to get the drug.

This type of determination and risky behavior could lead to trading sex for drugs and, in turn, could cause risky sex, multiple partners, and unprotected sex (National Institute on Drug Abuse, 2010). This could become a greater issue than just trading sex for drugs. Many studies have found that individuals who trade sex for drugs have a higher rate of HIV. They have also found that the majority of these individuals are men who have sex with men (MSM) along with females, adolescents, and individuals who are homeless. It is estimated that nearly half of HIV infections in the United States occur in individuals younger than 25 (Zapata, Hillis, Marchbanks, Curtis, & Lowry, 2008).

Methamphetamine appeals to equally men and women. There is almost an equal gender split for the use of methamphetamine (Hunt, Kuck, & Truitt, 2005). However, the correlation between methamphetamine and HIV is commonly seen in the population of HIV-positive MSM. Although MSM make up only 2% of the U.S. population, according to the Centers for Disease Control and Prevention (2009), MSM accounted for 61% of new HIV infections within the United States. Approximately 79% of the infections were seen among newly infected men. When compared to others groups, in 2009, MSM were among the leading numbers of new HIV infections. By the end of 2009, 56% of all persons living with HIV within the United States were MSM. Though an increase in these numbers is not clear whether this is due to an increase in HIV testing or an increase in HIV infection. However, it is certain that HIV continues to be an immense threat among MSM. Methamphetamine has been identified, in many studies, as a predictor of sexual risky behavior among MSM. As cited by Halkitis et. al, 2001, users of methamphetamine often report a decrease in sexual inhibition, an increase in self-esteem, euphoria, and hypersexuality while under the influence (Nakamura, Mausbach, Ulibarri, Semple, & Patterson, 2011).

When HIV was first introduced in the United States, it was a terminal illness believed to only affect homosexuals, individuals from Haiti, heroin users, and individuals with hemophilia. Upon further research it was determined that these demographic were incorrect. HIV can affect every human being. Today, HIV is now a chronic yet manageable disease (Ricks et al., 2010). Because HIV is a manageable disease like it is today, many individuals who are uninfected began to place this once deadly disease in the back of their mind. Currently there are many individuals who continue to engage in

unprotected sex and share dirty needles with other drug-users. In a study conducted by Forrest, Metsch, LaLota, Cardenas, Beck, & Jeanty (2010), who compared methamphetamine users to non methamphetamine users, it was determined that methamphetamine users are more likely to engage in high-risk sexual behaviors, including having unprotected insertion and having multiple sex partners. Many individuals participating in drug use and sexual risky behaviors lack resources to assist them in practicing safe sex and receiving treatment for their methamphetamine use. Providing information on these risky sexual behaviors can be the most effective tool when educating these individuals about the activities they are participating in.

With a subpopulation as specific as this, the topic of methamphetamine use on recent risky sexual behaviors often does not appear in larger studies. A topic such as this has received little attention. Methamphetamine is continuing to increase in supply and demand, decrease in price, and increase in purity. This could lead to a rise in risky sexual behaviors and HIV infections. With evidence that methamphetamine is associated with a greater prevalence of HIV and overall poor health among users, these findings are alarming (Hunt, Kuck, & Truitt, 2005). There are a growing number of individuals trying methamphetamine within the United States, and therefore it is extremely important to study this issue. Currently, the issue regarding the effects methamphetamine use on risky sexual behaviors has received little attention. With the growing number of individuals using methamphetamine for the first time, this issue is important to study. For the purposes of this research paper, effects of using methamphetamine, specifically individuals who use methamphetamine and are HIV positive, will be explored. Through comprehensive analysis of research conducted on methamphetamine usage and HIV, we

will be able to observe the direct implications that methamphetamine usage has on sexual risk factors and how prolonged exposure to this drug has devastating consequences with impairments in social and neurological functioning.

### *Definition of Terms*

*AIDS:* Acquired Immune Deficiency Syndrome, caused by a virus called HIV.

*Assertiveness:* being active, direct and honest by clearly state thoughts, feelings, and communicates impression of self respect and respect for others.

*Behavioral Disinhibition:* lack of resistance in relation to impulsive behavior.

*Cognitive Deficits:* impairment in cognition relating to cognitive processing.

*Disinhibition:* lack of resistant in relation to impulsivity.

*Dopamine:* a natural chemical within the brain responsible for increasing feelings of enjoyment and reinforce us to do, or continue doing, that specific activity.

*Ephedrine:* a medication commonly used as a decongestant.

*Hemophilia:* a rare bleeding disorder in which blood does not clot normally.

*HIV:* Human Immunodeficiency Virus invades the helper t-cells to replicate itself.

*Infections:* newly identified cases of HIV.

*Men who have sex with men (MSM):* refers to the behaviors that transmit HIV, as opposed to how the individual identifies in terms of their sexuality.

*Placebo:* a substance given to an individual containing no medication and in turn reinforces an individual's expectation to improve.

*Polydrug users:* the use or two or more substances in combination with one another.

*Pseudoephedrine*: a chemical commonly used in prescriptions and over-the-counter cough and cold medication.

*Self-efficacy*: the belief in one's capability to achieve goals or outcomes.

*Sexual risk behavior*: unprotected sex with an opposite sex- or same-sex partner.

*T-Cells*: white blood cells within the body that play a significant role in the immune system by searching for, and destroying infections.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

This chapter will briefly highlight attitudes related to condom use and sexual risk behavior among HIV-positive MSM who use methamphetamine, as well as lower medication compliance among this population. This chapter will also review the impaired cognitive deficits associated with methamphetamine use and MSM. The increased risk of HIV when using methamphetamine will be discussed, in addition to treatment for methamphetamine use among HIV-positive MSM.

#### **Methamphetamine Use and Negative Attitudes Regarding Condom Use**

There are many factors that contribute to the increase of HIV-positive individuals and methamphetamine users. As cited by Colfax & Shoptaw (2005), methamphetamine use has been associated with numerous sexual risk factors such as enhanced behavioral disinhibition and sex drive, increase desire for high-risk activities and sexually transmitted diseases, low rates of condom use, and multiple partners (Nakamura et al., 2011). In a study done by Makamura, Ulibarri, and Patterson (2011), attitudes about condoms and sexual risk behavior among HIV-positive MSM who use methamphetamine were examined. Negative attitudes regarding condoms were identified as, I believe using condoms interferes with sexual pleasure, I believe that taking the time to stop and put a condom on ruins the moment, I believe that the use of a condom makes me less sexually desirable, using condoms ruins the mood, using a condom feels unnatural, and my partner will not be satisfied sexually if we use a condom. To evaluate the effects of methamphetamine use and condom attitudes, a multivariate regression model was used. This model allows more than one variable to be analyzed during the study. With the use

of this model, higher levels of methamphetamine use, and negative attitudes regarding condom use were independently associated with higher levels of unprotected sex. Higher number of days using methamphetamine was associated with higher levels of unprotected sex. There was also an association between lower negative condom attitudes and lower levels of unprotected sex. Negative attitudes regarding condoms moderate the relationship between the use of methamphetamine and unprotected sex.

Methamphetamine increases the risk of contracting HIV for HIV-negative users, but it also affects HIV-positive users in relation to health consequences by increasing neurological deficits and a decreasing in medication adherence.

### **Lower Medication Compliance when Using Methamphetamine**

Many individuals who use methamphetamine, and are HIV-positive, often use the substance to avoid thoughts regarding their HIV diagnosis. When they are actively using the substance the feelings associated with being HIV-positive are temporarily released from their mind. This can lead to individuals having low medication compliance. Having low medication compliance can also lead to lower levels of T-cells and increase the possible risk of developing AIDS. According to a study done by Marquez et al. (2009), when examining medication adherence and methamphetamine use their findings suggested there is an association between methamphetamine use, an increase in sexual partners, and poor medication adherence. These findings support previous research demonstrating the role of methamphetamine in the transmission of HIV. During their study they examined 653 individuals who used methamphetamine within the last four months. Of those 653 individuals, two thirds of the respondents were on anti-retroviral medication. Of those two thirds of the individuals, 13%, had poor medication adherence.

When examining the use of methamphetamine closer, they found the use of the substance preceding four weeks was associated with poor medication adherence, as well as methamphetamine users within the past 12 months were less likely to be on antiviral medication for HIV. For the individuals with poor medication adherence, the only route of use associate with poor adherence was injection.

### **The Impaired Cognitive Deficits Associated with Methamphetamine and MSM**

Users of methamphetamine are at a higher risk of experiencing deficits in their psychological, emotional, and physical areas of their life. A theory surrounding the use of methamphetamine is that persons with substance use disorders often turn to drugs or other substances to relieve their feelings of anxiety or tension that can be experienced in difficult interpersonal situations. Therefore, when users of methamphetamine are faced with a potentially stressful interpersonal situation, their use of the substance will increase to assist in lessening the feelings of tension or anxiety. When bingeing on methamphetamine, the individuals will experience elevated levels of arousal and stimulation causing their judgments to be impaired in all situations, but particularly sexual behaviors. Users of methamphetamine often describe themselves as feeling less inhibition, more powerful, and more confident when “high” on the substance.

Methamphetamine users have higher rates of psychological symptoms when compared to non-methamphetamine users. This leads to highly stressful interpersonal encounters that may require assertive responses. The highly addictive nature of methamphetamine increases the likelihood that individuals will be less assertive in their interactions with fellow drug users and dealers.

Semple, Strathdee, Zians, & Patterson (2011) stated:

In addition, risky sexual behavior is likely to be associated with less assertiveness in encounters with sexual partners. This may be particularly relevant among methamphetamine-using MSM, given that this powerful stimulant has been associated with heightened sexual arousal and reduced safer-sex negotiations. It is likely the users also perceive themselves as more assertive when they are “high”. Greater dependence on the drug would suggest an inverse relationship between the intensity of their use and their assertiveness in turning down the drug.

To better understand the connection between assertiveness in during down drugs and methamphetamine, Semple, Strathdee, Zians, & Patterson (2011) conducted a study, which examined a sample of HIV-positive, methamphetamine-using men who have sex with men (MSM). The individuals they studied used methamphetamine within the past 2 months and at least once during the past 30 days. They were given multiple tests to measure their drug assertiveness, methamphetamine use variables, sexual risk behaviors, anxiety symptoms, sexual sensation seeking, self-esteem, and demographic characteristics. Upon completion of this study, they found that assertiveness for refusing drugs was associated with numerous factors such as substance abuse behaviors, psychological factors, and sexual risk behaviors. In addition to the deficit that affects the individual’s psychological factors and interpersonal skills, these individuals experience altered forms of cognition when using methamphetamine. The addictive and damaging nature of this substance leads many individuals to overlook the range of harmful effects when continuing to use the substance.

There are multiple areas of cognitive processing that are impaired in chronic use of methamphetamine such as, information processing, attention, and working memory.

Executive functions such as response inhibition, problem solving, and decision-making are also impaired (Tolliver et al., 2012). Drugs like methamphetamine hijack the brain's ability to produce natural feelings of euphoria by altering the brain's sensitivity to dopamine (Erikson, 2007). After the drug enters the blood stream, it enters the mesolimbic dopamine system or the "pleasure pathway" in the brain. Dopamine is the most prominent neurotransmitter in chemical dependence and causes a euphoric feeling throughout the body (Erickson, 2007). This drug increases the release and blocks the reuptake of dopamine in the brain. The natural chemical, dopamine, is responsible for the feeling of pleasure. Methamphetamine's ability to release the reward of dopamine so quickly causes the feeling of euphoria (National Institute on Drug Abuse, 2010). A drug such as methamphetamine allows the brain to be hijacked of its natural dopamine releasing abilities and produce the euphoric feelings by changing how the brain is affected by dopamine (Erikson, 2007). The prolonged use of methamphetamine destroys the brain's ability to naturally produce dopamine on its own. As a result of the prolonged use, the individual must continue to use increasing amounts of the substance in order to experience euphoric sensations. However, with continuous use of the substance, the individual continues to decrease the amount of dopamine released in the brain. This leads to the brain having less of a response to the substance than previously produced, also known as neuronal tolerance. Each substance affects the brain and body in a different way. However methamphetamine has some of the most detrimental effects on the brain and body. Because of the damaging effects methamphetamine has on the dopamine system, replenishing the amount of dopamine in the brain can take years.

Methamphetamine is neurotoxic to the dopamine terminals within the brain. This has a poisonous, and degenerative effect on the pleasure pathways within the brain. With continuous use of methamphetamine, an individual's dopamine receptors will become desensitized. Not only is methamphetamine one of the most detrimental drugs to effect how the brain functions, it also affects an individual's cognitive processes. Salo et al. (2009) found that users of methamphetamine had a greater stoop reaction time compared to non-methamphetamine users, meaning they had reduced cognitive control compared to the control group in the study. Methamphetamine use can affect many aspects of the human mind. Some of these effects could be social-cognitive function, decision-making, perceptual speed, and verbal memory performance. The effects of methamphetamine can alter judgment and inhibition (National Institute on Drug Abuse, 2010). As a result of the decreased feelings of inhibition and judgment an individual has a higher risk of partaking in sexually dangerous situations.

Early studies have proposed that the amphetamine-induced damage to the dopamine terminal in the brain was an irreversible (Wang et al., 2004). However, subsequent studies have revealed significant recovery in individuals who use methamphetamine when they have maintained prolonged abstinence from the substance. However, the dopamine terminal is the only part of the brain to show significant improvement with prolonged abstinence. Areas of the brain such as the neuropsychological function showed no increase with prolonged abstinence from the substance. This suggests with prolonged abstinence from methamphetamine, partial recovery within the brain can occur. A recent neuroimaging study was conducted to compare the partial recovery of the brain function in certain brain regions of

methamphetamine users to those of individuals who did not use substances. The areas in the brain associated with improved performance on motor and verbal memory began to improve with protracted abstinence. However, some regions in the brain indicated no changes, even after two-years of remaining abstinent from methamphetamine. This indicates that some changes within the brain induced by methamphetamine are long lasting (Wang et al., 2004). Despite the significant increase within the dopamine terminals, there are areas of the brain that continue to be affected by the use of methamphetamine. These long lasting changes within the brain can begin to affect an individual's behavior and can lead to an increase in activities related to sexual risky situations.

These long lasting chemical changes in the brain can lead to increased risk of sexual risky behaviors and, in turn, lead to an increase in HIV infection. In a study done by Nakamura, Semple, Strathdee, and Patterson (2009) 49% of individuals surveyed indicated they used methamphetamine to enhance sexual pleasure and 48% used methamphetamine to get ready for sex. Cartier, Greenwell, & Prendergast (2008) reported that, "methamphetamine is the most significant predictor of lower levels of condom use and higher levels of sexual activity with drug-injecting partners" (p. 438). Condom use was reported to be lower in both males and females. However, males in the study reported having more sexual partners and providing sexual activities for money or drugs. Females were found to inject more than men and use dirty needles while using (Cartier, Greenwell, & Prendergast, 2008). Often, individuals who are using the drug have higher feelings of compulsivity and sexual risk behaviors. The EDGE study, which examined at HIV-infected men who have sex with men, found a higher rate of

unprotected sex and compulsivity (Marquez, Mitchell, Hare, John, & Klausner, 2009). When using methamphetamine, individuals have a heightened sense of sexual arousal and their inhibitions are erased. In addition, when individuals use methamphetamine it causes a neurochemical increases of how an individual experiences pleasure in most activities (Ricks et al., 2010).

### **The Increased Risk of HIV with Methamphetamine Use**

Trading sex for drugs or money increases the likelihood for risky sexual behaviors in all individuals who use methamphetamine. These behaviors could include multiple sex partners and unprotected sex. In many cases individuals trade sex for money. However, there are many drug users who trade sex for drugs. Drug users are at an increased risk of participating in risky sexual behaviors. It is suggested that these individuals may have a different behavioral, social, and psychological profile than individuals who trade sex for only money (Semple et al., 2011). AIDS activists and health officials in the United States are becoming increasingly concerned with the rising number of newly diagnosed HIV cases and methamphetamine use (Ricks et al., 2010). Men who have sex with men who also use methamphetamine represent a group that is at a high risk for HIV due to the connection between sexual risk behaviors and illicit drug use (Forrest, Metsch et al., 2010). The majority of newly diagnosed HIV cases and methamphetamine use consist of men who have sex with men. There have been numerous studies on the issue regarding the increasing number of new cases. Many have found that men who have sex with men make up the majority of these cases. With the addictive nature of methamphetamine, the trading of sex for drugs presents a higher risk.

Both the social and environmental accepts of using this drug increases the risk for contracting HIV.

There are many factors associated with trading sex for methamphetamine. Individuals who use methamphetamine differs in terms of whether they prefer to binge, inject, or are polydrug users (Nakamura, Semple, Strathdee, & Patterson, 2009). Semple et al. (2011) found several social, behavioral, and psychological factors associated with trading sex for methamphetamine. Individuals who binge on methamphetamine are at a higher risk of trading sex for methamphetamine. Without the drug in their system, feelings of euphoria begin to decrease and many individuals may express feelings of sadness or depression. During the period where the individual is not using, they become consumed by thoughts of locating the drug. Users who binge are two times more likely than non-binge users to trade sex for drugs (Semple et al., 2011). Homelessness is a very large factor in trading sex for drugs. Many individuals who are homeless have limited resources available to them, and with the increase cravings from their drug use, they will do anything they have to in order to obtain the drug. The cravings from methamphetamine overpower their cognitive process regarding the dangers of their actions.

Along with MSM, methamphetamine is used among many substantial groups. Use occurs across numerous sociodemographic characteristics (Halkitis, Green, & Mourgues, 2005). There are a variety of demographics and situational factors that fit into the category of methamphetamine use and HIV.

Semple, Strathdee, Zians, and Patterson (2010) stated

Although both men and women trade sex for drugs, as do individuals with

different sexual orientations and ethnic backgrounds, this type of exchange has been closely associated with the use of stimulants. In a study of individuals who used crack cocaine or injected drugs, those who traded sex for drugs had higher rates of syphilis and HIV compared to their counterparts who had not traded sex. Elwood et al. found crack cocaine use, homelessness, and unemployment to be independently associated with trading sex, regardless of gender or race (p. 326). These findings alone illustrate the power of methamphetamine and its effects on sexual risky behaviors. Methamphetamine use can also be seen among a younger generation of individuals. Pluddemann, Flisher, Mathews, Carney, and Lombard (2008) study found almost 60% of students who previously used methamphetamine within the past 30 days, also had sex at least once, compared to one in four individuals who did not use methamphetamine. Compared to students who did not use methamphetamine, and those who report no use within the past 12 months, students who used methamphetamine within the past 30 days were significantly more likely to engage in sexual risky behaviors. Based on the findings from this study, school age children also need to be taken into consideration when studying the increasing numbers of HIV cases and methamphetamine use. In a study done by Zapata, Hillis, Marchbanks, Curtis, & Lowry (2008) they found that methamphetamine use was common among adolescents, with 1 out of 13 individuals reporting lifetime methamphetamine use and two thirds of those individuals were recently sexually active. These intriguing findings related to various subcultures that use methamphetamine and participate in sexual risky behaviors, as well as the findings associated with the brain, further emphasize the importance of establishing treatment for methamphetamine use. Establishing successful treatment will

maximize the individual's chances of successful recovery and will allow the functions in certain brain regions to begin improving.

### **Treatment for Methamphetamine Use among HIV-Positive MSM**

In order to assist these individuals who are trading sex for drugs or engaging sexual risky behaviors, and increasing their risk of contracting or transmitting HIV, there needs to be a system in place to prevent and intervene sex trading behaviors. Currently, there is a need for more research on methamphetamine use and the dispersion of HIV. However, there are actions that can be directly implemented in order to help the individuals currently in need. Semple et. al. (2011) has discussed a variety of possible treatment interventions such as women-focused HIV prevention programs that incorporate assertive communication training. As earlier discussed, users of methamphetamine are often faced with potentially stressful interpersonal situations. This leads to an increase in substance use in order to assist in lessening the feelings of tension or anxiety. When binging on methamphetamine, the individuals will experience elevated levels of arousal and stimulation causing their judgments to be impaired in all situations, but particularly sexual behaviors. This deficit leads to highly stressful interpersonal encounters that may require assertive responses. With the highly addictive nature of methamphetamine there is an increase in the likelihood that individuals will be less assertive in their interactions with fellow drug users and dealers. In order to assist individuals in being more assertive and lessen sexual risky behaviors, a program with a focus on assertiveness as a multidimensional construct is recommended. For example, the program should focus in specific areas of substance use or risky sexual encounters and involve contextually relevant situations. The key components in assertiveness

training programs involve discussion, role-playing, counseling, homework assignments focused on assertiveness communication, and behavioral rehearsal (Semple et al., 2011).

Many times in treatment, individuals are not ready or willing to reduce or cease the use of the substance. For individuals such as this, harm reduction and education serve as a beneficial counseling tool. Focusing on the attitudes of methamphetamine users regarding safer sexual situations, condom use and reducing sexual risky behaviors can serve as a form of harm reduction (Nakamura et al., 2011). Having discussions with these individuals about sexual negotiation skills, enhancing their self-efficacy, gender empowerment, and mood management are also beneficial in effectively treating this population. Programs such as these can assist individuals in becoming clean and beginning the recovery process. These treatment programs can also assist in helping the individual increase their knowledge on medication compliance for HIV.

When it comes to compliance regarding HIV medication and methamphetamine use, there are various issues that have been observed. Many individuals who use methamphetamine, and are HIV-positive, often use the substance to avoid thoughts regarding their HIV diagnosis. When they are actively using the substance the feelings associated with being HIV-positive are temporarily released from their mind. This can lead to individuals having low medication compliance. Having low medication compliance can lead to lower levels of t-cells caused by an invasion of HIV cells. A typical number of t-cells in the human body range from 500 – 1,000. When an individual's t-cell count drops below 200, AIDS begins to develop. If an individual does not seek medical treatment, they could lose their life to a common cold due to lack of t-cells within the body. As a consequence, when an individual has low medication

compliance there is an increase of developing AIDS. For situations such as these, behavioral interventions such as cognitive behavioral therapy are helpful. This type of program promotes harm-reduction and decreasing methamphetamine use (Marquez et al., 2009). There are also programs that focus on reducing the increase of HIV occurrences.

Ricks et al. (2010) have addressed important factors that should be considered when increasing individual's knowledge of HIV prevention. Routine testing for HIV while individuals are receiving treatment, developing a sex education program to address the distorted perception of sexual activity among various demographic groups, and recruiting individuals with HIV and past methamphetamine users to discuss their personal experiences can be useful during the treatment process. Group counseling sessions can also be a very effective tool in the treatment process. Within a group setting, individuals feel as if they are not alone and have individuals around them who offer positive support. It can be very useful for these individuals to hear others tell their story and share their experiences with them. Education is also a successful tool when assisting this population. Many individuals are not aware of the potential dangers that can be caused by their actions. In order to assist these individuals, community services can be expanded to include sexual risk reduction interventions or counseling options that address the risks that are associated with trading sex for methamphetamine (Semple et al., 2011). Many individuals using methamphetamine are not aware of the full ramifications of their actions. There are some individuals who are blind to risks of this drug and the potential dangers that come along with its use. For individuals who are homeless, programs such as these could help them understand these risky behaviors. It is important to provide

individuals with education regarding their risky behaviors and assist them in receiving the necessary treatment.

These multiple therapy techniques form the cornerstone of treatment for methamphetamine and HIV. Currently, the majority of treatment available for this type of addiction relies on the use of multiple behavioral therapy techniques and the utilization of education tools in order to increase the knowledge regarding methamphetamine and HIV. The recovery process must be viewed as any other disease, which involves a great effort of struggle between remission and relapse. Due to its severe addictive nature, users of methamphetamine remain in a world that is high in relapse. Relapse from methamphetamine remains high despite these treatment strategies. Cognitive behavioral therapy and other psychological approaches are often characterized by high relapse rates and low retention (Tolliver et al., 2012). Due to the high relapse rate among users numerous studies are being conducted to better treat this population. Interventions that improve cognitive functioning in methamphetamine users are an important area of future study (Tolliver et al., 2012). A study conducted by Zule et al. (2012), the use of motivational interviewing was examined as a means to treat methamphetamine use and sexual risk behaviors among MSM. During the study, approximately 8 sessions, lasting 55 minutes, using solely motivational interviewing were conducted. Upon completion of the study the self-reported use of methamphetamine within 60 days decreased from a mean of 9.4 to 3.3. The mean number of sex partners reported within 60 days decreased from 4.8 to 2.9. In addition, the stage of change regarding stopping the use of methamphetamine moved from contemplation to ready for action, and stage of change regarding unprotected sex moved from contemplation to ready for action at the

completion of treatment. This suggests that the use of motivational interviewing may be useful in reducing the use of methamphetamine and sexual risk behaviors. In addition to the use and development of intervention theories, the National Institute of Drug Abuse has been conducting research in the development of new medications for methamphetamine addiction.

There are currently no known medications to treat methamphetamine addiction. However, there are medications available that are FDA-approved for other illness that could be useful in treating the symptoms associated with methamphetamine addiction. A recent study reveals that bupropion, an anti-depressant more commonly known as Wellbutrin, reduced the methamphetamine-induced “high” when consumed (National Institute of Drug Abuse, 2006). This medication also helped reduce drug cravings when experiencing drug-related cues. Elkashef et al., (2008) conducted a study that examines the effectiveness of bupropion for methamphetamine dependence. During this study 41 individuals were treated for methamphetamine dependence using bupropion and 38 individuals were treated using a placebo. There was no difference between having lower or higher baseline use of methamphetamine between the two groups. Each individual participating in the study met DSM-IV criteria for methamphetamine dependence and was given urine analysis to examine the amount of methamphetamine levels within the body during the 12-week treatment program. Participants in the study received 150mg of bupropion or the placebo, once per day for 3 days. The tablets then increased to 300mg daily, one tablet twice per day for 11 weeks of treatment. Prior to completion, the doses were reduced to 150mg per day on the last three days of the 12-week treatment study. Along with medication, cognitive behavioral therapy was used in 90-minute group

sessions, three times per week. Upon completion of the study, the bupropion group has lower percentages of methamphetamine-free study week during week 1 compared to the placebo. During week 12 the bupropion group had 10% more individuals who were clean from methamphetamine. Although the findings were not significant, there was an improvement over the treatment period in the bupropion group when compared to the placebo group. Additionally, there was no significant difference between the groups in the change from the baseline to the completion of treatment in relation to HIV risk behaviors (i.e. needle use or risky sex). Therefore, if medication were to successfully assist in the treatment of methamphetamine dependence, treatment and education for HIV would need to occur simultaneously to reduce the amount of risky sexual behaviors. There currently needs to be further research regarding various successful treatments for this population. However, the treatments presented can be effective in assisting this.

Methamphetamine use among MSM can present many implications for this population. As indicated by the research, methamphetamine use can contribute to negative attitudes regarding condom use, as well as lower medication compliance among HIV-positive MSM. Multiple levels within the brain are affected by the use of methamphetamine. Research shows impairments in multiple areas of cognitive processing such as, information processing, attention, working memory, and executive brain functions. Decision-making, inhibition, and problem solving are executive areas within the brain that are affected leading to an increase in risky behaviors when using the substance. Users of methamphetamine experience a higher risk associated with impairments related to social and neurological functioning, and increasing the risk of permanently altering dopamine levels. Treatment for methamphetamine use among HIV-

positive MSM has received little attention. However, the majority of treatment available for this type of addiction relies on the use of multiple behavioral therapy techniques, as well as the utilization of education tools in order to increase the knowledge regarding methamphetamine and HIV. Chapter III will address implications rehabilitation counselors may face in working with methamphetamine use among MSM.

## CHAPTER III

### DISCUSSION

Methamphetamine use has the potential to cause damaging effects to the body and brain. As a result of prolonged use, the effects of methamphetamine on the brain can be irreversible. With an increase in substance use, the individual begins to experience a decrease in the amount of dopamine released within the brain. In addition, the individual must increase the use of the substance to receive an increased response within the pleasure pathway. Replenishing the amount of dopamine within the brain can take years. Yet, future studies are needed in order to fully understand the long-lasting effects methamphetamine has on the brain. The known long-lasting damaging effects of this substance can lead to decreased feelings of inhibition and judgment. They may also experience deficits in decision-making and social-cognitive functioning. As a result, there is an increased risk the individual will partake in sexual risky behaviors.

Methamphetamine is a widely used substance among MSM. In addition to decreased feelings of inhibition and judgment, within this population, use of the substance has been related with negative attitudes regarding condom use and unprotected sex. This suggests the relationship between the use of methamphetamine and unprotected sex is increased. In addition, higher rates of risky sexual behavior are seen among individuals who binge on methamphetamine. When an individual is bingeing on a substance, their thought process is often consumed by thoughts of locating the substance. The use of this substance increases the risk of HIV infections and health consequences of lower medication compliance and higher neurological damage for existing HIV-positive users.

Many issues have been observed regarding low medication compliance among HIV-positive MSM who use methamphetamine. In addition to this population, lower medication compliance alone can be dangerous for both HIV-positive and negative MSM. Many individuals who use this substance do so to avoid thoughts regarding their HIV diagnosis. Methamphetamine can lead to a decrease in judgment, and in return HIV-positive MSM who use the substance have a decrease in feelings and thoughts associated with the HIV diagnosis. As a result, if medication is not administered to treat HIV, an individual's t-cell count can drop under 200. This could lead to the development of AIDS. With the use of medication to assist in treating HIV, an individual can be virtually undetectable by utilizing medication to increase the t-cell count to a healthy amount. Lower medication compliance also increases the probability of transmitting HIV to an HIV-negative partner.

As a rehabilitation counselor, providing education on HIV is extremely important with this population. Substance users should be provided with this education in order to assist them in increasing their knowledge regarding safer sexual encounters and safer needle use. In addition, as a rehabilitation counselor it is imperative to provide clients with information regarding HIV testing and medication compliance. This will assist in increasing medication compliance and decreasing the expansion of HIV from individuals who are unaware they are infected.

Another implication for rehabilitation professionals when treating this population is assisting the client in increasing, and maintaining, proper medication compliance. Due to the problems surrounding medication compliance among HIV-positive MSM who use methamphetamine, a controversial treatment for this population is the use of medication

to treat the addiction. Although the use of medication can be a beneficial treatment for many individuals, the use of medication within the substance use population can be risky. Many individuals within the substance use population have a higher sensibility to addiction of any substance. Rehabilitation professionals should ensure proper medical monitoring is utilized in order to ensure the medication is being administered as prescribed by the professional. Although additional research is needed regarding the use of medication for methamphetamine use, this type of treatment holds many benefits for this population. By using this type of treatment for methamphetamine abuse or dependence, medically monitored and administered medication could allow these individuals to become more stable during the recovery process. The use of medication should be used in conjunction with motivational interviewing, cognitive behavioral therapy, or a theoretically based treatment. If an individual is being treated using medication, it is important to be working towards the goal of support without the assistance of medication. During treatment the individual should be increasing their knowledge regarding skills and strategies to assist them in recovery during and after the use of medication.

While methamphetamine use and HIV are widely known throughout the United States, the issues surrounding these populations receive little attention. Additional research is needed by rehabilitation professionals to better assist these individuals during the treatment and recovery process. With the addition of research, further information regarding effective theoretical orientations and possible treatment utilizing medication could be implemented to improve the rehabilitation process. Rehabilitation professionals should utilize a delicate balance of treatment when assisting this population. There are a

variety of possible treatment interventions for this specific population. Treatment focused on the use of methamphetamine in conjunction with HIV education and treatment is ideal for this population. Nevertheless, as a rehabilitation counselor, it is imperative to research and provide the highest quality of care for each client.

This paper has demonstrated the devastating effects that methamphetamine has on an individual. These effects have been supported by multiple studies involving MSM and the increased risk of HIV. Studies have also shown that there are many factors that contribute to the rising number of drug users with HIV, as well as the association of methamphetamine use and HIV risk by engaging in sexually risky behaviors. With assistance from rehabilitation professionals who utilize proper education, harm reduction, or treatment using behavioral interventions these individuals can work towards a life without drug addiction. Education is imperative within the methamphetamine population, not only on how it affects an individual mentally, physically, and emotionally but also the dangers of contracting HIV. Drug users should know the first step to recovery is seeking help. It is essential that individuals seek treatment and understand the dangers of methamphetamine use. It is also important to understand that recovery is a lifelong process when dealing with drug dependence.

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