

Running Head: METHAMPHETAMINE TREATMENT AND LEGISLATION

Methamphetamine: The New Epidemic

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Abstract

Methamphetamine (also known as “meth”) as a growing epidemic is causing many problems on multiple levels in the social welfare system, leaving county government and state legislators troubled as to what to do to help with the crisis. This is a literature review of different interventions that both treatment centers and legislators are using to help with the methamphetamine epidemic. A two prong approach is being used to help with this crisis, one that involves treatment interventions the other laws addressing meth labs. Cognitive-behavioral interventions, which were started for cocaine treatment, seemed to be the most effective when working with those addicted to methamphetamine. It is important that the individual is incorporated into every aspect of the treatment plan and their individual needs are met within the intervention model. Legislation has mostly been aimed at stopping the creation of methamphetamine in the United States. There is a need for additional research on the long-term impact of medications and treatment interventions for methamphetamine abuse.

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No matter the person, methamphetamine has affected their lives. From the mother who is struggling with addiction, that has lost her children due to placement time restrictions, to the family who went to their cabin for a weekend of fun to find that their cabin was now a dangerous methamphetamine lab, to the person with allergies that just want to quickly get some medication, methamphetamine in some way influences everyone.

Methamphetamine is a growing epidemic that is not just impacting inner cities. It is one of the first drugs to hit rural areas the hardest. Rural areas allow for more places where methamphetamine can be created and are less likely to be found. Many of the ingredients, such as anhydrous ammonia are available because of the farming communities. Also, it impacts rural communities the hardest because methamphetamine is often made in rural country areas that may not be visited for long periods of time. It started on the west coast of the United States and is moving to the east with the Midwest states showing a steady rise in rural meth labs. This drug is impacting society in ways that other drugs have not done in the past. Research has been trying to catch up with the amount of people impacted and what should be done with them in treatment. Legislation is also looking at this issue to help stop the epidemic from growing at the rate that is has been.

Research Methods

Methodology

This literature review was conducted by using primarily government documents concerning treatment protocols and interventions. Examples of these documents are *Cognitive-Behavioral Approach: Treating Cocaine Addiction* and *A Community Reinforcement Plus Voucher Approach: Treating Cocaine Addiction*. Peer-reviewed articles from different journals that are based on addiction were used. Richard Rawson who has many journal articles about

addiction and methamphetamine treatment specifically wrote three of these journal articles. Resources that were more specific towards methamphetamine addiction or stimulant addiction were a priority. Government websites such as www.drugabuse.gov were also used; these websites contained information about basic methamphetamine and also statistics about its use.

Limitations

There were several limitations to this review. One is that the all the information that is related to methamphetamine addiction could not be included because it was not specifically about methamphetamine. An example of this would be the drug laws. There are many laws that have been passed that impact methamphetamine use, but are not aimed specifically at methamphetamine abuse or manufacturing.

Another limitation is that there are no treatments that were created exclusively for methamphetamine. Some of the government resources that were used were aimed toward cocaine abuse. The treatment interventions gathered from these resources had been used in other research as treatment interventions approaches with methamphetamine and have been shown effective in those studies.

Overview

Methamphetamine offers communities and drug abusers new challenges not ever faced with other drugs. Although it does have similarities to stimulants, research has been limited if not nonexistent on the long-term impact of methamphetamine users. In addiction, research on the most effective intervention approaches to use has not been conducted. This is largely due to the immediacy of the methamphetamine epidemic.

Drugs in the past were not made in labs with extremely dangerous components that could explode at any moment. The toxic waste that is created when methamphetamine is made

creates another issue that is impacting communities. What makes methamphetamine a long-lasting problem is the fact that it is easy to make, it is cheap, and it is deadly to the drug users. This is a drug that gives every person from any economic class an equal chance to become addicted.

Creation of Methamphetamine

Methamphetamine is known as meth, speed, chalk, crystal, crank and glass. These names come from its appearance. It is white, odorless, and bitter tasting and it easily dissolves in water or alcohol (Hanson, n.d.). Most of the methamphetamine comes from Mexico. It is estimated that between 80-95% of methamphetamine in the U.S. is from Mexican criminal drug traffickers both inside and outside the borders (United States. Congress. House, 2004). The amount of methamphetamine seized along the Mexican and U.S. borders increased from 6.5 kg in 1992 to 1, 370kg in 2001 (Simon et al, 2004). Methamphetamine also comes from labs commonly referred to as 'Meth Labs.' Methamphetamine is made in clandestine labs that can be found in the trunk of a car, house or fish house. Methamphetamine was made by biker gangs a decade ago, but now is made by "mom and pop shops" that are getting the recipes off of the internet (Rawson et al, 2002, p. 3).

Ingredients. The chemicals used to produce methamphetamine are important factors in stopping the production of methamphetamine in the U.S. Some of these ingredients have already had restrictions. Ephedrine and pseudoephedrine (cold and allergy medicine) in many states are placed behind the counter and the purchaser now must show identification and sign a form stating that they bought it. Anhydrous ammonia is another ingredient causing troubles within communities. This is an agricultural fertilizer whose sales are currently being controlled, but it is often stolen from farms. It is this ingredient that makes methamphetamine more likely to be

made in rural areas. Other ingredients are alcohol, toluene, ether, sulfuric acid, methanol, lithium, trichloromethane, sodium hydroxide, red phosphorus, iodine, sodium metal, table salt, kerosene, gasoline, muriatic acid, camp-stove fuel, paint thinner, and acetone (Methamphetamine, 2005). Methamphetamine is the first drug to impact rural areas as much as urban areas. This is because methamphetamine is easily created in rural communities that find many of these ingredients to be easily at hand. Although meth labs can be created virtually anywhere, rural areas have more unmonitored areas to make methamphetamine.

Waste. The production of methamphetamine leads to an extremely toxic waste that is being disposed anywhere it can be, causing troubles for the environment. For every pound of methamphetamine, there are five pounds of toxic, explosive waste that can cost up to one hundred thousand dollars to clean up (In Oregon Cleaning Up Meth Labs is a Costly Process, 2005). Each county must pay to clean up the labs, leading to some difficult budget problems in counties with extremely high rates of labs. This waste is toxic and if found by the wrong people can lead to death. It is not just the physical waste in the containers that is harmful, but also the air in the labs can be filled with toxic, deadly chemicals. When a person detects a place, they believe to be a meth lab, it is best to leave the area and call local authorities.

Methamphetamine's Trip in the Body

Methods of use. Methamphetamine is a drug that can be smoked, snorted, orally ingested, or injected. Each of these different ways makes a person feels a different type of rush, in a different amount of time. Right after it is smoked or injected the user feels an intense rush and a few minutes after the rush the users have stated that they feel "extremely pleasurable" (Hanson, n.d., p. 3). For people who snort or ingest the drug orally they find that they get a sense of

euphoria without the rush. It takes about three to five minutes for the drug to take effect if snorted and fifteen to twenty minutes for those who take the drug orally (Hanson, n.d.).

The rush that is produced can last six to eight hours, with a state of high agitation possibly followed by violent behavior because of the sleep deprivation and paranoia (Hanson, n.d.; Cretzmeyer, Sarrazin, Huber, Block, & Hall, 2003). Through all the different ways that methamphetamine can enter the body, smoking it is the most prevalent. When it is smoked, the methamphetamine is not directly smoked like a cigarette, but instead it is placed on aluminum foil in a bowl shape and heated with a lighter underneath. The methamphetamine user inhales the smoke. Like other drugs it can be smoked in a glass pipe.

Binges. Methamphetamine creates a cycle that can at first seem to have positive effects on the user, but after prolonged use does incredible damage to the body. People who use methamphetamine in a low-intensity level tend to lose weight and stay awake and alert. In order to keep this alertness, the users must binge on the drug. Binging is the rush, repeating the dosing and then “tweaking” or staying high. People who are high intensity users form a cycle of rushing, tweaking and crashing (United States Congress Senate Committee on Judiciary, 2000). Tolerance occurs within minutes of using methamphetamine causing the users to binge on the drug to maintain their high (Hanson, n.d.). This binging leads to the cycle.

Effects on the brain. Methamphetamine is a powerfully addictive drug that affects the central nervous system by stimulating the release of excess dopamine. Methamphetamine is similar to dopamine and causes the accumulation of dopamine in the synapses (Hanson, n.d.; Lee, 2006). There is an increase in dopamine while the reuptake synapses become blocked causing a larger increase of dopamine (Lee, 2006). It damages the neurons, and although the changes in dopamine have been found to be reversible in monkeys, the results imply a long

rebuilding process. In one study with monkeys it was shown that dopamine was reduced for a year, but after two years the neurons completely recovered (Rawson, Gonzales & Brethen, 2002).

All of these factors need to be considered when treating methamphetamine addicts. Depression is one of the reasons people begin using methamphetamine. When users discontinue using methamphetamine their dopamine levels are greatly decreased and antidepressants have little to work with (Lee, 2006). This result is that the relapse rates grow rapidly when working with people who have depleted levels of dopamine.

Short-term effects. The short-term effects of using methamphetamine are similar to many stimulants. It causes an increase in attention and a decrease in fatigue. Also, it causes an increase in activity for the user and a decrease in appetite. It gives the user a feeling of euphoria and a rush. It causes the body to increase its respiration and can cause hyperthermia (Hanson, n.d.). Because of the increase in activity and the decrease in appetite, many methamphetamine users lose weight. This is one of the reasons that this drug is so appealing for many female users. When a user begins to become clean, they find it emotionally hard to gain back the weight and sometimes extra weight. Weight gain can increase further if they are taking medications to help them with their recovery process and those medications increase weight gain.

Long-term effects. The long-term effects of this drug are dependence and addiction. Psychosis is a serious long-term effect of methamphetamine that includes paranoia, hallucinations, mood disturbances and repetitive motor activity. These symptoms can last for months or years and can be sometimes misdiagnosed as schizophrenia. Anxiety, confusion and insomnia are common long-term effects of this drug. Methamphetamine use can also lead to a stroke (Hanson, n.d.).

There are other chronic medical complications that can come from methamphetamine use. Inflammation of the heart lining, acute lead poisoning and for those who inject the drug there can be problems with their blood vessels and skin abscesses. Because methamphetamine causes the heart to beat at an increased rate and many of the major medical are related to the heart. Some of these complications are cardiovascular problems and rapid or irregular heart beat. Methamphetamine use can cause convulsions or overdosing or death (Hanson, n.d.).

Formication, the sensation of insects crawling on the user's skin, is a symptom of methamphetamine use. Methamphetamine users will also get sores on their face that they are likely to pick at that can cause infection. 'Meth mouth' is a phrase used to describe the teeth of chronic methamphetamine users. Their teeth and gums begin to deteriorate and the dental work costs society millions of dollars in the correctional facilities each year (Lee, 2006). Along with picking the skin and the decaying of the teeth, methamphetamine causes the body to age quicker. This can lead to some dramatic changes in serious users who over a ten year period of time are unrecognizable to themselves and anyone else who knows what they once looked like.

Withdrawal. Withdrawal from methamphetamine includes a severe craving for the drug, which often occurs because of physical cues for the user. Other withdrawal symptoms are psychological, including depression, fatigue and cognitive impairment that can last anywhere from two days to several months (Rawson et al, 2002). There are not always withdrawal symptoms from methamphetamine use it depends on the person. Methamphetamine abuse is characterized by relapses and remissions. Prolonged abstinence is often achieved only after multiple relapses (Simon, Dacey, Glynn, Rawson, & Ling, 2004). Methamphetamine is not an easy drug to get off of, but not because of the physical withdrawal, the difference is due to it is the mental trigger addiction.

Methamphetamine: The New Epidemic

In the 1980's, America was fighting cocaine and crack, a drug for both the rich and the poor and methamphetamine also was being used at that time. Methamphetamine and cocaine are being compared to determine if the same type of treatment for one stimulant will work for the other. One reason that methamphetamine is now preferred over cocaine is that methamphetamine users typically spend 25% less than those who use cocaine (Rawson, Gonzales, & Brethen, 2002). Methamphetamine can cost around \$400 per ounce, compared to cocaine which can cost \$500-\$800 per ounce. (Methamphetamine, n.d.). Methamphetamine has two advantages to other stimulants - it is cheap and it is easy to make - thus making it easily accessible to people of any economic standing. No other stimulant currently has that advantage.

Children and methamphetamine

This epidemic does not only touch the lives of the users or the neighborhoods it is created in, but more importantly it impacts the lives of children. Children of methamphetamine addicts suffer psychological harm and neglect. They inhale, absorb, and ingest methamphetamine that is made or used in the home (Impact of Methamphetamine on Children, n.d.). Meth residue can be found on the toys they play with, the bed they sleep in and the clothes they wear.

Because methamphetamine addicts often have aggression problems while on the drug, it is not surprising to find that many children who come from homes that have methamphetamine in them are abused. Children living in these homes also are living in hazardous living conditions. Some children who live in homes that use needles have been found to have needle holes in their body from playing with the needles. This is causing complexities within the social

welfare system. Because methamphetamine recovery takes longer than other drugs, many parents are losing their parental rights because they are not able to recover in the time allowances that the government has put in place.

What Does Methamphetamine Have to Offer?

Population Effected

Other than an increase in energy and alertness, what each person gains from methamphetamine is different. It affects persons of all socio-economic brackets, geography and religions. Methamphetamine can offer the business or the college student extra energy to stay awake and complete their work. For females it offers a way for mothers to get all the work done at home. For teenage girls it offers a cheap and easy way to lose weight without having to diet or work out. Methamphetamine makes a great appetite suppressant and has in the past been prescribed for that use.

A population that is often overlooked in today's media is gay men. Gay men have found this and other club drugs to be helpful for them. Society teaches that being gay is something wrong. Even the most accepting people have still been conditioned with this idea (Lee, 2006). No matter the extent that a gay man is accepting of his sexuality, he still has these conceptions in his head. Using methamphetamine gives them the feeling that they are accepted. Methamphetamine causes it's users to become very sexual for men and women, gay or straight. For gay men this can help them feel more comfortable with their sexuality and help them meet other men. They begin to associate with other men who are methamphetamine users and soon their social network becomes about getting more methamphetamine and having sex (Lee, 2006).

Because many people on methamphetamine do not think about the repercussions of their actions, proper precautions are often not taken. HIV is a big concern among methamphetamine users, especially in the gay population (Lee, 2006). With each individual, it is important that their treatment is focused around their specific reason for using methamphetamine. Even though there are concerns about methamphetamine abuse among the gay population, many of these concerns are the same for the straight population.

The Downside

Many methamphetamine addicts are often too involved with maintaining their highs to understand what impact this addiction is having on their lives. People who use methamphetamine experience greater school difficulties, are more suicidal and are more likely to have auditory hallucinations (Rawson et al, 2005). Women are more likely to be suicidal at almost twice the rate (11.3 vs. 6.3) and are more likely to be prescribed medication for psychological problems (21.3% vs. 15.4%) (Hser, Evans, & Huang, 2005). Also cognitive issues develop as a result of the use of methamphetamine abuse. After three months of abstinence, the ability to ignore irrelevant information significantly improves (Simons, 2004). After five to six months the ability to recall and recognize verbal material improves.

Legislation Impacting Methamphetamine

Over the last forty years there has been a lot of legislation on drug laws. Some of these laws focus on methamphetamine specifically, while other laws impact all illegal drugs, including methamphetamine. In the last twenty years laws have began to focus on methamphetamine more exclusively. It has long been recognized that drugs are harmful to society and that the issues around drug use need to be addressed.

In each year Congress focuses on the drugs most visible and appearing the most damaging to the public at that specific time. The issue of drug use is a constant problem facing the United States, but this may be the biggest drug problem that America has been up against in its history. For the first time, the country is looking at a drug that is being manufactured at home. This can no longer be blamed or pushed off as a foreign nation or border issue. America is fighting to keep this drug off of its streets and the trouble is that it is everywhere, coming from within. Where do law makers begin to help law enforcement and social services battle this dilemma?

Comprehensive Drug Abuse Prevention and Control Act of 1970

The Comprehensive Drug Abuse Prevention and Control Act (CDAPCA) was the first policy impacting the future of methamphetamine most directly. This is a federal law that decides the legalities of a drug. Drugs are based on a five schedule system. Schedule five drugs are drugs that a person does not need a prescription to obtain, while schedule one drugs are drugs that have no medical purposes. Under these conditions, methamphetamine has been placed as a schedule two drug (Drug Abuse and Control Act, n.d.). This means that methamphetamine has a high potential for abuse, has a current accepted medical use in treatment and abuse of it could lead to severe psychological or physical dependence. This does not mean that methamphetamine is legal to have or to use as a medical treatment; it does mean that the federal government does recognize that it has medicinal uses. The Control Substances Act became a law as Title II of the CDAPCA. This law cites the regulations used to govern drug manufacturing, importation, possession and distribution (Controlled Substances, n.d.).

United States Possession Laws

A form of methamphetamine is available by prescription under the name of Desoxyn, but it is not likely to be prescribed because of its reputation. Federal laws around methamphetamine punishment are the same as any other Schedule I or II drugs and are used when drug offenses happen over state borders. For having one to nine grams of methamphetamine the first offense can get a person zero to twenty years of incarceration and as an individual, a one million-dollar fine. The second offense can get a person zero to forty years of incarceration and for an individual, a \$2 million dollar fine. For possession of ten to ninety-nine or 100-999 grams of methamphetamine mixture a person can get for a first offense zero to forty years of incarceration and a \$2 million dollar fine and for a second offense zero to life and a fine of \$54 million. For more than 100 grams of methamphetamine or a one kilogram mixture a person can get a sentence of zero to life and a maximum fine of \$8 million (Drug Charges in Minnesota, 2006).

Other Countries

The medical use of methamphetamine in other countries greatly varies. In Australia it is not recognized to have any medical uses and in Canada it is considered to be a Schedule I drug, one can get a maximum penalty for the production and distribution of imprisonment for life. In Hong Kong it is also a Schedule I drug and can only be used by health professionals and for university research purposes. Hong Kong, like Canada, takes this issue very seriously. Anyone who supplies methamphetamine without a prescription can be fined \$10,000 (Hong Kong Dollar) and for anyone who is caught trafficking the drug that maximum penalty is a \$5,000,000 (Hong Kong Dollar) fine and life imprisonment. Anyone that is in possession of methamphetamine

without a license is under the risk of a \$1,000,000 (Hong Kong Dollar) fine and/or seven years of jail time (Legality, 2007).

Methamphetamine Purity and the Law

The history of anti-methamphetamine manufacturing is an interesting story showing the development of methamphetamine purity. This history begins in 1986 when the Drug Enforcement Administration (DEA) proposed that ephedrine and pseudoephedrine in all forms be regulated. At this time methamphetamine was at a purity level of about 40%. By 1989 this regulated powder form, but not pills. For the next several years the purity level of methamphetamine dipped to about 25%. At this time, methamphetamine manufacturers switched their cooking method from powder form to the pill form, which was not being regulated. The purity rates slowly rose and by 1994, when the purity level had risen to 55%, foreign authorities restricted the exporting of the powder form.

In 1995, legislation began to regulate the ephedrine pill form right after methamphetamine purity peaked at 65% and by 1996; the manufacturers begin to import pills so that they would not be regulated. The pseudoephedrine pills became regulated in 1997. Between 1998 and 2000, methamphetamine manufacturers got pseudoephedrine from DEA-licensed suppliers, for which the dealers were arrested. As the next few years passed, methamphetamine makers looked to Canada for their pills, until 2003, when Canada began regulation. In 2003, Canadian pseudoephedrine executives were charged with supplying pills to methamphetamine makers (Quenzer & Suo, n.d.).

USA Patriot Improvement and Re-authorization Act of 1995

Part II of the USA Patriot Improvement and Re-authorization Act of 1995 is titled "Confronting Use of Methamphetamine." It has four sections; the first section addresses making grants to help with public safety, manufacturing, sale and use. The general idea of this section was to make sure that grants would be available to those needing the monies and that services would be reimbursed for their work. The second section looked at funding and it states that there will be \$99,000,000 appropriated for each fiscal year of 2006 - 2010 (USA Patriot Improvement and Re-authorization Act 1995, 2006).

The third section focused on programs for drug-endangered children. The idea behind this section is that there should be coordination among law enforcement agencies, prosecutors, child protective services, social services and health care services and also that there should be a transition of children from toxic or drug-endangering environments to appropriate residential environments. Twenty million dollars was put in place for the years of 2006 and 2007 to see that this is done (USA Patriot Improvement and Re-authorization Act 1995, 2006).

The fourth section addressed methamphetamine use by pregnant and parenting women offenders. The first part was for education of potential mothers to understand the dangers of using while pregnant. The second part was to help with collaboration between criminal justice, child welfare and state substance abuse systems (USA Patriot Improvement and Re-authorization Act 1995, 2006). This act was a way of getting more funding to help the areas of society that need extra assistance because of the rise in methamphetamine addiction.

Access to Recovery Policies

In 2003, President Bush, in his State of the Union address, spoke about the need for there to be more money focused on helping people recover from drug addiction. He talked about his \$600 million dollar initiative that would be used over a three-year span. The initiative would give assistance vouchers to people who needed help. The target group was the 100,000 people each year that are unable to receive treatment due to not having insurance coverage (Office of National Drug Control Policy, 2006). Although the research has not been completed the president's plan, most seem hopeful that this program was helpful in the struggle against drug abuse.

Combat Methamphetamine Epidemic Act of 2005

The laws regulating ephedrine sales did not stop in 2003. Although addressing the problem of methamphetamine manufacturing, the larger problem is still an issue facing the country. The Combat Methamphetamine Epidemic Act of 2005 was signed into law March 9, 2006. This act regulated the sales of over-the-counter ephedrine, pseudoephedrine, and phenylpropanolamine products. The sales restrictions were by sales limits, both daily and 30-day purchases and by placing the product out of direct customer access. Information about the buyer is kept in a logbook about purchases, ID verification needs to be given, training for employees and self-certification of regulated sellers (Combat Methamphetamine Epidemic Act of 2005, 2007). The exact amount of this drug that can one person can buy in a day is 3.6 grams, and in a month one person may not purchase more than nine grams of pseudoephedrine.

Methamphetamine Treatment Modalities

In the court systems it is becoming more popular to sentence a person to treatment than to a jail sentence. In one study 31.9% of the people in treatment for methamphetamine were there because they were sentenced to be there (Rawson et al, 2005). There is a whole spectrum of psycho-social variables that need to be looked at when creating a treatment plan for someone. These are not only specific to methamphetamine abuse, but any substance abuse. The specific concerns include relationship with the family, possible parental drug use, possible peers and legal issues, possible exposure to violence and abuse and the mental health of the individual (Rawson et al, 2005). In California the number of admissions into treatment for methamphetamine rose from 13,776 in 1992 to 67, 632 in 2002 (Brecht, Greenwell, & Anglin, 2003).

Men, Women, and Methamphetamine

Research focused on differences in men and women already seeking treatment show that there are differences in the reason individuals seeking treatment and the different treatment styles. In a three-year study on women, ages eight to twenty-two, it was found that girls and young women use more methamphetamine, become dependent faster and have more adverse effects sooner than males their age (Rawson et al, 2005).

Risk factors for becoming dependent on methamphetamine are being a female and/or using when a person is seventeen to eighteen years old(Rawson et al, 2005). In a study conducted by Hser and colleagues, (2005) women that have gone into treatment reported a significantly higher rate of previous prior treatments for methamphetamine. When women were in treatment they received more services with employment, family, mental health services and help in

parenting skills. Also 10.1% of women had their parental rights terminated, while 2.2% of men did. This could be because of single mothers. The research did not explore the rates of single mothers in the population. Women seeking treatment show more psychological symptoms, such as depression and anxiety. They also have lower rates of self-esteem and higher rates of childhood sexual abuse than men.

According to research found by Cohen and colleagues (2005), 57.6% of women had been sexually abused, compared to 15.7% of men. Women in one study had a higher rate of auditory hallucinations (Rawson et al, 2005).

Criminal Activities. Men that are seeking help are more likely to have been involved with criminal activities, have been incarcerated or are under some type of legal supervision. Women reported lifetime arrests at 76.7%, while 88.3% of men reported being arrested at some point in their life; arrests within the last year also show a higher rate for men (45.1% to 36.7%) (Hser et al, 2005). In this study the clients were in an outpatient treatment program.

First use. The age at which people first started using methamphetamine is about the same for each gender. Women reported first using methamphetamine at the average age of 19.2 years old, while men tried it on average at 20.6 years (Hser et al, 2005). Men are more likely to use more than one drug, women are more likely to have methamphetamine as their drug of choice (Hser et al, 2005).

General ideas of treatment. According to the Dodge-Filmore-Olmsted Community Corrections Advisory Board (2005) there are principles to effectively treating methamphetamine abuse. When treating a person addicted to methamphetamine, the board must have psychiatric oversight of the detoxification and stabilization process to examine the person's ability to go to

treatment. Mental health must be looked at so that a treatment plan can add those factors in. The board recommends using cognitive-behavioral treatment and that this process should last longer than the traditional twenty-eight or forty-five day treatments. There should be more treatment groups, individual and family education and counseling. The amount of treatment should increase and decrease as needed. Treatment should have frequent, random and observed drug testing. The providers of the treatment should get training that is specific to the needs of methamphetamine users. Lastly, after a person leaves treatment their aftercare should include the person's entire support system, not just the recovering individuals (Methamphetamine Legislation, 2005).

The Methamphetamine Interagency Task Force (2005) came up with a set of principles that should be followed for methamphetamine treatment.

1. Treatment should follow empirically-based research results. If there is not any formal research available, one should ask others in the field working with the population what they feel is the best practice.
2. Professionals working with the population should have a comprehensive understanding of methamphetamine addiction and treatment. Each individual methamphetamine user has his/her individual needs. Their treatment plan should follow these needs.
3. Treatment should be a process that includes aftercare. It should not just be a place where someone goes until their time is up.
4. People that are incarcerated need treatment and should be helped. Substance abuse programs need to be in every corrections facility. Corrections should not be just about punishment, but also about rehabilitation.

5. Treatment is not just for the parent it is a form of prevention for children's future drug use. Children that live in drug addicted families are more likely to become addicts themselves. This is may be due to genetics, but also due to the environment that children grow up in. By treating a parent, children are more likely to grow up in healthier homes, which can prevent the child's potential use.
6. Prevention is a part of treatment and helping groups that are at risk is vital to stopping the drug epidemic. Drug abuse has several cycles. There is the cycle within the person that involves experimentation, abuse, addiction and many times a relapse or a slip, but there is also a cycle in families and communities. This would consist of the cycle of use among parents to child and for generations. Preventing relapse within a person or preventing experimentation or abuse can be the most beneficial thing communities can do.
7. The lack of treatment in rural areas needs to be addressed. Methamphetamine is a rural drug and rural communities have the least number of support systems due to the lack of funding, highlighted by the methamphetamine epidemic. There is a lack of mental health professionals in rural communities which is a challenge for poor or rural families to get the mental help they need due to their location.

The primary models of treating methamphetamine are cognitive-behavioral therapy and the matrix model. Within these models, other programs are utilized, such as the Twelve-Step Programs. Most of the therapy styles that are used for chemical dependency are similar. They look at the thought processes before a person uses, while they use and after they used and with this information a formulation is developed on how those behaviors can be changed.

Cognitive-Behavioral Therapy (CBT)

Cognitive-Behavioral Therapy comes out of the treatment of cocaine addiction. It is able to transfer to methamphetamine addiction treatment because they are both stimulants and CBT works for most drug addictions. Cognitive-behavioral interventions attempt to modify the patient's thinking, expectancies, and behaviors and to increase skills in coping with life stressors (Hanson, n.d.). The links between what people think and what they do are strongly correlated. If the minds of addicts can be restructured to think in a different pattern, it is hoped that their behaviors will also change. There are three parts to cognitive-behavioral therapy.

Functional analysis. Functional analysis focuses on finding out why a person uses methamphetamine and what triggers this use. This part looks at the issues that a person has that keeps them from remaining sober. It also uses the strengths prospective by looking at what skills a person already has or can easily obtain and what strengths the person has. It examines the factors around the person's use: triggers, peer influences, or where it is bought and used. Social, environmental, emotional, cognitive and physical factors are incorporated in functional analysis (Carroll, 1998).

Skills training. This is the section where the addicted clients are able to "unlearn" their addicted habits (Carroll, 1998). There are several main key strategies that one must learn in this therapy. The first is modeling; modeling is the use of role-playing in what to do in risk situations. The second skill is operant conditioning. This involves finding the high risk situations and finding coping skills for those places and times. Also, this section finds things that are healthy for the abuser and uses them as reinforcement. The last part of skills training is to look at the long and short term negative effects of the use. Classical conditioning is the last

strategy. This looks at what impacts cravings and works within the area of pairing of the conditioned and unconditioned stimulus (Carroll, 1998).

Structure. The first twenty minutes of a session should be about the patient's status: if they have used methamphetamine, craved methamphetamine or anything else that has gone on in the last several days. The therapist should look at what was happening to the person before, during and after the situation and what could have been done. The second part is looking at a topic. During this time it is common for the therapist to talk more than the client. This is the section where they can learn more about skills. The last part is an exercise assigned for the next session. Part of the exercise is to consider situations that are likely to happen in the next week (Carroll, 1998).

Coping Skills. Coping skills are different skills that work with the person to help them deal with future stress and situations. These skills can be about what to do if a person is craving methamphetamine, if a person is offered methamphetamine or what their plan is if they want to use methamphetamine. This may involve such things as who to call for support or a list of negative things that methamphetamine has done to them (Carroll, 1998). Coping skills are skills that can be adapted to each individual to help them work through their treatment plan.

Relapse Prevention. Relapse prevention is a vital part of cognitive-behavioral intervention. This is similar to coping skills; it looks at risk factors for the future. It is important to recognize the difference between a relapse and a slip. A person can use methamphetamine without going into a full relapse as long as they do not fall into old habits and they work to find sobriety after the slip. Relapse prevention understands that relapse may happen during the process of recovery, but it is always trying to find ways to prevent it. Some of these

ways to prevent relapse are looking at one's life style, looking at high-risk situations looking at refusal strategies, keeping one busy, rewarding oneself and learning how to handle cravings (Lee, 2006). Coping skills are helpful when working on relapse prevention.

Matrix Model

The matrix model was created by U.C.L.A. to stop drug use, to learn issues critical to addiction and relapse, to receive education for family members affected by addiction and recovery, to become familiar with self-help groups (twelve step groups), and to receive weekly monitoring by urine toxicology. It is a sixteen week, outpatient treatment program that has been used for more than a decade (Rawson et al., 2002; Lee, 2006). It is a very intensive program that promotes greater success in sustaining longer sobriety. Research found that the longer a person is in treatment, the more likely they are to have successful recovery (Simons, 2004).

In one study the matrix model included fifty-two sessions with a professional therapist within six months, two stabilization groups, twenty-four relapse prevention groups, twelve family education groups and many twelve step groups, including also urine analyses (Cretzmeyer et al, 2003). This matrix program was created so that 150 people could be treated annually in an outpatient setting, but this changed when the recommended twenty-six weeks from 1987-1990 changed to sixteen weeks in 1991. The program was created for cocaine, but it has been used for methamphetamine also (Cretzmeyer et al, 2003). In a different longitudinal study, it was found that the chances of relapsing using either methods of treatment were not statistically different (Lee, 2006). This indicates that research findings on meth treatment are still inconclusive.

Twelve- Step Programs

One trouble with finding treatment in rural areas is that it is just not always available. Twelve-step programs can be found in nearly every community. Another advantage is that the meetings are free of cost and they also help build sober peers. The most common twelve-step program is AA (Alcoholics Anonymous). The primary focus of this group is alcohol and in most groups people are not encouraged to talk about other drugs. More fitting for those addicted to methamphetamine is NA (Narcotics Anonymous). In many major cities there are now CMA (Crystal Meth Anonymous) meetings. There are commonalities among these meetings. First the person has to admit that they have an addiction. Then they have to admit that they are powerless against their addiction, they then have to submit to their powerlessness. And finally, they need to reach out for help from others. There are twelve steps total but those four things encompass the main principles of the meetings. Recognizing a higher power is a big part of the program, but it can be adapted so that a person who is not Christian or religious can still find the program useful (Lee, 2006).

These meetings are peer led and have no affiliation with any other group. They are a support group where peers can tell their stories and encourage each other in their quest for sobriety. There are “open” meetings where anyone is welcome, addicts and non addicts and then there are closed meetings where only addicts are allowed. Twelve-step programs are a part of most treatment plans, both for inpatient and outpatient programs. They are also versatile enough to be useful for those who are not involved with outside help and those who are trying to prevent a relapse.

Voucher-based Reinforcement Therapy

Voucher-based Reinforcement Therapy is a type of therapy based on a voucher reward system. This system of therapy combines several different concepts. It uses cognitive-behavioral techniques, but also incorporates a reward system that is directly related to use during treatment. Skills training, vocational training and social-skills training are only several of the techniques that are developed during this treatment (Budney & Higgins, 1998).

In a study conducted by Roll and colleagues they used a voucher system to reward urine analyzes clean from drugs (Roll, Huber, Sodano, Chudzynski, Moynier & Shoptaw, 2006). There were five different variations in the studies. The type of drug, type of voucher, the response needed to get a voucher, the type of procedure for getting the voucher, the time lines for receiving the vouchers, the magnitudes of the voucher, the population and the schedule for receiving the vouchers were all factors looked at in this study.

The rules to the voucher system in this study were that the reinforcer value rises with abstinence from drugs. Consecutive blocks of abstinence earn additional reinforcement. Failure to stay clean decreased or reset the voucher amount. The maximum earnings one could receive were between \$990 and \$1,005 depending on the schedule (Roll et al, 2006). The first four schedules were developed by clinicians and the fifth schedule was developed by Higgins. The participants went to a clinic three times a week and they also had cognitive-behavioral therapy and used the matrix model.

The differences in the schedules were small changes. The first schedule had a flat amount of reinforcement with no bonuses for continuous abstinence. The second schedule had the amount of the voucher raise slowly with large bonuses for blocks of abstinence, without a

reset of the amount for slips. The third had a high initial voucher, slow rise in the amount, no reset and no bonuses. The fourth schedule had a high initial voucher that decreased rapidly, moderate bonuses without a reset. The fifth schedule has low initial amounts that rose moderately, moderate bonuses and did have a reset (Roll et al, 2006). The fifth schedule did better for methamphetamine than the first three and did better than the others in protecting against a relapse after four weeks.

Motivational Enhancement Therapy

Motivational Enhancement Therapy allows for a person to use their own motivation to make their plan for change. The person using this type of treatment makes their own goals for their treatment. The main ideas behind this therapy are working in the principles of cognitive and social psychology to show differences in the way someone thinks and acts (Miller, 2000). Under this idea, addiction is seen as at least partially voluntary. It is the goal of the therapist to motivate the client into deciding to get and stay sober.

Motivational Enhancement Therapy is used on an individual basis, but works in both in and outpatient settings. It is a brief treatment that can be used with other type of treatments (Miller, 2000). This type of therapy does not work with people who look for advice or directive since the goals are made by the client themselves.

There are four stages a person can be in. The first stage is the precontemplation; during this stage the client is not thinking about changing. The next stage is contemplation; this is where a person is looking at the pros and cons of changing their behavior. The third stage is determination or preparation; a person wants to change and begins looking at their options. The last stage is action; a person begins to take the steps to bring them to recovery (Miller, 2000).

Medication

With the success of methadone treatment, many are hopeful to find a miracle drug that makes quitting methamphetamine easier. Unfortunately, this drug has not been found. The medications that are currently used with methamphetamine are used to treat things like depression or anxiety and not the addiction itself. It is important that when finding a medication for depression, to choose one that is not addictive such as benzodiazepines (Lee, 2006). There are also drugs that help with the psychotic symptoms. These symptoms are often contributed to periods of dangerous and violent behavior that are associated with methamphetamine use (Rawson et al, 2002). At this time there are no medications that can reliably reduce the paranoia and psychotic symptoms that are associated with methamphetamine abuse (Rawson et al, 2002).

Topiramate (Topamax) is an anti-seizure medication, has been shown helpful in reducing cocaine relapses and because of the similarities between cocaine and methamphetamine it is hopeful it can do the same for methamphetamine addiction (Lee, 2006). Bupropion (Wellbutrin) has been helpful in methamphetamine recovery and may protect some of the brain cells damaged by methamphetamine use. Using methamphetamine while taking the medication may cause seizures, but more research needs to be done to be certain (Newton, 2005).

Much of the research that is being conducted on medication is focusing on the neurotransmitters that are associated with dopamine and Gamma-aminobutyric acid (GABA) and also the damage that has been done to the brain. It is thought that medications that act on GABA are reducing the reinforcement of methamphetamine and cocaine. The research done in this study showed there was no statistical difference between beclufen, gabapentin and a placebo (Heinzerling et al, 2006). It was believed that gabapentin would help with reducing anxiety and

reducing relapses on cocaine (Lee, 2006). At this time there are no drugs approved by the FDA for methamphetamine treatment.

Drug Courts

Drug court is a topic that is becoming more popular in towns struggling with drug addiction and more specifically methamphetamine addiction. Drug courts have been found to be effective when working with people who are abusing drugs because the system has increased accountability, supervision and structure. It also uses comprehensive, long-term, and evidence-based stimulant-specific treatment. Using the federally funded models started in California, Oregon, Hawaii, Nevada, Oklahoma, and Kentucky, drug courts have been used for more than twenty years. The model has the judicial system offer help with treatment strategies and concrete reasons to stay clean (Huddleston, 2005). The treatment time is longer in drug courts and it also looks at mental health issues.

How Drug Court Works

On a standard case the participant goes to drug court weekly for at least the first ninety days. At the hearings the judge looks at several things: compliance with treatment, random drug testing and any other court requirements. The reason that they meet at least once a week is so that if there is an issue of noncompliance it can be addressed immediately, also it creates a repetitive reinforcement which is needed after cognitive impairment (Huddleston, 2005).

As a part of drug court, probation and law enforcement play a crucial part. These two groups of people are very involved with monitoring people as part of drug courts. They make regular visits to the homes of the participants, where they are given a drug test and have their homes looked at for signs of drug use or methamphetamine manufacturing. If they are unable to

pass the drug test or have been found to have substance on their property they are immediately detained and brought to the drug court as soon as possible (Huddleston, 2005). It is also important that if they pass the test and the property appears to be clean that they are given positive reinforcement at that time. Some examples of positive reinforcements program are clapping, hand shakes or verbal praise vouchers that can be used to buy food, transportation or children's books.

Treatment Plans. Each individual person who comes before the court gets their own plan. These plans are based on their bio-psycho-social needs and abilities. Assessors look at the severity of use, what level of care is needed, how involved a person is with drugs, their mental and medical health, finances and employment, support people around them, how able they are to take care of themselves and their triggers (Huddleston, 2005). This information is all vital when coming up with a plan that would be workable and effective with a person in drug court. Once the treatment plan is created, the methamphetamine abuser must understand the contract, the process, rules and expectations (Huddleston, 2005). It is important that this is discussed with them a month after being sober (when cognition has returned) to see if the person still believes that they are able to do it.

Treatment. As soon as a person enters the treatment program a helping professional targets behaviors that will benefit the patient for the short and long-term, and are necessary for the long term. Some of these behaviors are sleeping, exercise, eating habits and following abstinence goals (Huddleston, 2005). When they are able to do this, they are given rewards. Another part of this program involves finding support outside of drugs, drug friends and the drug culture. Some of the supports that the court tries to set up are self-help groups with sponsors,

drug avoidance techniques and education about methamphetamine. They also look at different relapse prevention and coping strategies.

Families are encouraged to be a part of the program and early slips (use of the drug without going into a full relapse) are looked at. Mental health is a vital piece when working with people struggling with chemical dependency issues. A mental health specialist works with people suffering from a mental illness and if medication is found to be beneficial, it is prescribed. This is not the only route used in drug courts. Relaxation strategies such as, acupuncture are also used and spiritually is examined when creating a treatment plan. After-care and alumni groups are used when the patient completes the program so they do not lose that guidance they grew to know (Huddleston, 2005). There are many stories of cities that have used this model and are having great success. It not only embodies all the things that research has found to be effective when working with this population, but it also gets a more understanding approach from the judicial system.

Recommendations

Treatment Recommendations

According to Cretzmeyer and colleagues (2003), there are six different recommendations for methamphetamine treatment of methamphetamine addiction.

1. It was found that there does not need to be a special treatment plan that is different for methamphetamine abusers than those addicted to cocaine, although it was did recognize that due to the way that methamphetamine impacts the brain that treatment does need to be longer (Cretzmeyer, Sarrazin, Huber, Block & Hall, 2003). Because of this, legislation and health insurance need to make the proper arrangements to have those

addicted to methamphetamine stay in treatment longer and have more possible after care possibilities.

2. Methamphetamine abusers may become sicker while in treatment, but other than that there were no major differences in cocaine and methamphetamine users (Cretzmeyer et al, 2003).
3. Methamphetamine abusers also have more troubles with cognitive levels when treatment begins (Cretzmeyer et al, 2003). Because of this methamphetamine abusers should be worked with at a different level when they first do begin treatment. An example of this is work on the educational part of the treatment later. By doing this the brain is functioning at a higher level and will be able to process the information better than in the beginning of treatment.
4. Medications are needed to help with methamphetamine treatment (Cretzmeyer et al, 2003). The possible withdrawal that some people experience when they are no longer using methamphetamine, the deep depression that comes with the reduction in dopamine, and the after treatment struggle could all be aided if there was medication that was effective in treating the deficiencies in the brain. If this was possible, one would hope that treatment retention would be longer.
5. There needs to be more research on the treatment and especially related to the connections between violent behavior and brain functioning (Cretzmeyer et al, 2003). Research also needs to use a larger population sample to ensure valid data findings.
6. State and local drug enforcement needs to monitor methamphetamine in general in the communities. This includes both use and manufacturing.

Research shows a correlation between time in treatment and length of sobriety.

Unfortunately, health insurance, if available, does not always cover a long period of time for treatment. In some situations county money will be able to cover the costs, but this too is not always available. There needs to be more funding to be able to keep people in treatment for longer length of time. Cognitive-behavioral therapy treatment has been proven effective as a treatment intervention and so has the matrix model.

The problem is not what to do when someone is receiving treatment, but the problem is what to do with a person leaving treatment. There need to be more halfway houses that can provide support to those struggling to stay sober. There also needs to be more support in rural communities. Mental health access in general is limited and there can be over a month wait to receive help. For those who know that they need help, a month is a long time to wait. There need to be services that can be either located in rural communities or services willing to travel to rural communities.

Legislation Recommendations

One problem with treating methamphetamine is that it is impacting the most rural of communities. These communities do not normally have access to treatment without traveling hundreds of miles. Getting treatment of all forms to be closer to the communities that are impacted the most by this drug is the first thing that needs to be done. Legislation needs to help fund these treatment facilities so that just because someone does not live near a treatment they are not being denied treatment. Poverty and methamphetamine are things that are strongly related. People who are in poverty do not always have a means of transportation to get to a place of help.

Drug courts have been found to be an effective way of working with this population. The drug court model has a way of forcing people into working within the system and is so structured that there is no room to question whether to do it or not that it can be hope for many communities. Big or small communities already are forced to work within their court systems, why not add on one place for those struggling with addiction. According to the Minnesota Model, addiction is a disease of the mind. Why then are people being punished for their disease? Using the Drug Court system they are also getting treatment for their disease.

Future Research

Qualitative research would be an interesting direction to take this topic. Much of this research is focused on the perspective of helping professionals and also other people in power. It would be interesting to understand the perspective of people who are struggling with addiction and have gone through the process of a treatment; to hear the voices of those both still struggling with addiction and those who have found a way to stay sober. Too often one can look at statistics of what made or kept a person sober, but to hear their stories on what they believed happened would be beneficial to helping people in the future. By interviewing each person individually and hearing their stories it would be intriguing to determine similarities in their lives and commonalities. Researching the differences they have would also add to the theme of their stories. One restriction to this research would be interviewing people who are currently still using methamphetamine; their cognition is not as optimal as it should be raising questions about the accuracy of the data.

Conclusion

There still appears to be more that is unknown about methamphetamine than known. One fact is clear though, methamphetamine is extremely detrimental to individuals, families and communities. Treatment, by itself is not a cure or solution to this addiction, but it can help curb the negative long-term impact. Aftercare is just as important in helping a person stay clean. Finding a job, getting appropriate support and assisting the families are also equally important.

Many methamphetamine addicts have done things that have damaged their relationships and finding a place that will hire them can be nearly impossible. Those employers that would consider hiring a person who was court ordered to jail or treatment, are the employers most likely employ those who are currently using. This is a major issue for rural communities that are already struggling with unemployment rates. Recovering from any drug is a challenge; methamphetamine is not an exception. Treatment has been found to be effective, but it is not the responsibility of treatment program alone to repair many years of hurt in a person's life. There needs to be more after-care, such as half-way houses and employment, for those who complete treatment. Sobriety is a life long process that only begins when a person completes treatment.

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