NUTRITIONAL ATTITUDES OF THE METHAMPHETAMINE ADDICTED

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NUTRITIONAL ATTITUDES OF THE METHAMPHETAMINE ADDICTED

A Project

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Abstract

of

NUTRITIONAL ATTITUDES OF THE METHAMPHETAMINE ADDICTED

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Clients with chemical dependency issues related to methamphetamine addiction are at risk for more than the poisonous consequences of consuming the drug alone. This quantitative survey research design and qualitative content analysis project examines the attitudes of recovering methamphetamine addicted adults regarding healthy nutritional supplementation and healthy food choices. Two age groups were chosen for the study, 18 to 35 years and over 35 years. The first group, 18 to 35 years, demonstrated a significantly higher knowledge of nutrition than the second group, over 35 years (T=2.165, df=23, p=.041). There was also a strong positive correlation between nutrition scores and vitamin scores ($r=0.487$, $p=0.012$) among the younger group. Therefore, those who knew more about nutrition knew more about vitamins. Implications for social work practice and policies are discussed.

_____________________, Committee Chair
Teiahsha Bankhead, Ph.D., LCSW

_____________________
Date

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Chapter 1

THE PROBLEM

Introduction

Methamphetamine is a man-made stimulant. The chemicals used in the manufacturing process can be corrosive, explosive, flammable, and toxic. Methamphetamine, as a street drug, is easily produced in clandestine labs. This drug not only ravages the body with toxins it also increases energy, relieves fatigue, and significantly diminishes appetite consequently causing the body to become cannibalistic to find nutrients to maintain the autonomic nervous system and other bodily functions. This study examines attitudes among Methamphetamine users in regard to nutrition. This probe may be viewed as a precursor to ascertaining the need to formulate a nutritional base as a tool to assist homeostasis of the body-mind-spirit synergy, and to support or even accelerate recovery from methamphetamine addiction. This investigation into nutritional attitudes may, also, prove that further nutritional studies are needed to support homeostasis from alcohol and other drugs of abuse, such as methamphetamine.

Methamphetamine dependent or addicted refers to people who are users of methamphetamines in any form of administration three or more times per week and who have been using for a minimum of one year, and use dose potencies producing legal intoxication. The purpose of this study is to examine attitudes from a nutritional vista and ascertain if homeostasis might be complemented with the adjunct of nutritional therapy.
D-methamphetamine (Dextro-methamphetamine) is currently the most common “street” methamphetamine (Cornhusker Place, 2008). It originated during the 1980s and is made by the ephedrine reduction process. It is 2 to 10 times as physiologically active as other forms of methamphetamine. It increases the heart rate, blood pressure, body temperature, and rate of breathing and dilates the pupils, and has fewer adverse side effects than the other two types of methamphetamine (Cornhusker Place, 2008). The term "ice" most often refers to a pure form of d-methamphetamine. It is a large, usually clear crystal of high purity that is smoked in a glass pipe. The smoke is odorless, leaves a residue that can be re-smoked, and produces effects that may continue for 12 hours or more. Frequently addicts continue to dose and may be active for days with little or no food as a result of the appetite suppressive effect of the drug.

For many, the economic result of becoming a member of this counter culture is living in a socio-economic stratum that falls into the poverty level or below, becoming indigent and or homeless. Getting and using the drug becomes one’s primary focus, values shift over time, and simply filling one’s stomach becomes more important than eating healthy nutritious foods.

The National Drug Intelligence Center (2008) states that methamphetamine use is associated with numerous serious physical problems. The drug can cause rapid heart rate, increased blood pressure, and damage to the small blood vessels in the brain—which can lead to stroke. Chronic use of the drug can result in inflammation of the heart lining. Overdoses can cause hyperthermia (elevated body temperature), convulsions, and death. Individuals who use methamphetamine may also have episodes of violent behavior,
paranoia, anxiety, confusion, and insomnia. The drug can produce psychotic symptoms that persist for months or years after an individual has stopped using the drug.

Methamphetamine users who inject the drug expose themselves to additional risks, including contracting HIV (human immunodeficiency virus), hepatitis B and C, and other blood-borne viruses. Chronic users who inject methamphetamine also risk scarred or collapsed veins, infections of the heart lining and valves, abscesses, pneumonia, tuberculosis, and liver or kidney disease.

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**Background of the Problem**

When residential treatment programs were common, the average weight gain during treatment was 15 to 25 pounds within a three-to-four week stay (Hatcher, 2004). Weight gain is preferred to relapse to methamphetamine and other drugs of abuse since many addicts were excessively thin during their time of using; weight gain is viewed as desirable and even healthy. The issue at hand is to examine the attitude of the methamphetamine user in regard to healthy food choices and optimal nutritional elements to accelerate homeostasis. Balancing dietary intake to elevate nutrient density, maintain a reasonable caloric intake, and supplement nutritional needs to accelerate somatic and
neurobiological homeostasis may assist in the ascertained and integrated into a healthy lifestyle.

Lieber (2003) reports substance abusers frequently experience deficiencies in proteins and vitamins, particularly vitamin A, which may contribute to liver disease and other serious substance-related disorders. Long-term effects of methamphetamine abuse include kidney complications, lung disorders, brain and liver damage, and blood clots. Methamphetamine releases high levels of the neurotransmitter dopamine, which stimulates brain cells, enhancing mood and body movement. It also appears to have a neurotoxic effect, damaging brain cells that contain dopamine and serotonin, another neurotransmitter. Over time, methamphetamine appears to cause reduced levels of dopamine, which can result in symptoms like those of Parkinson's disease, a severe movement disorder (MethamphetamineAddiction.com).

Paranoia associated with methamphetamine abuse may lead to homicidal and suicidal ideation (MethamphetamineAddiction.com). Research shows methamphetamine destroys serotonin-producing neurons, which play a direct role in regulating aggression, mood, sexual activity, sleep, and sensitivity to pain (MethamphetamineAddiction.com). It is probably this action on the serotonin system that gives the drug its purported properties of heightened sexual experience. Furthermore, methamphetamine breakdown in the liver and highly reactive, and potentially damaging, oxygen-containing molecules damage the liver. These products can interfere with the normal metabolism of other nutrients, particularly lipids, and contribute to liver cell damage. Nutritional approaches may help
prevent or ameliorate liver disease and may decrease recidivism among substance abusers.

When skyrocketing relapse rates in the mid-1980s revealed that counseling and a 12-step approach to substance abuse treatment was not meeting the needs of all clients Julia Ross (2000) explored research in neuro-nutrition. She developed a treatment model combining counseling and 12-step support joined with a nutritional repair strategy to reprogram the key brain and body chemistry deficits that significantly contribute to the addictive cycle.

The objective of this study is to examine nutritional attitudes that may, or may not prove to be healthy. It is expected that the study will reveal information that can be used to evaluate nutritional needs and accelerate the neuro-biological response to homeostasis. It is expected that by giving one’s body the elements needed to arrest cravings relapses will diminish. After extended periods of substance abuse the addicted become malnourished regardless of their weight and are often, yet not always, underweight due to poor eating habits. By providing the person early in treatment with an abundance of nutritionally dense foods, high levels of amino acid rich foods, and supplements that will address vitamin and mineral loss and other deficiencies their bodies will regenerate more quickly. In addition, neurotransmitter precursors will be available to restore balance to the neuro-biological systems that effect the pleasure-reward centers in the brain that cause craving. After extended periods of being addicted ones brain may interpret biological signals of hunger, thirst, or exhaustion as a need for more methamphetamine thus exacerbate craving for the drug.
Statement of the Research Problem

Negative attitudes toward diet and nutrition may greatly contribute to relapse in methamphetamine addicts. The relapse rate among methamphetamine and heroin users is 75% and the death rate is 25% (Siegel, 2008). This study is a project examining methamphetamine addicts in the early stages of the recovery process. It is a probe regarding their attitudes toward healthy eating attitudes and nutrition. The findings of this probe may warrant further study into using nutritional therapy as an adjunct to conventional addiction treatment to accelerate homeostasis, minimize withdrawal symptoms, and reduce recidivism.

Purpose of the Study

This study is a quest to gather information about nutritional attitudes, and ascertain the need for further study into the nutritional needs of the methamphetamine addicted who are encroaching upon early recovery. It is thought by this researcher that poor eating habits joined with a body that is already nutritionally deficient will host familiar craving for ones drug of choice, and/or cravings for unhealthy food choices.

Theoretical Framework

A Biopsychosocial Model will be used in conducting this research and will be utilized in collecting information regarding subject’s attitudes toward a nutrient rich diet, and healthy food choices. Zastrow and Kirst-Ashman (2001) outline how the three systems, biological, psychological, and social all interact within the individual over the life course: infancy, childhood, adolescence, young adulthood, middle
adulthood, and late adulthood. As well, the individual also operates within the larger mezzo and macro systems that can also impact biological, psychological, and social functioning. Over the life span, there are normal developmental milestones: biological, psychological, emotional, intellectual, and social. These milestones include: personality development, motor development, motivation, social development, and learning. By having an understanding of normal development, one can have a basis for assessing human behavior as either normal or pathological. The extent of any problem can be viewed by how much that behavior deviates from the norm (Zastrow & Kirst-Ashman, 2001). The ability to meet biopsychosocial transitions successfully relates to the concept of goodness-of-fit between the individual and the environment as well as the adaptability of the individual. Thorough assessment of any individual must take into account all the factors of the interplaying systems: biological, psychological, and social. Cornett (1992) proposed that exploration of an individual’s spiritual life was also an important area for assessment in order to maximize potential for growth and understanding.

Using the Biopsychosocial Model provides a framework for the totality of this project. Drug dependence is a condition that negatively impacts all of a person’s systems: biological, psychological, and social. People in Narcotics Anonymous meetings frequently speak of how they were “bankrupt” in all of those areas. Just as illness affects a person on all those levels, similarly, recovery also needs to occur in all of the spheres: biological, psychological, and social.

This study’s primary objective is to study the attitudes of the addicted toward a healthy diet. Poverty that is induced by addiction exacerbates the problem of attaining a
healthy diet and over time the result of both addiction and poverty shift one's primary nutritional objective from a healthy diet to simply filling one's stomach. Since the pleasure reward system is heightened by the use of drugs, food choices often shift to comfort foods that are normally high calorie, sweet or salty, and contain concentrations of unhealthy fats. A person may gain weight yet be starving themselves nutritionally.

The biopsychosocial model underlying the empirical orientation of this study is well suited to provide a broad view of the participants. Traditional addiction therapy has a myopic focusing on the cause of problems, or the way recovery is "supposed" to work, with little consideration for the possibility of the overall bodily damage that may have occurred as a result of nutritional deficits over an extended period. This strategy, albeit well intended, gets clients stuck in a passive and helpless role locked into a problem narrative they rehearse over and over rather than giving to them the power they already have to support their own health, and their own recovery from addiction.

A biopsychosocial framework conjoined with solution-focused strategies will acknowledge the problem yet, depending upon the data analysis, center on a resolve. Should potential for deteriorating health be recognized within the biological and psychological portion of the biopsychosocial model focus will become centered upon repairing the body and the amino acid starved brain. A biopsychosocial approach can then be set into motion to restore the human brain-body synergy. Improved health will logically occur if one’s body is given the elements in which it is deficient in and needs to repair itself. This biopsychosocial strategy is an approach that moves client focus from
what's missing and causes woe, to rather what's available to deliver one to a happy and productive life.

**Major Question**

This study is aimed to answer the research question: What are the attitudes of the methamphetamine addicted in early recovery toward nutrition?

**Definition of Terms**

In the context of this study the term “in recovery” is to be understood as being in an abstinence based program to achieve sobriety. “Addicted” in the context of this research refers to someone who is chemically dependent upon methamphetamine and uses the drug two or more time per week. Addiction is a condition that occurs in an individual whose addictive behavior involves both psychological and physical consequences (the person cannot face and handle the life situation without abusing the substance, or experiences physical symptoms when abstinent) (Freeman, 1992). “Attitude,” for the purpose of this study, is one’s mental position or feeling toward nutrition. “Recovery” is a term used in the substance abuse field to indicate that the person is involved in a process of treatment for addiction and is abstinent from substance abuse.

**Assumptions**

This research effort presumes that as a result of the nature of methamphetamine addiction and the subsequent lifestyle, over time, the addict’s attitude toward healthy nutrition and self-care is significantly diminished. It, too, is presumed that one’s health becomes secondary to getting and using methamphetamine; consequently an unhealthy
lifestyle is adopted. It is assumed that methamphetamine addicts have unhealthy attitudes toward quality nutrition which exacerbates poor food choices.

Justification

As social workers, our primary mission is to enhance human wellbeing and to help meet the basic human needs of all people. As such, we focus attention upon vulnerable, oppressed people who are living in poverty. We focus upon ones individual well being in a social context and that, too, of society. Fundamental to social work is attention to the environmental forces that create, contribute to, and address problems in living (Roberts, 2002).

This researcher maintains this study will be valuable in ascertaining the attitudes of methamphetamine addicts regarding their eating habits and the nutritional consequence thereof, be it positive or negative. The information drawn from this study may qualify further study into nutritional therapy as an adjunct to the traditionally accepted recovery therapy accelerating homeostasis, reducing cravings, and returning addicts as productive members of society. Fundamental to social work is attention to the environmental forces that contribute to and address problems in living (Greene, 2002).

Delimitations

This study does not explore the pre-recovery history of the participants in terms of family history, co-occurring disorders, or what events brought them into the recovery process. The study does not elicit information about numerous factors in the participant’s lives that may have contributed to their success or challenges in recovery, such as health, psychiatric conditions, extreme poverty, or familial obstacles. Information received for
this study was limited to participants in the Sacramento, California area who were attending Narcotics Anonymous meetings.
Chapter 2

REVIEW OF THE LITERATURE

Introduction

This literature review chapter addresses the following themes: two ways substance abuse harms the body; the importance of good nutrition; nutritional elements overview; the role of vitamins; the role of minerals; the role of amino acids; Nutritional therapy; minimized relapse.

These themes have been chosen to demonstrate elements of nutrition and their relationship to good health, and conversely the implications of poor health without a healthy diet compounded with substance abuse. This chapter will address the importance of nutrition in ones diet and view the role of nutritional elements necessary to optimize health and assist in minimizing relapse.

Two Ways Substance Abuse Harms the Body

There are two distinct ways in which substance abuse harms the body: The effect of the substance itself, and negative lifestyle changes, such as irregular eating habits and poor diet. Using stimulants such as methamphetamine, crack, and cocaine will significantly decrease appetite that leads to weight loss and malnutrition. People that abuse these drugs may stay up for days at a time. During these episodes they may become dehydrated and have electrolyte imbalances. If there has been significant weight loss returning to a normal diet can be difficult (O’Connor, 2007).

The Importance of Good Nutrition

Good nutrition means good health. A healthy diet will provide our bodies
with the right amount of energy, sufficient raw materials and all of the nutritional helpers one needs to stay healthy. Proper nutrition will also provide phytochemicals, a nonnutritive bioactive plant substance, such as a flavonoid or carotenoid, that are considered to have a beneficial effect on human health, and antioxidants that will help keep us feeling young, looking great, and perhaps even disease-free. A bad diet will give a person too many or too few calories, not enough vitamins and minerals, and will actually make you need more of the antioxidants that you aren’t getting. Most of the foods we eat are made up of varying amounts of carbohydrate, fat and protein. Good nutrition means getting the right balance of these three elements, plus the required vitamins and minerals. Great nutrition means getting a lot of the phytochemicals and antioxidants, too (O’Meara, 2009).

Take carbohydrates for example: What are good carbohydrates, what are bad carbohydrates? Since your body breaks them all down into individual units, the carbohydrates themselves are not necessarily good or bad. The problems occur when we eat too many, or if the other ingredients in the food containing the carbohydrates are not so good. For example, a chocolate covered donut contains a lot of sugar and white flour; if we eat too many of them we will take in extra calories that will be stored in our bodies as fat. The donut also contains a lot of fats, probably trans-fats that can raise the risk of heart disease. The donut does not provide you with much in the way of vitamins, minerals or other substances such as natural anti-oxidants or healthy fatty acids. After thinking of it this way that yummy donut may not sound so good after all (Bing, 2006).
Instead of a donut, a good source of carbohydrates would be most any fruit or vegetable. These food groups allow us to get the carbohydrates we need for energy, plus fiber for a healthy digestive system, vitamins, minerals, and anti-oxidants. About half of ones daily calories should come from healthy sources of carbohydrates. Those carbohydrates should come from healthy sources like fruits, vegetables and whole grains reads and cereals. Not from empty calorie foods like candy, sodas and pastries (Foster, 2003). This idea works also with proteins and fats, too. Healthy protein sources are ones that do not add additional unhealthy fats and preferably offer some fats that are good for you, such as navy and other varieties of beans. These beans provide protein, fiber, vitamins, minerals and carbohydrates. A polar opposite that would demonstrate an unhealthy protein is bacon. Processed meats like bacon, and others, contain an excess of saturated fats and are high calorie and can promote weight gain, impact the health of the heart, and even increase the risk of cancer (Mason, 2006).

Healthy fats come from sources that contain polyunsaturated or monounsaturated fats, like olive oil, fish oil, walnut oil, soy oil, flax seeds and oil, and canola oil. Unfortunately these fats and oils are high in calories, yet we need the fatty acids they provide. The down side is there are a lot of unhealthy fats to be aware of. Saturated fats are very bad for our health and found in red meats, trans fats, in some stick margarines, baked goods and processed foods (Maki, 2007).

**Nutritional Elements**

Nutritional elements such as vitamins and amino acids are substances that occur naturally in animal and vegetable foodstuffs and are needed in certain amounts for
the proper functioning of the body (Hill, 2005). The human body is unable to manufacture all of the needed nutritional elements for optimal health therefore it is important we balance our diets with the right foods in order to get the nutrition our bodies need. There are two different groups of vitamins; the first are fat-soluble. These are vitamins in which lipids have to be present in order for them to be absorbed properly. They are stored in the fatty tissue of the body for future use. The second group is water-soluble vitamins. This group of vitamins cannot be stored in the body and any excess is removed in the urine. They must be eaten daily to maintain adequate levels.

Minerals are chemical elements worthy of mention that can be found on the periodic table of elements. They are also found in animal and vegetable foodstuffs and as with certain vitamins and some amino acids one’s body is unable to manufacture them. The term micro-nutrients are often applied to the minerals as they are only needed in small amounts in the human body. At least eighteen minerals are of importance in general human nutrition. Plants and animals do not synthesize minerals - thus the term inorganic elements is applied to the minerals. Most minerals have functional roles as important co-enzymes in the body similar to the role played by the vitamins (Shahid, 2008). The absorption of minerals from food results in their becoming a component of the structure of the body – they thus form parts of the cellular structure, they have functions in enzymes, they play roles in hormone interactions, they play a role in the muscles, they form a part of blood and are major components of the skeletal system of the body. All essential minerals in the body can be divided into two groups:

1. Those called the macro minerals or the bulk minerals
2. Those known as the micro minerals or the trace minerals.

The main difference between the two being that the macro minerals are needed in higher amounts than are the micro minerals or trace minerals.

For example, the mineral calcium - in teeth and bones, magnesium - in enzyme reactions, and phosphorus - in teeth and bones - form the macro mineral group. While metals like zinc - co-factor in enzymes, iron - in hemoglobin and enzymes, copper in enzymes, manganese - in enzymes, chromium - in insulin function, selenium - co-factor, iodine - in a process involving thyroxin hormone, potassium - tissues and enzymes, and boron - in bones form the micro mineral group.

Different parts of the human body and various tissues serve as storage areas for different minerals. Some of the minerals are stored or used in muscular and skeletal tissues; some are used together with the vitamins as components of the body’s numerous enzyme systems. To maintain the optimal and proper composition of bones, blood and other tissues, the human body utilizes minerals and vitamins in various functions - for example they act as regulators and structural as vital components in the human body.

Normal cellular function is dependent on the presence of specific minerals and vitamins. Human mental and physical well being is also dependent on the presence of optimal amounts of certain minerals in the body at set levels. Some very important biological reactions in the human body are started by minerals. The process of metabolism of vitamins in the body cannot take place without the aid of certain minerals (Shahid, 2008).
The Role of Vitamins

Vitamins are divided into two groups: Fat-soluble and water-soluble. Fat-soluble vitamins are stored in the body's fatty tissue, and the body must use water-soluble vitamins right away. Any left over water-soluble vitamins leave the body through the urine. Vitamin B12 is the only water-soluble vitamin that can be stored in the liver for many years. Following are the various vitamins and their function in the body (FDA, 1996).

Vitamin A does much more than help you see in the dark. It stimulates the production and activity of white blood cells, takes part in remodeling bone, helps maintain the health of endothelial cells (those lining the body's interior surfaces), and regulates cell growth and division. This latter role had researchers exploring for years whether insufficient vitamin A caused cancer. Several studies have dashed this hypothesis (World Cancer Research Fund, 1997; FDA, 1996) as have randomized trials of supplements containing beta-carotene, a precursor of vitamin A.

The 3 Bs: vitamin B6, vitamin B12, and folic acid

One of the advances that changed the way we look at vitamins was the discovery that too little folic acid, one of the eight B vitamins, is linked to birth defects such as spina bifida and anencephaly. Fifty years ago, no one knew what caused these birth defects, which occur when the early development of tissues that eventually become the spinal cord, the tissues that surround it, or the brain goes awry. Twenty-five years ago, British researchers found that mothers of children with spina bifida had low vitamin levels (Smithells, 1976). Eventually, two large trials in which women were randomly
assigned to take folic acid or a placebo showed that getting too little folic acid increased a woman's chances of having a baby with spina bifida or anencephaly and that getting enough folic acid could prevent these birth defects (MRC, 1991). 

Enough folic acid, at least 400 micrograms a day is not always easy to get from food. That is why women of childbearing age are urged to take extra folic acid. It's also why the US Food and Drug Administration now requires that folic acid be added to most enriched breads, flour, cornmeal, pastas, rice, and other grain products, along with the iron and other micronutrients that have been added for years (FDA, 1996).

The other exciting discovery about folic acid and two other B vitamins is that they may help fight heart disease and some types of cancer. It is too early to tell if there is merely an association between increased intake of folic acid and other B vitamins and heart disease, cancer, or if high intakes prevent these chronic diseases. In 1968, a Boston pathologist investigated the deaths of two children from massive strokes. Both had inherited conditions that caused them to have high levels of a protein breakdown product called homocysteine in their blood, and both had arteries as clogged with cholesterol as those of a 65-year-old fast food addict. Putting one and one together, he hypothesized that high levels of homocysteine contribute to the artery-clogging process of atherosclerosis. Since then, some-but not all-studies have linked high levels of this breakdown product, called homocysteine, with increased risks of heart disease and stroke (McCully, 1969).

B Vitamins and Heart Disease

Folic acid, vitamin B6, and vitamin B12 play key roles in recycling homocysteine
into methionine, one of the 20 or so building blocks from which the body builds new proteins. Without enough folic acid, vitamin B6, and vitamin B12, this recycling process becomes inefficient and homocysteine levels increase. Several observational studies show that high levels of homocysteine are associated with increased risks of heart disease and stroke. Increasing intake of folic acid, vitamin B6, and vitamin B12 decreases homocysteine levels. And some observational studies show lower risks of cardiovascular disease among people with higher intakes of folic acid, those who use multivitamin supplements, or those with higher levels of serum folate (the form of folic acid found in the body). However, other prospective studies show little or no association between homocysteine and cardiovascular disease. The first large trial of homocysteine to be completed ended with negative results. In the Vitamin Intervention for Stroke Prevention trial, 3680 adults who had had nondisabling strokes took a pill containing high doses of vitamins B6, B12, and folic acid or one containing low doses of these three B vitamins. After two years, second strokes, heart attacks and other coronary heart disease events, and deaths were the same in the two groups. However, in that trial, high levels of homocysteine at baseline were associated with higher risk of cardiovascular disease. Other ongoing randomized trials, such as the Women's Antioxidant Cardiovascular Study (Manson, 2005) and the Vitamin Intervention in Stroke Prevention Study (VIATOPS Study Group, 2002) should yield more definitive answers regarding homocysteine, B vitamins, and cardiovascular risk. more definitive answers regarding homocysteine, B vitamins, and cardiovascular risk.
**Folic Acid and Cancer**

In addition to recycling homocysteine, folate plays a key role in building DNA, the complex compound that forms our genetic blueprint. Observational studies show that people who get higher than average amounts of folic acid from their diets or supplements have lower risks of colon cancer and breast cancer (Gerster, 2002). This could be especially important for those who drink alcohol, since alcohol blocks the absorption of folic acid and inactivates circulating folate. An interesting observation from the Nurses’ Health Study is that high intake of folic acid blunts the increased risk of breast cancer seen among women who have more than one alcoholic drink a day (Zhang, 1999).

**Vitamin B6**

A healthy diet should include 1.3 to 1.7 milligrams of vitamin B6. Higher doses have been tested as a treatment for conditions ranging from premenstrual syndrome to attention deficit disorder and carpal tunnel syndrome. To date, there is little evidence that it works (McCormic, 2006).

**Vitamin B12**

In addition to recycling homocysteine, folate plays a key role in building DNA, the complex compound that forms our genetic blueprint. Observational studies show that people who get higher than average amounts of folic acid from their diets or supplements have lower risks of colon cancer and breast cancer (Gerster, 2002). This could be especially important for those who drink alcohol, since alcohol blocks the absorption of folic acid and inactivates circulating folate. An interesting observation from the Nurses' Health Study is that high intake of folic acid blunts the increased risk of breast cancer seen among women who have more than one alcoholic drink a day (Zhang, 1999). **Vitamin C.**
**Vitamin C**

Vitamin C has been in the public eye for a long time. Even before its discovery in 1932, nutrition experts recognized that something in citrus fruits could prevent scurvy, a disease that killed as many as 2 million sailors between 1500 and 1800 (Carpenter, 1986). More recently, Nobel laureate Linus Pauling promoted daily mega-doses of vitamin C (the amount in 12 to 24 oranges) as a way to prevent colds and protect the body from other chronic diseases (OSU, 2006).

There is no question that vitamin C plays a role in controlling infections. It is also a powerful antioxidant that can neutralize harmful free radicals, and it helps make collagen, a tissue needed for healthy bones, teeth, gums, and blood vessels (Carr, 1999). The question is, do you need lots of vitamin C to keep you healthy? No. Vitamin C's cold-fighting potential certainly hasn't panned out. Small trials suggest that the amount of vitamin C in a typical multivitamin taken at the start of a cold might ease symptoms, but there's no evidence that mega-doses make a difference, or that they prevent colds (Douglas, 2000). Studies of vitamin C and heart disease, cancer, and eye diseases such as Cataract and macular degeneration also show no clear patterns.

**Vitamin D**

If you live north of the line connecting San Francisco to Philadelphia, odds are you do not get enough vitamin D. The same holds true if you do not, or cannot, get outside for at least a 15-minute daily walk in the sun. African-Americans and others with dark skin tend to have much lower levels of vitamin D, due to less formation of the vitamin from the action of sunlight on skin. A study of people admitted to a Boston hospital, for example, showed that 57% were deficient in vitamin D (Thomas, 1998). Vitamin D helps ensure that the body absorbs and retains calcium and phosphorus, both critical for building bone. Laboratory studies also show that vitamin D keeps cancer cells from growing and dividing (Thomas, 1998). Some preliminary studies indicate that insufficient intake of vitamin D is associated with an
increased risk of fractures, and that vitamin D supplementation may prevent them (Papadimitropoulos, 2002). It may also help prevent falls, a common problem that leads to substantial disability and death in older people (Bischoff-Ferrari, 2004) early studies suggest an association between low vitamin D intake and increased risks of prostate, breast, colon, and other cancers (Holik, 2004).

*Vitamin E*

For a time, vitamin E supplements looked like an easy way to prevent heart disease. Promising observational studies, including the Nurses' Health Study (Stampfer, 1993) and Health Professionals Follow-up Study suggested 20% to 40% reductions in coronary heart disease risk among individuals who took vitamin E supplements (usually containing 400 IU or more) for least two years (Rimm, 1993).

The results of several randomized trials have dampened enthusiasm for vitamin E's ability to prevent heart attacks or deaths from heart disease among individuals with heart disease or those at high risk for it. In the Gruppo Italiano per lo Studio della Sopravvivenza nell'Infarto (GISSI, 1999) Prevention Trial, the results were mixed but mostly showed no preventive effects after more than three years of treatment with vitamin E among 11,000 heart attack survivors (Results from the Heart Outcomes Prevention Evaluation (HOPE) trial also showed no benefit of four years worth of vitamin E supplementation among more than 9,500 men and women already diagnosed with heart disease or at high risk for it (Yusuf, 2000). Based on these and other studies, the American Heart Association has concluded, "the scientific data do not justify the use of antioxidant vitamin supplements [such as vitamin E] for cardiovascular disease risk reduction” (Kris-Etherton, 2004b).
A recent scientific analysis raised questions about whether high doses of vitamin E supplements might increase the risk of dying (Miller, 2005). The authors gathered and re-analyzed data from 19 clinical trials of vitamin E, including the GISSI and HOPE studies; they found a higher rate of death in trials where patients consumed more than 400 IU of supplements per day. While this meta-analysis drew headlines when it was released online in November 2004, there are limitations to the conclusions that can be drawn from it. Some of the findings are based on very small studies; furthermore, many of the high-dose trials of Vitamin E included in the analysis were done on people who had chronic diseases, such as heart disease or Alzheimer's disease. So it is not clear that these findings would apply to healthy people.

It is entirely possible that in secondary prevention trials, the use of drugs such as aspirin, beta blockers, and ACE inhibitors mask a modest effect of vitamin E, and that it may have benefits among healthier people. Ongoing randomized trials of vitamin E, such as the Women's Health Study (Buring, 1992) and SU.VI.MAX (Hercberg, 1998) will tell us more about its possible benefits in the coming years.

Vitamin K

Vitamin K helps make six of the 13 proteins needed for blood clotting. Its role in maintaining the clotting cascade is so important that people who take anticoagulants such as Coumadin must be careful to keep their vitamin K intake stable (Clinical Center,
Researchers have demonstrated that vitamin K is also involved in building bone. Low levels of circulating vitamin K have been linked with low bone density, and supplementation with vitamin K shows improvements in biochemical measures of bone health (Weber, 2001). A report from the Nurses' Health Study suggests that women who get at least 110 micrograms of vitamin K a day are 30% less likely to break a hip as women who get less than that (Feskanich, 1999). Among the nurses, eating a serving of lettuce or other green leafy vegetable a day cut the risk of hip fracture in half when compared with eating one serving a week. Data from the Framingham Heart Study also shows an association between high vitamin K intake and reduced risk of hip fracture (Booth, 2000).

Antioxidants

Our cells must constantly contend with nasty substances called free radicals. They can damage DNA, the inside or artery walls, and proteins in the eye--just about any substance or tissue imaginable. Some free radicals are made inside the body, inevitable byproducts of turning food into energy. Others come from the air we breathe and the food we eat. We are not defenseless against free radicals. We extract free-radical fighters, called antioxidants, from food. Fruits, vegetables, and other plant-based foods deliver dozens, if not hundreds, of antioxidants. The most common are vitamin C, vitamin E, beta-carotene and related carotenoids. Food also supplies minerals such as selenium and manganese, which are needed by enzymes that destroy free radicals (Swisher, 2007).

The Role of Minerals

Quantum physics shares the philosophy that we are really one with all things. Every
mineral that exists in the earth also exists in us and in all living things. In the same way as vitamins, the human body needs minerals to promote healthy function. However, unlike vitamins minerals are inorganic and are found in the soil and water that is absorbed by plants or eaten by animals. Potassium, iron, zinc and magnesium are examples of minerals. Our bodies require large amounts of minerals on a daily basis to ensure the proper functioning of our organs, bones, tissue and immune system. There are two types of minerals that our bodies require: macro-minerals and trace minerals. Macro-minerals are the large amount of minerals needed by the body, while trace minerals are only needed in small amounts (Bratman, 2000).

If a person eats a diet that is high in nutrition, chances are they don’t need mineral supplements. Foods that contain necessary minerals are easily found. Iron rich foods include red meat, eggs, beans, certain fish, leafy green vegetables and whole grains. Calcium is one of the most obvious and most vital minerals to consume because of the role it plays in building strong bones. Calcium can be found in milk and other dairy products. Fruits like bananas and oranges as well as legumes (beans) contain potassium. While vitamins and minerals are necessary for healthy bodily functioning, having too much can be dangerous. Consuming excess amounts can lead to toxicity.

The Role of Amino Acids

Protein in the food we eat is divided into individual amino acids. Amino acids are the building blocks of protein and are responsible for growth, maintenance and repair of our bodies throughout our lives. Vitamins and minerals cannot perform their job properly without Amino Acids being present in the system. Our muscles contain a lot of protein,
and we need to replenish that protein through our diet. Our body needs protein also for components of our immune system, hormones, nervous system, and organs (Farr, 2002).

Another raw material our bodies need is calcium. Calcium has several functions in the body, but it's best known as the mineral that is stored in your bones and teeth. We need calcium from our diet to keep our bones and teeth strong. Calcium is also critical for proper function of our muscles, nervous system and for strong bones and teeth. When we do not get enough calcium from our diet we will lose calcium from our bones in order to keep the muscles and nerves healthy and our pH balanced (Carver, 2001). Our bodies also need fats to be healthy. Membranes that contain fats surround all the cells of your body. Your brain has fatty acids, and fats are also needed to signal hormones.

**Neurotransmitters**

Neurotransmitters are the chemicals responsible for the transmission of signals from one neuron to the next across synapses. They are also found at the axon endings of motor neurons, where they signal the muscle fibers to contract. Glands such as the pituitary and the adrenal glands produce them. As per an article in the Canadian Medical Association Journal, the mesolimbic dopamine system has been shown to play a role in the rewarding effects of alcohol (Tomkins, 2001). Alcohol is similar to other abused substances in that it increases release of dopamine from the nucleus accumbens (Nacc), and blocking the effects of dopamine reduces alcohol intake by animals. Animals will continue to self-administer alcohol if the mesolimbic dopamine pathway is destroyed using a selective neurotoxin. This suggests that additional mechanisms are involved in regulating the rewarding effects of alcohol. Other neurotransmitter systems that have been implicated
include the serotonergic, glutamatergic, inhibitory (GABAergic) and opioid systems. The nucleus accumbens portion of the brain is also thought to play an important role in reward, laughter, pleasure, addiction, fear, and the placebo effect. Thus, substances directly bind to and modulate the activity of various specific receptors of these neurotransmitter systems that are located within the brain reward pathway and can indirectly modulate mesolimbic dopamine activity via feedback mechanisms. In addition, many other abused substances such as cocaine and methamphetamine have related effects similar to alcohol on the brain reward system, and are quite complex with many neurotransmitter systems being implicated.

Andreas Heinz studied 12 detoxified male alcoholic patients and 13 age-matched healthy men (Heinz, 2005). Alcohol craving was measured with the Alcohol Craving Questionnaire. Alcoholic patients were linked with low levels of dopamine synthesis capacity in the brain’s bilateral putamen with high levels of alcohol craving. Findings give evidence by positron emission tomography (PET) of pre- and postsynaptic markers of dopamine neurotransmission indicate a dopamine deficit.

Nutritional Therapy

Use of specific nutritional substances can help prevent some of the damage that normally happens during abuse and facilitate the detoxification and withdrawal process. A nutritional protocol for substance abuse may include the following a broad spectrum, high potency, daily multivitamin/mineral supplements; 50 mg of vitamins B1, B2, B3, B5 and B6 twice daily 1,000 mcg of vitamin B12 daily; 4,000 mcg of folic acid daily; 1,000 mcg of chromium daily; 1,000 mg of vitamin C three times daily; 400 IU to 800 IU of
natural vitamin E in mixed tocopherols daily; 25,000 IU of beta-carotene or mixed
carotenoids daily; 200 mcg of selenium daily; and fish oils (EPA and DHA) 1,000 mg
twice daily (Lavelle, 1999).

Dopamine is the neurotransmitter that is primarily responsible formethamphetamine and
cocaine's pleasurable effects. Amino acids recommended for people with a history of
cocaine and methamphetamine use include the following, each to be taken three times
daily, 20 minutes to 30 minutes before meals: DL-phenylalanine, 1,000 mg; L-glutamine,
500 mg; and L-tyrosine, 500 mg. Phenylalanine has also been reported to be an effective
antidepressant (Ross, 2004).

Amphetamines suppress appetite. Many users lose a considerable amount ofweight,
which can lead to extreme anorexia that can result in hospitalization or death. Therefore,
a healthy diet and nutritional protocols are an important part of the recovery program for
these individuals. In addition to the general program of nutritional supplementation,
people with a history of amphetamine use should be encouraged to take 1,000 mg of
phenylalanine three times daily before meals to assist the body in synthesizing the
dopamine they need (Ross, 2004).

Minimizing Relapse

Nutritional therapy for addiction has shown success in combination with traditional
behavior modification, self-help motivational, pharmaceutical, and substance abuse
counseling approaches. Inclusion of the physiological roots of addiction promises more
effective treatment and positive long-term outcomes for recovering addicts (Battaglia,
2009). It is common for people with alcohol or drug addiction problems to be
malnourished and suffering some damage to the body, such as liver damage. Nutritional therapy attempts to correct any nutritional deficiencies and to help the body eliminate people who struggle with addiction will have one or more relapses, the return to drug use after a drug-free period, during their ongoing attempts to recover. This can be extremely frustrating for patients and for families, as they have already experienced great pain. The motivation to seek a drug, once triggered, can feel overwhelming and sometimes leads to very poor decision making: the user will pursue the drug, despite potentially disastrous future negative consequences and perhaps despite many past negative consequences (Childress, 2009).

A privately funded clinic, started by Dr. Helen Fadden, is offering mega doses of amino acids and nutritional therapy to prevent withdrawal symptoms and subsequently lower relapse rates. Nutritional therapy has a 75 to 80 per cent success rate for the first two years, compared to the abysmal relapse rate of 80 per cent when clients use traditional addiction treatment. Scientific research verifies the relationship of neurotransmitters and addiction (University of Pennsylvania Health System, 2009).

Amino acid supplements boost the body's own neurotransmitters, sharply increasing the Success rate in relapse prevention (Bradley, S., 2005).

A Prescription For Drug Addiction

Methamphetamine is a stimulant with side effects that include significant reduction in appetite which results in weight loss and eventual malnutrition. Other familiar terms for drugs that have similar effects are Ecstasy MDMA, methylienedioxymethamphetamine. Abusers of any of these drugs may stay up for days
at a time and as a result suffer dehydration and electrolyte imbalances thus displaying atypical behavior. Methamphetamine is considered the most destructive drug of addiction. Without it to provide brain stimulation over time things begin to change and the user will often suffer from depression, exhaustion and/or body aches. When a user becomes dependent they will do ‘whatever it takes’ to get another hit and avoid withdrawal symptoms. Further usage continues with resulting poor nutrition and teeth beginning to decay. Irreversible brain damage will occur over time with repeated use. The brain physically changes and the user becomes indifferent to things that normally make one happy. When one stops using the drug there is a period of exhaustion during which the user tends to sleep a lot. Other symptoms during this early period include depression, little energy and moodiness that can last for varying amounts of time. With the majority of users relapse is common. Success rates for stopping Methamphetamine may be as low as 5-15% (Wakeen, 2008).

The ideal prescription for drug addiction is abstinence from all drug use (except as prescribed by a physician), a healthy and nutritionally dense eating plan according to the My Pyramid Food Guidance System and spaced, balanced meals with healthy snacks. As addressed previously, drug addiction affects nutritional status and as a result, metabolism (Wakeen, 2008). Spacing meals is important to stabilize blood sugars that impact mood stability and lower the potential for drug relapse. Additional vitamin and mineral supplementation joined with other nutritional augmentation may support the repair of damage to the body, its organs, and the brain. Addicts use continuously for days at a time, which results in repressed appetite and inadequate food intake. When usage stops
and the addict “comes down,” this results in Dry mouth and hypoglycemia. Dry mouth creates formation of cavities in the teeth by the action of a bacterial environment with dental plaque, as reduced saliva contributes to tooth decay. The combination of dry mouth and hypoglycemia increases cravings for sugar (soft drinks and snacks). The bacteria in the mouth thrive with added sugar. The combination of dry mouth with dental plaque, a high sugar diet and poor oral hygiene results in the formation of cavities in the teeth by the action of bacteria; tooth decay. The end result — “Meth Mouth” (Spiller, 2000).

Summary

Good nutrition and a healthy lifestyle are vital for optimal health and maintaining a healthy body and mind. The foods that we consume provide necessary elements to give us energy, help us sleep, and for our bodies to grow and repair themselves. When a person starts using methamphetamine the need for the drug increases and living a healthy lifestyle becomes secondary to getting and using more of the drug. Since the drug inhibits the sensation of hunger over time the human body will interpret the need for nutrition as craving for the drug. Thus, the two primary ways harm is introduced to the body are use of the drug itself, and the subsequent consequences of negative lifestyle changes.

Optimum health and a health conscious lifestyle are practically synonymous. A healthy diet provides all the nutrients needed for ones body to grow and make needed repairs to insure health. The body is in a perpetual balancing act using what we eat to nourish and heal our bodies, however that will not occur when a drug is substituted for
nutrition, or ones food choices are of little nutritional value.

Vitamins are divided into two groups: fat-soluble vitamins and water-soluble vitamins. Vitamins A, D, E, and K are fat-soluble vitamins stored in fatty tissue and the liver. Water-soluble vitamins, vitamins B and C, aren't stored but used immediately by the body. Although vitamins are needed in small doses, they are essential for proper cell function and growth (Payton, 2008). Vitamin C has been of public interest for a long time and has been promoted by Linus Pauling as a preventative from colds and to protect the body from other disease. However, there is some conjecture within the medical community over the efficacy of Paulings claims. Vitamin C is also necessary for the formation of healthy bones and teeth and the prevention of scurvy, a disease that killed numerous sailors between years 1500 and 1800. Vitamin D is essential for the efficient utilization of calcium by the body. Maintenance of blood calcium levels within a narrow range is vital for normal functioning of the nervous system, as well as for bone growth, and maintenance of bone density. Vitamin D has been referred to as the “sunshine vitamin” because sunlight on human skin causes the natural production of the vitamin in the body. Vitamin E is beneficial as an antioxidant, and may play a role in the prevention or treatment of cardiovascular or ocular diseases, and perhaps Parkinson's disease. However more research is needed to make sure that it does work, and to find out the appropriate vitamin E dosages and frequency of use. The benefit of vitamin E supplementation is constantly debated in the medical community. Vitamin E is found in many foods including nut oils, sunflower seeds, whole grains, wheat germ, and spinach. Vitamin K plays an important role in blood clotting and bone metabolism. High serum
concentrations of undercarboxylated osteocalcin and low serum concentrations of vitamin K are associated with lower bone mineral density and increased risk of hip fracture. Vitamin K supplements may improve bone mass in postmenopausal women. Vitamin K prevents calcification of arteries and other soft tissue. Calcification of organs and other soft tissue is an adverse consequence of aging. Vitamin K may play a role in the regulation of blood sugar. The pancreas, which makes insulin, has the second highest amount of vitamin K in the body (Booth, 2000).

The antioxidants are believed to help protect the body from free-radical damage. Free radicals and other reactive oxygen species are derived either from normal essential metabolic processes in the human body or from external sources such as exposure to X-rays, ozone, cigarette smoking, air pollutants and industrial chemicals. Free radical formation occurs continuously in the cells as a consequence of both enzymatic and non-enzymatic reactions. Dietary antioxidants other than vitamin E, vitamin C and the carotenoids may also be of significance in the prevention of degenerative diseases and the maintenance of good health (Swisher, 2007).

Minerals play an important role in the effective functioning of the body. While there is a number of minerals that may be present in the food we consume to keep our self energetic and healthy, around 20 minerals are considered to be very vital for the body requirements. It is the minerals that enable the muscles in our body to contract as well as relax and also transmits the impulses through the nerves. Most of the minerals are found in the form of soluble a, and these minerals helps in regulating the composition of fluids in the body. Minerals enable chemical reactions to take place in the body such as
breaking down the components of the food and effective utilization of the same.

Adequate amounts of both complete and incomplete proteins are needed to support many bodily functions and maintain good health. Amino acids are commonly known as the building blocks of protein, and specific bodily functions are dependent upon how strands of amino acids are arranged. Protein is found throughout the body in hair, nails, outer layers of skin, muscle tissue, the inner structure of bones, and red blood cells. Protein is used to perform many functions in the body.

Our brain is a ‘chemical factory’ that produces neurotransmitters Acetylcholine, Dopamine, Serotonin, Gamma Amino Butyric Acid (G.A.B.A.), Norepinephrine, Epinephrine and other brain chemicals 24 hours a day. The only raw materials for their syntheses are nutrients, namely amino acids, vitamins, minerals, essential fatty acids, etc. If the brain receives improper or insufficient amounts of these key nutrients we can expect serious problems with our neurotransmitters and with our mental health.

Neurotransmitters are the chemical messengers of the nervous system. They are chemicals made by neurons and used by them to transmit signals to the other neurons or non-neuronal cells that they stimulate. Neurotransmitters are the natural chemicals that facilitate communication between brain cells. These substances govern our emotions, memory, moods, behavior, learning abilities and sleep patterns. For the last three decades, neurotransmitters have been the focus of mental health research (Esparza, 2003). For the health and maintenance of the brain cells and their chemical messengers a balance of amino acids, vitamins and other nutrients must be present. A lowered level of these in the brain, whether because of stress, genetics, or bad eating habits can deplete the
key neurotransmitters necessary to keep a healthy mental attitude. The only raw materials for their syntheses are nutrients, namely amino acids, vitamins, minerals, essential fatty acids, etc. If the brain receives improper or insufficient amounts of these key nutrient building blocks, we can expect serious problems with our neurotransmitters and with our mental health (Gilbert, 2007). Nutritional therapy is about creating individually tailored and achievable programs for total health improvement to suit ones unique dietary and nutritional requirements. It is relating to a complementary therapy that uses diet to help restore and maintain good health. Nutritional supplements are used where necessary. By eating a well-balanced and nutritious diet in combination with appropriate lifestyle habits, we can maximize our energy, boost concentration, improve our mood, support our digestion and maintain a healthy weight. Nutritional therapy is a complementary therapy that uses diet, to help restore and maintain good health. In addition, nutritional supplements are used where necessary. Our bodies need the right fats, proteins, carbohydrate, vitamins and a mineral for energy, growth and repair; when ones body has these nutrients it is healthier and better able to heal itself. Nutritional therapy seeks the underlying causes of symptoms, rather than masking them. It can help alleviate a wide range of conditions and help ones body to recover from ill health.
Chapter 3

METHODOLOGY

In this chapter the research design of the study and methods that were used are described. The criteria for participation and the manner in which participants were selected are outlined. The instruments that were used to collect data are explained as are the methods that were used to analyze that data. An account is also given concerning the process of assuring the protection of the human subjects.

Research Design

This research project was a mixed method design: qualitative content analysis and survey methodology. Its purpose was to gain insight to a relatively new field of study, the need of an adjunct of nutritional therapy for recovering methamphetamine addicts. Marlow (2001) states that exploratory research is undertaken when there is only a little information available about the topic under study. Exploratory research can help to determine the practicality of continuing research on the topic and can raise questions that can be explored in more depth in further studies. The main shortcoming of exploratory research studies is that they do not provide definitive answers to research questions or any kind of conclusive outcome but can only hint at answers and point the way for additional investigation (Rubin & Babbie, 2005). A hypothesis has been developed and key variables and relationships have been isolated for further examination. The purpose of this study is to gain insights to developing an approach to a problem, and establish priorities for further research. Since examining the relationship between methamphetamine abuse and subsequent nutritional deficits is a relatively recent field of
study the information from this research may be useful in illuminating future avenues of inquiry and/or treatment methodology.

Variables

The purpose of this study was to answer the research question: What are the nutritional attitudes of the methamphetamine addicted? This is the major question this study will be addressing. This study was formulated to examine attitudes toward healthy eating habits among a population of people who are addicted to methamphetamine. The dependent variable in this study was the length of time one had been using methamphetamine, and the frequency of use of the drug. The independent variables of interest are the attitude toward various elements of a healthy lifestyle. The survey administered questioned ones attitude regarding foods and lifestyle with the following responses: agree, disagree, and don’t care.

Participants

Eligibility for this study requires that a person must be eighteen years old or older, have been averaging methamphetamine use three times a week or more for a period of one year or longer. Participants were invited to participate in this study at meetings of Narcotics Anonymous (NA) in the Sacramento, California area. This sampling method was chosen because of a high concentration of people who met the eligibility criterion to participate in the study. The sample was in the form of a simple written questionnaire distributed to NA participants to fill out. No problems occurred gathering the sample.

The questionnaire was twenty-seven questions divided into three sections (see Appendix A and B). The purpose of the first section was to gather demographic
information. The second section questioned attitudes about foods and nutritional elements. The third section probed attitudes regarding nutrition and health.

A sample population of 29 people were selected and perceived by the researcher to be large enough to indicate if further exploration would be warranted. A cluster sampling method was used in this research by selecting respondents from certain areas only (Marlow, 2001). Dividing up a population of substance abusers into smaller sub-groups, and then only sampling from one of the sub-groups put to use cluster sampling. Cluster sampling is considered a more practical approach to surveys because it samples by groups or clusters of elements rather than by individual elements (Lee et al., 1993-2009). It also reduces interview costs. However, accuracy declines when using this sampling method.

*Instrumentation*

Baseline information has been collected in the form of a survey developed by this researcher. The questions were not tested for reliability or validity. This was a measuring instrument that probes ones attitudes toward healthy food choices and nutritional elements within the population of methamphetamine addicted.

Incorporated in a simple questionnaire were questions that follow the style of the Addiction Severity Index, an assessment tool that is used by treatment centers in California to gain information about the lives and experiences of people who use substances. There are twenty-seven questions overall in the instrument that were partitioned under topics. In the first section participants are asked for demographic information and to disclose financial information. Section II examines attitudes
surrounding food choices. The third section probes attitudes regarding vitamins and minerals, and nutritional supplementation.

Sample questions are as follows:

My racial identification is:

___Hispanic
___African American
___Pacific Islander
___White (Caucasian)
___Asian
___Other
___Prefer not to say

I am currently:

___Unemployed
___Employed

The instrument was not pre-tested for reliability and validity co-efficient.

Data Gathering Procedures

Random sampling is the purest form of probability sampling. Each member of the study population has an equal and known chance of being selected. When there are very large populations it is often difficult or impossible to identify every member of the population so the pool of available subjects becomes biased.

Data collection for this study has been administered as a questionnaire to subjects who had been clean and sober ninety days or less, and who were attending meetings of Narcotics Anonymous. The study and risks had been explained to the participants prior to obtaining signed consent to participate as a research subject. Questions about demographics, behavior, attitudes concerning eating habits, different nutritional elements that support health were presented in a questionnaire. The questionnaire is brief and
should only have taken a few minutes to complete. As a participant in the survey one
could decide at any time not to answer any specific question, skip questions, or stop
taking the survey.

Protection of Human Subjects

The Protocol for the Protection of Human Subjects was submitted and approved,
approval number 07-08-122, by the Division of Social Work, California State University,
Sacramento as posing minimal risk.

This chapter addressed both the quantitative and the qualitative methodology used in
this study. The research design, variables, study population, instrumentation, data
gathering procedures, data analysis, and the protection of human subjects were discussed.
In the following chapter the results of the data are presented.

The study used the SPSS software program to analyze the obtained data.
Chapter 4

RESULTS

Descriptive Findings

This chapter will explore the results of the study. Data was obtained for this study from a survey questionnaire exploring attitudes toward nutrition and eating habits among adult methamphetamine addicts attending Narcotics Anonymous (NA) meetings with 90 days or less of sobriety. The purpose of exploring this issue was to gather information from the methamphetamine addicted in regard to their attitude toward, and interest in, nutrition and their eating habits that could be useful in a protocol for future treatment and point the way for further research into using an adjunct of nutritional therapy in the recovery processes.

General Information

Gender. Out of the total 26 survey participants (N = 26) there were 19 male (73.1%) and 7 female (26.9%) (See table 4.1).

Table 4.1

<table>
<thead>
<tr>
<th>Gender</th>
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<th>Male</th>
<th>Female</th>
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<tr>
<td></td>
<td>Valid</td>
<td>19</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Percent</td>
<td>73.1</td>
<td>26.9</td>
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</table>
Age. Out of the total 26 survey participants there were 8 people 18 to 25 years old (30.8%), 10 people 26 to 35 (38.5%), 4 people 36 to 45 (15.4%), 4 people 46 to 55 (15.4%) (See table 4.2).

Table 4.2

Age of Participants (N = 26)

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Participants</th>
<th>Valid Percent</th>
</tr>
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<tr>
<td></td>
<td>26 to 35</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>36 to 45</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>46 to 55</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26</td>
</tr>
</tbody>
</table>

Education. Of the 26 respondents to this question 22 were High School graduates (84.6%), 2 had vocational training (7.7%), 2 were college graduates with a BA degree (7.7%) (See table 4.3).

Table 4.3

Self-Reported Education of Participants (N = 26)

<table>
<thead>
<tr>
<th>Valid</th>
<th>High School Graduate</th>
<th>Frequency</th>
<th>Valid Percent</th>
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<tr>
<td></td>
<td>Vocational Training</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>College Graduate (BA)</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
**Race/Ethnicity.** Out of the 26 participants who answered this question there were 3 Hispanic (11.5%), 2 African American (7.7%), 20 White (76.9%), 1 Prefer not to say (3.8%) (See table 4.4).

Table 4.4

*Self-Reported Race and/or Ethnicity of Participants (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
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<tr>
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<td>11.5</td>
</tr>
<tr>
<td>African American</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>White (Caucasian)</td>
<td>20</td>
<td>76.9</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Living Situation.** Out of the 26 participants who answered this question there were 4 homeless (15.4%), 18 living temporarily with friends (69.2%), 4 renting a room or apartment (15.4%) (See table 4.5).
Table 4.5

*Living Situation (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Living temporarily with friends</td>
<td>18</td>
<td>69.2</td>
</tr>
<tr>
<td>Renting a room or apartment</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100/0</td>
</tr>
</tbody>
</table>

*Employment.* Out of the 26 participants who answered this question there were 16 unemployed (61.5%), 10 currently employed (38.5%) (See table 4.6).

Table 4.6

*Employment (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>16</td>
<td>61.5</td>
</tr>
<tr>
<td>Employed</td>
<td>10</td>
<td>38.5</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Income.* Of the 26 respondents to this question, 19 respondents > $10K per year (73.1%), 6 respondents earning $10K to $25K annuually (23.1%), 1 reported an income of over $25K but less than $40K annually (3.8%) (See table 4.7).
Table 4.7

*Income (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Less than $10K annually</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>$10K to $25K annually</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Over $25K but &lt; $40K</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>26</td>
</tr>
</tbody>
</table>

In Section II the questionnaire questioned food choices, and addressed vitamins in food. This section was not intended to be an examination or test of knowledge, yet the proper response to all questions is “agree.” The following results were found.

*Fruits and vegetables are a good source of healthy foods.* Of the 26 respondents to this question 19 agreed (73.1%), 2 disagreed (7.7%), 5 don’t care (19.2%) (See table 4.8).
Table 4.8

*Fruits and vegetables are a good source of healthy foods (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>19</td>
<td>73.1</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Don’t care</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Large doses of some vitamins can be harmful to the body. *Of the 25 respondents to this question 16 agreed (64%), 5 disagreed (20%), 4 don’t care (16%), 1 missing (3.8%), (See table 4.9).*

Table 4.9

*Large doses of some vitamins can be harmful to the body (N = 25)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>16</td>
<td>61.5</td>
</tr>
<tr>
<td>Disagree</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Don’t care</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>96.2</td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Overcooking vegetables in large amounts of water removes some of the nutrition.

Of the 26 respondents to this question 17 agree (65.4%), 2 disagree (7.7%), 7 don’t care (26.9%) (See table 4.10).

Table 4.10

Overcooking vegetables in large amounts of water removes some of the nutrients (N = 26)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>17</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Don’t care</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
</tr>
</tbody>
</table>

Fat free milk contains the same healthy elements as whole milk. Of the 26 respondents to this question 11 agree (42.3%), 9 disagree (34.6%), 6 don’t care (23.1%) (See table 4.11).
Table 4.11

*Fat free milk contains the same healthy elements as whole milk (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
<td>42.3</td>
</tr>
<tr>
<td>Disagree</td>
<td>9</td>
<td>34.6</td>
</tr>
<tr>
<td>Don’t care</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Bananas and potatoes are a good source of potassium. Of the 26 respondents to this question 18 agreed (69.2%), 2 disagreed (7.7%), 6 don’t care (23.1%) (See table 4.12).*

Table 4.12

*Bananas and potatoes are a good source of potassium (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>18</td>
<td>69.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Don’t care</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Zinc deficiency causes loss of ability to taste. Of the 26 respondents to this question 8 agree (30.8%), disagree 4 disagree (15.4%), 14 don’t care (53.8%) (See table 4.13).

Table 4.13

Zinc deficiency causes loss of ability to taste (N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td>Disagree</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Don’t care</td>
<td>14</td>
<td>53.8</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Vitamin D is produced in out body by sunshine. Of the 26 respondents to this question 19 agree (73.1%), 3 disagree (11.5%), 4 don’t care (15.4%) (See table 4.14).
Table 4.14

Vitamin D is produced in our bodies from sunshine.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>19</td>
<td>73.1</td>
</tr>
<tr>
<td>Disagree</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Don’t care</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Our bodies do not manufacture Vitamin C. Of the 26 respondents to this question 19 agree (73.1%), 1 disagrees (3.8%), 6 don’t care (23.1%) (See table 4.15).

Table 4.15

Our bodies do not manufacture Vitamin C (N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>19</td>
<td>73.1</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Don’t care</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Using methamphetamine prevents hunger from occurring. Of the 26 respondents to this question 23 agree (88.5%), 1 disagrees (3.8%), 2 don’t care (7.7%) (See table 4.16).

Table 4.16

Using methamphetamine prevents hunger from occurring (N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Valid</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>23</td>
<td>88.5</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Don’t care</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Vitamin and mineral supplements work best when taken with food. Of the 26 respondents to this question 17 agree (65.4%), 4 disagree (15.4%), 5 don’t care (19.2%) (See table 4.17)
Section III of the survey explored statements concerning attitudes about vitamin and mineral supplements as reported by 26 methamphetamine addicts. This section was not intended to be an examination, yet the proper response to all questions is “agree.” The following results were found.

_Taking vitamin and mineral supplements can contribute to overall health._ Of the 26 respondents to this question 22 agree (84.6%), 1 disagreed (3.8%), 3 don’t care (11.5%) (See table 4.18)
Table 4.18

*Taking vitamin and mineral supplements can contribute to overall health*

(N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>22</td>
<td>84.6</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Don’t care</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*I can fill all my nutritional needs without supplements. Of the 26 respondents to this question 17 agree (65.4%), 7 disagreed (26.9%), 2 don’t care (7.7%) (See table 4.19)*

Table 4.19

*I can fill all my nutritional needs without supplements (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>Don’t care</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Taking vitamin and mineral supplements may aid my recovery from meth addiction. Of the 26 respondents to this question 22 agree (84.6%), 2 disagreed (7.7%), 2 don’t care (7.7%) (See table 4.20)

Table 4.20

Taking vitamin and mineral supplements may aid my recovery from meth addiction 
(N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>22</td>
<td>84.6</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Don’t care</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

I should take vitamin and mineral supplements only after consulting a physician. Of the 26 respondents to this question 4 agree (15.4%), 17 disagreed (15.4%), 5 don’t care (19.2%) (See table 4.21).
Table 4.21

*I should take vitamin and mineral supplements only after consulting a physician*  
(N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Don’t care</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Eating a variety of foods provides all the vitamins and minerals necessary for health. Of the 26 respondents to this question 17 agree (65.4%), 7 disagreed (26.9%), 2 don’t care (7.7%) (See table 4.22).

Table 4.22

*Eating a variety of foods provides all the vitamins and minerals necessary for health*  
(N = 26)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>Don’t care</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Most elderly persons need vitamin and mineral supplements to ensure proper nutrition. Of the 26 respondents to this question 17 agree (73.1%), 7 disagreed (15.4%), 2 don’t care (11.5%) (See table 4.23).

Table 4.23

Most elderly persons need vitamin and mineral supplements to ensure proper nutrition (N = 26)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>19</td>
</tr>
<tr>
<td>Disagree</td>
<td>4</td>
</tr>
<tr>
<td>Don’t care</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
</tr>
</tbody>
</table>

Supplements can help reduce stress. Of the 26 respondents to this question 6 agree (23.1%), 15 disagreed (57.7%), 5 don’t care (19.2%) (See table 4.24).
Table 4.24

*Supplements can help reduce stress (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>57.7</td>
</tr>
<tr>
<td>Don’t care</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*A healthy lifestyle may delay the effects of aging. Of the 26 respondents to this question 18 agree (69.2%), 5 disagreed (19.2%), 3 don’t care (11.5%) (See table 4.25).*

Table 4.25

*A healthy lifestyle may delay the effects of aging (N = 26)*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Agree</td>
<td>18</td>
<td>69.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Don’t care</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Tomato juice contains lycopene for healthy eyes. Of the 26 respondents to this question 9 agree (34.6%), 9 disagreed (34.6%), 8 don’t care (30.8%) (See table 4.26).

Table 4.26

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Valid</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>9</td>
<td>34.6</td>
</tr>
<tr>
<td>Disagree</td>
<td>9</td>
<td>34.6</td>
</tr>
<tr>
<td>Don’t care</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Specific Findings

The mean between two age groups, 18 to 35 and over 35, found a significant difference in nutrition scores. The higher nutrition score mean was in the 18 to 35 group with a mean of 6.8 as opposed to a mean of 5.6 in the older group. This is a significant difference not due to chance (T=2.165, df=23, p=.041).

In the same groups the older group proved less knowledgeable regarding vitamins, although there was not a significant difference. The younger group scored a mean of 5.18 and the older group a mean of 4.88.
When the groups were tested by income, less than $10K and over the same annually, the lower earning group had a mean score of 6.58 and the higher earning group had a mean score of 6.00. The lower earning group was more knowledgeable about vitamins, however the findings were not significant.

Additional Findings

There is a significant, strong positive correlation between nutritional scores and scores (r=.487, p=.012). Thus, those who knew more about nutrition tended to know more about vitamins.
Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The purpose of this study was to explore attitudes surrounding nutrition among a group of methamphetamine addicted individuals. This study is also a good starting point for anyone interested in doing further research regarding attitudes and nutritional needs of all substance abusers. Both qualitative and quantitative studies with larger and more diverse samples could be conducted to study an in depth relevance of attitudes regarding nutritional therapy in participants continuing long term abstinence from mood and mind altering substances. The major question of the study is: What are the attitudes of the methamphetamine addicted in early recovery toward nutrition? Although the findings regarding this question were inconclusive there were other areas that were significant. In this group those who knew more about nutrition also knew more about vitamins. There was a higher nutrition score in the younger group, 18 to 35 years, than the over 35 year old group (T=2.165, df=23, p=.041). This may indicate that nutritional education might be an adjunct that would have a positive result in one’s long-term sobriety, and be easily delivered in a formal recovery program.

Recommendations

Chemical dependency is an issue that affects many lives directly and many more lives throughout society indirectly. Social workers will come into contact with people that have issues of substance abuse in many settings from child protection services to geriatric care. At the micro level social workers may be involved with issues of
substance abuse and resulting malnutrition in direct practice. It is important that we, as social workers, are able to recognize the symptoms of substance abuse and subsequent nutritional deficits and how they may manifest in a clients appearance and health. The purpose of this study was to explore the factors that might contribute to attitudes that may reflect in one’s knowledge and behavior regarding proper nutrition. The following is a list of recommendations that may impact the recovery community:

1. Patients in chemical dependency programs could be required to attend groups with a focus on healthy food choices.
2. Patients in chemical dependency programs could be required to attend groups with a focus on nutritional elements and their density in various foods.
3. Clinicians and counselors could encourage clients to focus on healthy food choices.
4. Clinicians and counselors could support clients’ nutritional availability by directing them to free food sources, and food stamps.
5. Patient families could be instructed in nutrition and its importance for a rapid recovery.
6. Agencies could offer nutritional supplementation during the course of the recovery program.
7. A study of the efficacy of a nutritional adjunct could be done to gather information regarding the duration of sobriety.
8. Programs such as Proposition 36 could be renewed and refunded at appropriate levels to provide nutritionally focused treatment rather than incarceration.

9. Funding for nutritional elements could be made available to support homeostasis.

10. Funding for nutritional elements could be made available to support health and long-term sobriety.

Further studies of how one’s attitude toward good nutrition may affect the quality and speed of their recovery is recommended. Long-term studies could gather information regarding post formal recovery programs and evaluate extended sobriety, relapse, and any correlations regarding the role of nutrition in the process.
APPENDICES
APPENDIX A

Survey Questionnaire
APPENDIX A
Survey Questions

DO NOT PUT YOUR NAME ON THIS SURVEY.

This survey is completely anonymous. Data collected in this survey is for the research portion of a thesis project for a Master’s Degree in Social Work at California State University, Sacramento. Thank you for your participation it is greatly appreciated.

I. General Information: Place a check in the blank next to the one response that best describes you.

1. Sex:
   _____ Male        _____ Female

2. Age Range:
   _____ 18 to 25
   _____ 26 to 35
   _____ 36 to 45
   _____ 46 to 55
   _____ 56 to 65
   _____ 66 and above

3. Education (check the highest level of achievement):
   _____ Some high school
   _____ High school graduate
   _____ Vocational training
   _____ College graduate (Bachelors degree)
   _____ Post Bachelors degree

4. My racial identification is:
   _____ Hispanic
5. I am currently:
   _____ Homeless
   _____ Living temporarily with friends
   _____ Renting a room or apartment
   _____ Buying a home

6. I am currently:
   _____ Unemployed
   _____ Employed

7. My current income is:
   _____ Less than $10K yearly
   _____ $10K and $25K yearly
   _____ More than $25K but less than $40K yearly
   _____ Above $40K yearly

II. Directions: For each of the following questions circle the reply that best describes your answer.

   Agree   Disagree   Don’t care   1. Fruits and vegetables are a good source of healthy foods.
   Agree   Disagree   Don’t care   2. Large doses of some vitamins can be harmful to the body
   Agree   Disagree   Don’t care   3. Overcooking vegetables in large amounts of water removes some of the nutrition.
   Agree   Disagree   Don’t care   4. Fat free milk contains the same healthy elements as whole milk.
   Agree   Disagree   Don’t care   5. Banana’s and potatoes are a good source of potassium.
Agree        Disagree        Don’t care       6. Zinc deficiency causes loss of ability to taste.
Agree        Disagree        Don’t care       7. Vitamin D can be produced by our bodies from sunshine.
Agree        Disagree        Don’t care       8. Our bodies do not manufacture Vitamin C.
Agree        Disagree        Don’t care       10. Using methamphetamine prevents hunger from occurring.
Agree        Disagree        Don’t care       11. Vitamin and mineral supplements work best when taken with food.

III. Below are statements concerning attitudes about vitamin and mineral supplements. Please circle your response to each statement using the following scale:

1                 2                 3
Agree   Disagree  Don’t care

1. Taking vitamin and mineral supplements can contribute to overall health. 1 2 3
2. I can fill all my nutritional needs without supplements. 1 2 3
3. Taking vitamin and mineral supplements may aid my recovery from meth addiction 1 2 3
4. I should take vitamin/mineral supplements only after consulting a physician. 1 2 3
5. Eating a variety of foods provides all the vitamins and minerals necessary for health. 1 2 3
6. Most elderly persons need vitamin and mineral supplements to ensure proper nutrition. 1 2 3
7. Supplements can help reduce stress.

8. A healthy lifestyle may delay the effects of aging.

9. Tomato juice contains lycopene for healthy eyes.
APPENDIX B

Consent to Participate as a Research Participant
APPENDIX B

Consent to Participate as a Research Participant

You are invited to participate in a research study that will be conducted by Dale Threlkel, a Master of Social Work student at the Division of Social Work, California State University, Sacramento. This study will investigate factors related to nutrition within the context of methamphetamine users.

Procedures

You will be asked to answer questions about your behavior and attitude concerning eating habits, different nutritional elements that support health, and the extent of your use of methamphetamine. The questionnaire is brief and should only take a few minutes to complete. As a participant in the survey, you can decide at any time not to answer any specific question, skip questions, or stop taking the survey.

Risks:

Your participation in this research is entirely voluntary. The survey may evoke emotional responses. If participating in this project makes you uncomfortable and you feel you need mental health services they are available free of charge at Genesis, a mental health program of Loaves & Fishes, 1321 North C Street, Sacramento, CA 95814, phone: (916) 669-1536. If you think you may have a problem with alcohol or other drugs, contact Strategies For Change, 4330 Auburn Blvd., Suite 2200 Sacramento, California 95841, phone (916) 473-5764

Benefits

By being a part of this study, participants may gain insight into factors that may
support their recovery journey and potentially contribute to successfully improving health & quality of life, or one may sustain no benefit from participating in this research. It is hoped that the results of this study will be beneficial for programs designed to encourage sobriety and healthy lifestyles.

Confidentiality

All information is confidential and every effort will be made to protect your confidentiality. Your responses on the survey will be kept confidential. Information provided on the consent form will be stored separately from the completed surveys in a locked cabinet in a secure location at the researcher’s home. The researcher’s thesis advisor will have access to the completed surveys for the duration of the project. The final research report will not include any identifying information. All of the data will be destroyed approximately one month after the project is filed with Graduate Studies at California State University, Sacramento.

Compensation

Participants will not receive any type of fiscal compensation. However, answering the survey questions may provide insight that will lead to the development of a healthier life style and a higher quality of health.

Right to withdraw

If you choose to participate in this survey you may withdraw at any point. During the survey interview you may elect not to answer any specific questions.

I have read the descriptive information on the Research Participation cover letter. I understand that my participation is completely voluntary. My signature or initials
indicate that I have received a copy of the Research Participation cover letter and I agree to participate in the study.

Signature or Initials of Participant                          Date

If you have any questions about this research contact:
Dale Threlkel
PO Box 2216
Sacramento, CA 95812
(916) 361-2834
<dale.threlkel@yahoo.com>

Or, if you need further information, you may contact the researcher’s thesis advisor:
Ronald Boldz, Ph.D.
c/o California State University, Sacramento
(916) 278-7171
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