

Mechanisms and difference of addiction and dependence research paper examples

[Health & Medicine](#), [Addiction](#)



Addiction is a dangerous chronic disease which comes in many forms such as drug use, gambling habits, sexual behaviors, the addiction to food and the desire to have an abundance of money that is obtained by any means.

Addiction has created destruction in many families, crumbled prosperous lives and has even ended in the death of the addict, Is there a cure for an addict. The answer is no however it can be managed by empowering the addict with knowledge of the disease, taking actions to control the addiction and treating the disease.

2. The difference between addiction and dependency.

Some health organization will refer to addiction as a dependency which is described as the brain and body demonstrating a strong desired to use a substance and it will eventually lead to an addiction.

3. Addiction- the substance use and abuse.

Basic information on substance abuse, the chemical breakdown and the description of the commonly used drugs. The majority of drugs that are abused are sedatives, stimulants, narcotics, hallucinogens, antidepressant, volatile hydrocarbons and steroids.

4. Behavioral addictions

The phases of the addiction of gambling and the impact that the addiction has on themselves and the family. The Sexual behaviors that include pornography in magazines, pictures or on the internet and the desire to have sexual contact with multiple partners. A person that does not eat has an addiction and a person that over eats is considered to be an addiction.

5. Categories of the common abused drugs

The government has organized a chart for the drugs that are abused which

are divided up in five categories. Schedule I- which are very addictive drugs and serve no other purpose other than to get high, Schedule II-considered to be addictive drugs but can also be used for medical purposes. Schedules III, IV, V are considered to be drugs that are not as addictive as Schedule I and Schedule II which are prescribed by a doctor and are monitored closely. All drugs can cause an addiction and can be very dangerous when used in an abusive manner.

6. Who is at risk of having an addiction?

A person that has turned to substance abuse or other behavior abuse most like derived from a family history of addictions, a person that likes to experiment with drugs or a mental state such as depression and anxiety. The person that does not have a strong family connection or does not have a social network of friends are also at risk for becoming an addict.

7. Characteristics of an addict and the triggers.

There are several reasons that an addict feels forced or encouraged to turn to their addictions for a sense of relief or escape from life situations. The pressures at home can be over whelming, life in general can be difficult to handle, physical and emotional abuse, sexual abuse, the feeling of being neglected by family and friends, feelings of hopelessness and lonely.

8. Symptoms of an addict

There are many symptoms that will appear in an addict and can be recognized by visualizing their daily behaviors. The noticeable symptoms would be their appearance, a change in their attitude and performance in school or work.

9. The impact of drug abuse on the brain.

The substance abuse has long lasting effects on the brain which can be structural and functional changes in the brain. The brain is the main organ that process information in the body, cells that send out and receive messages are called neurons. Neurons sends out impulses to a branch of neuron called the axon, when the message reaches the axon a chemical is released called a neurotransmitter.

10. Intervention

The addict does not caring what harm they are doing to themselves while they are feeling pleasure by going to any means to fulfill their addictions. There are health risks that are associated with substance and behavior abusers. Family or friends are aware of the addictions and what to get their loved one some help for the addict. Intervention is a form of confronting the addict in a caring, loving and non-judgmental approach. The addict must be taking steps in managing the addiction in order for the treatment to be successful. The addict must allow the body that has been abused by the drugs that to go through a process to cleanse the body of all the bad chemicals that has been ingested. Understanding the severity of the addiction and choosing which treatment programs will be able to assist in the recovery from the addiction.

Azbstract

Addiction is a psychological disease that is sometimes associated with physical dependence to some substance or drug. Addiction however is not always associated with physical dependence but it is always associated with psychological dependence. It is now recognized that physical dependence is not the main problem with addiction because the organism can overcome

this dependence in relatively short period of time. This is not the case with the psychological dependence that is associated with physical changes in the function of the brain, and more accurately the limbic system and nucleus accumbens or the “reward center” as is also called. This psychological dependence is the main reason for uncontrolled use of addictive substances or addictive behaviors like gambling, excessive shopping, sex or relapses of addiction after a successful treatment. New treatments are targeting the this psychological dependence by indentifying the triggers of this dependence, etiological mechanisms of addiction and are implementing behavioral principles in it treatment.

1. What is addiction

Addiction as a general term is a categorized as psychological disease which is defined by the American society of Addiction medicine as: “a primary, chronic disease of brain reward, motivation, memory and related circuitry”. Addiction is a complex psychological condition that affects many aspects of the life of the affected individual and is leading to biological, psychological and social changes in the addictive person. This change is mainly characterized by constant pursuing of certain behavior, substance administration, addictive activity or other stimuli that is leading to the sensation of reward or relief from some tension (Angres and Bettinardi-Angres 2008). The process of addiction constituted of several steps and it is a complex process that is affected by many factors and it is not a process that is happening overnight. One person without addictions can take one dose of medication or some highly addictive substance and is not an addict by default. However after a period of time this individual is making a

conscious choice to continue to take this medication or drug, usually because of the pleasure that is associated with this medication. After a period of time this individual becomes an addict and he has effectively lost his ability to choose to cancel the ingestion of this medication or drug. This transformation requires time and repetitive use of the medication and the speed of this process is dependent on many factors: the type of medication, personality of the individual, social conditions of the person and other factors (NIDA 2009).

2. The difference between addiction and dependency.

The terms addiction and dependence are used interchangeably often to explain identical problems. However in general it is accepted that they are different and this difference should be recognized. The term dependence should not be used as synonym for addiction. Dependence is associated with physical dependence of some drug or medication that is not associated with psychological dependence. Physical dependence is often one component of addiction, however dependence is not equal to addiction. Drug dependence can be caused even by medications that are used in general medicine, like medications used for controlling blood pressure for example. Drug dependence is associated with drug tolerance and withdrawal symptoms that are often manifested with anxiety, diarrhea, insomnia, muscle cramps and other symptoms (Torres and Horowitz 1999). Tolerance is a process where the organism slowly adapts to the drug administration and constantly requires higher doses of the substance (Torres and Horowitz 1999). This process of tolerance can be mediated by different mechanisms and are different with different classes of drug. As example tolerance is common

occurrence in patient with chronic pain that are taking opioid medications. There are several reasons for opioid tolerance. There are some simple and nonspecific mechanisms, like worsening of the general condition of the patient that simply requires higher doses of the medication. Other mechanisms of tolerance are identified in the changes of the pharmacokinetic and dynamic of the drug (changes of the rate of elimination or metabolism of the drug by up-regulation of the dominant metabolic route of elimination) (Yan et al. 2007). However for the opioids there are also more specific mechanisms of tolerance which are desensitization and receptor down-regulation which in essence leads to reduction of its effect. These mechanisms are more potent and is believed that are the main cause for opioid tolerance (Bohn et al. 2002) (Raehal and Bohn 2005). Research is showing that predominantly opioid act as “ mu” opioid receptor (MOR) receptor agonist (which represent the majority of opiates) which is important for the process of development of tolerance and the negative side effects associated with opioids (Dietis et al. 2009).

Discontinuation of the substance that has caused tolerance and physical dependence is characterized by withdrawal symptoms. It is a group of symptoms that manifest with the sudden stopping or decreasing of the dosage of the addictive substance. These symptoms are variable depending of type of substance and some other characteristics of the substance, like the half life of elimination from the organism for example. Substance with shorter half life of elimination is associated with stronger withdrawal symptoms. In general the person will start feeling very ill and sick with different somatic symptoms as mentioned above. These symptoms will reach

a certain plateau after which will slowly subside. Abrupt discontinuation of certain medications of some substances like benzodiazepines and alcohol may result in serious symptoms that may result even in death and it is not recommended. This can be a common occurrence in individuals where the substance masked malnutrition, some chronic disease or pain (Alexander et al. 2011).

3. Addiction- the substance use and abuse.

Addiction as a term is more commonly used when physical dependence of some substance or drug is accompanied by psychological craving and need for immediate satisfaction of the addiction. Addiction is often accompanied by physical dependence, but often addiction is not associated with any form of physical dependence. Examples of these are addiction to gambling, excessive exercise, excessive sex and even more modern cases of addiction to internet, computer games etc. Addiction is defined as continued use of some substances, drugs or behaviors regardless of the significant adverse symptoms, consequences or even neurological side effect that this activity is causing (Angres and Bettinardi-Angres 2008). Addiction is associated with loss of control over the use of substances or a certain behavior despite the obvious, often dramatic consequences. An addict is in denial that he doesn't have control but in the same time he is preoccupied with the substance and behavior. Very common the satisfaction of the addiction requires immediate gratification and is associated with strong feeling of anxiety and panic if the satisfaction is delayed (McLellan et al. 2000). This need for immediate satisfaction of the addiction leads to antisocial behavior that often results in criminal activities, social isolation and other side effects that are usually

unrecognized by the addict.

Mechanisms of addiction have been investigated by numerous researchers and the general conclusion from clinical and experimental research is that there are three major factors that contribute to the irresistible craving and need for satisfaction of the addictive activity. The behavior theory of the learned response is the first of these factors. Different stimuli from the environment over time and repetitive use of the addictive procedures can lead to associations with the actions associated with the addiction. Exposure to such stimuli that can be of different origin (like the community, social factors, friends, work and other factors) can result in immediate association to seek for satisfaction of the addiction (Everitt et al. 2001). These stimuli from the environment can trigger the learned behavior of addiction like seeking for drug, without even conscious desire of the person to seek for drugs. As an example a familiar setting in a night club, with familiar social environment may trigger craving for alcohol or cocaine use even without a strong desire or craving to take these substances. Experimental research have confirmed that this contextual association of the addict provokes strong craving and desire to satisfy even a long time attenuated addictive behavior (Ingjaldsson et al. 2003) (Weiss et al. 2001).

Another very important factor in developing addiction is the stress. Stress is very important factor that can result in addictive behavior in one individual and also it is a factor that can reactivate an attenuated addictive behavior or substance abuse (Sinha et al. 2000) (Sinha et al. 2006).

The third and most important factor that is leading to addictive behavior is the neuroadaptive dysregulations in the brain that in essence leads to

psychological dependence and addictive behavior. These neuroadaptive changes are within the so called "pleasure center" in the brain. Human brain recognizes a pleasure by a similar mechanisms regardless if the stimulus is from substance abuse like opiate drug or by some behavior stimulation like sexual intercourse, monetary reward, pleasant company etc. The mechanism of pleasure is connected with the release of the neurotransmitter dopamine in the nucleus accumbens. Release of this neurotransmitter is closely connected with the feeling of pleasure and this is why this part of the brain is called the "pleasure center". A number of studies have shown that dopamine has very important role in the process of addiction and addictive behavior and craving is directly associated with dopamine release in the nucleus accumbens in the brain (Katner and Weiss 1999). This neuroadaptive change in the brain is found that is present long after the addict has stopped using the addictive substance or the addictive behavior. It is now recognized that physical dependence is not the main problem with addiction, but exactly this psychological addiction that can be triggered by different stimuli from the environment or the individual.

4. Behavioral addictions

Addiction is therefore a condition within the brain of the person and this addictive behavior can be triggered not just by physical administration of a substance that can cause addiction, but by behavioral factors also. Therefore a person can obtain an addictive behavior that can be manifested not just as abuse of drugs and medications, but like addictive shopping, addictive or compulsive sex consummation, gambling, internet addiction, addiction to eating and obesity etc. In other cases the behavioral addiction can be

manifested even as avoidance of certain behavioral actions. For example a person may compulsively avoid handshake, avoid completing different tasks and other examples (Albrecht et al. 2007).

5. Categories of the common abused drugs

Drugs, medications and substances that may cause addiction and can be used for substance abuse in United States are classified in five different schedules or groups. The classification was made from a legal point of view with the by the Controlled Substances Act (CSA) to be used with the legal system in US (Courtwright 2004). This legislation created schedules in which it regulates the classification of different addictive substances based on several characteristics. For example the substances listed in Schedule I are classified as:

“ A. The drug or other substance has a high potential for abuse. B. The drug or other substance has no currently accepted medical use in treatment in the United States. C. There is a lack of accepted safety for use of the drug or other substance under medical supervision”. Substances classified in this schedule cannot be prescribed and are illegal. Many of the addictive drugs like heroin, LSD, Mescaline and other are classified in this group. Schedule III consists of substances that has potential to be abused and lead to moderate or low physical dependence but have some medical use and therefore can be obtained with a doctor’s prescription. The last schedule V contains substances with low potential for addiction, they have defined medical use and may lead to mild physical dependence (Courtwright 2004).

Besides this legal classification of substance that can cause addiction, these substance can also be classified by their physical, chemical or physiologic

action in the human organism. This classification is mostly used in medicine and psychology because it is based on biological effects of the substances and often terms used in this classification is used by the addicts themselves. Based on this classification addictive substances can be classified as: tobacco, alcohol, cannaboids, opioids, psycho-stimulants, dissociative drugs, hallucinogens and other types (Kenna et al. 2007).

6. Who is at risk of having an addiction?

Substantial research have been conducted in order to identify what are the most prominent and important risk-factors for developing addiction or addictive behavior. The intention for this research is prevention and treatment but this task is not a simple process. In some extent numerous stimuli and factors may influence and predispose one person to addiction. Some research has found a genetic component of the addictive disorders because it is found that addiction disorder runs in families. However it is disputable if predominant factor is genetics or psychological factors and psychological development within the family (Zimić and Jukić 2012). A strong correlation between mental illness and addictive disorder has been identified in a number of studies. Lewis et al, (1992) conducted a relevant study in United Kingdom on a large cohort group of 8580 individuals of the general population. Based on their examinations it was found that abuse of substances was more common in participants who tested positive in some of the screening tests for psychological illness that they used. It was found that 12 % of the people with identified some type of neurosis had abused substances in the last month before the survey compared to 5% of the other population. Among the specific neuroses it was found that participants with

suspicion for obsessive-compulsive disorder had the higher incidence of substance abuse in the previous month (15%). Most significantly it was found that 32% of the participants that were suspected for presence of anti-social personality disorder was found that were abusing some substance in the previous month before the survey. In the group of participants that were diagnosed with psychosis or other major psychiatric disorder no significance in incidence of abusing substances was found. Based on this study neurosis, antisocial personality disorder, obsessive-compulsive disorder had the highest incidence of abusing substances and these results were also confirmed by other researchers (Melissa et al 2002).

7. Characteristics of an addict and the triggers.

Family has very important role in the process of creation an addictive person or a person that is susceptible to additional behavior. Research is showing a direct link between the family and the social status of the individual with the incidences of addiction. An interesting research conducted by Wallace (1990) is closely mirroring this dependence of family on the development of addictive personality. Author conducted a research of the family history in patients hospitalized for cocaine addiction. In this study the author reports that exceptionally significant number of patients or 97 percents were growing and developing in dysfunctional families. From this percentage 25 percents were subjected to family violence and 28 percents physical abuse. Significant number of them also had psychological problems like 31 percents of them were with personality disorders and 21 percents of them had affective disorders. Dysfunctional family is recognized as one of the factors that influence the incidence of substance abuse in adolescents and young

adults (Dube et al. 2001). Also it is interesting to note that substance abusers later on also form dysfunctional families at higher rates than general population (Klee 1998). Therefore even if there is a trigger that is important for starting an addiction, it seems that addictive disorders are psychological, social and genetically determined. Maybe a special trigger will induce an addictive behavior, however the individual had previous predisposition for this condition and many factors contribute.

8. Symptoms of an addict

There are many symptoms that will appear in an addict and can be recognized in their daily behaviors. Addiction is a condition that is characterized by signs and symptoms that are visible on the physical appearance of the person and in his psychological profile. Some of these changes are noticeable and evident, like the changes in their appearance, or a change in their attitude and performance in school or work (Griswald, 2008). Other symptoms of addiction are specific for the type of addiction. For example in cocaine addicts paranoia is occurring in 68 to 84 percents, changes in the behavior and violent behaviors are present in 55 percents it is also found that in 31 percents of homicide cases and approximately 18 to 22 percents of suicide cases were also committed by cocaine addicts (Alexander 1999). Other types of substance abuse are characterized by other specific changes in the personality. For example mescaline abuse which is an hallucinogenic substance can result in sign of restlessness, anxiety, depression, poor memory, flashbacks, psychosis and other symptoms (Fantegrossi et al. 2008). This means that the symptoms of substance abuse are different and specific to the type of dependence. However characteristic

symptom for every addict is that the individual is continuing to use some substances or behaviors regardless of the significant adverse symptoms, consequences or even neurological side effect that this activity is causing (Angres and Bettinardi-Angres 2008)

9. The impact of drug abuse on the brain.

Drugs have significant impact on the human brain and its functions. Substances like heroin and cannabis act on the brain because they have similar structure to some neurotransmitters in the brain (endorphins, enkephalins, and dynorphin) and because of this they stimulate the same receptors in the brain. Other addictive substances like cocaine are stimulants and stimulate the secretion of natural neurotransmitters in the brain or act by prolonging the half-life of natural neurotransmitters. By these mechanisms and other these addictive substances over-stimulate the normal pathways in the brain. However regardless of the mechanism of action all of these substances result in release of dopamine in the nucleus accumbens in the limbic system of the brain. Overstimulation of this center in the brain results in feelings of happiness and euphoria and therefore is the cause of the psychological addiction characteristic for these drugs (Katner and Weiss 1999).

10. Intervention

Multiple types of treatments and rehabilitation are used in order to treat addiction and dependency. The concept of the treatment and rehabilitation is different and include in-patient treatment within the community of the patient and out-patient treatment or treatment within a hospital or other specialized institution support groups, drug abuse care centers and other

rehabilitation centers. The best treatment for addiction is the one that will address multiple aspects of the problem. Therefore the National institute for drug abuse (NIDA) is recommending that the initial detoxication of the drug abusers should be continued with rehabilitation procedures that will incorporate both meditational and behavior aspects of the treatment. Effective addiction treatment must address every aspect of the problems that substance abusers have psychological, emotional, social, economical and other aspects of everyday's life of addicts that are undergoing rehabilitation treatments. Individuals that undergo treatment and rehabilitation of substance abuse this treatment should also incorporate use of medications that are usually similar to the ones the individual is using. These medications include methadone, buprenorphine or other medications. There are discussions about the efficacy of these treatments and some argue that one dependence is simply replaced by another one. As example methadone is often abuse by the addicts, they trade with it and often use it only to subside the withdrawal effects when the drug they use is unavailable. Methadone for example is banned of use in some western countries and the point of rehabilitation and treatment is concentrated at rehabilitation of the psychological addiction trough a process of in-patient treatment using behavioral procedures within the community of the patient. This treatment addresses the biggest reasons for relapses and continuous uses of drugs even after the detoxication processes because the environmental factors are very strong and potent stimulant for relapse of the addictive habits as it was discussed previously (Ingjaldsson et al. 2003) (Weiss et. Al 2001).

There is not a consensus what is the best treatment for this behavior and no

single treatment is appropriate for every individual. Some of the methods used are: behavioral marital therapy, motivational interviewing, community reinforcement approach, exposure therapy, contingency management, pharmacological therapy. Cognitive behavioral therapy is one used method that is helping the patients through a process of recognition of their problem and coping with situations and environmental stimuli that can trigger addictive behavior and relapse of the addiction. Multidimensional family therapy is a process of rehabilitation through the improvement of the support and function of the family of the addict. Motivational interviewing and motivational incentives is a process that is trying to influence the motivation of the patient to accept the process of rehabilitation, to change his habits and environment that is triggering addictive behavior (Donohue and Ferguson 2006) (Angres and Bettinardi-Angres 2008).

References:

- Angres DH, Bettinardi-Angres K (2008). " The disease of addiction: origins, treatment, and recovery". *Dis Mon* 54 (10): 696–721. doi: 10. 1016/j. disamonth. 2008. 07. 002. PMID 18790142.
- Howard J. Shaffer; Debi A. LaPlante, Sarah E. Nelson (2012). *APA Addiction Syndrome Handbook Volume I (First ed.)*. Washington DC: American Psychological Association. pp. xxiii,. ISBN 10: 1-4338-1104-9
- National Institute of Drug Abuse (NIDA) (2009). *Principles of Drug Addiction Treatment: A research based guide (Second ed.)*. National Institute of Drug Abuse. ISBN NIH PUB #09-4180
- Torres G, Horowitz JM (1999). " Drugs of abuse and brain gene expression".

Psychosom Med 61 (5): 630-50. PMID 10511013

Yan Wang, Harish R Krishnan, Alfredo Ghezzi, Jerry C. P Yin and Nigel S Atkinson (2007), Drug-Induced Epigenetic Changes Produce Drug Tolerance, PLoS Biol. 2007 October; 5(10): e265, PMID: PMC2020501

Bohn, L. M., Lefkowitz, R. J. and Caron, M. G. (2002), Differential mechanisms of morphine antinociceptive tolerance revealed in (beta)arrestin-2 knock-out mice. Journal of Neuroscience, 22, 10494-10500.

Raehal, K. M., & Bohn, L. M. (2005). Mu opioid receptor regulation and opiate responsiveness. AAPS Journal, 7, E587-591.

N. Dietis, R. Guerrini, G. Calo, S. Salvadori, D. J. Rowbotham and D. G. Lambert (2009), Simultaneous targeting of multiple opioid receptors: a strategy to improve side-effect profile, British Journal of Anaesthesia 103 (1): 38-49 (2009), doi: 10. 1093/bja/aep129

Alexander, GC; Sayla MA, Holmes HM, Sachs GA (2011). " Prioritizing and stopping prescription medicines.". Canadian Medical Association Journal. 8 174: 1083-1084. PMID 16606954. Retrieved 11/11/2011.

Angres DH, Bettinardi-Angres K (2008). " The disease of addiction: origins, treatment, and recovery". Dis Mon 54 (10): 696-721. doi: 10. 1016/j. disamonth. 2008. 07. 002. PMID 18790142

McLellan AT, Lewis DC, O'Brien CP, Kleber HD (2000), Drug dependence a chronic medical illness: implications for treatment insurance, and outcomes evaluation. JAMA. 2000; 284: 1689-1695

Everitt BJ, Dickinson A, Robbins TW (2001), The neuropsychological basis of addictive behaviour. Brain Res Brain Res Rev. 2001; 36: 129-138

Ingjaldsson JT, Thayer JF, Laberg JC (2003), Craving for alcohol and pre-

attentive processing of alcohol stimuli. *Int J Psychophysiol.* 2003; 49: 29–39.

Weiss F, Martin-Fardon R, Ciccocioppo R, Kerr TM, Smith DL, Ben-Shahar O (2001), Enduring resistance to extinction of cocaine-seeking behavior induced by drug-related cues. *Neuropsychopharmacology.* 2001; 25: 361–372

Sinha R, Fuse T, Aubin LR, O'Malley SS (2000), Psychological stress drug-related cues and cocaine craving. *Psychopharmacology (Berl).* 2000; 152: 140–148. [PubMed]

Sinha R, Garcia M, Paliwal P, Kreek MJ, Rounsaville BJ (2006), Stress-induced cocaine craving and hypothalamic-pituitary-adrenal responses are predictive of cocaine relapse outcomes. *Arch Gen Psychiatry.* 2006; 63: 324–331.

Katner SN, Weiss F (1999), Ethanol-associated olfactory stimuli reinstate ethanol-seeking behavior after extinction and modify extracellular dopamine levels in the nucleus accumbens. *Alcohol Clin Exp Res.* 1999; 23: 1751–1760.

Albrecht U, Kirschner NE, Grüsser SM (2007). " Diagnostic instruments for behavioural addiction: an overview". *Psychosoc Med* 4: Doc11. PMC 2736529. PMID 19742294.

Courtwright, David T. (2004), " The Controlled Substances Act: how a " big tent" reform became a punitive drug law". doi: 10. 1016/j. drugalcdep. 2004. 04. 012. Retrieved 2008-02-12

Kenna GA, Nielsen DM, Mello P, Schiesl A, Swift RM (2007). " Pharmacotherapy of dual substance abuse and dependence". *CNS Drugs* 21 (3): 213–37. doi: 10. 2165/00023210-200721030-00003. PMID 17338593

Zimić JI, Jukić V (2012), Familial risk factors favoring drug addiction onset, J

Psychoactive Drugs. 2012 Apr-Jun; 44(2): 173-85, PMID: 22880546

Wallace BC (1990), Crack cocaine smokers as adult children of alcoholics: the dysfunctional family link, *J Subst Abuse Treat.* 1990; 7(2): 89-100, PMID: 2388314

Dube S. R., Anda R. F., Felitti V. J., Croft J. B., Edwards V. J., Giles W. H. (2001). Growing up with parental alcohol abuse: exposure to childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 25 (12), 1627-1640

Klee H. (1998). Drug-using parents: analysing the stereotypes, *International Journal of Drug Policy*, 9 (6), 437-448

Alexander Morton W. (1999), Cocaine and Psychiatric Symptoms, *Prim Care Companion J Clin Psychiatry.* 1999 August; 1(4): 109–113, PMCID: PMC181074

Fantegrossi WE, Murnane KS, Reissig CJ (2008), The behavioral pharmacology of hallucinogens. *Biochem Pharmacol* 75(1): 17-33, 2008.

Angres D. H., Bettinardi-Angres K (2008). The Disease of Addiction: Origins, Treatment, and Recovery. *Disease-a-Month*, 54 (10), 696-721

O'Donohue, W; K. E. Ferguson (2006). " Evidence-Based Practice in Psychology and Behavior Analysis" (accessdate = 2008-03-24). *The Behavior Analyst Today* (Joseph D. Cautilli) 7 (3): 335–350.