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## Drug Addiction, Love, and the Higher Power

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### Abstract

This discussion piece suggests that reliance on a Higher Power in drug abuse recovery programs is entertained among some addicts for its psychobiological effects. Prayer, meditation, early romantic love, and drug abuse may have in common activation of mesolimbic dopaminergic pathways of the brain and the generation of intense emotional states. In this sense, reliance on a Higher Power may operate as a substitute addiction, which replaces the psychobiological functions formerly served by drug use. Implications of this perspective are discussed.

### Keywords

addiction; love; higher power

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Several recovery approaches from alcohol or other drug abuse involve rituals of turning of one's will over to the care of a Higher Power. While the "Higher Power" concept could encompass any entity that engenders a spiritual tone (e.g., "life force"), often it is a loving God or other supernatural-type (Borras et al., 2010). The Higher Power purportedly operates as a daily presence in the recovering person's life, and the recovering addict tries to communicate with the Higher Power through prayer and meditation (Borras et al., 2010). The third, seventh, and eleventh step prayers of Alcoholics Anonymous highlight the relationship with a Higher Power proposed in twelve-step programs (Alcoholics Anonymous, 1976, pages 63 and 76; Twelve Steps and Twelve Traditions, 1981, page 99). For example, the Third Step Prayer is as follows: "Many of us said to our Maker, as we understood Him: 'God, I offer myself to Thee-to build with me and to do with me as Thou wilt. Relieve me of the bondage of self, that I may better do Thy will. Take away my difficulties, that victory over them may bear witness to those I would help of Thy Power, Thy Love, and Thy Way of life. May I do Thy Will always!'" (Alcoholics Anonymous, 1976, p. 63).

Some researchers believe that reliance on a Higher Power may provide several direct benefits, which in turn could facilitate the recovery process (Borras et al., 2010). For example, attending religious services provides the opportunity to satisfy basic needs for regulation of sociality, meaning in life, and a context within which to participate in group

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and individual prayer or meditation (Borras et al., 2010; Krause, 2010). It is important to take into account processes that explain why reliance on a Higher Power could be beneficial to further health professionals' capacity to enhance the recovery process for their clients.

A putatively central, but often overlooked, component involved in the connection to a Higher Power may involve deep feelings of love. That is, it is possible that turning one's will over to a Higher Power, experience of intense love, and drug addiction all share similar psychobiological underpinnings and serve similar reinforcing functions. These similarities may help to explain the role of reliance on a Higher Power in the addiction recovery process. We elaborate on this possibility in the next section of the discussion piece.

## Love and Drug Addiction, and Connection to a Higher Power

Recent research on romantic love indicates that certain behaviors manifested during intense, often maladaptive romantic relationships may mirror compulsive addictive behaviors (i.e., love addiction; Reynaud, Karlila, Blecha, & Benyamina, 2010; Sussman, 2010a). For example, love addiction involves cycles of euphoria and disappointment, emotional dependence, and idealization of a romantic partner (Reynaud et al., 2010; Sussman, 2010). Evidence suggests that intense, early-stage romantic love, or love addiction in a more extreme form, provides a psychobiological topography similar to drug addiction. This literature utilizes functional magnetic resonance imaging (fMRI) or positron emission tomography (PET) measurement techniques. For instance, exposure to romantic partner stimuli activates the ventral tegmental area (VTA) of the brain which is associated with mesolimbic dopamine release (Aron, Fisher, Mashek, Strong, & Brown, 2005), which in turn can reduce subjective pain (Younger, Aron, Parke, Chatterjee, & Mackey, 2010). Feelings of romantic love, particularly longing for love that is beyond reach, has been associated not only with activation of the mesolimbic dopaminergic system but also with subjective reports of craving (Fisher, Brown, Aron, Strong, & Mashek, 2010). Intense feelings of love, and especially rejected love, may mirror feelings of craving observed with drug addiction. Both drug addiction and intense love activate not only ascending mesolimbic dopamine-related structures (e.g., the VTA to the nucleus accumbens [NA]) but also impact forebrain regions of the reward system including the orbital frontal cortex (Fisher et al., 2010). In an interesting parallel, many drug addicts report having a "romantic relationship" with their drug of abuse; thus, the lines between love addiction and other addictions may perhaps become blurred (Sussman & Ames, 2008).

Prayer may or may not mirror addictive processes depending in part on the type of prayer. It has been shown that, for people considering God to be a real entity with whom they interact, improvised-type prayer recruits brain areas of social cognition including the temporoparietal junction, the temporopolar region, and the anterior medial prefrontal cortex (Schjoedt, Stodkilde-Jorgensen, Geertz, & Roepstorff, 2009). One may conjecture that this type of prayer ritual provides an elaborative processing function, is comparable to normal social interaction, and permits a means of self-reflection.

Importantly, however, other types of prayers may be associated with more primitive brain regions. Some research has shown that engaging in silent, established religious prayers (e.g., the Lord's Prayer) activates the mesolimbic dopamine reward system (Schjoedt, Stodkilde-Jorgensen, Geertz, & Roepstorff, 2008), as does engagement in Yoga Nidra meditation (Kjaer et al., 2002); neural circuits also recruited during romantic love and drug-seeking behavior. Thus, prayer may operate like self-other communications, or may operate on an intensely emotional level, the latter process being potentially addictive. We speculate that, at least for some people, part of the process of yielding to a Higher Power pertains to loving the Higher Power romantically, at least in metaphor. That is, instead of "loving" the drug,

the person “loves” the higher power, activating the same VTA-NA pathways with a subjectively less harmful replacement that serves the same psychobiological function that drugs of abuse had previously served.

To summarize, drug addiction, intense love (and love addiction), and reliance on a High Power may operate similarly. At least five similarities may be noted. First, all three behaviors may impact the brain motivation–reward system (VTA-NA pathways). As such, all three could produce an impact on brain function which has been considered to underlie many addictive behaviors (Fisher et al., 2010). Second, all three behaviors may be utilized to improve one’s mood. Drug use, romantic love, and praying to a Higher Power all may induce affect elevation that is of greater intensity than typical affective changes produced by other common pleasant behaviors. That is, these three behaviors may produce intense emotions such as euphoria, infatuation, and lust, which are not commonly experienced in other contexts. Third, emotional and psychological dependence on the object of the behavior (drug, love object, Higher Power) may occur. In fact, dependence on a Higher Power is encouraged in twelve-step programs (Sussman & Ames, 2008). Fourth, if deprived of the object of the behavior, craving, or other withdrawal symptoms may tend to ensue (e.g., yearning for the mood enhancement produced by a drug, feeling dejected after a breakup, feeling spiritually empty without one’s Higher Power). Finally, one can become preoccupied with the drug, romantic partner, or Higher Power, such that one may bypass other life opportunities and responsibilities in order to continue a constant connection with the object of the behavior.

## Implications of These Findings

There are three ways that Higher Power reliance may operate on people in recovery from drug abuse. First, it may help them. Addictive-like reliance on a Higher Power may provide a means to maintain relatively optimal dopamine turnover in the brain’s reward system after terminating a drug of abuse. This is critical, given evidence that there is dopaminergic hypoactivity both early and late in the abstinence process, which persists if untreated (Markou, Kosten, & Koob, 1998). This neural dysfunction is thought to underlie an anhedonic state that renders most nondrug reinforcers unable to enhance mood which, in turn, is believed to precipitate relapse (Leventhal et al., 2008). If the means of connection to a Higher Power is innocuous in outcomes, essentially the recovering individual has learned how to rectify the neural dysfunction that likely underlies the motivation to use drugs through nonpharmacologic means. Additionally, if action to achieve connection to a Higher Power also involves social cognition-like brain processes, there may even be a generalized strengthening of executive control over one’s behavior, including self-monitoring against a moral standard (e.g., sharing monetary gain; Shariff & Norenzayan, 2007) which could help to inhibit impulses to use drugs.

Second, addictive-like reliance on a Higher Power may hurt some people in recovery. As a potential substitute addiction (Sussman & Black, 2008), the individual may maintain potentially magical thinking that the Higher Power will fix him or her without engaging in corrective action (e.g., continuing education, skills enhancement). Further, he or she may become obsessive in praying or memorizing twelve-step literature and bypass daily responsibilities, and may try to use rituals of connection to a Higher Power as means to escape from painful feelings (Taylor, 2002). While in many cases the harm of such behavior may be less relative to the harm produced by drug or love addictions, addiction to a Higher Power may also lead to some unnecessary negative consequences. In some instances, treatment of religious addiction may be beneficial, including techniques such as confrontation of the addiction, self-monitoring change to avoid using religion as a “fix,” and taking a more active role in changing one’s own life (Taylor, 2002).

Finally, it is possible that reliance on and love directed toward a Higher Power will not accomplish much in and of itself, and that change which facilitates recovery is mediated by another process. Indeed, there is some evidence that reliance on and connection to a Higher Power is not central to recovery, although “spiritual” practices may be quite helpful (Tonigan, Miller, & Schermer, 2002). There are numerous potential mediators of the effects of spirituality on recovery. Three mediators that do not appear to rely on a Higher Power conception include: (a) building a personal sense of morality, (b) creating a stable positive attitude or conscientiousness, and (c) strengthening reliance on executive cognitive processes (see Shariff & Norenzayan, 2007; Sussman, 2010b, for discussion). Future research is needed to discern the mediation of reliance on a Higher Power, the concomitant feelings of love, and the resultant neurobiological alterations as a source of recovery. For clinicians, careful consideration is necessary when incorporating Higher Power-type components into health promotion programs for populations with substance use problems. Health professionals should be mindful about administering such interventions to harness their potential benefits and minimize their potential harms. Clinicians might aim to discourage pervasive, obsessive, and maladaptive reliance on the Higher Power as a solitary method of achieving immediate recovery.

### Conclusions: Are There Any Behaviors That are not Addictive?

This discussion piece focuses on the topic of reliance on a Higher Power as a potential adaptive mechanism or maladaptive substitute addiction in substance abuse recovery. From a broader perspective, recognizing the existence of multiple types of substance and behavioral/process addictions (e.g., drug, love, religion, and so on) may lead some researchers and clinicians to *reductio ad absurdum* arguments—that any behavior could become potentially addictive. If that were the case, then addicts could become blindly addicted to all their daily activities such as tooth-brushing, getting dressed, eating three meals a day, taking public transportation, or going to the bathroom, as examples. We argue that if *any* behavior is addictive then addiction is used too loosely as a term.

In general, researchers and practitioners who observe similar addictive processes among several different behaviors do not intend to imply that people could become addicted to *any* activity. Furthermore, those who study multiple types of addiction tend not to believe that *any motivated* behavior (e.g., that provides pleasure or stress-reduction) becomes addictive in topography. For example, at least according to some researchers, reading a novel, gardening, or playing a musical instrument tends not to lead to (destructive) addictive patterns of behavior (Lesieur & Blume, 1993; Sussman, Lisha, & Griffiths, 2010). There may be qualities inherent in a behavior that tends to prevent it from becoming an object of addiction, at least for most people.

For a behavior to become harmfully addictive, it would involve some type of “rush” effect, time-intensive repetition, intense behavioral or cognitive preoccupation, loss of control, and negative consequences (Sussman, Lisha, & Griffiths, 2011). Arguably, addictive behaviors would be associated with a cycle of mesolimbic dopamine release and opponent process-type hypothalamic-pituitary axis response, a subsequent profoundly altered reward set point, and a sensitized evaluation of incentive salience of the object of addiction (Koob & LeMoal, 2001; Robinson & Berridge, 2003). We believe that behavior involving erratic, novelty based processing (e.g., as might exist in fight–flight reactions), that may be quickly and easily automatically learned, and that is entertained for momentary gain, is most prone to an addictive process.

Conversely, given these characteristics, there are at least three primary qualities that would seem to define a behavior as *not* likely to become addictive. First, behaviors that are

intrinsically consistent in flow, slower, or moderate in tempo may tend not to become addictive. Thus, gardening may (or may not) involve a slow, gradual sense of accomplishment, which takes patience and planning, not eliciting a “rush” or “charge.” Second, behaviors that involve deliberate, step-by-step planning and processing of information may not be inherently addictive. While gambling, for example, does involve a game plan and sportsmanship, gambling addiction tends to involve magical thinking (win strategies, instant wins) and may evolve into relatively little deliberate processing of information (e.g., use of slot machines). Finally, behaviors that tend not to become addictive tend to involve decisions leading to single, longer term gains rather than decisions leading to multiple, short-term, hedonic, gains that, over time, lead to relative losses (Herrnstein & Prelec, 1991). Daily prayer to a higher power with a long-range view could lead to avoidance of a series of addiction-like decisions and behaviors (Taylor, 2002).

It is becoming clear that religion can become addictive (Taylor, 2002), and prayer and meditation sometimes produce brain effects consistent with vulnerability to addiction (Schjodt et al., 2008). Still, it is common for one to rely on a Higher Power without becoming addicted to the prayer and meditation involved, even when engaged in on a daily basis. For the purposes of effective addiction recovery, a consistent and constrained period of prayer and meditation, carefully involving reasoned and planned practice (Taylor, 2002), and executed via an overarching long-term plan of recovery would seem essential. Finally, vigilance by self and others when one may be veering to extremes appears to be a *sin qua non* of recovery, regardless of whether or not one relies on a Higher Power for support.

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## References

- Alcoholics Anonymous. Alcoholics anonymous. New York, NY: Alcoholics Anonymous World Services; 1976.
- Aron A, Fisher H, Mashek DJ, Strong G, Li H, Brown LL. Reward, motivation and emotion systems associated with early-stage intense romantic love. *Journal of Neurophysiology*. 2005; 94:327–337. [PubMed: 15928068]
- Borras L, Khazaal Y, Khan R, Mohr S, Kaufmann Y-A, Zullino D, Huguélet P. The relationship between addiction and religion and its possible implication for care. *Substance Use & Misuse*. 2010; 45:2357–2375. [PubMed: 21039108]
- Fisher HE, Brown LL, Aron A, Strong G, Mashek D. Reward, addiction, and emotion regulation systems associated with rejection in love. *Journal of Neurophysiology*. 2010; 104:51–60. [PubMed: 20445032]
- Herrnstein RJ, Prelec D. Melioration: A theory of distributed choice. *The Journal of Economic Perspectives*. 1991; 5:137–156.
- Kjaer TW. Increased dopamine tone during meditation-induced change of consciousness. *Cognitive Brain Research*. 2002; 13:255–259. [PubMed: 11958969]
- Koob GF, LeMoal ML. Drug addiction, dysregulation of reward, and allostasis. *Neuropsychopharmacology*. 2001; 24:97–129. [PubMed: 11120394]
- Krause, N. *Journal of Religion and Health*. 2010. Religion and health: Making sense of a disheveled literature. Published online ahead of print July 8, 2010
- Lesieur HR, Blume SB. Pathological gambling, eating disorders and the psychoactive substance use disorders. *Journal of Addictive Behaviors*. 1993; 12:89–102.

- Markou A, Kosten TR, Koob GF. Neurobiological similarities in depression and drug dependence: A self-medication hypothesis. *Neuropsychopharmacology*. 1998; 18:135–174.
- Leventhal AM, Kahler CW, Ray LA, Stone K, Young D, Chelminski I, Zimmerman M. Anhedonia and amotivation in psychiatric outpatients with fully remitted stimulant use disorder. *American Journal on Addictions*. 2008; 17:218–223. [PubMed: 18463999]
- Reynaud M, Karlila L, Blecha L, Benyamina A. Is love passion and addictive disorder? *The American Journal of Drug and Alcohol Abuse*. 2010; 36:261–267. [PubMed: 20545601]
- Robinson TE, Berridge KC. Addiction. *Annual Reviews of Psychology*. 2003; 54:25–53.
- Schjodt U, Stodkilde-Jorgensen H, Geertz AW, Roepstorff A. Rewarding prayers. *Neuroscience Letters*. 2008; 443:165–168. [PubMed: 18682275]
- Schjoedt U, Stodkilde-Jorgensen H, Geertz AW, Roepstorff A. Highly religious participants recruit areas of social cognition in personal prayer. *Social Cognitive and Affective Neuroscience*. 2009; 4:199–207.
- Shariff AF, Norenzayan A. God is watching you: Priming God concepts increases prosocial behavior in an anonymous economic game. *Psychological Science*. 2007; 18:803–809. [PubMed: 17760777]
- Sussman S. Love addiction: Definition, etiology, treatment. *Sexual Addiction & Compulsivity*. 2010a; 17:31–45.
- Sussman S. Addiction, religion, spirituality, treatment. *Substance Use & Misuse*. 2010b; 45:2383–2386.
- Sussman, S.; Ames, SL. *Drug abuse: Concepts, prevention and cessation*. New York, NY: Cambridge University Press; 2008.
- Sussman S, Black DS. Substitute addiction: A concern for researchers and practitioners. *Journal of Drug Education*. 2008; 38:167–180. [PubMed: 18724656]
- Sussman S, Lisha N, Griffiths M. Prevalence of the addictions: A problem of the majority or the minority. *Evaluation & the Health Professions*. 2010; 34:3–56.
- Taylor CZ. Religious addiction: Obsession with spirituality. *Pastoral Psychology*. 2002; 50:291–315.
- Tonigan JS, Miller WR, Schermer C. Athiests, agnostics and alcoholics anonymous. *Journal of Studies on Alcohol*. 2002; 63:534–541. [PubMed: 12380849]
- Twelve Steps and Twelve Traditions. *Twelve steps and twelve traditions*. New York, NY: Alcoholics Anonymous World Services; 1981.
- Younger J, Aron A, Parke S, Chatterjee N, Mackey S. Viewing pictures of a romantic partner reduces experimental pain: Involvement of neural reward systems. *PLoS ONE*. 2010; 5:e13309. [PubMed: 20967200]