



Pathological narcissism, brain behavioral systems and tendency to substance abuse: The mediating role of self-control



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ABSTRACT

This study examined the direct and indirect relationships between pathological narcissism, behavioral activation/inhibition systems (BAS/BIS), self-control, and substance abuse in a sample of Iranian students. Results showed that there are positive relationships between pathological narcissism and BAS with substance abuse and negative relationships between BIS and self-control with substance abuse. We tested, using structural equation model, whether pathological narcissism, BAS, and BIS predict substance abuse through self-control. Results confirmed the mediating role of self-control in the relations of pathological narcissism and BAS, but not BIS to substance abuse.

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1. Introduction

Substance abuse is one of the main problems in modern societies, with negative social consequences. Personality traits are important predictors of substance abuse. Our focus in this paper is on individual differences on pathological narcissism, behavioral activation system (BAS), behavioral inhibition system (BIS), and self-control.

1.1. Pathological narcissism and substance abuse

Pathological narcissism, characterized by grandiosity and vulnerability, has been found to be related to higher levels of substance abuse. Grandiosity involves intra-psychic process such as repressing negative aspects of self and other representations and distorting external information, leading to entitled attitudes and an inflated self-image without necessary skills, as well as engaging in fantasies of limitless power, superiority, and perfection. Grandiosity is often expressed through exploitativeness, lack of empathy, intense envy, aggression, and exhibitionism. Narcissistic vulnerability involves the conscious experience of helplessness, emptiness, low self-esteem, and shame (Cain, Pincus, & Ansell, 2008; Foster, McCain, Hibberts, Brunell, & Johnson, 2015; Sarason, 2004; Stinson et al., 2008).

Pathological narcissism has been related to substance abuse, because individuals with high levels of pathological narcissism engage in more selfish and immoral behaviors, take advantage of others, are unsuccessful to learn from their mistakes, and motivated by potential rewards (Brunell et al., 2013; Campbell, Bonacci, Shelton, Exline, & Bushman, 2004; Campbell, Bush, Brunell, & Shelton, 2005; Campbell & Foster, 2007; Foster & Trimm, 2008; Luhtanen & Crocker, 2005). Narcissists also show a tendency to discount the future effects of their decisions and choose smaller and immediate rewards rather than long-term distant rewards (Crysel, Crosier, & Webster, 2013; Jonason, Koenig, & Tost, 2010). MacLaren and Best (2013) found that disagreeable and grandiose aspects of narcissism mediated the effect of behavioral activation system (BAS) on drug use, gambling, sex, and abnormal close relationships. These results suggest that one mechanism through which the behavioral approach system may elevate addictive behavior among grandiose narcissists is their aggressive and competitor interpersonal life style.

1.2. BAS/BIS and substance abuse

BAS and BIS – which reflect a psychological orientation to rewarding and aversive stimuli, respectively – have been related to substance abuse. Among college students, for example, alcohol use and smoking have been associated with higher levels of BAS and lower levels of BIS. BAS has also been associated with other addictive behaviors such as pathological gambling (Hamilton, Sinha, & Potenza, 2014; Hundt,

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Kimbrel, Mitchell, & Nelson-Gray, 2008; O'Connor, Stewart, & Watt, 2009; Pardo, Aguilar, Molinuevo, & Torrubia, 2007).

1.3. Self-control and substance abuse

Self-control is another trait which has been linked to the tendency to substance abuse. It has been shown that the basic measure of addiction is the loss of self-control (Berkman, Falk, & Lieberman, 2011; Volkow, Wang, Tomasi, & Baler, 2013; Weinberg, 2013; West, 2006). Additionally, according to general theory of Gottfredson and Hirschi (1990), individual differences in self-control are connected to alcohol use, smoking in young people, unstable married life, and frequency of accidents in adults.

1.4. Self-control and pathological narcissism

Gottfredson and Hirschi (1990) proposed that social control is necessary for self-control to develop. People behave correctly at first to evade punishment from others and ultimately because they internalized social norms. Social control has a restricted impact over narcissists. While narcissists will try to have a wrong image of themselves on others, their motives are not usually accepted socially. They are successful for agentic traits such as intelligence and extraversion (Campbell, Rudich, & Sedikides, 2002). However, on communal traits such as prosociality, honesty, humility, agreeableness and morality, they do not present themselves successful. Low agreeableness in narcissists suggests that they are concerned more with themselves than others. Because of the lack of concern in narcissistic people for social acceptance, social control is unlikely to stop narcissist from doing abnormal and perilous behaviors such as substance abuse (Aghababaei, Mohammadtabar, & Saffarinia, 2014; Campbell et al., 2002; Graziano & Tobin, 2002).

1.5. Self-control and BAS/BIS

Self-control has been associated with higher levels of BIS and lower levels of BAS (Crowell, Kelley, & Schmeichel, 2014; O'Gorman & Baxter, 2002). Ent, Baumeister, and Tice (2015) reported that high scorers on self-control engage in behaviors that decrease their urge to abuse drugs.

So far several studies, which almost exclusively done on Western populations, have directly dealt with whether and how these traits are related to substance abuse. The present study would investigate the relations of pathological narcissism and BAS/BIS to the tendency to substance abuse in Iran. We would see whether the links between narcissism, BAS, and BIS are mediated by self-control.

2. Method

2.1. Participants and procedure

Participants included two hundred (38.5% female) Iranian university students. The age of the participants ranged from 19 to 35, with a mean of 24 (SD = 3.83). Participation in this study was voluntary and anonymous; all procedures conformed to institutional guidelines.

2.2. Materials

2.2.1. Pathological Narcissism Inventory

The 52-item Pathological Narcissism Inventory (PNI; Pincus et al., 2009) was used to assess grandiose and vulnerable aspects of pathological narcissism. The PNI measures seven dimensions of pathological narcissism: contingent self-esteem, self-sacrificing self-enhancement, exploitative tendencies, hiding of the self, grandiose fantasy, devaluing, and entitlement rage. Sample items include "It's hard for me to feel good about myself unless I know other people like me" and "It irritates me when people don't notice how good a person I am". The PNI has shown to have validity and reliability, with consistency reliability at

.88 (Besser & Zeigler-Hill, 2010; Pincus et al., 2009). A five point Likert type scale was used. Higher scores reflect higher levels of pathological narcissism.

2.2.2. Cognitive Self-Control Scale

The 23-item Cognitive Self-Control Scale (Grasmick, Tittle, Bursik, & Arneklev, 1993) was applied as an index of self-control. Sample items include "I lose my temper pretty easily" and "I often do whatever brings me pleasure here and now." This scale has shown reliability and validity in various populations (Grasmick et al., 1993; Ozdemir, Vazsonyi, & Cok, 2013). A four-point Likert type scale was applied, with higher scores reflecting lower levels of self-control.

2.2.3. BIS/BAS scales

The 24-item widely used BIS/BAS scales (Carver & White, 1994) were applied to measure the sensitivity of behavioral approach and avoidance systems. In keeping with revised reinforcement sensitivity theory (RST), the BIS scale has been divided into separate subscales measuring Fear and Anxiety. A sample item for BIS is "I worry about making mistakes." The BAS scale includes items assessing desire for rewards, and persistence in pursuing desired reward. A sample item for BAS is "I often act on the spur of the moment." Items were rated on a 4-point Likert type scale.

2.2.4. Addiction Acknowledgment Scale

The 13-item Addiction Acknowledgment Scale (Weed, McKenna, & Ben-Porath, 1992) is a content-based scale that measures people's tendency to accept the problems of alcohol and drugs. Sample items include "I have a drug or alcohol problem," and "People tell me I have a problem with alcohol but I disagree." It has been shown to have test-retest and consistency reliabilities. Each item was rated on a scale from 1 (yes) to 2 (no).

3. Results

Table 1 shows means, standard deviation, consistency reliabilities (Cronbach's alpha) and bivariate correlations of the study variables. Pathological narcissism was positively correlated with substance abuse and BAS, and negatively with self-control and BIS. BAS was positively correlated with substance abuse and negatively with self-control. BIS was negatively correlated with substance abuse, and positively correlated with self-control.

Path analyses were performed to examine the mediating role of self-control in the relationships of narcissism and BIS/BAS to tendency to substance abuse. The results indicated that the model fits the data very well. Table 2 shows the fit indices for the model. The examination of this model parameters after correcting (deleting the direction of BIS to self-control) showed that the coefficient direction of BAS to self-control, BAS to substance abuse, BIS to substance abuse, pathological narcissism to self-control, pathological narcissism to

Table 1
Correlations of the study variables.

	Alpha	Mean	SD	1	2	3	4
1. Pathological narcissism	.94	131.98	30.26	1			
2. BAS	.91	45.43	4.72	.45**	1		
3. BIS	.94	14.70	2.86	-.33**	-.14*	1	
4. Self-control	.90	52.72	7.22	-.49**	-.14*	.29**	1
5. Substance abuse	.86	18.05	6.72	.48**	.45**	-.29**	-.43**

* $P < .05$.

** $P < .01$.

Table 2
The goodness of fit statistics for the suggested and modified model of substance abuse.

Modification index	X ²	X ² /df	GFI	AGFI	IFI	TLI	CFI	NFI	RMSEA
First suggested model	144.75	2.40	.87	.75	.90	.91	.93	.94	.094
Final modified model	27.52	1.52	.95	.97	.98	.97	.98	.96	.039

substance abuse, and self-control to substance abuse are all significant (see Fig. 1).

4. Discussion

The present study examined the relationships of pathological narcissism and BAS/BIS to substance abuse, and the mediating role of self-control. We found a positive relationship between pathological narcissism and substance abuse which is consistent with previous studies (e.g. Foster, Shenese, & Goff, 2009; Luhtanen & Crocker, 2005; MaLaren & Best, 2013). People with high pathological narcissism have competitive tendencies leading them to use drugs, alcohol, engage in sex and gambling. Mathieu and St-Jean (2013) proposed that narcissism is positively correlated with risk inclination because narcissists have a grandiose sense of self-importance. Another explanation for this finding is that people with high pathological narcissism are not worried about being nice or moral (Campbell et al., 2002) and this makes them use drugs. According to ego psychologists, the use of substance is directly connected to narcissistic abnormalities (Acker, 2002). Narcissistic people may use alcohol as a primary mechanism to refuel the pathological grandiosity and ensure omnipotence. In addition, it has been hypothesized recently that the association between narcissism and addiction results from a pattern of giving up to innate tendency in a way that confirm costly and self-destructive (Baumeister, Vohs, & Tice, 2007).

Our other findings were that substance abuse was correlated to higher levels of BAS and lower levels of BIS. This is consistent with previous studies (e.g. Hamilton, Sinha, & Potenza, 2012; Hamilton et al., 2014; Hundt et al., 2008; O'Connor et al., 2009). According to Berkman, Lieberman, and Gable (2009), because BAS is sensitive to conditioned motivations, individuals with higher score on BAS might show higher behavioral responses to stimuli connected to desired consequences such as substance abuse even if those stimuli are hedonically aversive.

As with previous studies, we found a negative relationship between self-control and substance abuse. According to Gottfredson

and Hirschi's (1990) general theory of crime, people with low self-control tend to be impulsive, insensitive, and risk-taking and to engage in criminal acts. The reason for this tendency is that substance abuse provides immediate gratification. We also found a negative relationship between pathological narcissism and self-control. There are remarkable similarities between pathological narcissism and people with low self-control. People with high pathological narcissism have inflated self-image, not concerned with others and with grandiose sense of self-importance. It is not surprising, thus, to find narcissists score lower on self-control (Ludwig et al., 2013).

In keeping with previous research (e.g. Crowell et al., 2014; O'Gorman & Baxter, 2002), self-control in our sample was negatively associated with BAS, and positively with BIS. BAS is responsible for appetitive motivation, and according to Gray (1994), it is sensitive to conditioned stimuli for reward and non-punishment. BIS, on the other hand, is responsible for avoidance motivation, and is sensitive to conditioned stimuli for punishment and non-reward.

Structural equation model showed that BAS and pathological narcissism but not BIS explained the tendency to substance abuse through self-control. In Hamilton et al.'s (2014) study too BIS was inversely correlated to self-control, but the indirect effect of BIS in stress through self-control was not significant. High BAS has been linked to aggression (Gable, Reis, & Elliot, 2000) and Attention Deficit Hyperactivity Disorder (Mitchell & Nelson-Gray, 2006). Such characteristics may result in being low self-control and inability to control desire. Self-control involves resourceful struggle to change dominant response tendency and this struggle does not happen in people with high BAS. In other words, when we are in appetitive condition like using drug, BAS brings impulses that are opposite of self-control (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Hofmann, Vohs, & Baumeister, 2012). Additionally, lack of self-control in people with high pathological narcissism is a key element to understand behaviors such as substance abuse and aggression (Harrison, 2010). Pathological narcissists are not usually motivated by social acceptance (Raskin, Novacek, & Hogan, 1991). Finally it can be said that self-enhancement and self-disclosure characteristics of narcissistic people with lack of self-control may have short term pleasurable consequences but in the long term may have side-effect like engaging in high risk behaviors such as substance abuse for these people.

The use of self-report and the use of a convenience sample of university student were the limitations of this study. It would be useful in future to study other groups to test the generalizability of our findings. Future research could also examine whether other variables operate in a similar manner as do self-control.

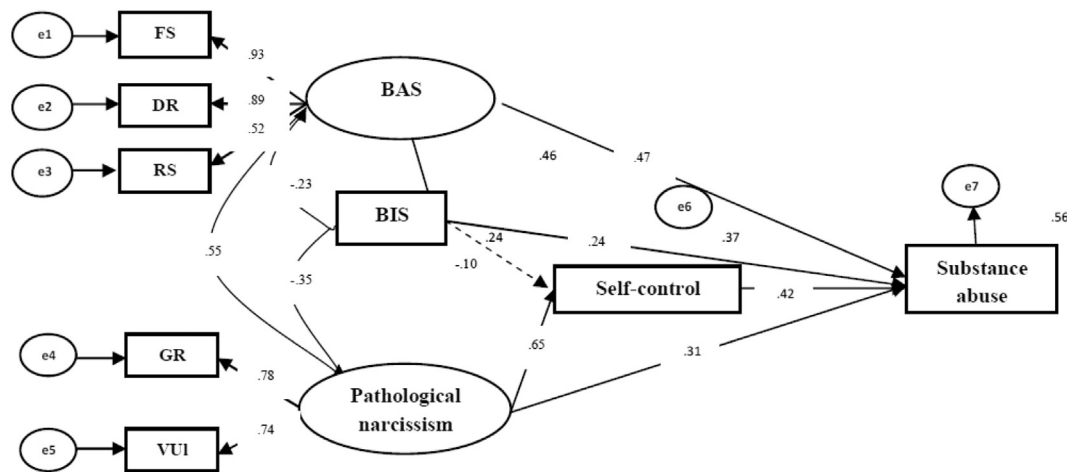


Fig. 1. Path diagrams representing relationships of behavioral activation system (BAS), behavioral inhibition system (BIS), and pathological narcissism to the tendency to substance abuse through self-control. All numbers are standardized coefficients. The dotted line is not significant, while solid lines indicate significance at P < .05. GR, grandiosity; VUI, vulnerability; DR, drive; FS, fun seeking; RS, reward responsiveness.

References

- Acker, C. (2002). *Creating the American junkie: Addiction research in the classic era of narcotic control*. Baltimore: Johns Hopkins University Press.
- Aghababaei, N., Mohammadtabar, S., & Saffarina, M. (2014). Dirty Dozen vs. the H factor: Comparison of the Dark Triad and Honesty–Humility in prosociality, religiosity, and happiness. *Personality and Individual Differences*, 67, 6–10.
- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, 16, 351–355.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, 74, 1252–1265.
- Berkman, E. T., Lieberman, M. D., & Gable, S. L. (2009). BIS, BAS, and response conflict: Testing predictions of the revised reinforcement sensitivity theory. *Personality and Individual Differences*, 46(5–6), 586–591.
- Berkman, E. T., Falk, E. B., & Lieberman, M. D. (2011). In the trenches of real-world self-control: Neural correlates of breaking the link between craving and smoking. *Psychological Science*, 22, 498–506.
- Besser, A., & Zeigler-Hill, V. (2010). The influence of pathological narcissism on emotional and motivational responses to negative events: The roles of visibility and concern about humiliation. *Journal of Research in Personality*, 44, 520–534.
- Brunell, A. B., Davis, M. S., Schley, D. R., Eng, A. L., Van Dulmen, M. H. M., & Flannery, D. J. (2013). A new measure of interpersonal exploitativeness. *Frontiers in Personality Science and Individual Differences*, 4, 299–305.
- Cain, N. M., Pincus, A. L., & Ansell, E. B. (2008). Narcissism at the crossroads: Phenotypic description of pathological narcissism across clinical theory, social/personality psychology, and psychiatric diagnosis. *Clinical Psychology Review*, 28, 638–656.
- Campbell, W. K., & Foster, J. D. (2007). The narcissistic self: Background, an extended agency model, and ongoing controversies. In C. Sedikides, & S. Spencer (Eds.), *Frontiers in social psychology: The self* (pp. 115–138). Philadelphia: Psychology Press.
- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological entitlement: Interpersonal consequences and validation of a new self-report measure. *Journal of Personality Assessment*, 83, 29–45.
- Campbell, W. K., Bush, C. P., Brunell, A. B., & Shelton, J. (2005). Understanding the social costs of narcissism: The case of the tragedy of the commons. *Personality and Social Psychology Bulletin*, 31, 1358–1368.
- Campbell, W. K., Rudich, E. A., & Sedikides, C. (2002). Narcissism, self-esteem, and the positivity of self-views: Two portraits of self-love. *Personality and Social Psychology Bulletin*, 28, 358–368.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, 67, 319–333.
- Crowell, A., Kelley, N. J., & Schmeichel, B. G. (2014). Trait approach motivation moderates the aftereffects of self-control. *Frontiers in Psychology*, 5, 1–10.
- Crysel, L. C., Crosier, B. S., & Webster, G. D. (2013). The Dark Triad and risk behavior. *Personality and Individual Differences*, 54, 35–40.
- Ent, M. R., Baumeister, R. F., & Tice, D. M. (2015). Trait self-control and avoidance of temptation. *Personality and Individual Differences*, 74, 12–15.
- Foster, J. D., McCain, J. L., Hibberts, M. F., Brunell, A. B., & Johnson, R. B. (2015). The Grandiose Narcissism Scale: A global and facet-level measure of grandiose narcissism. *Personality and Individual Differences*, 73, 12–16.
- Foster, J. D., & Trimm, R. F. (2008). On being eager and uninhibited: Narcissism and approach–avoidance motivation. *Personality and Social Psychology Bulletin*, 34, 1004–1017.
- Foster, J. D., Shenesey, J. W., & Goff, J. S. (2009). Why do narcissists take more risks? Testing the roles of perceived risks and benefits of risky behaviors. *Personality and Individual Differences*, 47, 885–889.
- Gable, S. L., Reis, H. T., & Elliot, A. J. (2000). Behavioral activation and inhibition in everyday life. *Journal of Personality and Social Psychology*, 78, 1135–1149.
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford: Stanford University Press.
- Gray, J. A. (1994). Framework for taxonomy of psychiatric disorder. In S. H. M. Van Goosen, N. E. Van de Poll, & J. A. Sergeant (Eds.), *Emotions: Essays on emotion theory*. Hove: Lawrence Erlbaum.
- Grasmick, H. G., Tittle, C. R., Bursik, R. J., & Arneklev, B. J. (1993). Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. *Journal of Research in Crime and Delinquency*, 30(1), 5–29.
- Graziano, W. G., & Tobin, R. M. (2002). Agreeableness: Dimension of personality or social desirability artifact? *Journal of Personality*, 70, 695–728.
- Hofmann, W., Vohs, K. D., & Baumeister, R. F. (2012). What people desire, feel conflicted about, and try to resist in everyday life. *Psychology Science*, 23, 582–588.
- Hamilton, K. R., Sinha, R., & Potenza, M. N. (2012). Hazardous drinking and dimensions of impulsivity, behavioral approach, and inhibition in adult men and women. *Alcoholism, Clinical and Experimental Research*, 36, 958–966.
- Hamilton, K. R., Sinha, R., & Potenza, M. N. (2014). Self-reported impulsivity, but not behavioral approach or inhibition, mediates the relationship between stress and self-control. *Addictive Behavior*, 39, 1557–1564.
- Harrison, M. L. (2010). The influence of narcissism and self-control on reactive aggression. Unpublished masters dissertation, University of Florida.
- Hundt, N., Kimbrel, N., Mitchell, J., & Nelson-Gray, R. (2008). High BAS, but not low BIS, predicts externalizing symptoms in adults. *Personality and Individual Differences*, 44, 565–575.
- Jonason, P. K., Koenig, B. L., & Tost, J. (2010). Living a fast life: The Dark Triad and life history theory. *Human Nature*, 21, 428–442.
- Ludwig, V. U., Stelzel, C., Krutlak, H., Prunck, C. E., Steimke, R., Paschke, L. M., et al. (2013). Impulsivity, self-control, and hypnotic suggestibility. *Consciousness and Cognition*, 22, 637–653.
- Luhtanen, R. K., & Crocker, J. (2005). Alcohol use in college students: Effects of level of self-esteem, narcissism, and contingencies of self-worth. *Psychology of Addictive Behaviors*, 19, 99–103.
- Maclaren, V. V., & Best, L. A. (2013). Disagreeable narcissism mediates an effect of BAS on addictive behaviors. *Personality and Individual Differences*, 55, 101–105.
- Mathieu, C., & St-Jean, E. (2013). Entrepreneurial personality: The role of narcissism. *Personality and Individual Differences*, 55, 527–531.
- Mitchell, J. T., & Nelson-Gray, R. O. (2006). Attention-Deficit/Hyperactivity Disorder symptoms in adults: Relationship to Gray's behavioral approach system. *Personality and Individual Differences*, 40, 749–760.
- O'Gorman, J. G., & Baxter, E. (2002). Self-control as a personality measure. *Personality and Individual Differences*, 32, 533–539.
- O'Connor, R., Stewart, S., & Watt, M. (2009). Distinguishing BAS risk for university students' drinking, smoking, and gambling behaviors. *Personality and Individual Differences*, 46, 514–519.
- Ozdemir, Y., Vazsonyi, A. T., & Cok, F. (2013). Parenting processes and aggression: The role of self-control among Turkish adolescents. *Journal of Adolescence*, 36, 65–77.
- Pardo, Y., Aguilar, R., Molinuevo, B., & Torrubia, R. (2007). Alcohol use as a behavioral sign of disinheriting: Evidence from J. A. Gray's model of personality. *Addictive Behaviors*, 32(11), 2398–2403.
- Pincus, A. L., Ansell, E. B., Pimental, C. A., Cain, N. M., Wright, A. G. C., & Levy, K. N. (2009). Initial construction and validation of the pathological narcissism inventory. *Psychological Assessment*, 21(3), 365–379.
- Raskin, R., Novacek, J., & Hogan, R. (1991). Narcissism, self-esteem, and defensive self enhancement. *Journal of Personality*, 59, 19–38.
- Sarasohn, K. M. (2004). Balanced on the horns of a dilemma: Observations on work and chronic depression. *Clinical Social Work Journal*, 32, 171–183.
- Stinson, F. S., Dawson, D. A., Goldstein, R. B., Chou, S. P., Huang, B., Smith, S. M., et al. (2008). Prevalence, correlates, disability, and comorbidity of DSM-IV narcissistic personality disorder: Results from the wave 2 national epidemiologic survey on alcohol and related conditions. *Journal of Clinical Psychiatry*, 69, 1033–1045.
- Volkow, N. D., Wang, G. J., Tomasi, D., & Baler, R. D. (2013). Obesity and addiction: Neurobiological overlaps. *Obesity Reviews*, 14, 2–18.
- Weed, N., Butcher, N. J., McKenna, T., & Ben-Porath, Y. (1992). New measures for assessing alcohol and other drug problems with MMPI-2: The APS & AAS. *Journal of Personality Assessment*, 58, 389–404.
- Weinberg, D. (2013). Post-humanism, addiction and the loss of self-control: Reflections on the missing core in addiction science. *International Journal of Drug Policy*, 24, 173–181.
- West, R. (2006). *Theory of addiction*. Oxford: Blackwe.