

# Addiction

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*The Addict* is a central character in the contemporary free will debate. Classic compatibilism holds that freedom consists in the absence of more or less common external constraints on actions, such as threats or coercion by others, the use of physical force or restrictions, paralysis or disability, and the lack of choices and opportunities. Incompatibilism contends that freedom of action is not the same as freedom of will. Absence of external constraints does not guarantee that we have free will, understood as a distinctive (if difficult to analyze) power to do otherwise: freedom requires that we be able to choose, for ourselves, whether to act in a certain way or not, so that we ourselves and nothing else determine what we do and decide our futures. There is a dramatic stand-off. From the incompatibilist perspective, classic compatibilism gives us a severely limited account of the nature of freedom. From the classic compatibilist perspective, the free will trumpeted by incompatibilism may be little more than a chimera. At this point in the debate, enter *The Addict*. In response to the stand-off, contemporary compatibilism concedes to incompatibilism that the absence of external constraints is not enough for freedom of will as opposed to freedom of action. There must also be an absence of *internal* constraints, namely, the compulsion characteristic of mental disorder in general, and of addiction in particular. Free will, as opposed to free action, is what those of us who are not addicts purportedly have, and what *The Addict* purportedly lacks. It is a form of freedom worth wanting: addiction is a devastating condition that destroys lives. And it is a form of freedom compatible with determinism: whether or not determinism is true, we are able to choose what we do in a way that *The Addict* cannot.

Writing over a century ago, William James described the figure of *The Addict* thus:

“The craving for a drink in real dipsomaniacs, or for opium or chloral in those subjugated, is of a strength of which normal persons can form no conception. “Were a keg of rum in one corner of a room and were a cannon constantly discharging balls between me and it, I could not refrain from passing before that cannon in order to get the rum”; “If a bottle of brandy stood at one hand and the pit of hell yawned at the other, and I were convinced that I should be pushed in as sure as I took one glass, I could not refrain”: such statements abound in dipsomaniacs' mouths (James 1890: 543).”

According to James, *The Addict* is literally powerless over the desire to use drugs: “subjugated” by “cravings” of such “strength” that they cannot “refrain” from acting on them no matter the circumstances and costs, including cannon balls and hell. More recently, *The Addict* has been described by contemporary philosophers as someone who “inevitably

succumbs” to a desire to use drugs “too powerful ... to withstand” resulting in the person potentially being “helplessly violated by [their] own desires” (Frankfurt 2003 [1971]: 329); as “susceptible” to “compulsions that usually nullify any semblance of voluntary choice” (Charland 2002: 41); and as required to go “where the addiction leads [them], because the addiction holds the leash” (Elliott 2002: 48). *The Addict’s* desire for drugs is irresistible. As they cannot but take drugs, they lack the freedom of will that those of us who are not prey to such compulsions have.

However, the difficulty in resting content with the picture painted by contemporary compatibilism is that the character of *The Addict* is just that: a dramatic character. *The Addict* bears little resemblance to real-world addicts (cf. Levy 2006; Pickard 2012). Addiction is indeed a terrible problem that has harrowing consequences. But addicts are not subject to irresistible desires. If their will is indeed unfree, it is far less clear why this is and in what way it is true than the free will debate tends to presume.

In what follows, I first detail the evidence for the claim that addictive desires are not irresistible. I then briefly consider how this evidence specifically bears on reasons-responsive and hierarchical theories of free will, before turning to consider the connection between addiction and autonomy. Finally I suggest that, in so far as addicts lack freedom, this may reside, as classic compatibilism suggests, fundamentally in external rather than internal constraints. Namely, conditions of psycho-social adversity, poverty, and disadvantage that cause suffering and limit choices and opportunities.

### **The evidence against the irresistibility of addictive desire**

Broadly speaking, popular culture and current medical orthodoxy concur with the philosophical depiction of *The Addict* as subject to irresistible desires. Addiction is widely viewed as a chronic, relapsing neurobiological disease characterised by compulsive use of drugs despite negative consequences (cf. NIDA 2009; WHO 2004). “Drugs” include not only illegal drugs but also alcohol as well as pharmaceutical drugs that are open to abuse. “Negative consequences” include the neglect of other pleasures and interests; the inability to fulfil important social and occupational roles and responsibilities; ruined relationships; the loss of social standing and community; cognitive impairment and mental health problems; physical disability and disease; and, lastly, death (cf. APA 2013; WHO 1992).

Proponents of this view of addiction often seek support from our increasing neurobiological knowledge of the acute and chronic effects of drugs on the brain (Koob and Le Moal 1997; Koob and Volkow 2010). For example, Louis Charland suggests that drug-seeking and drug-taking behaviour is “*a direct physiological consequence of dramatic neuroadaptations produced in the reward pathways of the brain*” (Charland 2002: 40; my emphasis). There is indeed no question that long-term heavy use of drugs directly affects levels of synaptic dopamine as opposed to affecting them only indirectly via the normal neural processes subserving learning and reward. This can explain why cues associated with drugs trigger a desire for them which over-estimates their anticipated reward and hence is unusually strong in its motivational strength (Redish et al. 2008; Montague et al. 2004; Schultz 2011). Over time,

wanting drugs may even come apart from *liking* them: cues may trigger cravings and strongly motivate drug-seeking and drug-taking, even though consumption no longer offers any pleasure or genuine reward (for a review see Berridge and Robinson 2011; cf. Holton and Berridge 2013).

However, despite the importance of neurobiological knowledge for our understanding of addiction, it does not establish that addiction is a neurobiological disease of compulsion (cf. Satel and Lilienfeld 2014). One issue is why the effects of drugs on the brain should be considered as *pathological* or constitutive of a *dysfunction or disorder* (Stephens and Graham 2009; Levy 2013a). But an additional and independent issue is why they evidence *compulsion* or *irresistibility of desire*. Presumably all human action is underpinned by neurobiological mechanisms; the question with respect to addiction is whether there is good reason to believe that the effects of drugs on the brain directly cause behaviour that by-passes the human capacity for choice and control in its entirety, in contrast to other forms of behaviour. Although our increasing knowledge certainly explains how cues associated with drugs trigger desires that are unusually strong in motivational strength and which fail to track level of hedonic reward, it does not suggest that such desires are *impossible to resist*. Hard to resist, undoubtedly. But *irresistible*?

In response, it might be suggested that evidence for irresistibility lies open to view in the behaviour of addicts. For instance, Al Mele writes:

“The basic compatibilist idea is (roughly) that when mentally healthy people act intentionally in the absence of compulsion [...] they act freely, and an action’s being deterministically caused does not suffice for its being compelled ... people who act freely are exercising a rational capacity of such a kind that, had their situation been different in any one of a variety of important ways, they would have responded to the difference with a different suitable action [...] For example, although I spent the day working, I would have spent the day relaxing if someone had bet me \$500 that I would not relax all day [...] Offer a compulsive hand-washer \$500 not to wash his hands all day and see what happens (Mele 2006: 188-9).”

A similar line of thought can be offered with respect to addiction: offer an addict \$500 not to use drugs all day and see what happens. Presuming they would nonetheless use drugs, there is evidence of irresistibility.

In fact, this “experiment” has been conducted. Contingency management (CM) is a form of treatment that offers addicts rewards in return for clean urine samples, produced three times per week. The pilot study offered \$100 per week, but it was soon discovered that comparable outcomes could be achieved by much smaller rewards, such as modest monetary incentives, small prizes, vouchers, and lucky dips. CM treatment significantly improves abstinence and treatment-compliance compared to standard forms of treatment such as counselling and cognitive-behavioural therapy (for a review see Petry et al. 2011). For many addicts, the reward structure is sufficient to motivate abstinence. Contra Mele’s argument as extrapolated, the offer of \$500 for a single drug-free day would seem likely to incentivize abstinence for all but the very wealthiest addicts for whom the money was insignificant (of whom there are few, see below). CM treatment shows that, in many cases, if we shift the circumstances in

which addicts find themselves so that abstinence brings an immediate and certain (if small) reward, addicts respond by shifting their behaviour.

CM treatment is not the only source of evidence that addicts respond to incentives. Anecdotal and first-person reports abound of addicts who are diagnosed as dependent (and so suffer withdrawal) going “cold turkey” (cf. Heyman 2009, 2013a). Large-scale epidemiological studies demonstrate that the majority of addicts “mature out” without clinical intervention in their late twenties and early thirties, as the responsibilities and opportunities of adulthood, such as parenthood and employment, increase (for a review of these findings see Heyman 2009; cf. Foddy and Savulescu 2006; Peele 1985; Pickard 2012). Rates of use are cost-sensitive: indeed, some addicts choose to undergo withdrawal in order to decrease tolerance, thereby reducing the cost of future use (Ainslie 2000). Experimental studies suggest given a choice between small sums of money and drugs, addicts will often choose money (Hart et al. 2000; Hart 2013). Only 1/3 of heroin addicts who participated in one of the famous “Swiss trials” offering heroin on prescription chose to continue heroin maintenance at follow-up; the rest said “No” (contra an addict famously interviewed by Louis Charland, see below for further discussion) and declined the offer of daily, safe, free heroin (Perneger et al. 1998; cf. Foddy and Savulescu 2006). Finally, animal research on addiction has convincingly demonstrated that, although the majority of cocaine-addicted rats will escalate self-administration if offered no alternative goods, they will forego cocaine and choose alternative goods, such as saccharin or same-sex snuggling, if available (Ahmed 2010; Zernig et al. 2013; see below for further discussion).

If addictive desires were irresistible, then it should be rare if not indeed impossible for addicts to respond to incentives and forego drugs. Yet it is not only possible but common. The most obvious explanation is that addicts choose to abstain when they are sufficiently motivated to do so: they are not subject to internal compulsion and “helplessly violated” by their desires.

Philosophers sometimes suggest that such evidence does not in fact establish that addicts have significant choice and control over drug use. The reason offered is that the capacity to respond to incentives must be relativized to a motivational and epistemic context (cf. Mele 1990). Otherwise, as Neil Levy puts it, “We get the absurdity that, say, agoraphobics are not compelled to remain indoors, since, given the appropriate incentives [e.g. the house is on fire], they would leave” (2011a: 271). Applying this lesson to addiction, the suggestion is that the fact that addicts refrain from use in particular circumstances (e.g., when undergoing CM treatment, or when they secure a good job or become a parent) does not show that they have control outside of these circumstances; all it shows is that they have control in these circumstances (cf. Levy 2011a). Control must always be relativized to circumstances.

Extreme circumstances can indeed affect people’s capacities. For example, in order to save a child from death, a parent may have the capacity to move a crushing weight even though in standard conditions they lack the requisite physical strength. But this point should not bar us from holding that, in less extreme circumstances, behavioural change following motivational change provides strong evidence of a general capacity for behavioural control. Consider, for instance, a man who “sees red” and routinely resorts to physical violence in drunken

disputes—except when in view of a policeman. On such occasions, he is highly motivated not to hit, which he would otherwise do, out of fear of being detained and charged with common assault. Does his restraint in this context show only that he can control his aggression when in view of a policeman, but not necessarily otherwise? Arguably, this is not the natural understanding of this man’s behaviour. Rather, the natural understanding is that his restraint shows that he has a general capacity to control his aggression, but that he only exercises it when he wants to. There is a basic, commonsense distinction between what a person can do but won’t (because the person doesn’t want to) and what a person wants to do but can’t (because the person lacks the capacity). We must recognize extremes, but relativizing control too strongly to motivational and epistemic circumstances threatens the cogency of this distinction (cf. Pickard 2012).

With respect to addiction, the incentives that appear to motivate abstinence are not extreme but rather modest and common: to return to James’ example, it does not take cannon balls to stop an alcoholic from running across the room to the punch bowl. These incentives thus provide strong evidence that addicts have the general capacity to control their use in a broad range of ordinary circumstances. Strikingly, this point can be found even in Griffith Edwards and Milton Gross’s seminal discussion of the disease model of alcohol dependence. They write that “it is unclear, however, whether the experience [of alcoholism] is truly one of losing control rather than one of deciding not to exercise control” (Edwards and Gross 1976: 1060; note that the point can be made less contentiously, by withholding judgement as to whether addicts *decide* not to exercise control and emphasising instead the fact that they *don’t* exercise control). Of course, the attribution of a general capacity is consistent with the possibility that there may be occasions where, due to any variety of constraints, it cannot be exercised. The point is rather that our understanding of addiction ought to respect the strength of the evidence that addicts do not appear to be compelled to use. They respond to incentives and as a result evidence the ability to make choices and exercise control over their drug consumption.

One question that remains is what to make of the testimony of addicts who say they “can’t” control their drug use, like the “dipsomaniacs” purportedly quoted by James. A famous recent example is an addict named Cynthia interviewed by Louis Charland who claims: “If you’re addicted to heroin, then by definition you can’t say “No” to the stuff” (Charland 2002: 37). There are a number of important considerations here. First, what people say is in general affected by what the upshot of their saying it will be. There is variation between addicts with respect to the extent to which they report an inability to control their use (Heyman 2009) and also with respect to what the same addict may report to different people at different times (Davies 1992). The explanation of such variance likely depends in part on how social expectations and anticipated responses affect how addicts frame self-reports. For example, in contexts where addicts may fear blame, a report of powerlessness may offer an excuse; while in contexts, such as self-help groups, where personal agency and responsibility is emphasised, a report of powerlessness may risk ostracization. Second, there are *looping effects*: the wide-spread availability and acceptance of a particular theory of human experience and behaviour, such as addiction, can affect how people subject to those

experiences and that behaviour understand themselves (Hacking 1995, 2000). Third, “can’t” can have multiple meanings (cf. Sinnott-Armstrong and Pickard 2013). When addicts say they “can’t” resist, they may not be claiming that it is literally *impossible for them to resist* but rather that abstinence is very difficult, and that the costs of foregoing drugs are high, and the benefits of using drugs are many (see below for further discussion). For all these reasons, the testimony of addicts, like other forms of self-report, is a complicated form of evidence for use in theorizing. However, it is extremely important for other reasons, namely, that it helps us to understand what it is like to live with addiction, at least for the particular addict telling the story. This is essential for individually-tailored clinical care, as well as a potential source of wider social understanding, compassion, and empathy (for articles that weave together philosophical considerations with first-person stories, see Flanagan 2011 and 2013).

### **Contemporary compatibilism and addiction**

If addicts respond to incentives and so evidence choice and control over their drug consumption, where does that leave *The Addict* of contemporary compatibilism?

Consider, first, John Martin Fischer and Mark Ravizza’s *reasons-responsive* account. Fischer and Ravizza argue that we have *guidance control* over our actions when they proceed from a mechanism that is both regularly *receptive* to reasons and at least sometimes *reactive* to reasons (Fischer and Ravizza 1998; note that the mechanism must also be “one’s own”, e.g. not subject to intervention by evil neuroscientists). Receptivity involves recognizing reasons and forming beliefs about how they count for or against actions. Reactivity requires that one’s actual mechanism will sometimes issue in different actions when one is presented with different scenarios offering different reasons. Guidance control is designed to be compatible with determinism as it is evaluated counterfactually but without presupposing that, given the actual scenario, there is an alternative possible action that is genuinely open to the agent. Fischer and Ravizza contend that irresistible urges in general and addiction in particular are not reasons-responsive and so do not evidence guidance control (ibid: 35, 48): the rest of us are supposed to have what addicts and other people who suffer from compulsion lack. But responsiveness to incentives *is* a form of responsiveness to reasons (e.g. the fact that an addict will get a CM treatment reward if they don’t use drugs is a reason not to use drugs). Although *The Addict* may lack guidance control, addicts don’t.

Consider, next, Harry Frankfurt’s *hierarchical theory*. Frankfurt claims that we have free will when our first-order desires that move us to act are the desires that *we want* to have: in other words, when our second-order “volitions” (to use Frankfurt’s term) *mesh* with our *effective* first-order desires. (Frankfurt 2003 [1971]). He famously illustrates this idea by comparing three sorts of addict: wanton addicts, willing addicts, and unwilling addicts.

According to Frankfurt, these three addicts are similar in two respects. First, they may all experience conflict between a first-order desire to use drugs and a first-order desire not to use drugs. Second, because they are addicts and the desire to use drugs is irresistible, it wins out. However, he holds there is yet an important difference between them. *Wanton addicts* have no second-order volitions whatsoever as to which first-order desire wins out: they are passive

spectators of the battle between their desires, and so, to that extent, lack free will by default. *Willing addicts*, in contrast, embrace the first-order desire which wins out: they want for the desire to use drugs to move them to action. Given that it does, Frankfurt holds that they have free will – even if their will is not in another sense free, as the desire for drugs is irresistible. Finally, *unwilling addicts* want for their desire to use drugs *not* to be effective. Yet, because it is irresistible, it is. They are therefore alienated from the desire that moves them to action. For that reason, Frankfurt holds that they lack the free will that willing addicts (and the rest of us) possess. For they do not endorse or identify with the desire they act on.

However, Frankfurt's assumption that addictive desires are irresistible is not idle. For, without it, the difference between the willing and the unwilling addict seems less a difference in freedom, than a difference in self-identity, self-integrity, and self-contentment.

To see this, suppose that, in line with the evidence detailed above, we reject Frankfurt's assumption and hold instead that addictive desires are *not* irresistible. There is no question that addicts sometimes (although not always) have conflicting first-order desires. They may both want and want not to use drugs at the very same time, and they may oscillate between a desire to use drugs and a desire not to use them over time (for further discussion see below). But if we allow that they are nonetheless responsive to incentives and have choice and control over their drug consumption, then when the willing addict decisively (to use Frankfurt's term) wants to act on the desire to use drugs at the time of choice, they will; and when the unwilling addict decisively wants not to act on the desire to use drugs at the time of choice, they won't. In other words, the wills of both addicts would appear to be equally free.

We are all of us, of course, familiar with the experience of having a first-order desire that we do not want to have. For example, some people may wish they did not have a desire for junk food, say, or for promiscuous sex, or for aggression and violence. In the willing addict's case, the desire they don't want to have is the desire *not* to take the drug. In the unwilling addict's case, it is the desire *to take* the drug. The more of our first-order desires we feel alienated from – in the sense of wishing we did not have them – the more we can feel our self-integrity and self-contentment to be under strain. But it is only *if* we act on these first-order desires against our second-order volitions *despite not wanting to* (in some significant way or degree) that *our freedom* would seem to be compromised. In other words, lack of mesh between first-order and second-order states is not in itself sufficient for lack of freedom.

Indeed, Frankfurt himself seems at places to recognize this point. When explaining why the willing addict possesses a freedom that the unwilling addict lacks, he says: "I am inclined to understand [the willing addict's] situation as involving *the overdetermination* of his first-order desire to take the drug. This desire is his effective desire because he is physiologically addicted. But it is his effective desire also *because* he wants it to be [...] it is therefore not only *because of his addiction that his desire for the drug is effective* [...] (ibid: 335-336, my italics)." In other words, the willing addict has a freedom that the unwilling addicts lacks not only because their second-order volition endorses the first-order desire that happens to be effective, but because their second-order volition *contributes* to its efficacy. They not only *want* the will they have, but *will* that they have it. Compare: "... it is in *securing* the

conformity of [their] will to [their] second-order volitions, then, that a person exercises freedom of the will (ibid: 331, my italics).”

Addicts can differ profoundly in the extent to which they embrace a self-identity as an addict and feel at ease with their addictive choices. But that in itself does not suffice to track a difference with respect to whether or not they have free will. Frankfurt’s unwilling addict intuitively counts as unfree because Frankfurt assumes their desire for drugs is irresistible and so they act despite their second-order volition; and his willing addict intuitively counts as free because, when we probe deeper, there is a hidden suggestion that their desire for drugs is in fact responsive to their second-order volition (and hence, and contra Frankfurt’s initial hypothesis, their addictive desires are *not* wholly irresistible). In other words, lack of mesh between first-order desires and second-order volitions may affect self-identity, self-integrity, and self-contentment, but only lack of efficacy affects freedom.

Hence, on neither reasons-responsive nor hierarchical theories do addicts ultimately lack free will, for they respond to incentives and so evidence choice and control. Of course, contemporary compatibilists have also constructed hypothetical examples of non-pathological agents, such as imagined victims of evil brain-manipulating neuroscientists, who purportedly lack the power to do otherwise (however that notion is ultimately analyzed) and so, too, a form of freedom that the rest of us take ourselves to possess (for critical discussion see Alvarez 2009 and Steward 2009). But, once it is acknowledged that *The Addict* is nothing like actual addicts, the standard supposed real-world example of action in absence of free will, to which contemporary compatibilists typically appeal, is lost (cf. Pickard 2015).

Nonetheless, the idea that there is *some sort of link* between rationality and the self and freedom, and which is compromised in addiction, is clearly intuitive. Addiction is characterised, as noted above, by desires that oscillate over time, as well as ambivalence, regret, and deep shame (Flanagan 2014). Addicts are typically not *at peace* with themselves. Responding to this consideration, Neil Levy has argued that, although addicts respond to incentives and so are free to choose to use or not to use *at a time*, their *autonomy* (in one sense of that multi-faceted idea) is yet impaired when their pattern of choices is considered *over time* (Levy 2006).

Levy draws on George Ainslie’s influential theory of hyperbolic temporal discounting to explain this idea (Ainslie 2001). We are all of us inclined to discount the value of future rewards compared with present rewards. This can be considered rational to the extent that, broadly speaking and adjusting for the relative value of the rewards, the present reward is certain while the future reward is uncertain. But, in addition, we typically “discount” future rewards not simply exponentially, but hyperbolically. This means that, as a reward nears in time, its value increases sharply, shifting in response to availability (as opposed e.g. to shifting due to re-assessment of intrinsic worth) (Ainslie 2001; cf. Heyman 2009). Addicts discount the future even more hyperbolically than non-addicts (Bickel and Marsch 2001; Bickel et al. 2014). So, with the drug within immediate reach, its value skyrockets. But, when it is not within immediate reach, its value is much reduced. This creates “judgement shifts” (Holton 2004; see also Levy 2011b) whereby preferences or all-things-considered judgements

as to what is best to do fluctuate in response to availability of drug rewards, creating an inability to extend one's will consistently over time. For, when discounting is hyperbolic, one cannot straightforwardly count on the fact that, if one (for good reason) resolves to abstain from drugs from now onwards, one won't in fact change one's mind in the future, when drugs (let us suppose) are again within immediate reach. Hence, according to Levy, addicts are not unified but fragmented in their selves, because they cannot effectively extend their will over time. Although addicts respond to incentives and so are free to choose to use or not to use at any one time, their autonomy is yet impaired according to Levy, because (compared to people who are not addicted) their choices are inconsistent over time (Levy 2006; see also Levy 2011b).

Levy's depiction of addicts is empirically informed and pinpoints a genuine way in which they are *less* autonomous compared to people who are *more* able to diachronically extend their will. All of us are prone to hyperbolic discounting and "judgement shifts" to a degree. On Levy's view, addicts do not *lack free will* due to the internal constraint of compulsion, but rather have *less autonomy* (again, in one sense of that multi-faceted idea) due to an impairment in their diachronically extended agency. Such autonomy is intuitively worth wanting. It would also appear to be fully consistent with determinism. Levy has therefore pinpointed something to which contemporary compatibilism can appeal which is connected to ideas of rationality and freedom and the self, and which people, including addicts, can enact more or less effectively. But, as Levy himself recognizes, his account does not offer a sharp divide between addicts and the rest of us. Equally, autonomy, as he describes it, can be compromised even though a person has choice and control over their actions at the time and so would appear to retain the power to do otherwise (again, however that is ultimately analyzed).

### **External constraints: poverty, mental health, and limited choices and opportunities**

Let us briefly take stock. *The Addict* is a dramatic character in the free will debate, far removed from the reality of addiction. Unlike *The Addict*, addicts are not subject to irresistible desires: they respond to incentives and have choice and control over their actions. This means they do not straightforwardly offer contemporary compatibilism a way of articulating a form of free will worth wanting. But, as Levy suggests, addicts may yet be *impaired* with respect to their capacity to act consistently as a unified agent over time; correspondingly, they may experience deep regret and shame. They may be less *autonomous* than people who are more able to effectively extend their will diachronically and thereby experience a more unified sense of self.

If this is correct, the question is *why* addicts suffer this impairment. What is the source of the reduced autonomy characteristic of addiction?

*The Addict* is usually described without mention of contextual factors, but real-world addiction is associated with lower socio-economic status and mental health problems, especially concurrent diagnoses of mood, anxiety, and personality disorders (Compton et al. 2007; Heyman 2009). There are of course exceptions, but on the whole addicts come from

underprivileged backgrounds of poor opportunity and have a range of problems in addition to their addiction, which cause terrible suffering and limit choices.

Lower socio-economic status affects cognitive and emotional development (Hackman et al. 2010). Poverty and disadvantage increase stress and negative emotions, which may in turn lead to short-sighted decision making, by limiting attention and favouring habitual behaviours, at the expense of longer-term goal-directed decision-making processes (Haushofer and Fehr 2014). Such *temporal myopia* may not only further entrench poverty but equally further entrench other habits which pay-off in the short-term but cost in the long-term, such as drug use.

It is well-known that, quite generally, drugs offer means to fulfilling multiple ends, including: (1) Improved social interaction; (2) Facilitated mating and sexual behaviour; (3) Improved cognitive performance and counteracting fatigue; (4) Facilitated recovery and coping with psychological stress; (5) Self-medication for mental problems; (6) Sensory curiosity – expanded experiential horizons; and, finally (and in ways most self-evidently) (7) Euphoria, hedonia, and high (Muller and Schumann 2011). Especially with respect to items 4 and 5 of this list, the “self-medication” hypothesis has long been a staple of clinical understanding of addiction (Khantzian 1995, 1997). It is common knowledge that drugs offer relief from psychological distress, including stress and negative emotions (core symptoms of mood, anxiety, and personality disorders): we “reach for the bottle” or “drown our sorrows” when in need. For addicts with mental health problems who live in impoverished circumstances, drugs may provide a habitual and, in the short-term, effective way of managing the severe psychological distress and negative emotions such circumstances involve. Put crudely, drugs offer a way of coping with pain and misery, when choices are limited and opportunities for genuine improvement in socio-economic status and overall wellbeing in the future are few (cf. Pickard 2012). They pay off in the short-term, even though they may also contribute to the long-term entrenchment of some of the problems which cause the psychological distress they are then used to relieve.

Strikingly, animal research on addiction supports this explanation. Caged, isolated rats will escalate self-administration of drugs, foregoing food and water, sometimes even to the point of death (Bozarth and Wise 1985; Dworkin et al. 1995; Fitch and Roberts 1993). But, in the 1970s, Bruce Alexander conducted a now famous experiment called “Rat Park” (Alexander et al. 1978, 1985; for some fun, see the comic strip at: [http://www.stuartmcmillen.com/comics\\_en/rat-park/](http://www.stuartmcmillen.com/comics_en/rat-park/)). Alexander took morphine-addicted rats out of their cages, and placed them in a spacious, comfortable, naturalistic setting, where rats of both sexes were able to co-habit, nest and reproduce. Rats were offered a choice between morphine-laced water and plain water. On the whole, they chose to forego the morphine and drink plain water, even when they experienced withdrawal symptoms, and even when the morphine-laced water was sweetened to significantly appeal to the rat palate. Recent studies complement Alexander's findings. The majority of self-administering rats that are offered an alternative good, such as saccharin or same-sex snuggling, will forego drugs and choose the other reward instead (Ahmed 2010; Zernig et al. 2013). The basic upshot of animal research on addiction is that environmental enrichments in most experimental choice settings protect

against addiction (Vandaele et al forthcoming; for discussion in relation to human addiction, see Pickard and Ahmed forthcoming; for some complementary findings from research on human addiction, see Heyman et al. 2014). Offer rats alternative rewards to drugs, and they take them.

The medically orthodox view of addiction as a chronic, relapsing neurobiological disease characterised by compulsive use of drugs despite negative consequences has genuine explanatory power. Even if addicts rarely use drugs in the face of cannon balls and hell, they do use drugs despite terrible damage to their lives. Compulsion can explain why they persist in using in face of negative consequences: they cannot stop themselves. Hence the rejection of compulsion and the acknowledgement that addicts respond to incentives brings with it an explanatory burden. Why, if addicts could choose otherwise, do they persist in using (cf. Pickard and Ahmed forthcoming)?

Situating addiction within a realistic socio-economic and mental health context helps to answer to this question. As Gene Heyman puts it: “it is possible that the drug is the best choice when the frame of reference is restricted to the current values of the immediately available options but the worst choice when the frame of reference expands to include future costs [...] (Heyman 2013b).” On the whole, drugs bring short-term benefits to people who struggle with lower socio-economic status and mental health problems. Moreover, the costs of use are often long-term rather than immediate, and any future benefits that might accrue from foregoing drugs in the present are both delayed and uncertain. Consider, in this respect, the rewards offered in CM treatment in return for clean urine samples. It is striking that modest monetary incentives, small prizes, vouchers, and lucky dips can motivate abstinence, while the large costs of long-term drug use on their own don’t. But, although small, CM rewards are both immediately available and reliably delivered (for further discussion of delay and positive versus negative reinforcement in relation to addiction see Levy 2013b). They offer, in other words, a bird in the hand, as opposed to two very flighty birds in the bush.

In sum, addicts do not lack free will at a time, but their autonomy may be impaired because they struggle to extend their will effectively over time. They are prone to temporal myopia, which is not only characteristic of people who come from underprivileged backgrounds of poor opportunity with additional mental health problems and limited choices, but also intelligible in light of such circumstances. Addicts struggle with many of the worst of life’s miseries from which drugs offer temporary escape, with few if any alternative goods on offer. When it comes to addiction, classic compatibilism hits the mark: loss of freedom, in the form of reduced autonomy, resides fundamentally in external constraints. Addicts are oppressed not by inner compulsion but by environmental conditions of psycho-social adversity, poverty, and disadvantage that cause suffering and limit choices, now and in the foreseeable future. For this reason, when addicts make choices that cause harm to themselves and others, we might hold that it is appropriate at least in some cases to excuse them from blame – there are, after all, mitigating circumstances (cf. Pickard 2012, 2015).<sup>1</sup>

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