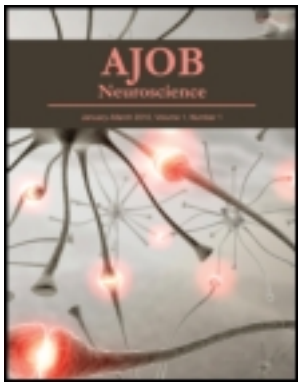

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DBS, Personal Identity, and Diachronic Value

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Open Peer Commentaries

DBS, Personal Identity, and Diachronic Value

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This open peer commentary further pursues the question of whether deep brain stimulation (DBS) of the nucleus accumbens (NAc) and hypothalamus for treatment of addiction and binge eating threatens personal identity. The theoretical basis for expecting effects to personal identity, besides the desired therapeutic effect, is that both brain regions are involved in much more than controlling drug use and eating. The NAc, in particular, is involved in the experience of reward and is thus implicated in all goal-directed activities. Empirically, treatment of these brain regions has decreased sexual drive and pleasure from the taste and smell of cigarettes.[1] DBS patients in general also report, "I don't feel like myself anymore" and, "I feel like a robot" (Schüpbach et al. 2006, 1813). So should we be concerned about the threat to patient personal identity when using DBS for addiction and binge eating?

First, a definition of what counts as a threat to personal identity will be helpful. I take it that personal identity is threatened when agency is undermined so that the person struggles to meaningfully contribute to the authoring of her or his own life, particularly the creation and pursuit of her or his values. As the ability to contribute to the process of identity formation decreases, the agent loses the ability to create or hold on to a sense of who she or he is (Baylis 2011, 13).[2]

Here I argue for two points. First, pathological overeaters and addicts typically suffer from damaged personal identities, primarily because they cannot pursue diachronic value. If DBS helps reconnect agents with their diachronic values, then it helps repair their personal identities. The side effect of decreased pleasure appears trivial in this context. Second, because the appreciation of diachronic value is partially independent of the reward systems of the brain, such appreciation (and associated recovery from addiction and binge eating) should be somewhat resilient in the face of reduced visceral pleasure.

DBS IN THE CONTEXT OF DAMAGED PERSONAL IDENTITY

When considering how serious the threat to personal identity might be, it's important to consider the personal identity of these patients. Setting aside cases of willing[3] addicts, addicted persons and overeaters are struggling to pursue their values (author their lives) because of their habits. This is especially the case for severe and refractory addicts whose personal identities become threadbare. Their lives are dominated by a cyclical pattern of relatively synchronic goals, get drugs and use drugs, even though they ceased to value those activities long ago. Meanwhile, pursuit of the values they retain is rendered impossible or put on indefinite hold. Because successful pursuit of valued goals is one of the most important aspects of self-authorship, these disorders damage and diminish personal identity.

But these disorders don't damage all values equally; they tend to damage values that depend on diachronic plans more severely than synchronically accessible values. Addiction in particular is infamous for damaging careers and relationships (diachronic values) more severely than enjoyment of food and sex (synchronic values). This is because diachronic values are more vulnerable and more difficult to repair; although they take much planning and effort to build, they can be swiftly torn down. A successful career, for example, requires years of effort but it can be ruined by a single drug conviction. The appetites on which synchronic values are based tend to return without planning and effort, but one's wife, children, and employer do not. This is particularly tragic because people tend to rank their diachronic values over their synchronic values, and for good reason,

1. More dramatic personality changes have been observed in the treatment of Parkinson's disease with DBS, such as megalomania, depression, speech slurring, and loss of the ability to taste or smell, although the target brain area and prognoses are quite different in those cases.

2. In the philosophical literature a change in personal identity is often taken to mean that one person literally changes into another person. Perhaps this is possible with a dramatic and unintelligible change in personality and value, but I assume DBS does not pose a threat of that magnitude (see Baylis 2011).

3. Willing addicts balance their drug use with their other values to their own satisfaction or value drug use almost exclusively. They may or may not be self-deceived.

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because diachronic values set one apart from others and are thus an essential part of personal identity. Almost everyone enjoys food, drink, and sex, but only one person can, say, be the first to climb Mt. Everest, marry *that* person, have *those* children. Therefore, diachronic values form the bedrock of personal identity; they take effort to build but are easily eroded or destroyed by addiction and, to some extent, by binge eating.

Recovery, therefore, involves (re)building one's diachronic values and thereby one's personal identity. No wonder that patients claim that treatment of their underlying disease will allow their true identity to be assumed[4] and that recovering addicts often talk of (re)discovering connections to life and meaning and (re)developing a "sense of themselves that is *whole and entire*" (Addenbrooke 2011, 164, my emphasis). Finding meaning in particular is a necessarily diachronic endeavor because present events take their significance from their diachronic context (a cornerstone of narrative self-constitution views; e.g.; Nelson 2001; Schechtman 1996) For example, being reunited with one's wife after the war has meaning that meeting an attractive stranger on the street doesn't.

In this context, should DBS be efficacious, then most addicts will likely see the threat DBS poses to personal identity as trivial, given the potential for personal restoration and redevelopment. Reduction in the enjoyment of synchronic pleasures and sometimes feeling like a robot are relatively small prices to pay for the chance to (re)develop the diachronic values of a relationship with your children, a career, and so on. Of course, this conclusion has to be tempered somewhat. Some people may not value diachronic goals over synchronic goals, and for them the costs of DBS may be too high. As the authors note, the patient can choose and, in any case, the treatment is reversible. We also don't yet have a good appreciation of the magnitude and range of side effects DBS might cause, but it seems they will have to be much more significant than current indications suggest to make acute, refractory addicts balk. It's also important to note that DBS will not, itself, rebuild the meaningful diachronic connections so crucial to personal identity. The exact mechanism by which DBS would work is unclear, but it might inhibit craving, reduce the strength of cues, and/or reduce the synchronic pleasure from drug use or binge eating. All these effects would help provide the *opportunity* to (re)develop a diachronic network of meaningful connections but wouldn't actually provide those connections; that remains the task of the agent and the agent's social network.

VARIETIES OF POSITIVE EXPERIENCE

There might be some concern that reducing the experience of reward will necessarily reduce the experience of *all* value, so DBS in these indications will be self-defeating; the agent wouldn't draw pleasure from drugs or binge eating but also wouldn't draw pleasure from *anything*. The authors suggest that DBS may provide a perception of pleasure that substitutes for the pleasure of drug use or highly caloric food. As it happens, there is a source of positive experience in daily life that doesn't completely depend on the reward systems of the brain. DBS doesn't provide this positive experience but it might help the patient access it.

Besides pleasure from the reward systems of the brain, positive experience can be gained by knowing one's long-term plans are on track or have been successfully completed, for example, one's children are happy, one got the promotion one was working toward. The phenomenology of these experiences seems distinct in kind from the visceral, synchronic pleasures of food, drink, and sex. Positive experiences involving diachronic values and their magnitude depend on creating and referencing a diachronic context for one's life, which is why being reunited with one's wife after the war is so much better than just seeing her after work or meeting an attractive stranger on the street. Given that different areas of the brain are responsible for creating and referencing biographical context, we can assume DBS to the NAc or hypothalamus won't affect awareness of one's context and plans and so won't dampen *this* aspect of positive experience. Of course, being reunited with one's wife would feel *even better* with a stronger synchronic pleasure response, but we don't need that dopamine hit to know that this experience is valuable. We know that it is valuable because we can understand the place of the current event in a diachronic trajectory with good outcomes. So some decrease in pleasure responses will not necessarily affect some of the most important feelings of satisfaction to be gained from pursuing diachronic values central to personal identity. That said, some visceral pleasure responses are essential. Feeling *no* visceral pleasure when being reunited with one's wife would make for an alien experience, as if one was an imposter reuniting with someone else's wife. Similarly, people suffering from depression can understand what their values require of them, but they feel disconnected and struggle to be relevantly motivated. If DBS had these stronger effects, then it would contribute to undermining diachronic goals and thus be self-defeating after all. Here we must wait on empirical evidence.

In summary, the damaged personal identities common in addicts and overeaters provide a context in which the potential benefits of DBS to personal identity are significant while the threats appear relatively trivial. Furthermore, the appreciation of diachronic value is semi-independent of the synchronic pleasure generated by the reward systems of the brain, so should be somewhat resilient in the face of a reduced visceral pleasure response.

4. That's not to say that we each have an essential, underlying true identity, but that whatever set of diachronic values the agent develops without being coerced just will be that person's true identity because that person created it.

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Autonomy and DBS Treatment for Addicts

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Many have expressed skepticism about gaining informed consent in particular from addicts, as addiction has been associated with poor decision-making and problems about diminished autonomy. This has been explained by referring to compulsive substance use in addicts and/or deficient rationality in their decision-making. These result in loss of autonomy because of inadequate competence. This is a common idea (see, e.g., Müller et al. 2012, 7).

The need for treatment for addicts is a focal issue and new forms of treatment are called for (see Müller et al. 2012). Therefore, exploring the conceptual aspects that concern the ethics of these novel ways is of utmost importance. The preliminary results of deep brain stimulation (DBS) in providing fruitful treatment for addicts and people suffering from overeating associated with obesity seem promising, and many see it as a step or a means to individuals suffering from these disorders to "gain full autonomy" (Müller et al. 2012, 7) or "allow their true selves to be assumed again" (ibid. 8).

In light of these references to autonomy and self-government, I briefly highlight the importance of distinguishing difficulty from freedom in making autonomous choices, as it bears relevance to ethical concerns that touch upon several issues related to DBS and addiction and the justification behind the treatment. With the DBS treatment-related remission in substance use, I am skeptical in particular whether the absence of craving then actually makes the agent more autonomous. This is because the felt cravings do not make it impossible for the agent to choose to refrain from satisfying the urge, as Hanna Pickard (2012) has argued, but rather, it is more difficult to do so. Granted that individuals with little self-control have a tendency to choose according to whatever is the easiest (most convenient) way of acting, DBS surely facilitates their chosen path (of not satisfying the desire to eat more or feed their addiction), as the desires will be reduced. However, distinguishing difficulty from coercion in this context is important. If I do a difficult Sudoku, a Japanese puzzle, in the morning, my autonomy is not diminished because of its difficulty. It just takes more effort, but my decision to engage in that task is not less autonomous than with an easier Sudoku. (It could be argued that had I more skills, it would be less difficult. The more skills that I have, the more Sudokus I can solve, and this improves my autonomy in some sense. In any case, the issue of having skills to solve puzzles does not concern coercion but difficulty.)

The same distinction applies when I try to write this commentary and my colleague is constantly asking questions while I am writing. (This example is an analogy to drug-related attentional bias understood as "noise"; see more on attentional bias, for instance in Field and Cox [2008] and more on "noise" [Uusitalo unpublished].) The effort to engage in commentary writing requires more effort, but my colleague's inquiries do not undermine my autonomy.

According to Pickard (2012), the challenges addiction imposes on agents are not overpowering forces that merely sweep over the agent, but rather that people who suffer from loss of control in addiction tend to suffer from psychiatric comorbidities. Addicts are, nevertheless, agents and their addictive action is purposive. With the DBS treatment-related remission in substance use (Müller et al. 2012), one could think that the (full) agency of addicts is restored. However, to assume that the absence of craving actually makes the agent more autonomous should be considered more carefully. What does this autonomy mean here? Granted, the remission or lack of craving makes the decision making and everyday living easier, but whether it actually makes difference in the ways in which the addict reasons is a stronger claim. Addicts' reasons for action cannot simply be reduced to cue-related impulsivity (cf. Neale, Nettleton, and Pickering 2012). The reasons for having addiction count, too, as Pickard (2012) has laid out in discussing the purpose of addiction. The motivation that addicts may lack toward getting rid of addiction may be difficult to gain by merely eliminating craving. The problem is not a question of freedom (see Uusitalo et al. 2013). Rather, there is a danger of arguing for improving an agent's autonomy by helping his or her "true self" to become effective.

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