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SCIENTIFIC CONTRIBUTION

Compulsory administration of oxytocin does not result in genuine moral enhancement

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Abstract The question will be raised whether oxytocin can serve as an effective moral enhancer. Different types of moral enhancement will be addressed, one of them being compulsory moral enhancement. It will be argued that oxytocin cannot serve as an effective moral enhancer if its use is being made compulsory. Hence, compulsory administration of oxytocin does not result in genuine moral enhancement. In order to demonstrate this, a stipulation of the main potentially beneficial outcomes of using oxytocin as a moral enhancer will be offered, as well as a discussion of objections to the notion that oxytocin can be an effective moral enhancer. It will be concluded that mandatory administration of oxytocin is ineffective because of a combination of two reasons: (1) mandatory administration of oxytocin renders moral reflection practically superfluous; (2) without moral reflection the beneficial outcomes of the use of oxytocin do not outweigh its drawbacks to the degree that we could speak of effective moral enhancement.

Keywords Moral enhancement · Oxytocin · Benefits · Objections · Moral reflection · Moral behavior · Outcomes · Compulsion · Effectiveness

Formulating the issue by defining different types of moral enhancement

The first section of this paper will consist of a discussion of several types of moral enhancement, one of them being compulsory moral enhancement. It will be argued that oxytocin cannot serve as an effective moral enhancer if its use is being made compulsory.[1] In order to demonstrate this, the second section will consist of a short stipulation of the main potentially beneficial outcomes of using oxytocin as a moral enhancer, as well as of a discussion of objections to the notion that oxytocin can have such outcomes. It will be concluded that mandatory administration of oxytocin will not result in effective moral enhancement because of a combination of two reasons: (1) a mandatory administration of oxytocin renders moral reflection practically superfluous;[2] (2) without moral reflection the beneficial outcomes of the use of oxytocin do not outweigh its drawbacks to the degree that we could speak of effective moral enhancement.

Raus et al. (2014) contrast capacities-oriented to behavior-oriented (i.e., outcome-oriented) moral enhancement interventions and offer the following four possible results of moral enhancement endeavors:

(a) Reflecting the same, acting the same
(b) Reflecting the same, acting differently
(c) Reflecting differently, acting the same
(d) Reflecting differently, acting differently

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[1] Moral compulsion I define as the act of forcing an agent to act in a morally desirable manner in a way that violates that agent's moral agency (for a similar formulation, see Simkulet 2012, p. 17).

[2] "Practical" will be used in this paper as an antonym of "theoretical". The meaning of "practically superfluous" comes close to "functionally superfluous". It denotes something that is unusable.

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Option (a) is to be disregarded in the discussion on moral enhancement, as its result is not an enhancement, but a retention of the status quo. The best option we have is (d), as it includes both enhanced reflection and enhanced behavior in the moral realm.

An obvious case of (d) is moral education that results in enhanced moral reflection and enhanced moral behavior. Another uncontroversial case are safe biotechnologies (primarily drugs at this point of development of moral bioenhancement) that can lead to enhanced moral reflection and enhanced moral behavior—provided that their use is voluntary, i.e., that we retain the freedom to decide whether we will use them/continue to use them. If we have the freedom to decide whether we will utilize biotechnologies to morally enhance ourselves, and if we retain our freedom to decide whether we will continue to use them once we have embarked on the moral bioenhencement enterprise, our freedom will remain fully intact. Hence, there is nothing controversial in safe moral enhancement biotechnologies that are being used on a voluntary basis.

Options (b) and (c) are however controversial. As an example of option (b) Raus et al. (2014) offer the case of "paedophile Jack":

> Jack is a man with paedophilic urges who is currently incarcerated for having sexually molested a child. Despite a large amount of therapy, Jack fails to see what is wrong with him interacting with children in a sexual way. It is therefore decided to sedate Jack against his will and bring him to a surgery room. Neurosurgeons implant a chip.....that will stop Jack from molesting children (Raus et al. 2014: 268).

This case raises two questions:

(1) Does one have the moral right to subject Jack to this intervention to prevent future immoral (or illegal) behavior?
(2) Is this intervention moral enhancement?

Even if the answer to (1) is "yes" the answer to (2) might be "no": having the moral right to subject an offender against his own will to something that will prevent his future immoral behavior does not imply that we deal with a moral enhancement—after all, it is not altogether different than restricting his autonomy by keeping him in prison. The question whether we indeed do have a moral right to subject him to the intervention depends on various (meta-) ethical issues, including the issue of whether its benefits outweigh its drawbacks. For instance: do the social benefits outweigh the drawback of Jack losing his freedom? Or: will Jack himself reap benefits that outweigh his diminished freedom? All these questions focus on outcomes.

Unlike option (b) that is outcome-oriented, option c) is capacities-oriented. It is however also controversial, as enhanced moral reflection does not imply enhanced moral behavior. Knowing the good does not automatically lead to doing right things.

John Harris, a proponent of the capacities-oriented approach to moral enhancement, insists on the importance of freedom, including our "freedom to fall": if we are not free, we don't have the capacity of reflecting or acting morally (Harris 2010). Furthermore: "The space between knowing the good and doing the good is a region entirely inhabited by freedom" (Harris 2010, p. 104). It might even be argued that the gap between how we act and how we believe we *ought* to act might very well be the "greatest predicament of our existence as moral beings" (Rakić 2014).

Unlike John Harris, the bahavior-oriented and outcome-oriented Persson and Savulescu fall under b). Being less sensitive to the value of freedom than John Harris is, they believe that moral enhancement ought to be made compulsory to all, as it will lower the likelihood of "ultimate harm" (Persson and Savulescu 2008, 2012).[3] Ultimate harm is an outcome that is so detrimental to humanity that it is warranted to limit the freedom of humans by making moral enhancement compulsory. According to Persson and Savulescu, safety outweighs freedom (Persson and Savulescu 2014). By wishing to make moral enhancement compulsory to *all*, they do not distinguish the status of paedophile Jack from the status of any other citizen (when the "imperative" of moral enhancement is concerned).

Persson and Savulescu believe that one way of lowering the likelihood of ultimate harm is mandatory administration of oxytocin (e.g., by making it an ingredient in drinking water, food etc.). Applying the 2-question protocol from Jack`s case to Persson and Savulescu`s outcome-oriented stance, makes us however arrive at the following: even if mandatory administration of oxytocin would lower the likelihood of ultimate harm, it does not mean that it constitutes a moral enhancement.

This paper will address the issue of whether a mandatory intervention designed to prevent future harm, like Persson and Savulescu's ultimate harm, can be effective, and will use oxytocin as a paradigm example of such an intervention. It will be shown that the main beneficial outcome of mandatory administration of oxytocin (more safety, according to Persson and Savulescu) does *not* trump its main

[3] Persson and Savulescu define ultimate harm as an event or series of events that make worthwhile life on this planet forever impossible (Persson and Savulescu 2008, p. 174). They argue in one way or another that, regardless of how one defines "moral enhancement", an agent's freedom to do wrong must be compulsorily curtailed, as failure to do so will inevitably lead to ultimate harm.

detrimental outcome (our moral reflection being rendered practically superfluous, in addition to our freedom being diminished). The reason is that the use of oxytocin does not even come close to guaranteeing its beneficial effects if it is compulsory, i.e., if it is not accompanied by appropriate and usable moral reflection.

We are dealing here with the following deduction:

(1) Compulsory administration of oxytocin renders the role of moral reflection practically superfluous.
(2) With a practically superfluous role of moral reflection we cannot use oxytocin as an effective moral enhancer.
(3) Consequently, we cannot use oxytocin as an effective moral enhancer if we make its administration compulsory.[4]

It will be shown that (1) and (2) are true and that consequently (3) is true. In other words, it will be demonstrated that (1) compulsory administration of oxytocin renders the role of moral reflection practically superfluous, and that (2) with a practically superfluous role of moral reflection we cannot use oxytocin as an effective moral enhancer. As these premises will be shown to be true, the conclusion following from them is also true: we cannot use oxytocin as an effective moral enhancer by making its administration compulsory.

That statement (1) is true can be shown as follows. We need moral reflection in order to decide what kind of behavior is morally appropriate and, thus, how we *ought* to behave. If we cannot decide to behave how we think we ought to behave because an external mechanism decides about that instead of us, moral reflection becomes *practically* redundant. It might retain theoretical relevance for us, but in the realm of how we actually decide to behave it becomes a surplus. *Compelling* humans to subject themselves to "moral enhancement" deprives them of their decision making power in the sphere of the behavior they could opt for if they were free. Hence, compulsory "moral enhancement" does not only limit the freedom of humans, but it also makes moral reflection unusable, i.e., practically superfluous. It becomes practically superfluous in the sense that we lose our freedom to behave in line with it. Consequently, statement (1) is true.

[4] The reasoning can also be stated as follows: (1) Compulsory administration of oxytocin renders the role of moral reflection practically superfluous, which implies that options (a) and (b) are being retained (reflecting the same, acting the same and reflecting the same, acting differently). (2) As with a practically superfluous role of moral reflection we cannot use oxytocin as an effective moral enhancer, only option a) remains (reflecting the same, acting the same). (3) As option (a) is not a case of moral enhancement, we cannot use oxytocin as an effective moral enhancer if we make its administration compulsory.

It remains to be proven that statement (2) is also true. In other words, the *outcome* of certain beneficial effects of compulsory administration of oxytocin will have to be proven insufficient to trump our moral reflection being rendered practically superfluous. That premise (2) is true will be demonstrated in the two chapters that follow. By arguing in favor of both (1) and (2) I will argue in favor of the thesis that oxytocin cannot be an effective moral enhancer if its administration is being made compulsory. In other words, it will be shown that compulsory administration of oxytocin does not result in genuine moral enhancement.

The following chapter will first succinctly lay down the main beneficial outcomes of the use of oxytocin as a supposed moral enhancer. Subsequently, it will discuss objections to the idea that oxytocin is a successful moral enhancer. In that way it will offer a groundwork for answering the central question of this paper in Chapter 3. In Chapter 3 it will be shown, namely, that the benefits of compulsory administration of oxytocin as an alleged moral enhancer do not outweigh the drawback of making its use compulsory—thereby rendering moral reflection practically superfluous. From that it will be concluded that making the use of oxytocin mandatory is ineffective as a moral enhancement technique and that it therefore does not result in genuine moral enhancement.

Moral enhancement by oxytocin: beneficial outcomes and discussion of objections

One of the reasons why the focus in this paper is on oxytocin is that this hormone is arguably the least controversial and most widely discussed substance that allegedly can serve as a moral enhancer. Some of its most essential beneficial outcomes appear to be straightforward (more empathy and hence altruism, as well as diminished aggressiveness) and its side-effects minor in comparison with other supposed moral bioenhancers.[5] Hence, if my argument holds for the compulsory administration of oxytocin it is also likely to hold for other substances that are alleged to have the potential to morally enhance humans. But as this "likelihood" is not more than that, my argumentation in this paper will be solely directed to the mandatory use of oxytocin as a moral enhancer.

Why, in brief, is oxytocin a potential moral enhancer? Oxytocin is a mammalian hormone that primarily acts as a neuromodulator. Substantial release of it occurs upon physical contact, orgasm, childbirth and lactation. As it is

[5] Serotonin is a case in point in that regard. For an analysis of the detrimental outcomes of the use of Selective serotonin reuptake inhibitors (SSRIs), see Wiseman (2014).

essential for social recognition and pair bonding, it is frequently referred to as the "bonding hormone" (Mikolajczak et al. 2010). It is believed to enhance feelings of love and trust, which are key to our happiness. That is the reason why oxytocin is sometimes also denoted as the "happiness hormone". Moreover, oxytocin tends to decrease aggression, at the same time intensifying empathy. Love, trust and empathy (if apposite) are considered as morally desirable dispositions.

Beneficial outcomes

The most important beneficial outcomes of the use of oxytocin as an alleged moral enhancer can be summarized as follows:

- Oxytocin stimulates empathy. Empathy is the basis of altruism—if one is more capable of empathizing with other people she is also more likely to be altruistic. Altruism is generally considered to a be morally desirable trait. As concisely as possible: oxytocin fuels emotional bonding, emotional bonding is the basis of empathy, empathy underpins altruism, while altruism is an essential ingredient of morality—consequently, oxytocin has the potential to make better people of us.
- Oxytocin increases trust by diminishing fear and stimulating empathy, as well as feelings of pleasure, security and contentment around the mate (Theodoridou et al. 2009; Lane et al. 2013). Trust is frequently associated as a morally desirable disposition[6]
- Oxytocin can help control of outbursts of aggression (Theodoridou et al. 2009; Lane et al. 2013). Such control is frequently associated with morally appropriate behavior.
- Some studies show that oxytocin may have a role in the promotion of fidelity in monogamous couples. Fidelity is often associated with moral aptness.[7]
- Oxytocin plays a role in the prevention/correction of morally inappropriate behavior of addicts. Addicts are at an increased risk of behaving in a morally improper way. It is not uncommon that withdrawal crises result in attempts to acquire the substance one is on by committing a crime or by other forms of morally inappropriate behavior. Oxytocin can lower the likelihood of such behavior (McGregor and Bowen 2012).
- Oxytocin appears to affect generosity, which is often considered as a morally desirable trait (Zak et al. 2007).

Objections

What follows is a brief discussion of possible objections to the use of oxytocin as an alleged moral enhancer:

(1) The traits that are being strengthened by oxytocin and other currently possible moral enhancement technologies are not the only ones relevant for morality. In fact, for a proper moral functioning they have to be combined with other dispositions, dispositions that are sometimes at odds with empathy, trust and an absence of aggressiveness. For example, should a judge`s empathy be enhanced when she has to pass judgment on a dangerous habitual offender? Should aversion to directly harm others induce us to decide to sacrifice five innocent lives in the trolley thought experiment?[8] Should our trust be augmented to the level that we become victims of those who wish to take advantage of us? Should we subdue our aggressive impulses when we see a child being abused by a molester? As the answers to these questions might well be negative, it is warranted to conclude that morality, unless very narrowly and inappropriately defined as empathy, requires more than the currently existing moral enhancement technologies, oxytocin included, have on offer. In fact, morality is not a random enhancement of empathy, trust and generosity and a lowering of belligerent impulses, but rather implies the need to strike a balance between them and a sense of fairness, apposite retribution and a suitable level of aggressiveness.

[6] For example, oxytocin can help romantically attached couples by decreasing their anxiety during periods of separation (Marazziti et al. 2006). If a couple is separated for a long period of time, the fear of betrayal might increase. A lack of physical intimacy can augment this fear. If we believe that we risk being exposed to betrayal, we may respond in kind. As this is likely to hurt our partner, it is not morally right. More trust will make us less likely to hurt our partner.

[7] In one study, intranasal oxytocin apparently caused men in a monogamous relationship to increase the distance between themselves and an attractive woman during a first encounter by more than 10–15 centimeters. Single men did not increase this distance (Scheele et al. 2012). This implies that oxytocin might stimulate fidelity. An anonymous reviewer rightly noted however that increased fidelity might be harmful if it is unearned.

[8] One version of the trolley thought experiment is the following. A runaway trolley is about to kill five people who lie tied up on its track, unable to move. You can help. All you have to do is pull a hand lever to switch tracks, saving the five people. But there is a problem. Someone stands on the sidetrack unto which you can divert the trolley. There is no time to warn him. Hence, by pulling the hand lever and guiding the trolley to safety you will save five people, but at the same time have an active role in killing one person. A variety of complex moral issues arise when we think about which action is the morally justified one to take.

This shows that, apart from enhanced moral behavior, it is enhanced moral reflection that moral enhancement requires. But it is precisely moral reflection that is being rendered practically redundant in the case of compulsory moral enhancement.

(2) There is some evidence that oxytocin promotes ethnocentric behavior, combining trust and empathy towards in-groups with suspicion and rejection of out-groups. Hence, it might in certain cases augment xenophobic and various other types of heterophobic behaviors (DeDreu et al. 2011). In that sense, oxytocin does not always boost empathy. It is moral reflection that ought to step in there as a corrective. But it is precisely moral reflection that is rendered unusable in the case of compulsory moral enhancement.

(3) Heightened trust and empathy might in certain situations be detrimental to our safety. If we are exposed to danger, it is fear that protects us. In that context, trust and empathy are maladaptive (Wathes et al. 1982). Hence, the role of oxytocin and other substances that increase empathy, trust and social bonding, can be both adaptive and maladaptive—depending on the context. In order to obtain proper insight into this context, the dangers of heightened trust and empathy ought to be balanced out against their alleged moral desirability[9]. What is needed is moral reflection. But again, it is precisely moral reflection that is rendered practically superfluous in the case of compulsory moral enhancement.

(4) Various findings about oxytocin`s role in increasing desirable social emotions have been brought into doubt. For instance, certain experiments demonstrating that oxytocin boosts trust have not been replicated. Lane and colleagues argue that the results of two failed replications clearly exclude a large effect of oxytocin on trust, suggesting either a null effect of oxytocin, or a minor effect, undetectable with small sample size (Lane et al. 2015, p. 1).

(5) There are some relevant exceptions to Zak`s findings that relate to the role of oxytocin as a moral enhancer: around 5% of the tested subjects were utterly unresponsive to being trusted or to stimulation by oxytocin. Zak referred to these people as to "unconditional non-reciprocators" or "bastards"—the ones who take the money and keep everything for themselves. Zak found that such people are a clear minority with traits of psychopaths.[10] Their behavior requires moral reflection that will determine in which cases the administration of oxytocin is futile.

(6) It has also been argued that oxytocin enhances *all* social emotions. There is some evidence, namely, that inhaled oxytocin might increase envy and delight in the misfortune of others ("*Schadenfreude*") (Shamay-Tsoory et al. 2009). Envy is not considered to be a morally attractive disposition. Again, it is moral reflection that has to step in there in order to subdue morally undesirable traits that oxytocin might augment (envy in this case).

(7) The role of oxytocin as a cognitive enhancer has not been determined with any precision (Kosfeld et al. 2005; Baumgartner et al. 2008). There are various speculations about its potential role in learning, according to which oxytocin facilitates amygdala-dependent socially stimulated learning (e.g., see Hurlemann et al. 2010). In certain situations, however, oxytocin proves to be a cognitive de-enhancer. Some learning and memory functions are weakened by centrally administered oxytocin (Singer et al. 2008). For instance, systemic oxytocin administration can impair the retrieval of specific aversive memories (Gimpl and Fahrenholz 2001).

(8) The games that are meant to provide evidence for oxytocin having a role in inducing us to behave more or less morally responsibly, are themselves subject to ambiguous interpretations. For instance, the role of oxytocin in inducing us to accept unfair offers in the Ultimatum Game is morally dubious. It is doubtful that heightened empathy leading to the acceptance of unfair offers is morally justified. Expanding on Objection 1, in the trolley game oxytocin might lead to more empathy induced outcomes, but it does not necessarily lead to more morally appropriate behavior. If in this game we don`t decide to divert the train because our enhanced empathy makes us more aversive toward doing so-that is, if inhaled oxytocin makes us less inclined to actively inflict direct harm—we don`t necessarily act in a more morally responsible way. In fact, by opting for sacrificing five innocent lives we might be doing something that is *less* moral. The trolley example shows that empathy might sometimes even be at odds with morality. For instance, if we adopt a utilitarian perspective, oxytocin might lead to a less moral outcome.

[9] Similar points can be made about the adaptiveness/maladaptiveness of romantic attachment.

[10] See http://www.theguardian.com/science/2012/jul/15/interview-dr-love-paul-zak; retrieved on 23 January 2017.

Here again, moral reflection is needed in order to arrive at the morally most apposite stance. And again, it is precisely moral reflection that is being rendered practically redundant by compulsory moral enhancement.

(9) The behaviors that are the object of analysis in the experiments described above in games do not occur in game contexts in our real lives. The actual situations are frequently very important matters in which we have to take decisions that affect our values, emotions, and finally our identity. Outside of the experimental context, the actions of the "players" are not a matter of fun. Furthermore, the game-like nature of laboratory tasks makes empathic concern with the co-player difficult. In the trolley game, for example, we do not have to think about the guilt that we might feel in real situations in case of diverting or not diverting the trolley.[11] Our moral reflection in games does not have any necessary relation to how we actually behave.

Why compulsory administration of oxytocin is ineffective

The following objections bring into doubt some of the beneficial effects oxytocin has as an alleged moral enhancer: the moral ambiguity of the traits oxytocin stimulates and the moral relevance of the traits oxytocin is not alleged to stimulate (Objection 1), the fact that in certain circumstances oxytocin appears to stimulate morally controversial behavior, such as ethnocentric behavior (Objection 2), the need not to extend trustworthy behavior to untrustworthy individuals and circumstances (Objection 3), the need to take into consideration the fact that the interpretations of some findings on the role of oxytocin as a moral enhancer are ambiguous (Objection 4), the necessity to be aware of the resilience to oxytocin's effects on morality in the case of people with certain types of personality disorders (Zak's "bastards") (Objection 5), the need to be aware of the fact that oxytocin can in some cases stimulate spite (Objection 6), the requisite to take into account that oxytocin can in some circumstances be a cognitive de-enhancer (sometimes it has the tendency to suppress aversive memories) (Objection 7), the requisite of further research on oxytocin's effects that will help us arrive at less ambiguous findings (Objection 8), as well as the fact that the experiments on oxytocin as a moral enhancer often occur in game contexts and not in real life (Objection 9).

Objections 4, 7 and 9 either bring into doubt some of the findings concerning the role of oxytocin as an alleged moral enhancer (4 and 7) or they question the usefulness of games in drawing conclusions about the type of behavior that is being analyzed (9). These objections can be addressed by improved research. For example, experiments can be replicated or made resemble less game contexts in certain cases.

Objections 1, 2, 3, 5, 6 and 8 are more troublesome. They are essential for our argument as they have to be dealt with by (possibly enhanced) moral reflection. In order to make moral enhancement compulsory we ought to decide on a case by case basis which type of moral behavior to require. For that we ought to rely on moral reflection. But as the role of moral reflection is being rendered practically unusable in the case of compulsory moral enhancement, we cannot rely on it.

The central question is however whether some of the objections can be counter-balanced by the beneficial effects of oxytocin as a moral enhancer. This can indeed by achieved in the cases of Objections 2, 3, 5, 6 and 8. We might come to the conclusion that an overall increase of empathy and trust, as well as decreased aggression, might trump ethnocentrism, xenophobia, envy, the danger that we extend our trust to untrustworthy individuals and/or groups, the need for lowered expectations in the case of moral enhancement of individuals with certain types of personality disorders, as well as the danger of an incorrect interpretation of some ambiguous findings about the role of oxytocin as a moral enhancer.

There is no possibility however to counter-balance Objection 1, as it addresses issues that have to do with our very understanding of morality, especially in certain morally ambiguous contexts. They cannot be dealt with merely by using substances that will motivate us to behave more morally, as we don`t have an unambiguous understanding of what is moral in such contexts. As a matter of fact, we don`t know which behavior to stimulate, unless we use moral reflection. As compulsory moral enhancement renders moral reflection practically unusable, i.e. superfluous, it is impossible to decide which behavior to stimulate. Hence, compulsory moral enhancement becomes ineffective in the contexts formulated in Objection 1. Objection 1 is unique in the sense that it is the only one so substantial that it does not appear plausible to outweigh it by any benefit or combination of benefits of oxytocin as a compulsory moral enhancer. What kind of beneficial outcome could we possibly envision that would trump the fact that compulsion has rendered practically unusable the role of moral reflection in deciding on the very issue in question, i.e. the issue of which traits to enhance in order to balance out empathy, trust and an absence of aggressiveness with other

[11] I am indebted to Harris Wiseman for certain segments in this discussion.

dispositions, including the ones that are sometimes at odds with empathy, trust and less aggressiveness?

In conclusion, the beneficial outcomes of the use of oxytocin as a compulsory moral enhancer do not outweigh its detriment of making moral reflection practically redundant. Consequently, the use of oxytocin as a compulsory moral enhancer is ineffective. Hence, compulsory administration of oxytocin does not result in genuine moral enhancement.

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