

## Neurointerventions and crime prevention. An ethically inappropriate discussion?

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*Neurointerventions and crime prevention*

*An ethically inappropriate discussion?*

*Abstract:* An increasing number of philosophers and other theorists have in recent years become preoccupied with the question as to whether it is ethically acceptable to use neurointerventions – that is, interventions which in one way or another operate directly on the brain of a subject – as an instrument in crime prevention. But have the theorists who engage in this discussion been led astray? Should such a discussion in itself be regarded ethically inappropriate? This article considers three objections to the current neuroethical discussion of crime prevention: 1) That the discussion is too hypothetical; 2) that it derails the traditional discussion of crime prevention by fundamentally misdiagnosing the problem of crime; 3) that the discussion may have undesirable implications by being misunderstood or even misused in political contexts. It is argued that, even though theorists do possess a responsibility for the implications of the research they engage in, the three objections should all be dismissed<sup>1</sup>.

*Keywords:* Crime prevention; Criminal justice practice; Neuroethics; Neurointerventions; Offenders.

*Indice:* 1. Hypothetical neuroethical considerations – 2. Derailing considerations of crime prevention – 3. Undesirable implications of the neuroethical discussion – 4. Conclusion

An increasing number of philosophers, legal scholars, and other theorists have – over the last couple of years – become preoccupied with the question as to whether it is morally acceptable (or even required) to use neurointerventions on criminal offenders as a tool to prevent future offending. It is not difficult to understand why this question has attracted attention. First, neuroscience has undergone significant developments and has not only increased insight into the functioning human brain, but has also opened up a number of ways of influencing the brain<sup>2</sup>. Second,

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1 The discussion in this paper draws on the thoughts and arguments that have been presented in Ryberg 2020: chapter 1.

2 There methods vary from medical interventions, to non-invasive techniques (e.g. transcranial magnetic stimulation), and invasive techniques such a brain surgery. See, for instance, Bulitz 2018, Ryberg 2021.

the prevention of crime constitutes an obvious societal goal. Third, the discussion of the ethical legitimacy of using neuroscientific tools to prevent offenders from recidivating prompts a number of challenges that would strike anyone with an interest in applied ethics as highly intriguing.

However, though it is indeed understandable that theorists have engaged in considerations of crime preventive use of neurointerventions, this does not *per se* show that such considerations are in fact morally desirable. In more general discussions of research – and of the moral responsibility of scientists – it is sometimes held that there are certain types of research that scientists should not engage in. In particular, this view has been presented in relation to some types of applied science where the distance between the results of the scientific work and the application of this work in a (dubious) political context is small. Could a similar view be held with regard to the current discussion of the use of neurointerventions on offenders? Does this constitute a field of research where theorists would be well-advised to pause rather than merely follow their immediate inclinations to enthusiastically dig into the numerous ethical challenges?

The purpose of this article is to reflect on the ethics of the ethical discussion of the use of neurointerventions on offenders. It will be considered whether the arguments that have sometimes been presented against engaging in other types of research and ethical consideration are applicable when it comes to the discussion of crime preventive use of neurointerventions. More specifically the article will proceed as follows. In section (1), it is considered whether the discussion of the use of neurointerventions in crime prevention should be set aside due to its highly hypothetical nature. Section (2) considers whether the discussion of such tools should be seen as inappropriate because it tends to remove attention from what constitute the most plausible approaches and answers to the problem of crime. Section (3) is devoted to the objection that the ethical discussion of neurointerventions should be put to rest because it may lead to conclusions that could be misunderstood or misused by decision-makers who are often driven by various sorts of (dubious) political interests. Finally, section (4) summarizes and concludes.

As will become clear, the upshot of the following considerations is that the considered objections against the ethical discussion of the use of neurointervention in crime prevention are premature. However, this conclusion is not based on the view that theorists are morally free to engage in any kind of ethical consideration. Rather, as will be suggested, there could be some cases in which there would be reasons not to pursue ethical questions that arise. Therefore, even though the objections will be answered dismissively, this does not mean that theorists in this field have no obligations to consider the possible implications of engaging in such neuroethical reflections in the first place.

## 1. Hypothetical neuroethical considerations

A first possible objection against the ethical discussion of the use on neurointerventions in crime prevention concerns the hypothetical nature of such treatment

options. Consider, as an illustration, the following example. A remarkable neuroscientific development in relation to treatment of certain neurological diseases is the use of so-called “predictive brain devices”. For instance, in some cases involving patients suffering from severe epileptic seizures, it has become possible to implant a device which makes it possible to detect oncoming seizures (see Gilbert 2015; Ryberg 2020). This predictive device works by sending a message of such seizures to the patient thereby enabling him or her to take the necessary precautions. Furthermore, it has become possible to combine such a predictive device with a so-called “activation device”. When the latter device receives a message from the former concerning an oncoming seizure, it automatically discharges a drug designed to prevent the seizure. The combination of these two devices has obvious therapeutic advantages.

However, the possibility of designing such combined systems has opened up a discussion of further potential types of application. For instance, it has been considered whether systems could be used to detect and prevent other kinds of undesirable brain activity such as explosive aggressive outbursts in offenders suffering from a lack of impulse control (Ryberg 2015a). Such a system would work, firstly, by detecting signs of severe aggression – say, a neurological activity above a certain pre-determined level – and, secondly, by discharging a drug in the brain that would put a damper on this activity before it manifests itself in undesirable behaviour such as a violent offence. Clearly, the question as to whether such brain systems should be used in certain groups of offenders suffering from an explosive temperament and with a comprehensive criminal record obviously gives rise to many ethical considerations. However, the point here is that when philosophers and other theorists are tempted to engage in such considerations they will be discussing a treatment option which is not at all a genuine possibility. The fact is that such systems, as instruments to dealing with violent criminal activity, do not exist. In fact, such treatment may never become possible<sup>3</sup>. What this illustrates, it might be suggested, is the more general problem characterizing the whole discussion about crime preventive use of neurointerventions; namely, that this constitutes a purely *hypothetical* discussion and, therefore, a discussion which has very little to offer with regard to the important question as to how societies should deal with crime. If one subscribes to the view which has sometimes been presented as a main characteristic of the entire applied ethics movement, namely, that the point of research in this field is not to understand the world but to change it and, hence, that ethicists should be engaged in what constitute genuine and pressing ethical dilemmas, then it might seem that current neuroethical discussion of neurointerventions in crime prevention has led theorists astray<sup>4</sup>. This discussion – the objection might go – is simply too unrealistic and, therefore, not something ethicists should be en-

3 At least not without having too serious side-effects on the offender who is being treated.

4 Many theorists have underlined that the whole point of engaging in criminal justice ethics is to influence criminal justice practice by informing and guiding legislators and other decision-makers. For instance, Cindy Banks holds that: “An understanding of ethics is essential to competent decision-making by criminal justice professionals and the proper working of the

gaged in<sup>5</sup>. Is this objection convincing? I believe there are several reasons to why it should be dismissed even if one accepts the underlying assumption that ethics should have an application-focused orientation.

First, the most obvious answer is that it is certainly not all considerations of crime preventive use of neurointerventions that are of purely hypothetical nature. For instance, a comprehensive Swedish study gathered information for more than 25.000 patients with ADHD regarding their pharmacological treatment and criminal convictions (Ginsberg and Lindfors 2012). It was found that the number of convictions was much smaller in periods in which the patients received ADHD medication than in periods of non-medication. Other studies have observed a reduction in a range of behavioural measures (e.g. anger, irritability, and impulsivity) in patients treated with selective serotonin reuptake inhibitors (SSRIs) (Butler et al. 2010). Furthermore, several studies have found positive correlations between the use of vitamin-mineral supplementation and serious anti-social behaviour (Gesch et al. 2002; Schoenthaler et al. 1997; Zaalberg et al. 2010). The point of directing attention to these studies is of course that they do not involve hypothetical neurotechnological tools but treatment options which are already in use in some groups of patients. Moreover, another example is the administration of drugs like MPA (medroxyprogesterone acetate) and CPA (cyproterone acetate) in medical castration of sex offenders. Such treatment is currently authorized in several US jurisdictions as well as in European countries (see Rice and Harris 2011; Ryberg 2020: 14). Whether these types of treatment are morally acceptable is of course an open question. The point here simply is that the discussion of the use of such treatment cannot plausibly be deemed inappropriate due to its hypothetical nature.

Second, even though the objection fails with regard to some types of treatment by neurointerventions, it could nevertheless still be held that part of the current neuroethical discussion is indeed hypothetical. While it is hard to dispute that this is correct, it is nevertheless less obvious that considerations of such treatment can plausibly be regarded as inappropriate. For instance, a neuroscientific study have recently claimed to demonstrate for the first time in humans that serotonin 1B receptors (called “5-HT<sub>1B</sub>R”) are correlated with high levels of aggression in violent offenders, but not in control non-offenders. The researchers behind the study conclude that these receptors may “represent a molecular target for development of pharmacological antiaggressive treatments” (Cunhan-Bang et al. 2016: 7). As this indicates, such treatment does not yet exist (and may perhaps never be developed). However, the fact that such research is being conducted certainly makes it reasonable for philosophers and other theorists to engage in considerations of whether this treatment, if it were to become a genuine option, would in fact be desirable

criminal justice system”, Banks 2020: 15. See, for instance, also Canton 2017, von Hirsch 1993 or Tonry 2011.

<sup>5</sup> Robert Sparrow has criticized part of the current discussion of moral enhancement on the ground of the view that a proper use of thought-experiments in this field presupposes that such experiments accurately represent and illuminate “a pressing ethical dilemma”, Sparrow 2014: 113.

and how it should then to be used. If by “hypothetical” is meant that a discussion concerns treatment options which have not yet been developed, then it is not plausible to contend that the hypothetical nature of current neuroethical discussions constitutes a problem. On the contrary, it seems more plausible to regard this trait of the discussion as a virtue. It is a well-known fact that if one does not reflect on the potential ethical implications of a technology before it is fully developed, one may well end up being unprepared or even overwhelmed by the possibilities of this technology once it is there (Ryberg 2020: 13). Thus, it is difficult to see that the anticipatory nature of the current discussion of the use on neurointerventions in crime prevention constitutes a reason against engaging in such discussion.

In summary, the contention that the current discussion of crime preventive use of neurointerventions is defective due to its hypothetical character does not seem plausible. As we have seen, part of the discussion is not at all hypothetical. And even though there are discussions which are hypothetical in the sense that they deal with treatment options that do not constitute a pressing concern because they have not yet been developed, this does not constitute a reason against engaging in such discussion. If such discussions are well-informed about the developments in current neuroscientific research they should rather be seen as highly desirable. Obviously, this is not to say that all current discussions are equally urgent. There may well be some that concern issues belonging in possible worlds far from the present. However, this cannot plausibly be held to generally characterize the current ethical discussion on neurointerventions and crime prevention<sup>6</sup>.

## 2. Derailing considerations of crime prevention

The accusation that current neuroethical discussion of the use of neurointerventions as a crime preventive tool is defectively hypothetical – as we have just seen – is not persuasive. However, there is another reason for scepticism against the current discussion in this field, which may seem more powerful. It might be suggested that the whole idea of influencing brain mechanisms pre-disposing to criminal conduct is basically leading the traditional discussion of crime prevention astray. The problem is not that this idea is hypothetical, but that it is based on a naïve understanding of the aetiology of crime. It is not difficult to some find support for this contention.

First, the whole idea of *curing* offenders – which historically has had a major attraction – does not seem to go well hand in hand with the fact that a crime is a construction in the straightforward sense that it is the result of political decision-

6 Furthermore, it is worth noticing that even if part of the current neuroethical discussion of crime prevention is hypothetical in the sense that it concerns types of treatment that will never become genuine treatment options, this need not imply that the discussion is wasted. Thoughts and arguments which have been developed in a purely hypothetical context may sometimes turn out to be applicable and illuminating in relation to other problems which are genuinely urgent, Ryberg 2020: 13.

making. Some acts are being criminalized, while others are being decriminalized. Thus, a person may be an offender at one point in time, but no longer an offender at a later point. And this is so even though the person and his or her behaviour *per se* have not undergone any changes whatsoever. Thus, the idea of regarding crime as some sort of defect *in* the offender – and therefore as something with affinity to a disease calling for some sort of clinical remedy – is misplaced. At least, so it might be argued.

Second, and to the same effect, it might be suggested that the idea of paralleling crime prevention and clinical treatment fails to recognize the fact that offenders do not constitute a particular subgroup of the population. Rather, in reality the picture is much more blurred than asking who is suffering from a particular disease. For instance, studies of self-reported offending show that it makes little sense to regard criminal conduct as an exceptional type of behaviour that is attributable to a particular group of people. In a study of self-reported crime amongst males in London, it was found that more than 90% of respondents admitted having committed at least one act that could have led to a criminal conviction (Farrington 2002). In this light, the idea of curing offenders may well strike one as somewhat misplaced.

Third, and most importantly, it might be felt that the idea of preventing crime by some sort of neurointervention tends to fully ignore the fact that offending takes place in a social setting. An argument along these lines has been presented in relation to the more general ethical discussion of bio-medical means of moral enhancement (see Ryberg 2020: 15). For instance, it has been held that, insofar as philosophers and other theorists envision moral enhancement as a solution to urgent societal threats – such as poverty, war, and terrorism – one has failed to recognize that decisions contributing to the existence of such problems are made within a societal, political, and economical context that enables and sometimes even promotes these decisions. As some critiques have underlined, the whole idea of moral enhancement is therefore “highly suspect”, because it disregards the significance of such contexts by perceiving major societal threats as the result of individual moral deficits (see Melo-Martin and Salles 2014: 6). Along the same line, it might be held that the idea of preventing crime by the use of neuroscientific instruments blatantly fails to account for the significance of the social framework. In simple terms, it makes little sense to consider neurological treatment of a person who has committed theft because he or she lacks access to medicine, or is unable to feed his or her children. Such an approach constitutes a conspicuous example of misdiagnosing the problem of crime (see Ryberg 2020: 15). Thus, as this and the former reasons indicate, the ethical discussion of neurointervention in crime prevention might seem to have adopted a wrong point of departure which basically ends up derailing the important traditional discussion of causes and prevention of crime. Is this objection on the right track?

In my view, the answer is clearly in the negative. Notably, this has nothing to do with the fact that the emphasis on the significance of the social causes is mistaken. On the contrary, insight into the social mechanisms that generate criminal activity are obviously highly important in considerations of crime prevention. And no one – I hope – would seriously suggest the use of a neurointervention as the

proper remedy in the above-mentioned cases of theft. However, it is important to keep in mind what we are here discussing. What we are considering is not whether and when social initiatives are preferable to treatment by neurointerventions. Rather, the point here is whether the *discussion* of the use of neurointerventions in crime prevention should in itself be seen as ethically inappropriate. Clearly, this is a very different issue. If one contends that criminals should be prevented from falling back into crime by being integrated in some sort of social rehabilitation programme rather than being subject of some sort of neurointervention, then this objection is precisely this: a part of the ethical discussion of the desirability of the use of neurointerventions in crime prevention (see Ryberg 2020: 15). In other words, the emphasis on the importance of understanding the social causes of crime and the advocacy of social rehabilitation may constitute objections against certain other methods of preventing crime – they are not objections against the discussion such methods. Thus, though I am very sympathetic to all the three points outlined above, they do not constitute objections against the ethical discussion for or against the use of neurointerventions in crime prevention. They are themselves (important) parts of this very discussion. Therefore, as an objection against discussing the use of neurointerventions in crime prevention and the extent to which such interventions are preferable to other types of crime preventive treatment or initiative, the objection is simply misdirected.

### 3. Undesirable implications of the neuroethical discussion

Even though the previous objection was based on a conflation of, on the one hand, the question as to which methods should be used in the prevention of crime and, on the other, the question as to whether the discussion of possible methods is in itself ethically appropriate, and should therefore be regarded as defective, it might still be felt that there is something to this objection. If this is the case, then I suggest that there is something different at stake. More precisely, the worry behind the objection may arise out of concern for the consequences of introducing and discussing the use of neurointerventions in a broader political context in which such discussions are vulnerable to serious misinterpretation and misuse.

As an illustration of this way of interpreting the objection, consider an example from another ethical context. A frequently presented argument in the discussion of the moral legitimacy of state-mandated use of torture, draws on the so-called “tickling bomb” scenario. The argument goes as follows. Suppose that a timed bomb is expected to be detonated at a school somewhere in the area and that this will cause the deaths of 500 children. Suppose, further, that the police do not know at which school the bomb is placed. Now, *if* under these circumstances the police knew that a particular terrorist had placed the bomb and that this person, therefore, knew of its location; *if* they knew that the terrorist would provide true information about the location if he were to be tortured; *if* one knew that the information about the location could not be obtained in any other ways and that there would not be sufficient time to evacuate all schools in the area; *if* the use of torture would not have



any impact on the inclination by the police to resort to torture in future cases; and *if* the use of torture would not have any other undesirable effects such as provoking other like-minded terrorists to engage in future misconduct or undermining the broader public confidence in the police; then would it be morally acceptable to torture the terrorist in order to obtain the information that would save the 500 children (see Ryberg 2020: 16; Luban 2008)?

The point of directing attention to this example is that the discussion of it has been held to have undesirable implications in contexts external to the academic framework within which the example is usually considered<sup>7</sup>. In the esoteric ethical discussion the scenario has been used as a counter-example to the position that there are absolute deontological constraints against the use of torture. The reason I have italicized the “ifs” is to emphasize the fact that this is meant as a hypothetical thought-experiment. Without the many stipulations – that is, for instance, if one did not know that the terrorist would in fact reveal the correct location of the bomb if he were tortured, or if it would actually be possible to evacuate all schools in the area – the example would lose the alleged force and would no longer serve the theoretical purpose it is meant to serve in the ethical discussion of whether torture can ever be justified. Philosophers are of course fully aware of the highly hypothetical nature of this scenario. In real life all the stipulations are never satisfied. However, what critics of this way of discussing the ethics of torture have complained is that this understanding of the scenario, as being purely hypothetical, is no longer preserved if the example is moved into another framework such as a political context in which the use of torture as a means against terrorism has been considered and even defended. In the modern era of terrorism it is a (sad) fact that there has been considerable support of the use of various sorts of enhanced interrogation techniques and torture (see e.g. Luban 2008). In this context, the ticking bomb scenario may well be interpreted as a real-life argument in favour of torture by politicians who do not fully understand that the scenario is hypothetical and that the various stipulations are not satisfied in practice. Or, the argument may even be adopted by politicians who, even if they realize that it is meant as a hypothetical example, nevertheless knowingly draw on it in order to rationalize decisions of introducing torture as a counter-terrorist measure. Therefore, the argument goes, philosophers and other theorists should abstain from engaging in discussions of the ticking bomb in the first place. The discussion may well turn out to have highly undesirable real-life consequences.

Now, can an objection along the same lines be presented against the current discussion of the use of neurointerventions in crime prevention? Are there reasons to believe that this academic discussion may end up have undesirable consequences either by being misunderstood or intentionally misused by legislators or other decision-makers? Insofar as this objection is plausible it would have to be based on two premises, namely: 1) that neuroethical researchers who consider the use of

7 For a recent discussion of whether the justification of torture should at all be contemplated by philosophers and other theorists, see Anderson and Nussbaum 2018.

neurointerventions in crime prevention possess a moral responsibility in the sense that it would be wrong for them to engage in such discussion if this (all considered) has undesirable real-life consequences; and 2) that it (all considered) has undesirable real-life consequences to engage in such a discussion. Should we accept these two premises and, hence, the conclusion that it is wrong for neuroethicists to engage in this sort of discussion?

The first premise of this argument opens up a more general discussion of the moral responsibility of scientists. This is a highly controversial issue. Several arguments have been presented against the view that scientists possess a moral obligation with regard to the societal implications of the research they are conducting<sup>8</sup>. I cannot possibly, in the present context, provide a thorough discussion of this more general issue except by commenting on a single objection which I believe is mistaken and which should be answered in a way that indicates why I basically believe premise 1) to be plausible. According to this standard objection, scientists do not possess a moral responsibility for the societal implications of their research because they do not decide how the results of their research are put into practice. For instance, as Robert Hoffman has put it, it is “senseless to ascribe responsibility to him [the scientists] for the use of his discovery. Responsibility for that use is rightly ascribed to whoever formulates the policy and whoever makes the decisions” (Hoffman 1975: 476). However, on closer scrutiny such an argument is hard to accept. The underlying assumption, namely, that responsibility should only be ascribed to the last mind that enters a series of events, seems clearly implausible (see also Ryberg 2003). Suppose, for instance, that a husband is very jealous of his wife and that, when he is about to confront her, I hand him a knife with the devastating consequence that he ends up stabbing her. To suggest that I could not in this case plausibly be blamed because I did not have any responsibility strikes me as a morally very dubious position. If I could foresee what would happen and if the devastating outcome could have been avoided had I not intervened in the series of events, then it seems plausible to hold that I could be held morally responsible. Thus, the scientists-do-not-decide-on-application argument should not be accepted. For similar reasons, if it were the case that engagement in ethical research on the use of neurointerventions on offenders would be (mis)used in political contexts and contribute to the implementation of schemes involving morally dubious treatment of offenders, then I believe there would be a reason for neuroethicists not to engage in such research. As indicated, much more can of course be said on this question. However, in the present context further elaboration is not necessary. Even if one – as I have suggested – accepts premise 1), this does not commit one to accept the conclusion of the objection.

The reason I would still hesitate to accept the conclusion of the argument, concerns the second premise. The contention that the academic discussion of the use of neurointerventions in crime prevention has undesirable consequences by serving a legitimizing function in political context and, thereby, by paving the way for

8 For a critical discussion of several of these arguments, see Ryberg 2003.

the implementation of undesirable applications of neurotechnological treatment, is basically an empirical claim<sup>9</sup>. And the problem is that there is no evidence supporting it and, I believe, several reasons to doubt it. The problem is not the claim that decision-makers sometimes introduce initiatives which, from an ethical point of view, must be regarded as highly dubious. In fact, it is a widely shared view in the penal theoretical academic discussion that there is a major discrepancy between what is ideally desirable and what goes on in penal practice<sup>10</sup>. Moreover, there is plenty of evidence in support of the contention that questions about crime and punishment have become highly politicized in the sense that decisions in this field often serve narrow political interests (such as pleasing the public and the winning of elections)<sup>11</sup>. The reason that I would nevertheless be reluctant to accept the premise is that the current academic discussion of neurointerventions does not really seem to deliver the goods that are likely to be exploited in the machinery of dubious political decision-making (see also Ryberg 2020: 16f).

First, neuroethical research is usually published in journals which politicians and other decision-makers have rarely heard of and almost never consult. Furthermore, the research articles are clearly esoteric in the sense that they are written for an academic audience and as such require at least some academic qualifications. Thus, lack of access constitutes a first simple barrier to the likelihood of political misuse of neuroethical research.

Second, it seems reasonable to believe that the likelihood that neuroethical research will result in morally dubious political decision-making must be contingent on the contents of the research. What has made it possible for some politicians advocating the use of torture and enhanced interrogation techniques to refer to the ticking bomb argument is of course the fact that this argument apparently provides ammunition in favour of torture. However, at this point there is no clear similarity with regard to neuroethical considerations of crime prevention. The most obvious example of what is likely to constitute morally dubious use of neurointerventions in a criminal justice context would probably be compulsory treatment schemes involving invasive neurointerventions. However, if one takes an overall look at the research dealing with the ethical aspects of this way of using neurointerventions, then it seems fair to say that the general picture is one of scepticism or outright rejection of such treatment. Thus, it cannot be said that the current ethical discussion of neurointerventions in crime prevention generally delivers the type of pro-arguments that are easily (mis)usable in political contexts.

Third, insofar as decision-makers plan to implement treatment schemes of offenders which are morally dubious or wrongful simply because such schemes are

9 That is, at least when it has been specified what is meant by undesirable consequences.

10 For a comprehensive discussion of the distinction between ideal and non-ideal penal theory, and of the implications this distinction has with regard the considerations of the use of neurointerventions in criminal justice practice, see Ryberg 2020: chapter 7. See also Ryberg 2004: chapter 5.

11 For descriptions of how crime and punishment became politicized issues resulting in “though on crime” attitudes and policies, see e.g. Tonry 2004 & 2005, or Newburn 2007.

(falsely) believed to be plausible or because they are hoped to promote more narrow political interests, then it is far from obvious that they will have to draw on the academic ethical discussion in order to be able to find arguments that can back up their decisions. It is not difficult to produce arguments which at the surface make it reasonable to adopt tough attitudes against those who break the law. In fact, politicians have a comprehensive experience in producing such reasons. Indeed, it seems pretty obvious that decision-makers are usually much “better” at making up simple and powerful messages – serving as rationalization of their policies – than neuroethicists who honour nuanced thinking and often provide highly conditional recommendations. This in itself makes it less obvious to believe that the academic discussion of neurointerventions is likely to be object of thoughtless or intentional political exploitation<sup>12</sup>.

Thus, though I basically share the view that researchers in general – and, therefore, also neuroethicists – cannot plausibly be held to be exempted from moral responsibility of the implications of their research, there does not seem to be a firm empirical ground for holding that this research currently has ethically undesirable consequences by inadvertently lending legitimacy to – and, thereby, resulting in – dubious political decision-making.

#### 4. Conclusion

That there may well be some readers who do not feel comfortable about the revived focus that, over the last decade or so, has been directed to questions concerning the use of neurointerventions in crime prevention, is not difficult to understand. Throughout the 20<sup>th</sup> century, offenders have been subjected to various kinds of experimentation and treatment – often with devastating consequences. For instance, it has been estimated that by the end of the 1960s, around 90% of phase 1 studies in new drugs in the US, were conducted on inmates in American prisons (Wiegand 2007). Furthermore, in order to “cure” offenders of their propensity for crime, inmates have been subjected to almost all types of neurointervention varying from drug therapy to lobotomy and other kinds of psychosurgery<sup>13</sup>. In many cases, these treatment schemes were administered without informed consent and, as noted, with terrible implications for those who were treated. In this light, it is not surprising that anyone who is cognizant of the pre-history of use of neurointerventions in crime prevention may also feel some reluctance to the modern revivification of such perspectives on crime control. However, if one turns from the understandable immediate gut feeling to the question as to whether there is a

12 It is worth noticing, that a further argument in favour of engaging in academic neuroethical discussion is that such discussion could also be directed against the decisions which politicians and others make with regard to the use of neurointerventions in crime prevention.

13 For an overview of the various ways in which neurointerventions have been used on offenders throughout the 20th century, see e.g. Ryberg 2020: chapter 6.

reasoned ground for not at all engaging in such neuroethical considerations, then it is hard to see that the answer should be in the positive.

What I have considered in the previous sections of this article are three arguments to the effect that philosophers and other theorists should abstain from engaging in considerations of the ethical legitimacy of the use of neurointerventions as an instrument in crime prevention. First, it was considered whether such considerations should be rejected on the ground that they are inappropriately hypothetical. As argued, this objection could easily be dismissed. There is currently much neuroscientific research devoted to questions concerning the possibility of influencing different aspects of the human mind and, more narrowly, of the possibility of preventing offenders from falling back into crime. Furthermore, as we have seen, some types of treatment by neurointerventions are already in use in criminal justice practice. Thus, the ethical discussion cannot plausibly be regarded as too hypothetical. Second, it was considered whether the current discussion of neurointerventions might be regarded as inappropriate due to its tendency to direct attention away from what constitutes the most efficient ways of preventing crime – to wit, programs involving social rehabilitation – and, more generally, as mis-diagnosing the problem of crime. As argued, this objection was based on a conflation of the question as to which *methods* should be used in crime prevention, and the *discussion* of which methods should be used for this purpose. While the objection may well constitute an objection in relation to the former question, it does not provide reasons against the latter. In fact, the objection in itself constitutes a contribution to this discussion. Finally, it was considered whether the discussion of neurointerventions as crime preventive tools should be regarded as undesirable due to the fact that it might be misinterpreted or even intentionally misused in a political context which often deviates significantly from what is ideally desirable. Though it was suggested that researchers do carry a moral responsibility, in the sense that they should consider the potential consequences of the research they are engaged in – a point which is particularly noteworthy in relation to such a highly politicized field as crime and punishment – the objection was rejected on the ground of its lack of empirical support.

In summary, the arguments that have been considered do not seem to constitute sound objections to the current ethical discussion of the possibility of using neurointerventions in crime prevention. Therefore, if one, from the outset, feels somewhat uncomfortable about this discussion then, rather than using this as a ground for disassociating oneself from the discussion, it would be better to engage in it, for instance, by seeking to open people's eyes to the various points which other neuroethicists may well have failed to adequately address or recognize.

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