INS 2020 Abstract

Moral Intuitions Regarding NIBS Interventions in Criminal Offenders

Corey Hill Allen [1]\*, Eddy Nahmias [1], & Eyal Aharoni [1]

1. Georgia State University; \*callen63@student.gsu.edu

The use of non-invasive brain stimulation (NIBS) techniques to short-circuit the causes of antisocial behavior in criminal offenders is an emergent field of research, and it raises complicated neuroethical implications [1, 2, 3, 4]. But, people’s moral intuitions regarding the uses of such technologies are unclear. For instance, could NIBS intervention ever be seen as an adequate replacement for more traditional and retributive forms of punishment? If so, what goals must be accomplished by the intervention? Is rehabilitation of antisocial behavior sufficient? If not, do people’s intuitions demand that the offender understands that what they did was wrong or that they experience remorse? And to what extent do people require evidence that the offender suffered as part of their punishment?

 In an online experimental vignette survey (N = 444), we examined whether mock juror punishment decisions were influenced by descriptions of a NIBS intervention that independently varied components of offender **understanding** (an intervention that did vs. did not cause the offender to understand the wrongfulness of their actions) and **suffering** (a painful vs. non-painful intervention)**.** Across cases, recidivism was controlled for by presenting the NIBS as preventing the offender from committing any further crimes.

 We hypothesized that (1) NIBS interventions that cause the offender to understand the wrongfulness of their crime will increase satisfaction with the prospect of offender release and decrease recommended prison sentences, and that (2) painful NIBS interventions will have similar effects. Furthermore, we hypothesize that (3) NIBS inducing both understanding and pain will lead to the highest satisfaction and lowest prison sentencing recommendation.

When NIBS made the offender understand why the crime they committed was wrong, participants reduced their recommended prison sentences (*M* = -1.66 years) and were more satisfied (*M* = 3.87 satisfaction) with the prospect of offender release compared to NIBS that did not induce changes in understanding (*M* = -1.16 years and *M* = 3.44 satisfaction), *p* < .05. Contrary to our hypotheses, whether the NIBS induced pain in the offender had no effect on prison sentencing recommendations, *p* = .34, nor satisfaction, *p* = .68, and there were no interaction effects, *p* = .68 and *p* = .78, respectively.

We discuss how these results inform our understanding of punitive goals in light of consequentialist, deontological, and communicative theories of punishment, and provide brief evaluation of the public’s moral intuitions regarding NIBS as a rehabilitative replacement for more traditional forms of punishment.

[1] Molero-Chamizo, A., Riquel, R. M., Moriana, J. A., Nitsche, M. A., & Rivera-Urbina, G. N. (2019). Bilateral prefrontal cortex anodal tDCS effects on self-reported aggressiveness in imprisoned violent offenders. *Neuroscience*, *397*, 31-40.

[2] Choy, O., Raine, A., & Hamilton, R. H. (2018). Stimulation of the prefrontal cortex reduces intentions to commit aggression: a randomized, double-blind, placebo-controlled, stratified, parallel-group trial. *Journal of neuroscience*, *38*(29), 6505-6512.

[3] Romero-Martínez, Á., Bressanutti, S., & Moya-Albiol, L. (2020). A systematic review of the effectiveness of non-invasive brain stimulation techniques to reduce violence proneness by interfering in anger and irritability. *Journal of clinical medicine*, *9*(3), 882.

[4] Holmen, S. J. (2020). Respect, Punishment and Mandatory Neurointerventions. *Neuroethics*.