



# Public attitudes toward legally coerced biological treatments of criminals

Colleen M. Berryessa<sup>1,†</sup>, Jennifer A. Chandler<sup>2,‡</sup>  
and Peter Reiner<sup>3,\*</sup>,§

1. Department of Criminology, University of Pennsylvania, Philadelphia, PA 19103, USA

2. Faculty of Law, University of Ottawa, Ottawa, ON K1N 6N5, Canada

3. National Core for Neuroethics, University of British Columbia, Vancouver, BC V6T 1Z4, Canada

\*Corresponding author. E-mail: [peter.reiner@ubc.ca](mailto:peter.reiner@ubc.ca)

## ABSTRACT

How does the public view the offer of a biological treatment in lieu of prison for criminal offenders? Using the contrastive vignette technique, we explored this issue, using mixed-methods analysis to measure concerns regarding changing the criminal's personality, the coercive nature of the offer, and the safety of the proposed treatment. Overall, we found that of the three

<sup>†</sup> Colleen M. Berryessa is a Ph.D. student in the Department of Criminology at the University of Pennsylvania. She is also pursuing a Master in Law (M.L.) at University of Pennsylvania Law School. She also holds a B.A. in Government and Mind, Brain and Behavior from Harvard University. Broadly, her research explores ethical, social, legal, and policy issues for the legal system arising from insights into biological and psychiatric influences to criminal behavior. Specifically, she is interested in examining how and if the perceptions and decision making of the jury-eligible public, judges, and other legal actors, such as attorneys and expert witnesses, concerning an offender's responsibility, sentencing, treatability, and dangerousness are influenced by evidence of biological and psychological influences to offending behavior.

<sup>‡</sup> Jennifer A. Chandler holds the Bertram Loeb Research Chair and is an Associate Professor in the Faculty of Law, University of Ottawa. Her research addresses the law and ethics of advances in biomedical science and technology, with a particular interest in neuroethics. She is a member of the Editorial Board for the *Clinical Neuroethics Journal*, the Springer Book Series *Advances in Neuroethics*, and the Palgrave Macmillan book series *Law, Neuroscience and Human Behavior*. She sits on the Board of Directors of the Canadian Institute for the Administration of Justice and the Advisory Boards of the Cambridge-Institut du Cerveau et de la Moelle Épineière Neuroethics Network (Paris), and the Société française de psychologie juridique (Paris). Jennifer Chandler joined the Faculty of Law, University of Ottawa in 2002, after serving as a law clerk to the Hon. Mr. Justice John Sopinka of the Supreme Court of Canada

<sup>§</sup> Peter Reiner is Professor and co-founder of the National Core for Neuroethics at the University of British Columbia. His scholarship in neuroethics explores public attitudes toward the use of technologies to alter the brain for non-medical purposes including cognitive enhancement, rehabilitation of criminals, and improved decision making.

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variables, the safety of the pill had the strongest effect on public acceptance of a biological intervention. Indeed, it was notable that the public was relatively sanguine about coercive offers of biological agents, as well as changing the personality of criminals. While respondents did not fully endorse such coercive offers, neither were they outraged by the use of biological treatments of criminals in lieu of incarceration. These results are discussed in the context of the retributive and rehabilitative sentiments of the public, and legal jurisprudence in the arena of human rights law.

**KEYWORDS:** biological behavior modification, criminal law, criminal rehabilitation, human rights, legally coerced treatment, retribution

## INTRODUCTION

Using the fruits of the medical and psychological sciences to treat criminal behavior has a checkered moral, ethical, and legal history, most notably the now-discredited approaches of lobotomies and aversive conditioning.<sup>1</sup> In the modern-day criminal justice systems of the Western societies, criminal offenders are sometimes offered (or even required to undergo) medical or biological interventions. The objectives of these treatments are to cause changes in neural functioning, influence criminal tendencies, and facilitate rehabilitation, either as an element of or an alternative to criminal sentences.<sup>2</sup> For example, sex offenders may be offered anti-androgen drug treatment to suppress libido (so-called chemical castration) and thus diminish the motivation to reoffend.<sup>3</sup> Compliance with these treatments may reduce the sentence imposed or favorably influence parole decision making because of the perceived reduction in risk of recidivism as well as the perception that the offender is ‘taking responsibility’ for their behavioral issues.<sup>4</sup> In some US jurisdictions, offenders with a history of substance abuse may be offered medication in lieu of punitive sentences in an attempt to encourage treatment and to reduce the likelihood of criminal behavior.<sup>5</sup> The effectiveness of current treatments in reducing antisocial behavior varies, but if recidivism rates can be demonstrated to be reduced by such agents, criminal justice systems may be tempted to adopt them.

Given that biomedical interventions are being inserted into the criminal justice system, it is worth considering the ethical dilemmas that may arise with this practice. Three are most pertinent. The first is what might be termed the Intrusion on Personality Concern—the worry that biological interventions may alter an attribute which is central to who the person is, leading to a ‘fundamental personality change’<sup>6</sup> or a loss of an

<sup>1</sup> Alexander B. Smith & Louis Berlin, *Criminal Law: A Reappraisal of Treating the Criminal Offender*, 3 U. DAYTON L. REV. 71 (1978).

<sup>2</sup> Thomas Douglas, *Criminal Rehabilitation Through Medical Intervention: Moral Liability and the Right to Bodily Integrity*, 18 J. ETHICS 101, 102 (2014).

<sup>3</sup> *Id.* at 102.

<sup>4</sup> Thomas Douglas et al., *Coercion, Incarceration, and Chemical Castration: An Argument from Autonomy*, 10 J. BIOETHICS INQ. 398 (2013); Adam B. Shniderman & Lauren B. Solberg, *Cosmetic Psychopharmacology for Prisoners: Reducing Crime and Recidivism Through Cognitive Intervention*, 8 NEUROETHICS 321 (2015); Stefanie Klag, Frances O’Callaghan & Peter Creed, *The Use of Legal Coercion in the Treatment of Substance Abusers: An Overview and Critical Analysis of Thirty Years of Research*, 40 SUBSTANCE USE & MISUSE 1782 (2005).

<sup>5</sup> Douglas, *supra* note 2, at 101, 102.

<sup>6</sup> Elizabeth Shaw, *Direct Brain Interventions and Responsibility Enhancement*, 8 CRIM. L. & PHIL. 16 (2012).

individual's 'authenticity'.<sup>7</sup> Shaw argues that biological interventions that lead to extreme changes to an offender's character sends out a strong message that the offender's preexisting character, or identity, is fundamentally defective and needs to be changed.<sup>8</sup> Of course, fundamental behavioral and potential character change is the objective of criminal rehabilitation.<sup>9</sup> However, rehabilitation achieved by a 'more holistic approach of transforming the offender's personhood', such as counseling and vocational activities, may be perceived as less threatening than changes achieved by biological modifications.<sup>10</sup>

Even if one accepts the objective and the means of changing an offender's personality, one needs to consider the Legally Coerced Treatment Concern—the worry that there exists an ambiguous boundary between permissible and impermissible legally coercive offers of biological interventions. The most common objection to offering biological interventions arises when the treatment is offered as an alternative to a criminal sentence; in this case, the choice to accept the treatment is, to some degree, coerced and thus the voluntariness of the consent to treatment is called into question.<sup>11</sup>

The third issue is the Safety Concern—the notion that biological interventions employed by criminal justice systems should be roughly as safe as agents used to treat maladies in the general population. Greely argues for this position, suggesting that the criminal justice system should not employ biological or brain interventions unless the treatment has been proven 'safe'.<sup>12</sup> Further, the United Nations provides minimum rules for the safe and humane treatment of prisoners under the Nelson Mandela Rules.<sup>13</sup> Yet, Lippke writes that the public often believes that criminals 'forfeit' at least some of their rights because of the crimes they have committed, especially when their rights are outweighed by the state's interests.<sup>14</sup> To highlight the issue, consider chemical castration. Proponents of its use for sex offenders argue that although anti-androgen drugs may have adverse biological and physiological side effects such as osteoporosis, these side effects are outweighed by the state's interest to protect the public against sexual victimization, where there are no less restrictive means for the state to accomplish this goal.<sup>15</sup> Thus, the argument goes, given the risk criminal offenders pose to the public, it may be permissible to employ biological interventions that may have substantial side effects or are not approved by regulatory authorities for use in treating the general public. Given the unpopularity of criminal offenders, the public may not be bothered by using

<sup>7</sup> Jan Christoph Bublitz & Reinhard Merkel, *Autonomy and Authenticity of Enhanced Personality Traits*, 23 *BIOETHICS* 360 (2009).

<sup>8</sup> Shaw, *supra* note 6, at 16.

<sup>9</sup> Meghan J. Ryan, *Breakthrough Science and the New Rehabilitation*, SMU DEDMAN SCHOOL OF LAW LEGAL STUDIES RESEARCH PAPER NO. 97 45 (2013).

<sup>10</sup> *Id.* at 46.

<sup>11</sup> Douglas, *supra* note 2, 103.

<sup>12</sup> Hank T. Greely, *Neuroscience and Criminal Justice: Not Responsibility but Treatment*, U. KAN. L. REV. 1116 (2008).

<sup>13</sup> United Nations Standard Minimum Rules for the Treatment of Prisoners (the Mandela Rules) (2015), [https://www.unodc.org/documents/commissions/ccpcj/ccpcj\\_sessions/ccpcj\\_24/resolutions/16/ecn152015\\_16\\_e.v1503048.pdf](https://www.unodc.org/documents/commissions/ccpcj/ccpcj_sessions/ccpcj_24/resolutions/16/ecn152015_16_e.v1503048.pdf) (accessed Apr. 4, 2016).

<sup>14</sup> Richard L. Lippke, *Toward a Theory of Prisoners' Rights*, 15 *RATIO JURIS* 127 (2002).

<sup>15</sup> Charles L. Scott & Trent Holmberg, *Castration of Sex Offenders: Prisoners' Rights Versus Public Safety*, 31 *J. AM. ACAD. PSYCHIATRY LAW* 508 (2003).

such methods, especially if it is believed that public safety would be better ensured if the treatment is used.

Currently, the use of biological interventions for rehabilitative purposes for criminals is largely limited to a small number of pharmacotherapies. As our understanding of neurobiology grows, it seems plausible that the use of biological interventions to affect criminal behavior might increase in the future. Contemporary research is already suggesting potential biological methods that might be used as future effective treatments to diminish antisocial behavior in some offenders, including expanded applications of existing drugs and biological therapies. For example, selective serotonin reuptake inhibitors have been found to reduce impulsivity of repeat violent offenders<sup>16</sup> and the libidos of sex offenders.<sup>17</sup> The drug Divalproex, which is an epilepsy anti-seizure medication, has been shown to reduce impulsive aggression.<sup>18</sup> Tolcapone, a drug used to treat Parkinson's that can reduce impulsiveness, is thought to represent an intervention that may be explored in the future to reduce criminal recidivism.<sup>19</sup> Even anti-cocaine vaccines are in development to treat cocaine addiction.<sup>20</sup> Further, the use of other, more invasive existing biological therapies, such as deep brain stimulation, has been suggested as potential interventions for antisocial behaviors; for example, deep brain stimulation has been discussed as a treatment to regulate and diminish pedophilic ruminations and behaviors.<sup>21</sup> As new methods are developed and the application of existing drugs and other biological therapies is expanded, it appears likely that a range of biological and brain interventions that affect behaviors or attributes involved in offending behavior will be available in the future. If new agents are shown to reduce recidivism, it will be tempting to adopt them.

In addition to reducing reoffending, future biological interventions may be appealing as potential 'cost savers' for criminal justice systems.<sup>22</sup> For example, the cost to incarcerate offenders is expensive, with the USA reporting an average cost of \$31 307 per inmate per year in 2010<sup>23</sup> and an estimated cost of \$39 billion annually to US taxpayers in 2012.<sup>24</sup> If rehabilitative treatments that affect criminal behavior and prevent future

<sup>16</sup> Tony Butler et al., *Reducing Impulsivity in Repeat Violent Offenders: An Open Label Trial of a Selective Serotonin Reuptake Inhibitor*, 44 AUST. NZ J. PSYCHIATRY 1137 (2010).

<sup>17</sup> Andreas Hill et al., *Differential Pharmacological Treatment of Paraphilias and Sex Offenders*, 47 INT. J. OFFENDER THER. & COMP. CRIMINOL. 407 (2003).

<sup>18</sup> Eric Hollander et al., *Divalproex in the Treatment of Impulsive Aggression: Efficacy in Cluster B Personality Disorders*, 28 NEUROPSYCHOPHARMACOLOGY 1186 (2003).

<sup>19</sup> Shniderman & Solberg, *supra* note 4, at 317, 318.

<sup>20</sup> Berma M. Kinsey, Thomas R. Kosten & Frank M. Orson, *Anti-Cocaine Vaccine Development*, 9 EXP. REV. VACCINES 1109, 1114 (2010).

<sup>21</sup> Sabine Müller, Henrik Walter & Markus Christen, *When Benefitting a Patient Increases the Risk for Harm for Third Persons—The Case of Treating Pedophilic Parkinsonian Patients with Deep Brain Stimulation*, 37 INT. J. L. PSYCHIATRY 295, 303 (2014).

<sup>22</sup> Shaw, *supra* note 6, at 1.

<sup>23</sup> Vera Institute of Justice, *The Price of Prisons: What Incarceration Costs Taxpayers* (2010), <http://www.vera.org/pubs/special/price-prisons-what-incarceration-costs-taxpayers> (accessed Apr. 4, 2016).

<sup>24</sup> Christian Henrichson & Ruth Delaney, *The Price of Prisons: What Incarceration Costs Taxpayers*, 25 FED. SENT. REP. 69 (2012), <http://www.edmontonsun.com/2014/03/18/federal-inmate-cost-soars-to-177gs-each-per-year> (accessed Apr. 4, 2016).

offending without incarceration are cost-effective, this could lead to considerable savings for the criminal justice system.<sup>25</sup>

Given the potential development of brain and biological interventions for a variety of antisocial behaviors, any potential future treatments will evoke ethical debates similar to what have arisen concerning chemical castration and the potential use of other biological interventions.<sup>26</sup> We suggest that exploring the public's views of the propriety of such interventions is important. Green writes that if such research on different brain and other biological interventions is to receive continuing public approval and support, it must anticipate the special ethical challenges it creates, placing value on anticipatory research and discussion on these issues.<sup>27</sup> Green states that research on issues raised by brain interventions, such as identity, normality, authenticity, responsibility, privacy, and justice, will be imperative to motivate discussion and reflection that will be needed as new interventions are developed.<sup>28</sup> Further, whether certain biological interventions are consistent with the public conscience is one of the key criteria for Western societies' courts in determining whether a practice violates offenders' protection against 'cruel and unusual treatment or punishment'. In Canada, the Supreme Court has explained that whether a particular treatment is unconstitutional is to be determined by asking whether it offends the standards of decency of the society,<sup>29</sup> whether 'Canadians would find the punishment abhorrent or intolerable',<sup>30</sup> or whether the treatment or punishment would 'outrage the public conscience'.<sup>31</sup> Similarly, US courts look to the 'the evolving standards of decency that mark the progress of a maturing society'.<sup>32</sup> Despite these criteria, judges generally do not have good resources with which to try to understand societal standards, and are forced to imagine these standards, based on their experience and perceptions of public moral attitudes.<sup>33</sup> In some cases, judges attempt to imagine the views of 'right-thinking people'.<sup>34</sup> Thus, research is needed on how people, seeking in good faith to balance competing societal objectives and values, would reason about coercion, safety, and other ethical issues surrounding potential biological or brain interventions.

Using this background as a framework, we undertook the current study to examine the attitudes of the public toward the offer and use of a hypothetical biological intervention in the criminal justice system. We sought to identify possible ethical concerns of the public regarding the use of such agents on criminal offenders. The hypothetical biological intervention described in this study augments a criminal's self-control and reduces impulsivity. We chose to focus our chief research questions on three ethical

<sup>25</sup> Shaw, *supra* note 6, at 1.

<sup>26</sup> Douglas, *supra* note 2, at 101, 122; Douglas et al., *supra* note 4, at 393, 405; Scott & Holmberg, *supra* note 15, at 502, 509; Shaw, *supra* note 6, at 1, 20.

<sup>27</sup> Ronald M. Green, *Neural Technologies: The Ethics of Intimate Access to the Mind*, 45 HASTINGS CENT. REP. 36 (2015).

<sup>28</sup> *Id.* at 36.

<sup>29</sup> *R. v. Wiles*, 3 S.C.R. 895 (2005).

<sup>30</sup> *R. v. Morrisey*, 2 S.C.R. 90 (2000).

<sup>31</sup> *R. v. Smith*, 1 S.C.R. 1045 (1987).

<sup>32</sup> *Trop v. Dulles*, 356 U.S. 86 (1958); David A. Strauss, *The Modernizing Mission of Judicial Review*, 76 U. CHI. L. REV. 868 (2009).

<sup>33</sup> David A. Green, *Public Opinion Versus Public Judgment About Crime: Correcting the 'Comedy of Errors'*, 46 BRIT. J. CRIMINOL. 131, 154 (2005).

<sup>34</sup> *R. v. Olson*, 1 S.C.R. 296 (1989).

concerns about biological interventions found in the literature: Intrusion on Personality Concern, Legally Coerced Treatment Concern, and the Safety Concern. Thus, in this study, our research questions asked (1) if people are comfortable with using biological treatments on criminals, including ones that are perceived as unsafe; (2) if people perceive the offer of biological interventions in lieu of jail time as coercive and if they are bothered by the potential legal coerciveness of said treatments; and (3) if people are bothered by biological treatments that change an offender's personality.

## METHODS

### Experimental vignettes and independent variables

Participants read a vignette describing a scenario involving Joe, an offender convicted of assault, who is considering a judge's offer of taking a pill for 18 months that would alter his brain chemistry and blunt his emotional outbursts as an alternative to going to prison. In each vignette, Joe is described as having a short temper and that it is his third time being charged with assault. The effects of the pill are said to be permanent after a year of Joe taking the pill.

The experimental design employed contrastive vignettes, a staple of the social and behavioral sciences.<sup>35</sup> The vignettes differed in three ways (effect on personality, length of prison sentence, and side effects), resulting in a  $2 \times 2 \times 3$  between subjects design, to address our research questions. Using the Flesch-Kincaid Reading Ease and Grade Level readability tests, we confirmed that all vignettes were comprehensible to people with a 12th grade education.

In order to examine the Intrusion on Personality Concern, vignettes varied by the inclusion (+) or omission (-) of an explicit personality change factor in the vignette. In the inclusion condition, a sentence was added which indicated that the pill would explicitly change Joe's personality ['The pill would so substantially change Joe's personality that friends and family would no longer view him as a "hot head" but as a docile person'].

In order to examine the Legally Coerced Treatment Concern, vignettes varied by the length of prison sentence that would be bypassed if Joe accepted the offer of the pill [3 months\* or 18 months\*]. Alternative options, such as plea bargains, that are offered to offenders that allow for longer prison sentences to be bypassed if accepted have been identified as potentially coercive.<sup>36</sup>

In order to examine the Safety Concern, vignettes varied by the severity of the pill's side effects [mild side effects(prescribed for the general population)\* or substantial side effects(prescribed for the general population)\* or substantial side effects(not prescribed for the general population)\*]. Adverse side effects<sup>37</sup> and approval by the Food

<sup>35</sup> Kenneth Burstin, Eugene B. Doughtie & Avi Raphaeli, *Contrastive Vignette Technique: An Indirect Methodology Designed to Address Reactive Social Attitude Measurement I*, 10 J. APPL. SOC. PSYCHOL. 147, 165 (1980); Janet Finch, *The Vignette Technique in Survey Research*, 21 SOCIOLOGY 105, 114 (1987); Jon A. Krosnick, *Survey Research*, 50 ANNU. REV. PSYCHOL. 537, 567 (1999); Lisa Wallander, *25 Years of Factorial Surveys in Sociology: A Review*, 38 SOC. SCI. RES. 505, 520 (2009).

<sup>36</sup> H. Mitchell Caldwell, *Coercive Plea Bargaining: The Unrecognized Scourge of the Justice System*, 61 CATH. U. L. REV. 63, 96 (2012).

<sup>37</sup> Erika A. Waters et al., *Reducing Aversion to Side Effects in Preventive Medical Treatment decisions.*, 13 J. EXP. PSYCHOL. APPL. 11, 21 (2007).

and Drug Administration to be marketed and prescribed<sup>38</sup> are attributes of medications that are associated with their perceived safety.

Participants read one of 12 orthogonally rotated vignettes, which included all combinations of the independent variables. After reading a single vignette, participants answered the same set of 14 questions designed to measure various attitudes toward the offer of the pill in the vignette. The first question asked participants to rate to what degree they thought that changing the personality of a criminal with a pill is consistent with the standards that they would like to see in society, considering the offer of the pill in lieu of prison time described in their version of the vignette (with anchors at 0 = not consistent and 100 = completely consistent). After responding to the first question, which represents our primary dependent variable, participants were asked in Question 2 to explain in their own words why they answered as they did using a free response box (25-character minimum); the answers were coded using contrastive quantitative content analysis (see Analysis below).

The remaining 12 quantitative questions asked participants a variety of additional questions concerning their attitudes toward the offer of the pill in the given vignette, including how hard it is for Joe to say no to the offer of the pill, to what extent the pill addresses Joe's likelihood of reoffending, and to what extent the respondents were bothered by the coerciveness of the offer of the pill instead of prison time, bothered by a criminal's personality being changed by a pill, and bothered by Joe not receiving prison time if he chooses to take the offer of the pill. As with Question 1, participants answered using 101-point sliding scales with appropriate anchors at the extremes.

At the end of the survey, participants completed a manipulation check that measured recall of the length of the prison sentence that would be bypassed if Joe accepts the offer of the pill, and provided sociodemographic information. For the full range and text of experimental vignettes and measures, see Appendix A in the supplemental information.

### Sampling procedure

Participants were recruited via Amazon's Mechanical Turk, an online labor market commonly used in the social and behavioral sciences.<sup>39</sup> We targeted a diverse sample of the adult US general public (located in the United States of America and above the age of 18). Survey responses were collected online on September 9, 2015. Before each study, participants provided informed consent, and were compensated \$0.60 for completion of the study. The University of British Columbia behavioral research ethics board approved this study.

### Analysis

Two types of analysis were used. Quantitative data were analyzed using Stata 14 (Stata Corp., College Station, TX). Quantitative questions were analyzed using

<sup>38</sup> Axel K. Olsen & Matthew D. Whalen, *Public Perceptions of the Pharmaceutical Industry and Drug Safety*, 32 DRUG SAFETY 805, 810 (2009).

<sup>39</sup> Steven V. Rouse, *A Reliability Analysis Of Mechanical Turk Data*, 43 COMPUTER HUMAN BEHAV. 304, 307 (2015); Michael Buhrmester, Tracy Kwang, & Samuel D. Gosling, *Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality, Data?*, 6 PERSP. PSYCHOL. SCI. 3, 5 (2011); David G. Rand, *The Promise of Mechanical Turk: How Online Labor Markets can Help Theorists Run Behavioral Experiments*, 299 J. THEOR. BIOL. 172, 179 (2012); Christoph Bartneck et al., *Comparing the Similarity of Responses Received from Studies in Amazon's Mechanical Turk to Studies Conducted Online and with Direct Recruitment*, 10 PLOS ONE 1, 23 (2015).

between-groups analysis of variance (ANOVA) to identify significant main and interaction effects of the three independent variables on vignette measures, followed by post-hoc Tukey HSD tests when ANOVAs revealed significant main effects. Further, Tukey effects post-hoc pairwise comparisons were used when ANOVAs reported significance in order to identify overall significant differences between means for a measure between groups of respondents receiving different vignette conditions. Although only included in the supplemental information, Tukey effects post-hoc pairwise comparisons were also used when ANOVAs reported significance in order to identify overall significant differences between means for a measure between groups of respondents receiving different vignette conditions. Descriptive statistics were used to characterize the composition and properties of the sample.

Answers entered into the free-response box (Question 2) were analyzed using a mixed-methods strategy developed by our research group called Contrastive Quantized Content Analysis (CQCA)<sup>40</sup> that quantifies the content of respondents' answers and comparing them across contrastive conditions. In order to reduce experimenter bias, the first set of comments was randomized and blinded the coders to the specific experimental vignette read by the respondent who provided a given response. We then carried out traditional content analysis<sup>41</sup> of these blinded comments, allowing for the iterative development of themes of the comments.<sup>42</sup> An initial subset of 100 comments were analyzed by two coders, and inter-rater reliability was measured<sup>43</sup> before the entire data set was coded. In this research, the inter-rater reliability for the coding scheme was calculated as 0.86, and disagreements were resolved through discussion between the two coders. When coding the comments, each theme was treated as binary, with each comment receiving either a 1 when the theme was present in the comment or 0 when the theme was absent from the comment. Once the full set of comments was coded and the data were unblinded, the frequency with which specific themes emerged in the comments was compared across contrastive conditions and inferential statistics (Pearson chi-Square) were used to explore if any observed differences between contrastive conditions were meaningful. The code sheet used in contrastive quantitative content analysis for Question 2, which lists the themes that emerged from the comments in this research, can be found in Appendix B in the supplemental information.

## RESULTS

### Sample and demographics

All members of our sample were located in the USA and of age 18 and older. Approximately an equal number of participants ( $n = 1280$ ) were recruited for each contrastive condition; after removing entries with missing data from participants, those who did not fit the sample frame, and those who failed the manipulation check, between 78 and 110 respondents participated per contrastive condition, which has been noted as

<sup>40</sup> Laura Y. Cabrera & Peter B. Reiner, *A Novel Sequential Mixed-Method Technique for Contrastive Analysis of Unscripted Qualitative Data: Contrastive Quantized Content Analysis*. SOC. METHOD RES. (In press)

<sup>41</sup> Virginia Braun & Victoria Clarke, *Using Thematic Analysis in Psychology*, 3 QUAL. RES. PSYCHOL. 77, 101 (2006).

<sup>42</sup> Cabrera and Reiner, *supra* note 40, at 6.

<sup>43</sup> Matthew Lombard, *Content Analysis in Mass Communication: Assessment and Reporting of Intercoder Reliability*, 28 HUM. COMM. RES. 587, 604 (2002).

more than enough for sufficient power to detect effects.<sup>44</sup> In total, the sample is 1129 respondents. Participants were from 45 states and the District of Columbia (the only states missing were Alaska, Hawaii, Montana, North Dakota, and Wyoming) and demographic characteristics were similar to that of the US population:<sup>45</sup> mean age of  $35.4 \pm 11.7\%$  and 45.4% female, median educational attainment of college or university, and median household income of \$40 000–\$59 999. Frequencies of sample demographics are summarized in Table 1.

### Survey results

Here, we report two levels of results. In order to make these quantitative results more comprehensible for the reader, we present the results in the following ways.

First, we report the effect of each independent variable (length of prison sentence, effect on personality, and side effects) on participants' responses to a vignette measure using ANOVAs (only  $F$  and  $p$ -values of main effects and of statistically significant interactions are reported). Second, if a significant main effect was detected for one or more independent variables, we report how and in what ways the independent variable affected the measure using Tukey HSD post-hoc tests (significant main effects of independent variables with means ( $M$ ) and  $p$ -values are reported). Although we do not report them here, we also ran post-hoc pairwise comparisons that focused on significant differences at the *vignette level*, meaning how participants' responses on a measure differed significantly overall between pairs of vignettes taking all three independent variables into account. Results at the *vignette level* are in Appendix C in the supplemental information in order to illustrate the 'big picture' of our results for the especially interested reader (the contrast of means between vignette conditions  $\pm$  the standard error and the  $p$ -value are reported).

The first question put to respondents was to rate to what degree they felt that changing the personality of a criminal with a pill was consistent with the standards that they would like to see in society considering the overall strategy described in the vignette presented to them. Answers were provided on a sliding scale with anchors of not at all consistent (0) to completely consistent (100). Interestingly, respondents across all vignette conditions appeared to feel that the judge's offer was neither completely consistent nor completely inconsistent with the standards that they would like to see in society, even for what might be considered the most innocuous of offers that the judge could give in these scenarios (a pill with mild side effects that has no explicit personality change that would bypass three months in prison) (Fig. 1). The way respondents answered this question was affected by the side effects of the pill and not by the other two variables; a three-way ANOVA showed a significant main effect for side effects ( $F_{2,1117} = 7.61, p < 0.001$ ), but not for the explicit personality change factor ( $F_{1,1117} = 1.65, p = 0.20$ ) or the length of the prison sentence avoided ( $F_{1,1117} = 0.05, p = 0.83$ ). Since side effects showed a significant main effect, we conducted post-hoc tests to examine how side effects influenced respondents' answers. The side effects but not the prescription status of the pill appeared to influence respondents' ratings; a pill with substantial side

<sup>44</sup> Joseph P. Simmons, Leif D. Nelson & Uri Simonsohn, *False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant*, 22 PSYCHOL. SCI. 1362 (2011).

<sup>45</sup> LINDSAY M. HOWDEN & JULIA A. MEYER, AGE AND SEX COMPOSITION: 2010 CENSUS BRIEFS (2010), <http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf> (accessed Apr. 4, 2016).

Table 1. Sample demographics,  $n = 1129$ .

Characteristic	% (n)
<i>Gender</i>	
Male	54.6% (616)
Female	45.4% (513)
<i>Age (groups)</i>	
18–30	43.5% (491)
31–45	37.5% (424)
46–65	17.1% (193)
>65	1.9% (21)
<i>Education (groups)</i>	
Some high school	0.4% (4)
High school diploma	11.3% (128)
Some college	32.2% (364)
College degree	39.3% (443)
Some post-graduate	3.1% (35)
Post-graduate degree	13.7% (155)
<i>Income (groups)</i>	
<\$22 500	18.4% (208)
\$22 500–\$39 999	22.8% (258)
\$40 000–\$59 999	22.2% (251)
\$60 000–\$89 999	19.0% (214)
\$90 000 or more	14.9% (168)
Prefer not to respond	2.7% (30)

effects, when described as either being prescribed ( $M_{\text{Substantial}} = 41.07, p < 0.05$ ) or not being prescribed ( $M_{\text{Substantial-}} = 39.19, p < 0.001$ ) to the general population, was perceived as less consistent with standards that respondents would like to see in society, compared to a pill with mild side effects ( $M_{\text{Mild}} = 48.01$ ). There were no significant differences concerning respondents' ratings on this measure when the pill with substantial side effects was described as being prescribed to the general population ( $M_{\text{Substantial}} = 41.07$ ) or not being prescribed ( $M_{\text{Substantial-}} = 39.19, p = 0.751$ ).

Side effects and prescription status influenced views on the pill's perceived safety. Respondents were asked to rate the safety of the pill for Joe, providing their answers

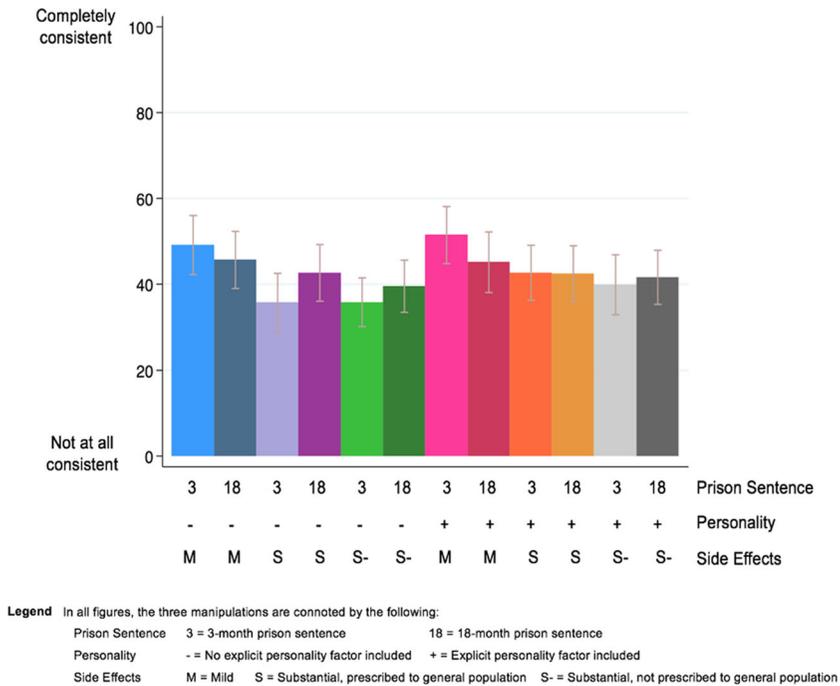


Figure 1. Ratings for the degree to which respondents felt that changing the personality of a criminal with a pill was consistent with the standards that they would like to see in society.

with anchors from not at all safe (0) to completely safe (100). The way respondents rated a pill's safety was affected by the side effects of the pill and not by the other two variables; a three-way ANOVA showed a significant main effect for side effects ( $F_{2,1117} = 27.89, p < 0.0001$ ), but not for the explicit personality change factor ( $F_{1,1117} = 0.87, p = 0.35$ ) or the length of the prison sentence avoided ( $F_{1,1117} = 0.29, p = 0.60$ ). As one would imagine, post-hoc tests showed that the pill with mild side effects ( $M_{\text{Mild}} = 50.09$ ) was perceived as safer compared to a pill with substantial side effects that either was ( $M_{\text{Substantial}} = 41.30, p < 0.0001$ ) or was not ( $M_{\text{Substantial-}} = 36.03, p < 0.0001$ ) being prescribed to the general population. It was also interesting to note that the pill with substantial side effects that was not being prescribed to the general population ( $M_{\text{Substantial-}} = 36.03$ ) was perceived as less safe than a pill with substantial side effects being prescribed to the general population ( $M_{\text{Substantial}} = 41.30, p < 0.05$ ).

To gauge the potential coerciveness of the judge's offer, respondents were asked to rate how hard it would be for Joe to refuse the option of the pill instead of jail time considering the overall strategy described in the vignette that they read. They provided their answers on a sliding scale with anchors of very easy to say no (0) to very hard to say no (100). Respondents across all vignette conditions appeared to recognize some degree of coercion, as the means across all conditions were above 50 (Fig. 2). Interestingly, the way respondents rated the coerciveness of the offer was affected by all three variables; a three-way ANOVA revealed all three independent variables affected respondents' views regarding the coerciveness of the judge's offer: significant main effects were

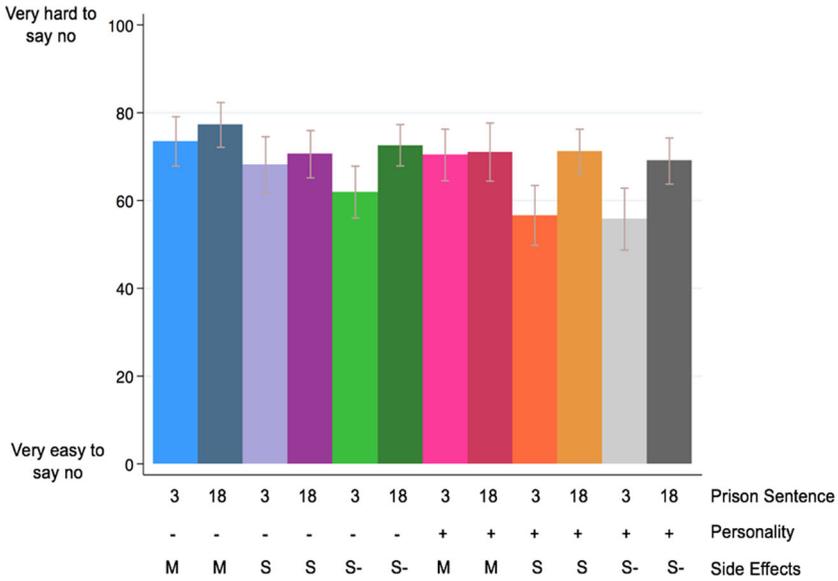


Figure 2. Ratings for how hard it would be for Joe to refuse the option of the pill instead of the jail time.

observed for side effects ( $F_{2,1117} = 8.49, p < 0.0005$ ), the explicit personality change factor ( $F_{1,1117} = 8.51, p < 0.005$ ), and the length of the prison time avoided ( $F_{1,1117} = 19.58, p < 0.0001$ ). Post-hoc tests showed that respondents felt that certain offers were more coercive than others due to the effects of these variables. Specifically, they felt that it was harder for Joe to say no when offered a pill with mild side effects ( $M_{Mild} = 72.90$ ) compared to the other two options ( $M_{Substantial} = 66.60, p < 0.01$ ;  $M_{Substantial-} = 65.14, p < 0.0001$ ) and when the offer would bypass longer prison time ( $M_{18months} = 71.79$ ) compared to a shorter sentence ( $M_{3months} = 64.22, p < 0.0001$ ). Respondents also felt that it was harder for Joe to say no when offered a pill that did not include the explicit personality change factor ( $M_{Personality-} = 70.38$ ) compared to when the pill was described to change personality ( $M_{Personality+} = 65.83, p < 0.01$ ).

Although respondents reported that it was harder to say no to some offers compared to others, none of the independent variables influenced how bothered respondents were by the coerciveness of the judge’s offer; a three-way ANOVA revealed no significant main or interaction effects for any of the three independent variables on whether respondents were bothered by the fact that Joe was being encouraged to consent to the treatment being offered by the judge (model:  $F_{1,1117} = 1.29, p = 0.23$ ; Fig. 3). While we put greater value on data that contrast results between vignettes, it is interesting to note that the stated preferences of participants appeared to be ‘middle of the road’ between not at all bothered (0) and completely bothered (100) by the fact that Joe was being encouraged to consent to the treatment being offered by the judge across all administered vignettes (Fig. 3). Results from the CQCA aligned with this finding. Participants were asked to comment about why they had answered the first question in the survey as they did (‘considering the overall strategy presented, rate to what degree did they think that changing the personality of a criminal with a pill is consistent with

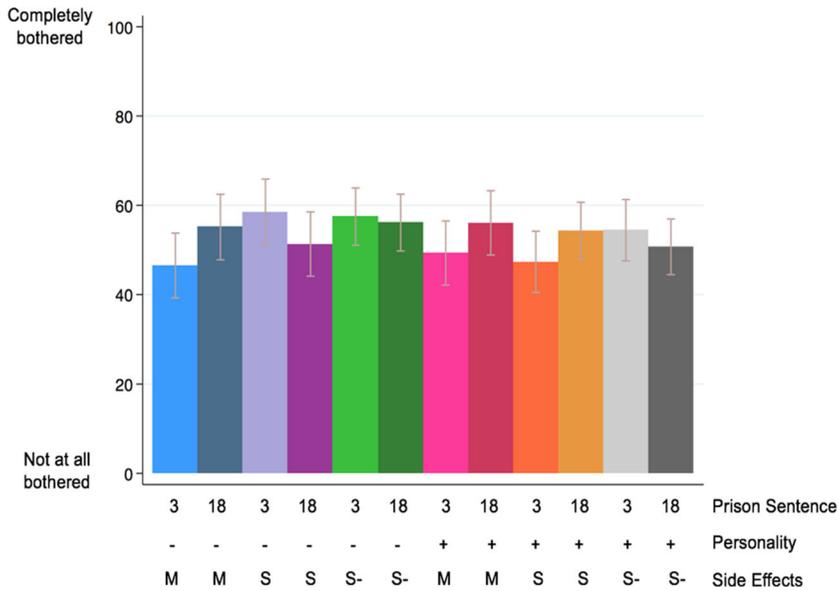


Figure 3. Ratings for how bothered respondents were by the fact that Joe was being encouraged to consent to the treatment being offered by a judge.

the standards that they would like to see in society'). Although more than 5% of respondents mentioned the coerciveness of the offer in their responses to this question, a chi-square test revealed no significant relationships between respondents receiving different vignette conditions and reporting being bothered by the coerciveness of the offer ( $n = 63$ ,  $\chi^2 = 9.9$ ,  $df = 11$ ,  $p = 0.54$ ).

In order to see if the explicit personality change factor described in half of the vignettes was perceived by respondents as causing a significant change to Joe's personality (compared to conditions without the factor), we asked how large of an overall change respondents thought there would be to Joe's personality if he took the pill. They provided their answers on a sliding scale with anchors of no change at all (0) to a complete change (100). Unsurprisingly, respondents' ratings concerning how large a personality change the pill would induce in Joe was affected by inclusion of the explicit personality change factor and not by the other two variables; a three-way ANOVA showed a significant main effect for the explicit personality change factor ( $F_{1,1117} = 54.73$ ,  $p < 0.0001$ ) but not for side effects ( $F_{1,1117} = 0.00$ ,  $p = 0.96$ ) or length of prison time avoided ( $F_{1,1117} = 3.12$ ,  $p = 0.08$ ). Indeed, post-hoc tests showed that inclusion of the explicit personality change factor resulted in higher ratings for overall personality change ( $M_{\text{Personality}+} = 73.34$ ) compared to when it was omitted ( $M_{\text{Personality}-} = 63.07$ ,  $p < 0.0001$ ).

Nonetheless, none of the independent variables influenced how bothered respondents were by the pill changing a criminal's personality; a three-way ANOVA revealed no significant main or interaction effects for any of the three independent variables on whether respondents were bothered by the criminal justice system offering a pill that produces this degree of overall change in a criminal's personality

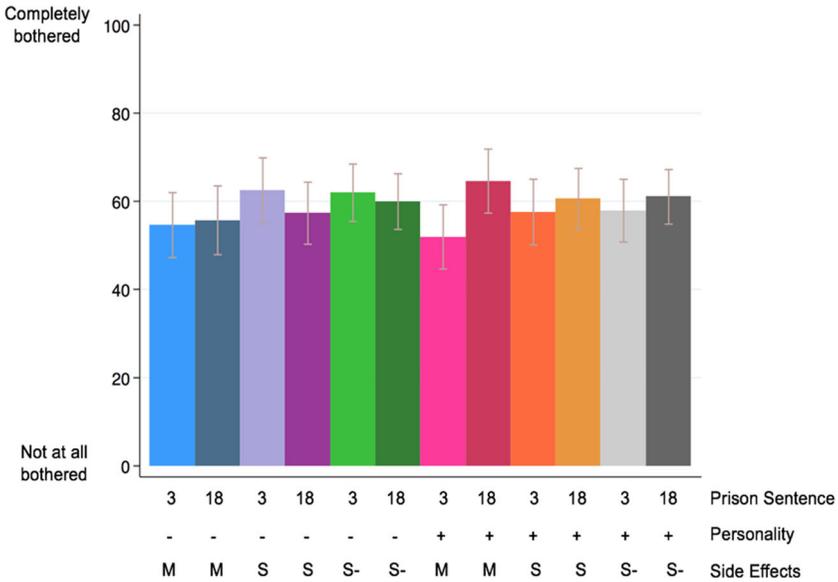


Figure 4. Ratings for how bothered respondents were by the criminal justice system offered a pill that produces this degree of overall change in criminal's personality.

(model:  $F_{11,1117} = 1.03, p = 0.42$ ; Fig. 4). Once again, while we put greater value on data that contrast results between vignettes, it is interesting to note that participants were 'middle of the road' between not at all bothered (0) and completely bothered (100) by the criminal justice system offering a pill that produces this degree of overall change in a criminal's personality across all vignettes (Fig. 4). The results from the CQCA also supported this finding. A chi-square test revealed no significant relationships between respondents reading different vignette conditions and respondents' mentioning being bothered by the criminal justice system offering a pill that produces change in personality; when asked to comment about why they had answered the first question in the survey as they did (see above), participants who received vignettes that included the explicit personality change factor and whose comments were interpreted as indicating that they were *against the use* of the pill did not express concern about Joe's personality being altered by the pill any more than those who read a vignette in which the explicit personality change factor was not included ( $n = 159, \chi^2 = 13.5, df = 11, p = 0.26$ ).

Although respondents across conditions showed no differences in whether or not they were bothered by the criminal justice system offering a personality-changing pill, the explicit personality change factor did affect respondents' views in other areas. Respondents were also asked to rate to what extent they considered the pill in lieu of prison time as a response to Joe's criminal behavior, described in the given vignette condition, as too lenient (0) to too harsh (100). Respondents across all vignette conditions appeared to feel that the pill in lieu of prison as a response to Joe's criminal behavior was closer to *too lenient* than *too harsh*, as the means across all conditions were below the rating of 50 (Fig. 5). Yet, the way respondents rated how lenient (0) or harsh (100) this response was to Joe's criminality was affected by the inclusion of the explicit personality change factor and by the pill's side effects, but not for the length of the prison

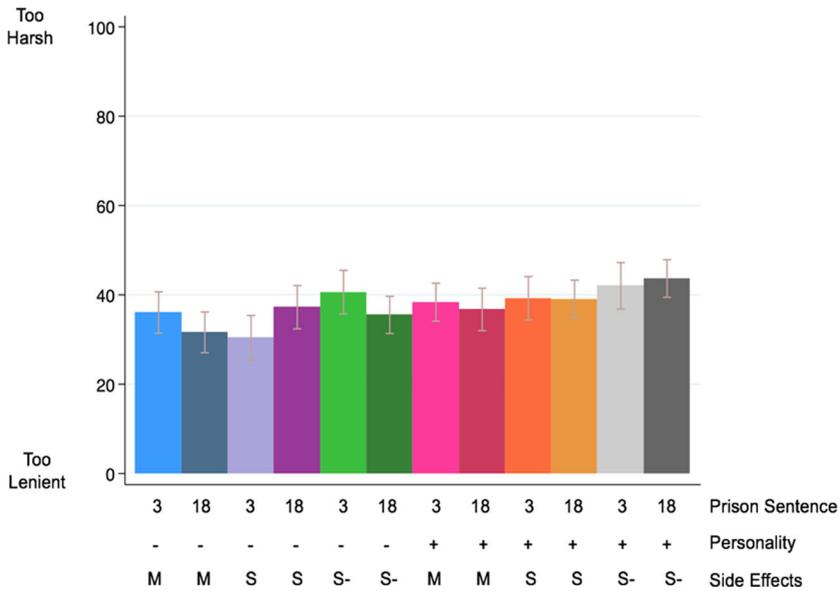


Figure 5. Ratings for how extent to which respondents considered the pill in lieu of prison time as a too lenient of too harsh response to Joe's criminal behavior.

time avoided; a three-way ANOVA detected significant main effects for the explicit personality change factor ( $F_{1,1117} = 11.6, p < 0.001$ ) and side effects ( $F_{2,1117} = 5.00, p < 0.01$ ), but not for the length of the prison sentence avoided ( $F_{1,1117} = 0.11, p = 0.74$ ). As post-hoc tests revealed, the inclusion of the explicit personality change factor ( $M_{\text{Personality}+} = 39.40$ ), compared to its omission ( $M_{\text{Personality}-} = 35.54, p < 0.001$ ), and a pill with substantial side effects that was not being prescribed to the general population ( $M_{\text{Substantial}-} = 40.42$ ), compared to one with mild side effects ( $M_{\text{Mild}} = 35.81, p < 0.05$ ), resulted in higher ratings for this measure.

Respondents were asked about how potentially effective the approach described in their vignette was to addressing the risk that Joe might reoffend (with anchors of not at all effective (0) to extremely effective (100)). Interestingly, the way in which respondents rated how effective the approach was to addressing Joe's risk of offending was affected by the inclusion of the explicit personality change factor, but not by the other two variables; a three-way ANOVA detected a significant main effect for the explicit personality factor ( $F_{1,1117} = 11.19, p < 0.001$ ) but not for the length of the prison sentence avoided ( $F_{1,1117} = 2.35, p = 0.13$ ) or side effects ( $F_{2,1117} = 2.9, p = 0.06$ ). Post-hoc tests, examining how personality change influenced respondents' answers, revealed that the inclusion of the explicit personality change factor resulted in higher ratings for the effectiveness of the pill in addressing reoffending ( $M_{\text{Personality}+} = 56.22$ ) compared to when it was omitted ( $M_{\text{Personality}-} = 50.54, p < 0.001$ ). Indeed, results from the CQCA aligned with this finding when respondents were asked to comment about why they had answered the first question in the survey as they did (see above). Participants whose comments were interpreted as indicating that they were 'against the use' of the pill mentioned disbelief that the pill would work to stop Joe's criminality

significantly less than when they read a vignette in which Joe's personality would be explicitly changed if he took the pill (compared to vignettes in which Joe's personality would not be explicitly changed) ( $n = 135$ ,  $\chi^2 = 19.7$ ,  $df = 11$ ,  $p \leq 0.05$ ).

Respondents were asked about how bothered they were by Joe not getting any prison time if he was to take the pill (with anchors of not at all bothered (0) and completely bothered (100)). Respondents' ratings of how bothered they were by Joe not getting any prison time were affected by inclusion of the personality change factor, as well as the interaction between length of prison term avoided and side effects. Indeed, a three-way ANOVA showed a significant main effect for the explicit personality change factor ( $F_{1,1117} = 6.53$ ,  $p < 0.01$ ) and a significant interaction effect for the prison  $\times$  side effects ( $F_{2,1117} = 3.5$ ,  $p < 0.05$ ). No significant main effects for side effects ( $F_{2,1117} = 1.14$ ,  $p = 0.32$ ) or length of prison sentence avoided ( $F_{1,1117} = 0.21$ ,  $p = 0.65$ ) were observed. Tukey HSD post-hoc tests showed that the inclusion of the explicit personality change factor resulted in lower ratings for how bothered respondents were that Joe did not receive prison time ( $M_{\text{Personality}+} = 52.15$ ), compared to when it was omitted ( $M_{\text{Personality}-} = 57.13$ ,  $p < 0.05$ ). OLS regression was used to analyze the nature of the interaction between prison and side effects; for respondents, receiving a vignette in which the prison sentence avoided by accepting the pill would be 18 months and the pill had mild side effects corresponded to a 7.77-point increase in ratings of how bothered respondents were that Joe would receive no prison ( $b = 7.77$ ,  $t = 2.24$ ,  $p < 0.05$ , 95% CI of the difference = 0.952 to 14.60), compared to when receiving a vignette that noted the prison sentence bypassed would be three months and the pill's side effects were mild. Once again, findings from the CQCA showed similar results when respondents were asked to comment about why they had answered the first question in the survey as they did (see above). Participants whose comments were interpreted as indicating that they were 'against the use' of the pill mentioned that they believed that Joe still deserves to receive prison time significantly less when they read a vignette in which Joe's personality would be explicitly changed if he took the pill (compared to vignettes in which Joe's personality would not be explicitly changed) ( $n = 200$ ,  $\chi^2 = 22.6$ ,  $df = 11$ ,  $p < 0.05$ ).

## DISCUSSION

In this study, we explored the ethical concerns of the public regarding the use of biological interventions to modify criminal behavior. Using contrastive vignettes, we investigated whether respondents were bothered by worries over the safety of such interventions, legal coercion to accept biological interventions, and/or concerns about changing an individual's personality using a biological intervention. Overall, our results show that respondents were largely ambivalent about the properties, the kind of offer, and the consequences of this biological intervention in exchange for a reduction in sentence duration.

### Safety, coercion, and personality change

First, we examined the Safety Concern. Respondents understood the implications of varying either the severity of the pill's side effects or prescription status as indicating differences in perceived safety. Notably, the side effects of the pill were the predominant driver of whether respondents felt that the overall strategy of using a biological

intervention was inconsistent with standards that they would like to see in society. These results suggest that when considering the propriety of using biological treatments to modify criminal behavior, the safety of the intervention is most capable of driving public opinion. That such results emerged with the side effect described in the vignette—patchy skin discoloration—is notable insofar as it is not difficult to imagine more severe side effects ensuing from biological interventions. This would suggest that the public has little appetite for biological interventions that risk the health of criminals.

Although these data do not allow us to generalize to other forms of criminal behavior, these empirical observations call into question suggestions that when the state's interest to protect the public outweighs the criminal's rights, the public might be supportive of a biological intervention with adverse side effects.<sup>46</sup> Yet, these data also suggest that the public may not be against the criminal justice system considering the employment of biological interventions that have not yet been proven to be completely safe.<sup>47</sup> Given these findings, it would be important for future studies to replicate and extend our data, exploring a range of side effects, including those that might cause the public to reject its use in this context. For example, the intervention described was a pharmaceutical, and such medications are widely accepted in our highly medicalized society.<sup>48</sup> The use of more invasive (eg deep brain stimulation) or irreversible (eg gene editing) treatments might have resulted in different responses. Nonetheless, these data strongly suggest that the public is sensitive to the existence of side effects and uses such perceptions in their internal calculus regarding the propriety of biological interventions in the treatment of criminality.

Second, we examined the Legally Coerced Treatment Concern. As with safety, respondents recognized some offers from the judge as more coercive than others. Nonetheless, coerciveness did not alter the degree to which the respondents were bothered by the offer of treatment in order to avoid jail time, at least in the context of the trade-offs described in our vignettes. It was notable that respondents were ambivalent, indicating that they were neither terribly bothered by nor entirely sanguine about the coerciveness of the treatment offer.

These data demonstrating that the public recognizes offers of treatment as an alternative to jail as at least somewhat coercive is consistent with legal and philosophical scholarship suggesting that offers of biological interventions as an alternative to punishment may be viewed as coerced.<sup>49</sup> What is novel about our findings is that despite recognizing the coercive nature of the offers, respondents were not seriously troubled by it. Of course, it is possible that the degree of coercion in our vignettes was not sufficiently overwhelming to be objectionable. Furthermore, the modest nature of the side effects and personality change described in our vignettes may also have been too mild to trigger strong concerns. Thus, the pattern observed in our data may have arisen because people believe that modest coercion of criminals is generally acceptable, particularly given the total deprivation of liberty represented by the alternative of

<sup>46</sup> Lippke, *supra* note 14, at 127; Scott & Holmberg, *supra* note 15, at 502, 509.

<sup>47</sup> Greely, *supra* note 12, at 1116.

<sup>48</sup> Simon J. Williams, Paul Martin & Jonathan Gabe, *The Pharmaceuticalisation of Society? A Framework for Analysis*, 33 SOC. HEALTH & ILLNESS 710, 725 (2011).

<sup>49</sup> Douglas et al., *supra* note 4, at 393, 405; Jennifer Chandler, *Legally-Coerced Consent to Treatment in The Criminal Justice System*, in POWER AND THE PSYCHIATRIC APPARATUS: REPRESSION, TRANSFORMATION AND ASSISTANCE 199, 216 (David Holmes ed., 2014).

incarceration, and suggests that people potentially think about coercion in these kinds of circumstances in relative, and not absolute, terms. Unfortunately, the scope of our study and questions asked to participants did not allow for a more sophisticated exploration of larger and more policy-oriented concerns that may arise from this type of coercion of criminals. For example, broader issues with coercion in this context might involve considerations such as the offer of a biomedical alternative to incarceration potentially resulting in a ratchet effect on prison sentences (in a conscious or unconscious attempt to induce the offender's choice to accept the biomedical option) or information asymmetries on the nature of biomedical treatments that might cause offenders to make suboptimal choices when weighing the option of incarceration against the acceptance of a potential biomedical treatment alternative. Although this current research does not explore these issues in greater detail, ongoing research by members of our research team, specifically utilizing qualitative methods, is seeking to richly examine coercion in these contexts at a broader, more policy-oriented level, of which the results of that research will hopefully shed greater light on these complex issues.

Finally, we examined the Intrusion on Personality Concern. Respondents rated Joe's personality as more significantly changed when it was explicitly mentioned in the vignette. Despite this, recognition of the effect of the pill on personality did not alter the degree to which the respondents were bothered by the criminal justice system offering such a pill. Indeed, respondents appeared to be, on average, ambivalent about the idea of the criminal justice system offering a pill producing this type of change to a criminal's personality, irrespective of whether there was explicit reference to the personality change.

It has been suggested that the biological interventions that result in a 'fundamental personality change'<sup>50</sup> or changes in 'authenticity'<sup>51</sup> of a criminal may be problematic. It may be the case that our description of how Joe's personality would be changed by the pill, including the fact that he would become 'docile', was not viewed by respondents as leading to such profound changes and therefore was not problematic. Indeed, some may be supportive of personality change for Joe because they view his prior personality as dangerous and, perhaps, defective. This idea would support previous findings that show that people do not regard positive changes to personality as a break in identity, and are less bothered by personality changes that are perceived as positive, compared to when the personality changes are perceived as negative.<sup>52</sup>

### Retribution and rehabilitation

Although respondents appeared not to be strongly bothered by the biological intervention changing Joe's personality, our results do suggest that respondents' views of retribution and rehabilitation may have influenced their reactions to the notion of the biological intervention changing Joe's personality. Respondents indicated in both the quantitative measures and CQCA that they were significantly less bothered that Joe would not get any prison time if he was to take the pill when it resulted in his explicit personality change. This finding could be understood in one or both of two ways. Respondents may have viewed the pill changing Joe's personality as a somewhat punitive

<sup>50</sup> Shaw, *supra* note at 6, 16.

<sup>51</sup> Bublitz & Merkel, *supra* note 7, at 360.

<sup>52</sup> Kevin Patrick Tobia, *Personal Identity, Direction of Change, and Neuroethics*, *NEUROETHICS* 1 (2016).

or retributive effect of the intervention, and therefore, they were more comfortable with him not receiving prison time because, by taking the pill, he was already being punished. Conversely, respondents may have perceived that the pill changing Joe's personality was a rehabilitative effort, and therefore, they saw prison as less necessary given the reduction in Joe's dangerousness.

Our other results appear to largely support the latter sentiment; in both the CQCA and the quantitative measures, respondents indicated that they felt that the pill resulting in an explicit personality change was a significantly more effective approach to addressing the risk that Joe might reoffend. As behavioral and character changes are the objective of rehabilitation,<sup>53</sup> these observations may be taken to suggest that participants may regard his personality change as rehabilitative. This notion would accord with the observation that respondents were not particularly bothered by the court coercing a change to Joe's personality, as previous findings suggest that people are less likely to view personality changes as harmful when they view those changes as positive.<sup>54</sup>

However, if respondents did believe that Joe's personality change would lead to beneficial rehabilitative changes, one might have expected them to be *less* bothered by a pill that induced an explicit personality change. One possible explanation is that these beliefs about the benefits of Joe's personality change may have been counterbalanced by participant's discomfort with the manner in which the rehabilitation is brought about. This would align with previous literature suggesting that rehabilitation achieved by 'more holistic approach of transforming the offender's personhood'<sup>55</sup> may be perceived as less unsettling than changes achieved by biological interventions that may appear to bypass a person's rational agency.

Yet respondents also expressed retributive sentiments. Overall, they rated the offer of a pill that did not explicitly change Joe's personality as more lenient than one that did change his personality. One interpretation of this result is that the explicit personality change is viewed as a punitive effect of the intervention. This result, paired with the findings suggesting rehabilitative sentiments of participants, shows that respondents balance a complex mixture of retributive and rehabilitative views in assessing biological interventions for criminal offenders.

### The normative relevance of empirical data

To what degree should we derive normative implications from the moral intuitions of the public? Such questions are relevant to the ongoing debate over the normative relevance of empirical data in general.<sup>56</sup> In the context of the present set of studies, the question can be reframed as follows: Are public attitudes about the propriety of legally coerced consent to biological interventions for criminal offenders relevant to whether and when these offers should be made?

The normative framework supplied by constitutional human rights guarantees offers one way of thinking about this issue. This particular normative framework is appropriate

<sup>53</sup> Ryan, *supra* note 9, at 45.

<sup>54</sup> Tobia, *supra* note 52, at 1.

<sup>55</sup> Ryan, *supra* note 9, at 46.

<sup>56</sup> Rob De Vries & Bert Gordijn, *Empirical Ethics and Its Alleged Meta-Ethical Fallacies*, 23 *BIOETHICS* 193, 201 (2009); Daniel Sarewitz, *World View: Not by Experts Alone*, 466 *NATURE* 688 (2010).

as it is the one most likely to be invoked in courts should there be a dispute over the practice of legally coerced consent to biological interventions.

Some forms of biological intervention in criminals have already been considered within the framework of constitutional human rights guarantees. Canadian jurisprudence suggests that interventions such as physical castration or lobotomies are regarded as cruel and unusual punishment.<sup>57</sup> In other jurisdictions, such reasoning appears not to be limited to coerced *treatment* but also to *consent*: an American court has concluded that asking an offender to make a choice between physical castration and imprisonment constitutes cruel and unusual punishment,<sup>58</sup> and the Council of Europe has complained that the offer of physical castration as an alternative to imprisonment in Germany and the Czech Republic offends human rights guarantees.<sup>59</sup>

In this study, we are not considering contentious interventions such as physical castration or lobotomies, but rather the more societally accepted avenue of drug therapy. How do the courts determine whether offers of this type are appropriate? As outlined in the introduction, the jurisprudence interpreting the meaning of the constitutional prohibition of 'cruel and unusual treatment or punishment' is interpreted by reference to the 'evolving standards of decency' of society,<sup>60</sup> or the 'public conscience'.<sup>61</sup> The court is thus directed to consider public views on the treatment of criminal offenders.

On its face, this looks like an odd approach given that one of the objectives of constitutional human rights guarantees is to protect individuals from the 'tyranny of the majority'.<sup>62</sup> However, the reference to the public conscience or standards of decency is not an invitation to devise criminal justice policy using penal populism as a substitute for judicial reasoning. Rather, the judgement contemplated in this jurisprudence is akin to the 'public reason' described by Rawls, in which members of the public are seeking in good faith to reason on the basis of the shared political morality accepted and enshrined in the constitutional human rights guarantees.<sup>63</sup> Although representative democracies generally do not engage in this kind of deliberation directly with the public, leaving the decision making to elected representatives and the courts, the fact remains that both are directed by the jurisprudence on 'cruel and unusual punishment' to consider this special kind of 'public conscience'. Empirical research can help understand what the public would regard as a reasonable and appropriate way to treat criminal offenders; at a minimum, it represents a useful means of identifying what outrages the public. As

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<sup>57</sup> R. v. Smith, *supra* note 31.

<sup>58</sup> State v. Brown, 836 S.W.2d 530 (1992).

<sup>59</sup> COUNCIL OF EUROPE, REPORT TO THE CZECH GOVERNMENT ON THE VISIT TO THE CZECH REPUBLIC CARRIED OUT BY THE EUROPEAN COMMITTEE FOR THE PREVENTION OF TORTURE AND INHUMAN OR DEGRADING TREATMENT OR PUNISHMENT (CPT) FROM 21 TO 23 OCTOBER 2009 (2010), <http://www.cpt.coe.int/documents/cze/2010-22-inf-eng.pdf> (accessed Apr. 5, 2016); COUNCIL OF EUROPE, REPORT TO THE GERMAN GOVERNMENT ON THE VISIT TO GERMANY CARRIED OUT BY THE EUROPEAN COMMITTEE FOR THE PREVENTION OF TORTURE AND INHUMAN OR DEGRADING TREATMENT OR PUNISHMENT (CPT) FROM 25 NOVEMBER TO 7 DECEMBER 2010 (2012), <http://www.cpt.coe.int/documents/deu/2012-06-inf-eng.pdf> (accessed Apr. 5, 2016).

<sup>60</sup> Trop v. Dulles, *supra* note 32.

<sup>61</sup> R. v. Smith *supra* note 31.

<sup>62</sup> R. v. Big M Drug Mart Ltd, 1 S.C.R. 295 (1985); ROBERT J. SHARPE & KENT ROACH, THE CHARTER OF RIGHTS AND FREEDOMS (2005).

<sup>63</sup> JOHN RAWLS, POLITICAL LIBERALISM (1993).

empirical data accumulates, at some point it may become appropriate to engage in more elaborate forms of public consultation.<sup>64</sup>

In this study, we sought to understand whether three potential ethical issues raised by biological interventions in the criminal context affected public views of the propriety of this practice. Our data suggest that—at least for the vignette scenario used here—the public has a largely ambivalent reaction, perhaps reflecting a mixture of competing retributive and rehabilitative perspectives. The results presented here represent an example of how we might determine what our shared political morality would direct in terms of when and what type of potentially legally coerced biological interventions are appropriate.

### SUPPLEMENTARY DATA

Supplementary data are available at [JLBIOS](#) online.

### ACKNOWLEDGEMENTS

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<sup>64</sup> Green, *supra* note 33, at 131, 154; DANIEL YANKELOVICH, *COMING TO PUBLIC JUDGMENT: MAKING DEMOCRACY WORK IN A COMPLEX WORLD* (1991).