

Responses and Dialogue

CQ welcomes readers' comments on papers published in the journal.
Please send submissions to T. Kushner at kushnertk@gmail.com.

The Medicalization of Love

Response to Critics

BRIAN D. EARP, ANDERS SANDBERG, and JULIAN SAVULESCU

Abstract: In 2015, we published an article entitled "The Medicalization of Love," in which we argued that both good and bad consequences could be expected to follow from love's medicalization, depending on how the process unfolded. A flurry of commentaries followed; here we offer some preliminary thoughts in reply to the more substantial of the criticisms that were raised. We focus in particular on the nature of love itself as well as the role it plays (or should play) in our lives; we also touch on a number of practical issues concerning the likely effects of any plausible "real-life" love drugs and conclude with a call for careful regulation.

Keywords: medicalization; love; well-being; biotechnology; treatment; enhancement

Introduction

Over a series of recent articles,^{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18} we and our coauthors have been exploring the social, ethical, philosophical, and legal implications of what we have been calling "love drugs" and "anti-love drugs." Very roughly, these are current, near-future, and more speculative distant-future technologies that would enhance or diminish, respectively, the romantic bond between couples engaged in a relationship. We were delighted that our recent target article—"The Medicalization of Love,"¹⁹ published in the *Cambridge Quarterly of Healthcare Ethics*—prompted such an outpouring of commentaries and responses.^{20,21,22,23,24,25,26,27,28,29} Although we cannot be comprehensive in our reply, we would like to touch on some of the major criticisms that were raised in these various pieces.

Our plan is as follows. First, we consider the paper by Sven Nyholm,³⁰ which focuses on the nature of love as an intrinsic rather than instrumental good, and we ask whether this is the right conception. We then proceed to the question of whether love—so conceived—could nevertheless be biomedically enhanced. Following Hichem Naar, we argue that it could be, but then we consider an objection from Michael Hauskeller that this leads to a dilemma. After responding to that objection, as well as to a separate charge from David Ferraro that we are committed to a kind of naïve neuroreductionism (see Box 1), we conclude by drawing attention to the work of Kristina Gupta and Rebecca Bamford. These authors emphasize the importance of attempting to develop thoughtful regulations concerning love drugs, as opposed to calling for their outright prohibition.

Discussion

We wish to thank to Sven Nyholm for his nuanced critique. Among other things, Nyholm argues that we focused too much, in our article, on the good or bad *consequences* of love's (potential) medicalization, and not enough on the ways in which there may be something *intrinsically* regrettable about medicalizing love.³¹ According to Nyholm, to treat love as a scientific or medical issue is to make an "evaluative category mistake." That is, it is to regard love as "an instrument or means to other goods, such as physical health and hedonic well-being,"³² when in fact, as Nyholm sees it, love is more typically seen as "an end in itself."³³ Even if medicalizing love would be on balance beneficial for individuals or society, then, on this view, there would still be good reason to object to it: bringing love into the realm of science or medicine would be "inherently confused or mistaken."³⁴

At least three questions are raised by this analysis. First, is it really the case that love is "almost universally regarded as an end in itself, or a good on its own account," as Nyholm claims?³⁵ Second, even if love is so regarded, *should* it be? (And if so, why?) And third, even granting that love both is and should be properly understood as an intrinsic good, might there still be a role for medical technologies in bringing about, maintaining, and/or enhancing love so conceived?

Love as an Intrinsic Good

With respect to the first question, we have our doubts. Throughout much of history, at least, and across a wide range of cultural contexts, romantic love was not typically regarded as (primarily) an end in itself—as something to be valued whether or not it contributed

to other recognized goods—but was instead seen as something that had to be balanced against, and interpreted in light of, other, more important, considerations. Indeed, in some societies, rather than being valorized as a good in its own right, love was often regarded with suspicion. Sometimes, it was even seen as a potentially serious threat to the social or moral order. The historian of marriage Stephanie Coontz states:

In ancient India, falling in love before marriage was considered a disruptive, antisocial act. In some Chinese dialects, a term for *love* didn't traditionally apply to feelings between husband and wife: It was used to describe an illicit, socially disapproved relationship. Both the ancient Greeks and medieval Europeans thought lovesickness was a type of insanity, and that it was almost indecent to love a spouse too ardently. [And although the] Greek philosopher Plato did hold love in high regard, [it was] because he felt that it led men to behave honorably [i.e., it was an instrumental good].³⁶

As Coontz argues, it was not until the end of the eighteenth century that "personal choice of partners had replaced arranged marriage as a social ideal" throughout much of Europe—due in large part to historically contingent economic developments—and that "individuals were encouraged to make that choice on the basis of love."³⁷ Even today, there are societies in which arranged marriage remains the norm, and in these societies, romantic love may still typically be regarded as something whose value must be assessed in light of extrinsic standards.

What this suggests is that love can, and does, play different roles in different settings over time. How it is popularly seen in certain settings today, therefore, may not carry the same weight elsewhere or going forward: evaluative categories (and their contents) often

change as new conceptual tools become available, or as evolving pragmatic considerations reshape and reconfigure underlying sources of value.³⁸ Unless some argument is given for why love *should* be seen (primarily) as an intrinsic good, or as something it is inherently inappropriate to study from a scientific perspective—and Nyholm does not provide such an argument—it is hard to assess the full force of his objection.

Nyholm expresses further disagreement with a point we made near the end of our article. The scientific analysis of love, we suggested, need not necessarily compromise, or imply misjudgment of, the value or perceived meaningfulness of love—even considered as an intrinsic good. Instead, we proposed, it is possible that some couples might find even more to value in love given the fruits of such empirical investigation, because they could experience it in novel ways, or explore it along different dimensions (thanks to the various insights that would be raised by this additional perspective).

Reading an account of love that draws on evolutionary theory, for example, might inspire a couple to feel connected to their distant ancestors. They might see it as meaningful that those ancestors would—presumably—have experienced similar romantic feelings to their own, in virtue of an ancient brew of neuropeptides and neurotransmitters, shared across a great expanse of time. They might go on, then, to reflect on the role of love (so conceived) in the perpetuation of the species and feel a part of something larger than themselves. Or they might feel an affinity with nonhuman animals that form analogous bonds and imagine what “love” must be like for them.

Or they might not—who knows. Presumably, different couples will feel differently about love, in their own case

as well as more abstractly, and about the various ways in which it can best be understood. As Nyholm sees it, however, this whole line of thinking is fundamentally misguided. “Love is usually valued as an object of desire,” he writes. “It typically functions as a practical interest: as something we actively pursue for its own sake. It is usually not valued as an object of study, or a purely theoretical interest.”³⁹ So, he concludes, we have committed another conceptual error: another “evaluative category mistake.”

Our response to this is as follows. First, people have been studying love as an “object”—or topic—of intense intellectual interest for eons. They may not have been doing so using the tools of evolutionary biology or modern neuroscience until quite recently (for obvious reasons), but love has certainly fascinated thinkers as a subject in its own right for the better part of recorded history. To put it a different way, people have *always* grappled with love using their minds—trying to understand it or make sense of it conceptually—just as they have pursued it (sometimes subversively, depending on the prevailing social expectations) as a practical goal at one and the same time. It isn’t either/or, we mean to say: love can be both pursued and thought about.

That is why, contrary to Nyholm’s suggestion, we didn’t argue that anyone’s interest in love should be “purely theoretical.” Instead, we proposed that, for some couples, the *addition* of a scientific perspective could complement and interact with their practical interest in love, “adding new questions and types of experiences for them to explore.”⁴⁰ Both ways of viewing love have their place and purpose, we contend, and could likely inform each other in interesting ways (see Box 1 for further discussion).⁴¹

Box 1. Thinking about Love: The Charge of Neuroreductionism

Nyholm writes: "There is something inspiring and almost contagious about Earp, Savulescu, and Sandberg's enthusiasm and their scientific interest in love. It is not hard to understand the fascination that love and love relations can awaken in the observer who approaches them with a scientific eye and a microscope." Nevertheless, he urges, "the connotations and associations under which people desire and seek love are different, and mostly independent, from the features of human love that make it theoretically fascinating and an object of scientific study."⁴²

We don't deny this: there is room for both perspectives when it comes to love, as well as a host of other approaches both practical and theoretical. But in light of Nyholm's description of our wide-eyed "enthusiasm" and our "scientific interest" in love (along with his telling invocation of a microscope), it seems appropriate to address what appears to be an implicit charge of naïve neuroreductionism⁴³ on our part—a charge that David Ferraro, in his piece, makes explicit.⁴⁴

We admit that we have relied primarily on a "psychobiological" account of love in our various essays (for reasons we will explain in just a moment). As Ferraro notes, this could give some readers the impression that we see descriptions and understandings of love that are based on "underlying neural systems" (and the like) as having "primacy" over other modes of understanding.⁴⁵ According to Ferraro, we give "no consideration [to] how historical and linguistic contingencies might play their [own] role in 'affecting' the brain, or [to] how central these are to the very structure of love itself."⁴⁶ As he sees it, our approach to love "falls into absurdity in the vignette of John and Lisa, whose 'communication' problem is treated not with words but with oxytocin."⁴⁷

Let us begin by clearing up a confusion: that isn't what we said in the vignette. John and Lisa, we said, were in a relationship counseling session and were "working on their communication." We took it as obvious that they were using *words* to do this—in collaboration with their counselor, who was also using words—and that the role of oxytocin in this scenario was adjunctive. In fact, we explicitly wrote of "the *addition* of oxytocin to their counseling regime," with the idea being that the regime itself would be primarily word based (as most such regimes, to our knowledge, are).⁴⁸ Elsewhere we have written that "oxytocin administration needs to be studied in *conjunction* with psychological and behavioral therapies . . . rather than exclusively in isolation" and that careful attention must be paid to the "specific contextual factors that apply to the unique situation of each individual couple."⁴⁹

Wider factors are important as well. Indeed, we agree with Ferraro that love is not "an ahistorical thing" that can be analyzed entirely "within a neural and psychological domain" but is, rather, a complex interpersonal phenomenon⁵⁰ whose "points of reference [are also] cultural, symbolic, linguistic, and contextual."⁵¹ It was never our intention to suggest (nor do we believe) that the scientific study of love—and associated ways of thinking about love that focus on a neurochemical level of analysis—is the best or the only way to approach the subject. Instead, we see value in a wide range of approaches, and we look forward to the contributions of others (and perhaps even future versions of ourselves) to fill in the picture where we have so far been too sparse.

It comes down to a matter of focus. For centuries, love was written about as something having to do primarily with the heart (or the soul), rather than the brain; and previous discussions of love drugs were

limited to fanciful scenarios or magical potions à la Shakespeare's *A Midsummer Night's Dream*. Since the original impetus behind our research, however, was the prospective development of certain real-life neurotechnologies—that is, technologies that work directly on the brain—our

rhetorical emphasis has been biased toward that dimension. But as Rebecca Bamford⁵² notes—and again, we agree wholeheartedly—"the humanities and the sciences are both helpful to our understanding and pursuit of meaningful loving relationships."⁵³

Enhancing Love

We turn now to the third question we introduced above. For this question, recall, we are simply granting that love both is and should be understood as (primarily) an intrinsic good, rather than as (primarily) something that is good for us or has good consequences. "Might there still be a role," we asked, "for medical technologies in bringing about, maintaining, and/or enhancing love so conceived?"

Nyholm is not optimistic. "Under the associations and ideas with which people normally [think about] love," he writes, "it is not altogether clear that we could deliver this distinctive good into one another's hands by means of [medical technologies such as] gene therapies and hormonal drug treatments."⁵⁴

Nyholm gives an argument for this view in a separate paper.⁵⁵ There, he asks us to

consider a case in which our attachment to another could only be sustained if some hormone-treatment or gene-therapy were used, and in which such enhancements were indeed [used] in order to keep the attachment in place. Would it be *love* that the person who is the object of our attachment would get from us? Or would it rather be something else, which would not really qualify as the particular good we intrinsically desire in seeking love [but] would instead be some other, less desirable good?⁵⁶

The implied answer to this question is "something else." And at first glance,

the answer does seem compelling. But as Hichem Naar points out in a thoughtful response piece,⁵⁷ things are not quite so simple upon closer inspection. First he reconstructs Nyholm's argument. According to Nyholm, he writes, "what we seem to want for its own sake in romantic relationships" is the following:

- i) That we have an inner disposition to robustly care about and have affection for the one we love,
- ii) whose activation is explained by the person we love, and
- iii) which itself explains the care and affection that we feel and display across a variable range of situations.⁵⁸

The question is, can (i) through (iii) in fact be brought about by "biomedical enhancements," perhaps along the lines of something like an oxytocin nasal spray (to return to the example of John and Lisa; see Box 1); or is that not possible, or at least not very likely, given what Nyholm claims we *really* want when we consider love as something intrinsically valuable?

Naar is on point when he answers as follows: "Condition (ii) says that the activation of our inner disposition should be explained by the presence of the person we love. It doesn't say that it should be *wholly* explained by her presence." Indeed, such a view would be implausible. For, according to Naar, it is the case that any given event,

mental or not, is explained by a variety of factors (which plausibly extend way back in time) none of which is *individually sufficient* for the event to occur. If Nyholm's claim is that, since [a biomedical enhancement] explains our attachment, the person we allegedly love cannot explain it, we should reject [this claim] on the ground that it conflicts with independently plausible views about explanation.⁵⁹

Nyholm, of course, could object that his view is a bit more nuanced than that. It isn't that the other person should *wholly* explain the activation of our inner disposition to (robustly) care about her, feel affection toward her, and so on, but rather that she should be the most *significant proximate factor* in any such comprehensive explanation.⁶⁰ And that does seem to be a more plausible view. But even so, according to Naar, it arguably understates the significance of a whole range of factors that are in some way "external" to the person we love, but which nevertheless play an important role in the real-life "formation and persistence of successful romantic relationships."⁶¹

What sort of factors does he mean? Among other things, "lighting conditions, room temperature, energy levels, health, background music, dancing, romantic weekends, and so on," all of which play a *facilitating* role, according to Naar, in the creation and maintenance of our romantic attachments.⁶² These factors are not intrinsic to the person we love (they are not *her*)—although she must of course be present and engaged with them (and us) in the right kind of way for these factors to have their facilitating effect—but they are not necessarily trivial or dispensable either. As Naar writes: "We [actually] *need* them to play a role in our romantic relationships . . . without at least some of these factors, many relationships would not even exist, and many others would

deteriorate over time." And yet "the mere fact that some external factors are needed for our attachment to be secured does not warrant our rejection of them."⁶³

This takes us back to biomedical enhancements. Although they might not be able to (desirably) bring about the stipulated-to-be intrinsic good of love all on their own, it does seem reasonable to think that they could play a facilitating role, as (indeed) we suggested in our original paper. Such substances, we wrote, "would not work to create love 'magically,' of course," but would rather "help it along by acting on the underlying substrates of attachment, or by promoting more empathic states of mind."⁶⁴

A similar analysis is given by Naar. He asks: Would these enhancements "*directly* induce feelings of joy in [the beloved] every time she sees me, and *directly* induce feelings of sadness every time I'm gone?" And would the drug be *necessary* for those emotional reactions to persist over time? "I suppose I wouldn't want the drug then." But if the enhancements simply helped, say, motivate the beloved "to spend time with me, [or] put her in the mood to listen to my stories, and so on and so forth"—in short, if they played a *facilitating* role in "the transition from not loving me to loving me" (such that they would not be "constantly needed" for her attachment to be maintained over time)—then Naar would be more open to their use.⁶⁵

A Parallel Case

For a rough parallel, consider the case of happiness. Happiness is, on most accounts, something that is intrinsically valuable. Moreover, there are a number of environmental, social, psychological, and biological factors that interact with one another in complex ways to influence whether, how, and to what extent

we are actually happy. Finally, there is a low-level common pathway for these various factors that can be analyzed in terms of events in the brain. This pathway can be modified directly, using certain drugs, for example; or it can be modified indirectly—by changing one's thoughts, behavior, social context, or physical environment—or any combination of the above.

We should ask ourselves: Is studying happiness (whether scientifically or by other means), and attempting to use the resulting knowledge to promote our well-being, an “evaluative category mistake”? Is there something inherently erroneous about making adjustments to the aforementioned factors—up to and including the biological factor (for example, with a drug like Prozac, perhaps in combination with therapy, if one is experiencing depression)—in order to increase the chance we will be happy in our lives?

We are doubtful that the answer to either question is “yes.” Even so, someone might argue that, whatever it is that results from drug-assisted interventions into happiness (such as the one just mentioned), it is not the genuine article we would end up with but rather a facsimile. We find this argument to be implausible, at least if it is meant to apply across the board, but let us just grant it. Let us grant, in other words, that a drug like Prozac cannot (directly) cause “true” happiness in the person who takes it under typical conditions. Does this show that the biomedical enhancement of happiness is therefore impossible and/or a category mistake?

We are inclined to think otherwise. For, as Naar observes, even if a drug cannot directly induce “true” love (or happiness), it may nevertheless help to bring it about through more indirect means. Let us say, for example, that drug X makes it more likely that one

becomes open to trying new experiences. This might lead one to engage in activities that do in fact generate, or at least promote, “true” happiness (even if the drug itself could not cause that effect). So too with biological interventions into love. Although they might not directly produce love, they could—in concert with all of the other factors that would ordinarily be at play—help it come into existence or persist through time.⁶⁶

A Troubling Dilemma

Does that settle it then? Well, no—not according to Michael Hauskeller. According to Hauskeller,⁶⁷ we have only placed ourselves into a dilemma by arguing this way. On the one hand, it seemed as though we were suggesting that the medicalization of love might be a good thing, on balance, insofar as it gave people the power to pursue and maintain beneficial relationships and forms of love, and to escape or recover from truly harmful relationships and forms of love (setting aside, for now, a whole raft of other issues concerning, e.g., the nature and limits of medicine, the treatment/enhancement distinction, and so on—for further discussion of these matters see the commentaries by Giubilini and Minerva).⁶⁸

The problem, according to Hauskeller, is that in order for people to have these powers, it would require that we “invest heavily into [a] research program . . . aiming at the ‘neuromodulation of love and relationships’ [which] would allow us—and more importantly, others—to control human behavior from the inside, as it were, and thus far more effectively than by any other previously available method of social control.” To the point: “If you have acquired effective means to control whom and what people love—and more generally, how they feel about

things and other people—then you have really got them under your thumb. Is that what we want?”⁶⁹

We admit that that does sound scary; so no wonder we try to lower expectations. “Of course we are being assured that something like that is not going to happen,” Hauskeller says of our view. Instead, the “love-enhancing drugs of the future are not going to work like [magic, as noted previously, but] more like giving someone [a] gentle push in the right (or desired) direction,” thereby “helping love along.”⁷⁰ Yes—indeed. That *is* what we think is most likely to happen—as we have just emphasized in our discussion of the paper by Naar (as well as in our discussion in Box 1). So what is the “other hand” of the dilemma that Hauskeller thinks we are in? He explains:

But if it is just that [i.e., a gentle push], then can we not simply go on doing what we have been doing all along, namely, seek counseling or therapy, share a glass of wine with our partner, eat chocolate, have sex, or whatever else we may normally do to influence the way we feel? It seems that a need for the neuroenhancement of love arises only if it promises to be more effective and reliable than those more traditional methods of self-manipulation. Why else should we want to research the matter if not in order to gain more control? It would be a very odd research program indeed if we had to make sure that it didn’t become too successful. . . . What we are being told is basically that we are going to study how we can control our love-related emotions, but that there is nothing to worry about because it is already pretty clear that we won’t get very far with it. But what if we did?⁷¹

We have three main thoughts in response to this critique. First, it is not entirely clear that there is no meaningful “middle ground” to be explored between (1) voluntarily eating a piece of chocolate or sharing a glass of wine with our partner and (2) having our

thoughts and behavior completely controlled by an external agent as though we were puppets. As an example of a substance (and a circumstance) that might one day occupy such a possible middle ground, consider MDMA or ecstasy, as it might be taken during couple’s counseling, in the context of a well-structured therapeutic program and under the guidance of a trained professional.

As we have written about elsewhere,⁷² this was a common practice among some marital therapists and their clients into the 1980s—apparently to good effect in many cases—until the growing use of MDMA as a party drug in some quarters led to its being prohibited (for largely political reasons).⁷³ Given the existing (albeit admittedly only preliminary) evidence suggesting that such a drug could be of significant help to some couples—if only more were known about the appropriate dosages, the risk of side effects, and so on—it seems not unreasonable to argue that further research into its therapeutic potential should be strongly considered. And yet, based on what we know already, we can confidently predict that the effects of MDMA-assisted marriage therapy would fall somewhere between chocolate consumption and mind control.

Second, it is important to think through the implications of Hauskeller’s argument for other seemingly powerful medical technologies that are already in use for approved therapeutic purposes, and yet which could (also) plausibly be misused to, e.g., strongly influence a person’s thoughts or behavior against their will.

One example that comes to mind is deep brain stimulation (DBS), a form of medical technology that involves the implantation of electrodes directly into the brain. Current evidence suggests that DBS can be helpful in the treatment of Parkinson’s disease,⁷⁴ and it may also

have positive implications for a number of other serious conditions, ranging from treatment-resistant depression⁷⁵ to life-threatening anorexia nervosa.⁷⁶ As Andrew Koivuniemi and Kevin Otto note: "The use of deep brain stimulation (DBS) technology for the treatment of psychiatric disorders is one of the most promising and rapidly evolving areas of neurosurgical research."⁷⁷

At the same time, however, "in treating diseases of the mind by directly altering the brain's functioning, neurosurgeons, neurologists, psychiatrists, and neuro-engineers run the risk of having this effort interpreted as [a form of] 'mind control.'"⁷⁸ And so, in some sense, it may be. The question is: Should DBS be banned, therefore? Or should medical research into its effects be halted? In our view, such a response would be ham-fisted. A more productive response, it seems, would be to develop strict ethical guidelines governing the use of DBS, along with a set of restrictions on who can have access to the technology and under what conditions. Finally, harsh penalties should be applied to anyone found guilty of using DBS technology for immoral purposes.

Third, we must contend with the fact that love is—to an extent—*already* medicalized, whether we like it or not. As two of us have argued in a recent paper, it is highly likely that a number of commonly used pharmaceuticals—prescribed to address other issues—"are having unintended, and largely unrecognized, effects on human romantic relationships . . . some of which are bound to be detrimental."⁷⁹ Examples include Selective Serotonin Reuptake Inhibitors (SSRIs) for the treatment of depression, propranolol for the treatment of anxiety, and even hormonal birth control ("the pill"). Importantly, all of these widely used substances are more potent (in certain respects) than either a glass of wine or a piece

of chocolate, so the middle ground we alluded to above may already be occupied.

There are a number of (relatively) constructive ways to respond to this situation. Standing idly by, however, is unlikely to be one of them. In our view, a more promising approach would be to try to understand the effects of these drugs on our lives, by conducting careful yet active research into the question. To do this, we should broaden our attention "from pathologies occurring, ostensibly, at the level of the individual (and their specific treatment in terms of associated symptoms), to the consequences of therapeutic drug use for *relationships*, considered in a socially-embedded context."⁸⁰ In that way, we might be able to "avoid the worst dangers" posed by commonly used pharmaceuticals to our romantic (and other) relationships, as well as perhaps "harness them to better ends."⁸¹

Conclusion

None of this is to deny that there are possible paths forward that could lead to rather frightening scenarios. Future technologies could indeed fall into the wrong hands or be much more powerful than we ever imagined. Moreover, as Martin O'Reilly points out in his contribution, we *already* have reason to be worried about existing biotechnologies in light of (among other things) the outsized role of pharmaceutical companies in controlling many aspects of our lives.⁸² So we should not be gung-ho about love drugs. Rather, we should proceed with caution.

In so proceeding, however, we must not be complacent with pointing out that such technology might be abused. As we have written elsewhere, "any new technology poses risks. This is true whether it is an anti-love pill, a powerful military weapon, or something more mundane."

Responses and Dialogue

Hence, the mere possibility “that such a technology might be used for ill can never by itself constitute sufficient reason to reject it—however alarming such a possibility may be. . . . Instead, the potential harms that might accrue from the misuse of the technology must be weighed against the potential benefits that might accrue from its responsible use.”⁸³

In addition, *active steps* must be taken to try to alter that balance for the better. As C. A. J. Coady has stated:

If indeed there is insufficient knowledge of outcomes and consequences, or no social or institutional regulatory regime for prudent implementation of the innovations and for continuing scrutiny of their effects, or no room for overview of the commercial exploitation of the innovations, then . . . critics [of emerging biotechnologies] clearly have a point. *[But] warnings can be heeded.* [We can] insist on safeguards and regulation, both scientific and ethical.⁸⁴

For that reason, we endorse calls for thoughtful regulation of love drugs along the lines proposed by Rebecca Bamford⁸⁵ and Kristina Gupta,⁸⁶ and we encourage further critical discussion about the ethics of their prospective use.

Notes

1. Savulescu J, Sandberg A. Neuroenhancement of love and marriage: The chemicals between us. *Neuroethics* 2008;1(1):31–44.
2. Earp BD, Sandberg A, Savulescu J. Natural selection, childrearing, and the ethics of marriage (and divorce): Building a case for the neuroenhancement of human relationships. *Philosophy & Technology* 2012;25(4):561–87.
3. Earp BD. Love and other drugs. *Philosophy Now* 2012 July/Aug;91:14–17.
4. Wudarczyk OA, Earp BD, Guastella A, Savulescu J. Could intranasal oxytocin be used to enhance relationships? Research imperatives, clinical policy, and ethical considerations. *Current Opinion in Psychiatry* 2013; 26(5):474–84.
5. Earp BD, Wudarczyk OA, Sandberg A, Savulescu J. If I could just stop loving you: Anti-love biotechnology and the ethics of a chemical breakup. *American Journal of Bioethics* 2013;13(11):3–17.
6. Earp BD, Sandberg A, Savulescu J, Andersen R. The case for using drugs to enhance our relationships (and our break ups). *Atlantic* 2013 Jan 31; available at <http://www.theatlantic.com/technology/archive/2013/01/the-case-for-using-drugs-to-enhance-our-relationships-and-our-break-ups/272615/> (last accessed 28 Apr 2016).
7. Earp BD, Sandberg A, Savulescu J. Brave new love: The threat of high-tech “conversion” therapy and the bio-oppression of sexual minorities. *American Journal of Bioethics: Neuroscience* 2014;5(1):4–12.
8. Savulescu J, Earp BD. Neuroreductionism about sex and love. *Think: A Journal of the Royal Institute of Philosophy* 2014;13(38):7–12.
9. Earp BD, Nguyen V. Les biotechnologies de l'amour. *L'Annésique* 2014 Feb;10:5–8.
10. Robson D, Earp BD. A dangerous prescription? *New Scientist* 2014;221(2956):27–8.
11. Earp BD, Sandberg A, Savulescu J. The medicalization of love. *Cambridge Quarterly of Healthcare Ethics* 2015;24(3):323–36.
12. Earp BD. Drogen nehmen—um Wohl unserer Kinder? *GEO Magazine* 2015;10(1):62–3; available at https://www.researchgate.net/publication/281987913_Drogen_nehmen_-zum_Wohl_unserer_Kinder (last accessed 28 Apr 2016).
13. Vierra A, Earp BD. Born this way? How high-tech conversion therapy could undermine gay rights. *The Conversation* 2015 Apr 21; available at <https://theconversation.com/born-this-way-how-high-tech-conversion-therapy-could-undermine-gay-rights-40121> (last accessed 28 Apr 2016).
14. Earp BD, Hauskeller M. Binocularity in bioethics—and beyond. *American Journal of Bioethics* 2016;16(2):W3–W6.
15. Earp BD, Savulescu J. Love drugs: Why scientists should study the effects of pharmaceuticals on human (romantic) relationships. Paper presented at the Social Trends Institute Experts Meeting: “Technology and the Good Society.” University of Navarra, Barcelona, Spain; 2016 Feb 4–6; available at https://www.academia.edu/21966987/Love_drugs_Why_scientists_should_study_the_effects_of_pharmaceuticals_on_human_romantic_relationships (last accessed 28 Apr 2016).
16. Earp BD, Wudarczyk OA, Foddy B, Savulescu J. Addicted to love: What is love addiction and when should it be treated? *Philosophy, Psychiatry, & Psychology*; forthcoming; available

Responses and Dialogue

- at https://www.academia.edu/3393872/Addicted_to_love_What_is_love_addiction_and_when_should_it_be_treated (last accessed 28 Apr 2016).
17. Earp BD, Foddy B, Wudarczyk OA, Savulescu J. Love addiction: Reply to Jenkins and Levy. *Philosophy, Psychiatry, & Psychology*; forthcoming; available at https://www.academia.edu/3393872/Addicted_to_love_What_is_love_addiction_and_when_should_it_be_treated (last accessed 28 Apr 2016).
 18. Earp BD. Can you be gay by choice? In: Edmonds D, ed. *Philosophers Take on the World*. Oxford: Oxford University Press; forthcoming; available at https://www.researchgate.net/publication/299535258_Can_you_be_gay_by_choice (last accessed 28 Apr 2016).
 19. See note 11, Earp et al. 2015.
 20. Nyholm S. The medicalization of love and broad and narrow conceptions of human well-being. *Cambridge Quarterly of Healthcare Ethics* 2015;24:337–46.
 21. Bamford R. Unrequited: Neurochemical enhancement of love. *Cambridge Quarterly of Healthcare Ethics* 2015;24:355–60.
 22. Ferraro D. On love, ethics, technology, and neuroenhancement. *Cambridge Quarterly of Healthcare Ethics* 2015;24:486–9.
 23. Hauskeller M. Clipping the angel's wings: Why the medicalization of love may still be worrying. *Cambridge Quarterly of Healthcare Ethics* 2015;24:361–5.
 24. O'Reilly M. Two concerns about the medicalization of love. *Cambridge Quarterly of Healthcare Ethics* 2015;24:490–2.
 25. Giubilini A. Normality, therapy, and enhancement: What should bioconservatives say about the medicalization of love? *Cambridge Quarterly of Healthcare Ethics* 2015;24:347–54.
 26. Minerva F. Unrequited love hurts: The medicalization of broken hearts is therapy, not enhancement. *Cambridge Quarterly of Healthcare Ethics* 2015;24:479–85.
 27. Enck G, Ford J. A responsibility to chemically help patients with relationships and love? *Cambridge Quarterly of Healthcare Ethics* 2015;24:493–6.
 28. MacGregor O. Trivial love. *Cambridge Quarterly of Healthcare Ethics* 2015;24:497–500.
 29. Emmerich N. Limitations in the bioethical analysis of medicalisation: The case of love drugs. *Social Theory & Health* 2016;14(1):109–28.
 30. See note 20, Nyholm 2015.
 31. See note 20, Nyholm 2015, at 337, slightly paraphrased.
 32. See note 20, Nyholm 2015, at 340.
 33. See note 20, Nyholm 2015, at 342.
 34. See note 20, Nyholm 2015, at 340.
 35. See note 20, Nyholm 2015, at 342.
 36. Coontz S. What's love got to do with it? *Psychotherapy Networker* 2005;29(3):56–61 and 74, at 56. Please note that Plato, as represented in this passage, "was referring not to the love of women, 'such as the meaner men feel,' but to the love of a man for another man, which was the Greek ideal for the purest form of love" (Coontz 2005, at 56). The essay cited here is based on a longer book by the author: Coontz S. *Marriage, a History: From Obedience to Intimacy or How Love Conquered Marriage*. London: Penguin Books; 2005.
 37. See note 36, Coontz 2005, at 57.
 38. In another essay, Nyholm does seem to appreciate this point. Specifically, he writes that his aim has been not to analyze love from a Sidgwickian "point of view of the Universe"—or a Nagel-inspired wholly objective "view from nowhere" [but rather] to ask whether or not the values that we *do in fact have* in relation to love are such that, as we now tend to think about love, it would be possible and advisable to try to create and maintain the sort of love that we seek with the help of biomedical enhancements. And my argument has been that, with respect to this set of values, the particular intrinsic goods that we associate with love are not ones we can deliver into each other's hands with the help of biomedical enhancements. . . . This is perfectly compatible with its possibly being the case that, in some supposedly more enlightened future time-period, we might collectively look back upon the values I have appealed to, and then regard them as having been rather silly and old-fashioned.
 39. See Nyholm S. Love troubles: Human attachment and biomedical enhancements. *Journal of Applied Philosophy* 2015;32(2):190–202, at 200 and 201, emphasis added.
 40. See note 11, Earp et al. 2015, at 333.
 41. As Erik Parens has recently argued, there is often something useful to be gained from "oscillating between the insights afforded by the subject and object lenses," in a habit of thinking he calls "binocularity." See Parens E. *Shaping Our Selves: On Technology, Flourishing, and a Habit of Thinking*. Oxford: Oxford University Press; 2015, at 5.
 42. See note 20, Nyholm 2015, at 342 and 343.
 43. For a technical discussion, see Werner G. The many faces of neuroreductionism. In: Başar E, ed. *Dynamics of Sensory and Cognitive Processing by the Brain*. Berlin/Heidelberg: Springer; 1988:241–57.
 44. See note 22, Ferraro 2015.
 45. See note 22, Ferraro 2015, at 486.
 46. See note 22, Ferraro 2015, at 487.

Responses and Dialogue

47. See note 22, Ferraro 2015, at 487.
48. See note 11, Earp et al. 2015, at 326, emphasis added.
49. See note 4, Wudarczyk et al. 2013, at 481, emphasis added.
50. Ferraro suggests that our focus on neurochemistry makes it seem as though “love” can be located within the brain of a single individual and modified accordingly: “It becomes affective and, ultimately, individualistic, a matter of how one feels” (see note 22, Ferraro 2015, at 486). But let us just grant that love should be seen as something that only exists, in some sense, *between* individuals—that it requires that I care about your well-being for its own sake, for example. It can still be meaningful to ask, we would contend, what the effects of certain neurochemical substances (as applied to the brain of a single individual) would be on the love *between* individuals understood in this way. For example, there is evidence that SSRIs can sometimes blunt not only people’s “lower-level” sex drives but also their “higher-level” ability to care about the feelings of others, i.e., as a side effect (see note 5, Earp et al. 2013). Thus, a drug administered to a single individual—and which has a certain kind of effect on the way that person “feels”—nevertheless can have meaningful implications for more complex, interpersonal conceptions of love than Ferraro thinks we are aware of. In short, love doesn’t have to be “located in a single individual’s brain” for interventions into that single individual’s brain to affect love (on a more robust conception) in significant ways.
51. See note 22, Ferraro 2015, at 486.
52. See note 21, Bamford 2015.
53. See note 21, Bamford 2015, at 359.
54. See note 20, Nyholm 2015, at 345.
55. See note 38, Nyholm 2015.
56. See note 38, Nyholm 2015, at 190–1, emphasis added.
57. Naar H. Real-world love drugs: Reply to Nyholm. *Journal of Applied Philosophy* 2015; e-pub ahead of print available at <http://onlinelibrary.wiley.com/doi/10.1111/japp.12141/full> (last accessed 28 Apr 2016).
58. See note 57, Naar 2015, at 2, paraphrased.
59. See note 57, Naar 2015, at 3, emphasis added in the second quotation.
60. See note 57, Naar 2015, at 3, summarized.
61. See note 57, Naar 2015, at 4.
62. See note 57, Naar 2015, at 4.
63. See note 57, Naar 2015, at 4. For a related argument, see Earp BD, Douglas T, Savulescu J. Moral neuroenhancement. In: Johnson S, Rommelfanger K, eds. *Routledge Handbook of Neuroethics*. New York: Routledge; forthcoming.
64. See note 11, Earp et al. 2015, at 326.
65. See note 57, Naar 2015, at 4.
66. They might, for example, make it easier for couples to see each other’s perspective. Or they might help them notice new (or rediscover old) appealing aspects of their partners’ personalities—aspects that had previously been obscured by a self-absorbed mindset. Such biological interventions would, in short, make “true” love much more probable.
67. See note 23, Hauskeller 2015.
68. See note 25, Giubilini 2015, and note 26, Minerva 2015. Questions about the nature and limits of medicine (and medicalization), health, well-being, and the treatment/enhancement distinction are also explored by Nyholm, Hauskeller, Bamford, MacGregor, and Enck and Ford (see the preceding relevant notes for the full citations).
69. See note 23, Hauskeller 2015, at 363.
70. See note 23, Hauskeller 2015, at 363.
71. See note 23, Hauskeller 2015, at 363.
72. See, e.g., note 12, Earp 2015. See also Earp BD, Savulescu J, Sandberg A. Should you take ecstasy to improve your marriage? Not so fast. *Practical Ethics* 2012 June 14; available at <http://blog.practicaletics.ox.ac.uk/2012/06/should-you-take-ecstasy-to-improve-your-marriage-not-so-fast/> (last accessed 28 Apr 2016).
73. For further discussion see, e.g., Ellens JH, Roberts B, eds. *The Psychedelic Policy Quagmire: Health, Law, Freedom, and Society*. Santa Barbara, CA, and Denver, CO: Praeger; 2015.
74. Deuschl G, Schade-Brittinger C, Krack P, Volkmann J, Schäfer H, Bötzl K, et al. A randomized trial of deep-brain stimulation for Parkinson’s disease. *New England Journal of Medicine* 2006;355(9):896–908.
75. See, e.g., Mayberg HS, Lozano AM, Voon V, McNeely HE, Seminowicz D, Hamani C, et al. Deep brain stimulation for treatment-resistant depression. *Neuron* 2005;45(5):651–60.
76. See, e.g., Wu H, Van Dyck-Lippens PJ, Santagoeds R, van Kuyck K, Gabriëls L, Lin G, et al. Deep-brain stimulation for anorexia nervosa. *World Neurosurgery* 2013;80(3): S29–e1.
77. Koivuniemi A, Otto K. When “altering brain function” becomes “mind control.” *Frontiers in Systems Neuroscience* 2014;8(202):1–6, at 1.
78. See note 77, Koivuniemi, Otto 2014, at 1.
79. See note 15, Earp, Savulescu 2016, at 4.
80. See note 15, Earp, Savulescu 2016, at 4.
81. Levy N, Douglas T, Kahane G, Terbeck S, Cowen PJ, Hewstone M, et al. Are you

Responses and Dialogue

- morally modified? The moral effects of widely used pharmaceuticals. *Philosophy, Psychiatry, & Psychology* 2014;21(2):111–25, at 123.
82. See note 24, O'Reilly 2015.
83. See note 7, Earp et al. 2014, at 7.
84. Coady CAJ. Playing god. In: Savulescu J, Bostrom N, eds. *Human Enhancement*. Oxford: Oxford University Press; 2009:155–80, at 165, emphasis added.
85. See note 21, Bamford 2015.
86. Gupta K. Protecting sexual diversity: Rethinking the use of neurotechnological interventions to alter sexuality. *AJOB Neuroscience* 2012;3(3):24–8.