Arandjelović *BMC Medical Ethics* (2016) 17:75
DOI 10.1186/s12910-016-0155-8

BMC Medical Ethics

CORRESPONDENCE Open Access

On normative judgments and ethics

Ognjen Arandjelović*

Abstract

Recent rapid technological and medical advance has more than ever before brought to the fore a spectrum of problems broadly categorized under the umbrella of 'ethics of human enhancement'. Some of the most contentious issues are typified well by the arguments put forward in a recent article on human cognitive enhancement authored by Garasic and Lavazza. Herein I analyse some of the assumptions made in their work and highlight important flaws. In particular I address the problems associated with the distinction between 'treatment' and 'enhancement', and 'natural' vs. 'non-natural' therapies.

Keywords: Enhancement, Treatment, Natural, Non-natural

It is with much interest that I read the article entitled "Moral and social reasons to acknowledge the use of cognitive enhancers in competitive-selective contexts" authored by Garasic and Lavazza, and recently published in BMC Medical Ethics [1]. The topic addressed in the aforementioned article is highly relevant and intellectually interesting, so I very much welcome all contributions to the surrounding debate. Moreover I found the authors' thoughts and arguments insightful, and am in agreement with many of their conclusions.

Having said the above, I am compelled to highlight a number of important premises underlying the arguments of Garasic and Lavazza, which though appealing at first sight fail to withstand deeper scrutiny. For the sake of succinctness I will focus on a few which I find to be the most pervasive in the existing literature, or which I consider to be of greatest conceptual importance for the correct framing of the discussion.

Enhancement vs. treatment I would like to begin with the distinction that Garasic and Lavazza attempt to draw between the use of various means to achieve an enhancement of a human ability (in this case the authors are specifically interested in cognitive abilities but the nature of the argument remains unaltered even if this constraint is abandoned) as opposed to what is usually termed as a treatment. The former is supposed to be understood as effecting an improvement to an ability initially functioning within the suitable normal range, or to quote Garasic and Lavazza (remembering that their focus is on pharmaceutical agents and cognitive performance):

> "The substances most commonly included in the set of PCE are drugs used off-label by healthy people who do not have specific deficits but want to improve their standards of intellectual and cognitive performance…",

whereas the latter is taken to be a remedy for subnormal functioning (or indeed, a full loss of a specific function) thereby treating what can be considered an abnormality (e.g. a disability, disfunction, or disorder). The same distinction has been made previously by a number of scholars [2–4], and though it may appeal to our intuitive sensibilities I believe that a more rigorous consideration and analysis of the distinction, made by several authors in the past [5, 6], reveals its lack of a solid underpinning principle.

Humans exhibit variation in nearly if not literally every characteristic worthy of consideration as well as perhaps more pertinently, in the potential for the development of a particular characteristic, be it height [7], muscular strength [8], memory [9], sense of spatial orientation [10], general intelligence [11], or any one of a plethora of other possible examples. What range within this spectrum we deem as normal is in principle arbitrary { individuals (in this case human but also more generally of any life form) with a well adapted or poorly adapted particular characteristic are expected to be found in

* Correspondence: ognjen.arandjelovic@gmail.com;
School of Computer Science, University of St Andrews, North Haugh, KY16 9SX St Andrews, UK

nature, as the theory of natural selection would predict. There is no fundamental reason why any of them would be considered 'abnormal' or 'not normal'. They may be desirable or undesirable, from the point of the view of the individual himself, another individual, or (more contentiously) even the society, but the realm of these descriptions is different from that occupied by claims of 'normality' or lack thereof.

Even if we accept a certain delineation between normal and sub-normal, it is not at all clear when treatment would become enhancement. Should 'treatment' merely take a certain function to the lowest end of the 'normal' range? Why or why not instead the mean of the 'normal' range or indeed its upper limit? Why would the use of a certain agent not be considered as enhancement if the person's characteristic of interest is marginally sub-normal but as enhancement if the person is marginally above the sub-normal limit? What moral principle impels us to treat a climb on the ladder of competitiveness (recall that the authors' focus is on competitive contexts) of the former individual differently than that of the latter?

The aforementioned variation in human characteristics, of course, also exhibits temporal variation [9, 12]. It is not in the least surprising that, for example, as a person ages there is an associated deterioration in a number of physical and mental functions. Should the boundaries of 'normal' thus vary accordingly? Does that for example mean that the hormone replacement therapy (HRT) administered to a menopausal woman would fall under the umbrella of 'enhancement' even if it results in higher quality of life?

In brief, the authors' argument is in effect underlain by an essentialist view whereby there is some idealized 'normally functioning' human. However this stance does not fit well our scientific understanding of the biological reality, the genotypic and phenotypic diversity fundamental to the principle of natural selection, or indeed ethical principles.

Natural vs. non-natural Another distinction that the authors attempt to make early in their article is that of 'natural' and 'non-natural' enhancements[1]:

> "It seems reasonable to stress that there are substantial differences between the natural enhancers we just mentioned and the newer ones…"

The authors do not explain clearly what they mean by 'natural' in this context. Presumably what they refer to are substances which occur in nature without human intervention (their examples of caffeine, nicotine, and khat, support this interpretation). Even if we accept this understanding of the term 'natural' and neglect the observation that these 'natural' substances are often sold and consumed in concentrations and forms very much unlike those found in nature (e.g. caffeine is readily bought as 99.9 % pure powder [13]), as well as consumed in a fashion which their natural forms would not readily allow (e.g. transdermally [14] or using nasal sprays [15]), I fail to see how this definition is morally relevant. Indeed the authors seem to be obliquely aware of this as suggested by their attempt to elaborate the issue using a non sequitur whereby the focus is shifted to the magnitude of effect:

> "…in other words, the 'peak' of the performance is not comparable to that sought through the use of methylphenidate and Modafinil, for instance [15{17]."

Notwithstanding the examples given there is no fundamental reason why a 'natural' substance would not have a substantial effect. If effectiveness is indeed what the authors are interested in, surely it is in fact not reasonable to make a distinction between agents based on whether or not they are 'natural' but rather based on their inherent properties. However if this approach is adopted similar problems to those highlighted previously in "Enhancement vs. treatment" arise.

Continuing with an attempt to exclude some agents from their consideration the authors shortly thereafter make another shift in their position summarized by the following:

> "The substances that are currently most widely used (and deemed to be the most effective) are those marketed for the treatment of neurodegenerative disorders, ADHD and narcolepsy [38{40]. Thus, caffeine and nicotine, as well as other forms of enhancement, are excluded from the domain of PCE."

The reasoning in this excerpt is oddly singular. The authors seem to shift their position from the consideration of whether specific agents (in this case caffeine and nicotine) are found in nature or how effective they are, to how they are marketed. Even more so than in the previous cases it is difficult to see what relevance in the context of the present discussion the authors find in this.

Lastly, though I will not elaborate on this point, given the nature of Garasic and Lavazza's article I consider their unquestioned and unqualified adoption of the term 'abuse' (in "…Federal Substance Abuse and Mental Health Services Administration affirms that roughly 137,000 American college students start abusing prescription stimulants each year.") an unfortunate oversight.

Response to: "On normative judgments and ethics"

Mirko Daniel Garasic[1*] and Andrea Lavazza[2]

[1]Edmond J. Safra Center for Ethics, Tel Aviv University, Tel Aviv, Israel
[2]Centro Universitario Internazionale, Arezzo, Italy

We would like to thank Arandjelović for having engaged with our article and having praised some of its content. Here we will try to reply to some of the concerns raised by him hoping to clarify further some of the aspects deemed unclear.

Enhancement vs. treatment

Regarding the often discussed issue of enhancement vs. treatment, we agree that there is no "ontological" divide between normality and abnormality, and that "humans exhibit variation in nearly if not literally every characteristic worthy of consideration". However, in our opinion, this shareable observation is not enough to completely invalidate this distinction, which can be drawn from objective data and involves a conventional and/or normative component. Take, for example, the main neuropsychological tests used for cognitive and specifically executive functions. These tests, which have been standardized and validated by the scientific community well before the debate on enhancement, assume that there is some degree of variability in cognitive performance, but also set the minimum thresholds, under which it is agreed, and not arbitrarily, that the subject has a deficit. If this is the case, it is understood that the subject cannot perform adequately - or safely for herself and for others - certain tasks requiring cognitive and executive abilities at a higher level than the established minimum.

For instance, if someone lacks sufficient attention and reflexes, they cannot be given a driving license, and an intervention, pharmacological or otherwise, to restore sufficient testable levels should be considered a treatment. In contrast, if a subject falls within the normal range and, hoping to become a Formula 1 driver, takes massive doses of Ritalin, then this is enhancement. Of course, there may be more nuanced situations, and the enhancement vs. treatment question can never be settled for good. Still, the distinction is valid and can be useful. It obviously is not absolute, nor is it solely based on "our scientific understanding of the biological reality," but it can still be used to ground a thought out moral evaluation and a pondered practical application in social and political choices.

A very interesting aspect, which we have not dealt with as it lies outside the scope of our article, is the question raised by Arandjielović about temporal variations in human characteristics. How to evaluate interventions on older people, who are facing a progressive physiological deterioration of their cognitive skills? When, hopefully soon, it will become possible to treat Alzheimer's patients who, in the advanced stage of the disease, have lost almost all of their memory, will this be considered a treatment? And what about restoring the memory of a healthy nonagenarian to levels typical of a forty-year-old? Will that be considered enhancement? Deciding whether this distinction makes sense and can be drawn will obviously have strong practical implications, linked, for example, to the interventions that public health systems will be required to provide, for free or charged to the patient.

Natural and non-natural

Arandjelović is correct in underlining that we did not fully specify the meaning of natural, so we will take this occasion to expand on this point.

We are aware that the definition of 'natural' -or normal- [2] can easily become controversial and whatever the limits one assesses to be appropriate, they can be questioned. Yet, we opted for the use of one distinction.

The commentator suggests synthetic as a possible alternative to define all the substances not considered natural -giving relevance to the fact of those being created in a laboratory. Even if we do not use the term directly in our article, the natural/synthetic distinction holds –albeit it does encapsulate all the meaning of our definition.

To clarify better –and address another concern of Arandjelović- we must point out that the definition is morally relevant for the importance it conveys to the accessibility that a given substance has in a given society -exemplifying at the same time the 'historical roots' of a certain (cognitive) enhancer -with the resulting acceptance and distribution (the use and problems associated with Khat is linked to this for instance), as well as a gradual biological adaptation of our body to the effects of the substance.

In line with the ideology at the core of human enhancement (to which supporters of "more effective" cognitive enhancers refer to more or less directly), one of the objectives of any enhancement is to jump as many as possible of the 'natural phases' of development occurred in the course of human evolution. So, even if

caffeine is consumed as a result of an "artificial" process not present in nature, the characteristics of the substance itself have not been modified much. In addition, the cultural development of having implemented coffee in our lives might be ascribable also to its taste, not only the way it affects our performances (the same could be said for cacao in relation to our emotional cravings for instance). On the other hand, amphetamines of various kinds have been created in laboratories with the only intention of amplifying our concentration, focus, resistance to tiredness and so on. That is what, in our account, makes a difference. And the relevance of such a distinction is exemplified by the stronger effects that all the PCE defined by us as non-natural have.

As for the "unfortunate oversight" of having used the term 'abuse' in relation to the use of PCE by college students not in need of such prescription drugs, we might concede that 'misuse' might be a slightly more neutral term –though 'abuse' remains obviously more directly linked to the very authority we cite the data from.

Endnotes

[1]Though it is reasonable to assume that the authors are trying to contrast 'natural' with 'synthetic' since they do not actually use the latter term explicitly (nor any other in its place), in an e ort to avoid the perception of making a straw man argument I use the adjective 'non-natural' as an ipso facto class that includes all agents which are not 'natural' and only those.

[2]Though in a different context, one of us wrote on the role of normalcy (and its interaction with societal values) in another venue [16].

Acknowledgements
The author would like to thank Emma Arandjelovic for numerous discussions, probing challenges, and feedback on the article.

Funding
Not applicable.

Availability of data and materials
Not applicable.

Authors' contributions
OA is the sole contributor.

Authors' information
OA graduated top of his class from the Department of Engineering Science at the University of Oxford (MEng). In 2007 he was awarded a PhD by the University of Cambridge where he stayed for further 5 years as a Fellow of Trinity College Cambridge. Currently he is a faculty member of the School of Computer Science at the University of St Andrews in Scotland. OA is a Fellow of the Cambridge Overseas Trust and a winner of numerous awards.

Competing interests
The authors declare that he has no competing interests.

Consent for publication
Not applicable.

Ethics approval and consent to participate
Not applicable.

Received: 17 May 2016 Accepted: 27 October 2016
Published online: 22 November 2016

References

1. Garasic MD, Lavazza A. Moral and social reasons to acknowledge the use of cognitive enhancers in competitive-selective contexts. BMC Med Ethics. 2016;17:18.
2. Juengst ET. What does enhancement mean. In: Parens E, editor. Enhancing Human Traits: Ethical and Social Implications. 1998. p. 29–47.
3. Wolpe PR. Treatment, enhancement, and the ethics of neurotherapeutics. Brain Cogn. 2002;50(3):387–95.
4. Nagel SK. Too much of a good thing? Enhancement and the burden of selfdetermination. Neuroethics. 2010;3:109–19.
5. Savulescu J. Justice, fairness, and enhancement. Ann N Y Acad Sci. 2009; 1093:321–38.
6. Arandjelovic O. Doping use meta-analysis: science seasoned with moralistic prejudice. Sports Med. 2015;45(3):443–4.
7. Visscher PM. Sizing up human height variation. Nat Genet. 2008;40(5):489–90.
8. Maughan RJ, Watson JS, Weir J. Strength and cross-sectional area of human skeletal muscle. J Physiol. 1983;338:37.
9. Rypma B, D'Esposito M. Isolating the neural mechanisms of age-related changes in human working memory. Res Q Exerc Sport. 2000;3:509–15.
10. McGee MG. Human spatial abilities: psychometric studies and environmental, genetic, hormonal, and neurological in uences. Psychol Bull. 1979;86(5):889.
11. Haier RJ, Jung RE, Yeo RA, Head K, Alkire MT. Structural brain variation and general intelligence. Neuroimage. 2004;23(1):425–33.
12. Burr DB. Muscle strength, bone mass, and age-related bone loss. In: Proc. Conference of International Society of Biomechanics in Sports, 10. 1997. p. 1547–51.
13. Jabbar SB, Hanly MG. Fatal caffeine overdose: a case report and review of literature. Am J Foren Med Path. 2013;34(4):321–4.
14. Palmer KJ, Buckley MM, Faulds D. Transdermal nicotine. Drugs. 1992;44(3): 498–529.
15. Schneider NG. Nicotine nasal spray. Health Val. 1994;18(3):10–4.
16. Garasic MD. Can we use the notion of normality in genetic selection without discriminating? Global Bioethics. 2014;25:203–9.