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**Author**

Evans, John H

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## The Public's Ethical Issues with Brain Organoid Research and Application

John H. Evans

University of California, San Diego

Sawai and colleagues provide a good summary of the bioethical debate about brain organoids with an eye toward future directions. Like many contemporary texts in bioethics, they call for engagement with the public (p.20), and one motivation for such engagement is to avoid public backlash. They write that “Delayed consideration of ethical issues may unnecessarily fuel public unrest and adversely affect current basic research” (p.3).

While they provide an excellent summary of the ethical issues from the perspective of professional bioethicists, the public is very unlikely to recognize its own values in this summary. The greatest risk of public unrest is not that ethical issues are not examined, but that the ethics being used is seen as that of a small group of scholars unrepresentative of the public. Professional bioethical discourse is important, but the most important task going forward is examining organoids from the moral perspective of the public. We need to start with simply acknowledging that people with PhD's who work in elite educational institutions have different ethics than the general public.

Of the many ways that academic bioethicists are different from the public, the most important in reference to organoids is the theory of what it means to be human (called an “anthropology.”) There are three major anthropologies used by the public in the U.S.(Evans 2016) The most prevalent is that humans are those who are made in the Image of God. This is the (Christian) theological anthropology. (Christianity is the largest religious tradition in the U.S. and has had the most impact on secular institutions and ideas.) This anthropology also implies that individual

humans have unlimited value due to their ongoing relationship with God, are distinct from non-human animals and, most importantly for this essay, their humanity is not dependent upon their capacities.

A second anthropology is what I call the “biological.” The public tends to hold a more old-fashioned biological view where a human is that which could breed with another human and as a consequence, a human is that which is born from an existing human. That is the only way to obtain full human status. What the public’s version of a biological anthropology does not include is the idea that there is a genetic continuum of all life forms, but rather emphasizes human distinctiveness.

A third anthropology is what I call the philosophical anthropology where humans are those that have certain valued capacities. This is the theory used by bioethicists -- what bioethicists would call the “personhood” account or the “moral status” argument because it lacks any biological referent. In bioethics, an entity would obtain human-level status if it has some set of valued capacities, regardless of its biology. On the other hand, for the public, no matter how many human-like capacities an entity has, it will not obtain the status of an actual human.

I think I have foreshadowed enough for the reader to see my first point. The bioethical debate about organoids, and the Sawai article as well, presumes the philosophical anthropology. Therefore, the major ethical issues discussed are the possibility of organoids developing the capacity of consciousness.

However, the philosophical anthropology is not the dominant anthropology of the public, and therefore the public is unlikely to have at the top of their concerns that an organoid could obtain consciousness. I have recently completed the data gathering for a national study of the public’s

views of organoids and neuro-chimeric animals, and what I wrote below is influenced by the preliminary results of that study.

Let us start with the ethical concerns about the non-human animal with an implanted human cerebral organoid. Sawai and colleagues write that the concern is that this chimeric animal may have increased capacities (p.4). However, preliminary results suggest that short of a talking monkey, the public is not very concerned about the capacities of animals. What is more important is that mixing of human and animal tissue in the most symbolic and representative component of the human (the brain) violates the foundational moral divide between humans and animals.

Anthropologists have long noted that cultures have foundational distinctions that are so assumed they can typically not even be recognized. Among those most common in the West are inside/outside the body, living/dead, organism/machine, mind/body and, yes, human/animal. When a foundational distinction is violated a disgust response is generated.

In bioethical debate, the importance of the human/animal divide for chimera ethics has been most famously described by Robert and Baylis (Robert and Baylis 2003). While some participants in the professional bioethical debate are aware that this may be how the public views the issue, making a moral distinction between humans and animals is not part of the anthropological assumptions of bioethicists. Other bioethicists have recognized that the human/animal distinction may be held by the public, but find the distinction morally wrong, and hope that chimeric animals may actually help break down the public's foundational divide (Streiffer 2019, 8).

The public's concern with human brain organoids is even more removed from the bioethicists' assumptions. Again, the bioethicists' anthropology means that the most important

question when looking at an organoid is whether it has valued capacities such as consciousness, and this perspective takes center stage in the Sawai essay. For the bioethicist the organoid is a lump of tissue and any connection with an existing human is one of ownership.

This is not how the public views disembodied tissue. Study after study by anthropologists and sociologists find that a good portion of the public believes in some sort of ephemeral link between a human and their disembodied tissue. For example, biospecimens are often considered to be an extension of the self, where “the physical nature of the biospecimens retains an individual’s essence.” (Lee et al. 2019, 110) Classic studies of organ donation find that recipients often respond to the new organ “as if it were a repository and emanation of the donor’s quintessence.”(Fox and Swazey 1992, 36) Most famously, some organ recipients think they have the thoughts of the donor.(Sharp 1995)

After describing organoids, in my survey I asked the respondent to evaluate: “Human brain organoids should be thought of as an extension of the person who donated the skin cells used to make it.” Only 28% strongly disagreed or disagreed, 32% took the neutral position and 41% agreed or strongly agreed. I also asked the respondent to evaluate: “If a human brain organoid could think, it might have the thoughts of the person who donated the skin cells.” While this sounds outlandish from a scientific perspective, only 27% of the public strongly disagrees or disagrees, 35% take the neutral position while 38% agree or strongly agree.

We could conclude from this that the public does not understand biology, which is undoubtedly true, but not very relevant for a public debate in a democratic society. Much of the public could be taught that organoids do not have the thoughts of the cell donor, but no matter what, it is unlikely that the public will view tissue as utterly disconnected from an existing human. Put differently, a thought connection is a fact-claim that can be disproven, but the idea

that disembodied tissue retains someone's essence is more of a moral claim for which the public will likely always have a different view than scientists and bioethicists.

In conclusion, the perspective of Sawai and colleagues is very important -- we must analyze contemporary science using the developed moral traditions used by academics. But, we must not assume that this bioethics discourse reflects how the public views technologies. I will not address the complicated issue of how the public's and experts' views should be meshed to create public policy, a topic I have addressed elsewhere.(Evans 2012) I will simply say that professional bioethical debate should at least be aware when its ethical arguments are at variance with those of the public.

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