

Defining and Defying Death

Making sense of brain death and cadaveric organ transplantation in India.

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Background

The notion of “brain death” (BD) emerged in the West (Europe, Northern America) in the mid-20th century as a consequence of new therapeutic possibilities in intensive care and was soon linked to organ donation. Although many countries adopted this concept, neurological findings and the increased use of donation after circulatory death (DCD) stirred up the debate on death in the context of organ donation (e.g.: President’s Council on Bioethics (2008): *Controversies on the determination of death*).

Research Questions

- To what extent is the current academic debate on BD and DCD in the West reflected in the medical literature in India?
- Is a likely ethical issue of organ donation for the Indian context – organ trade in the context of living donation – discussed in the medical literature in India?

Methodology

Systematic literature search on the topics BD, DCD and living organ donation in PubMed, Web of Science (all databases) and Google Scholar for identifying papers & exponents in the scientific/bioethical debate. Bibliometric study using validated keyword-sets for the three topics for the time span 1991 to 2012.

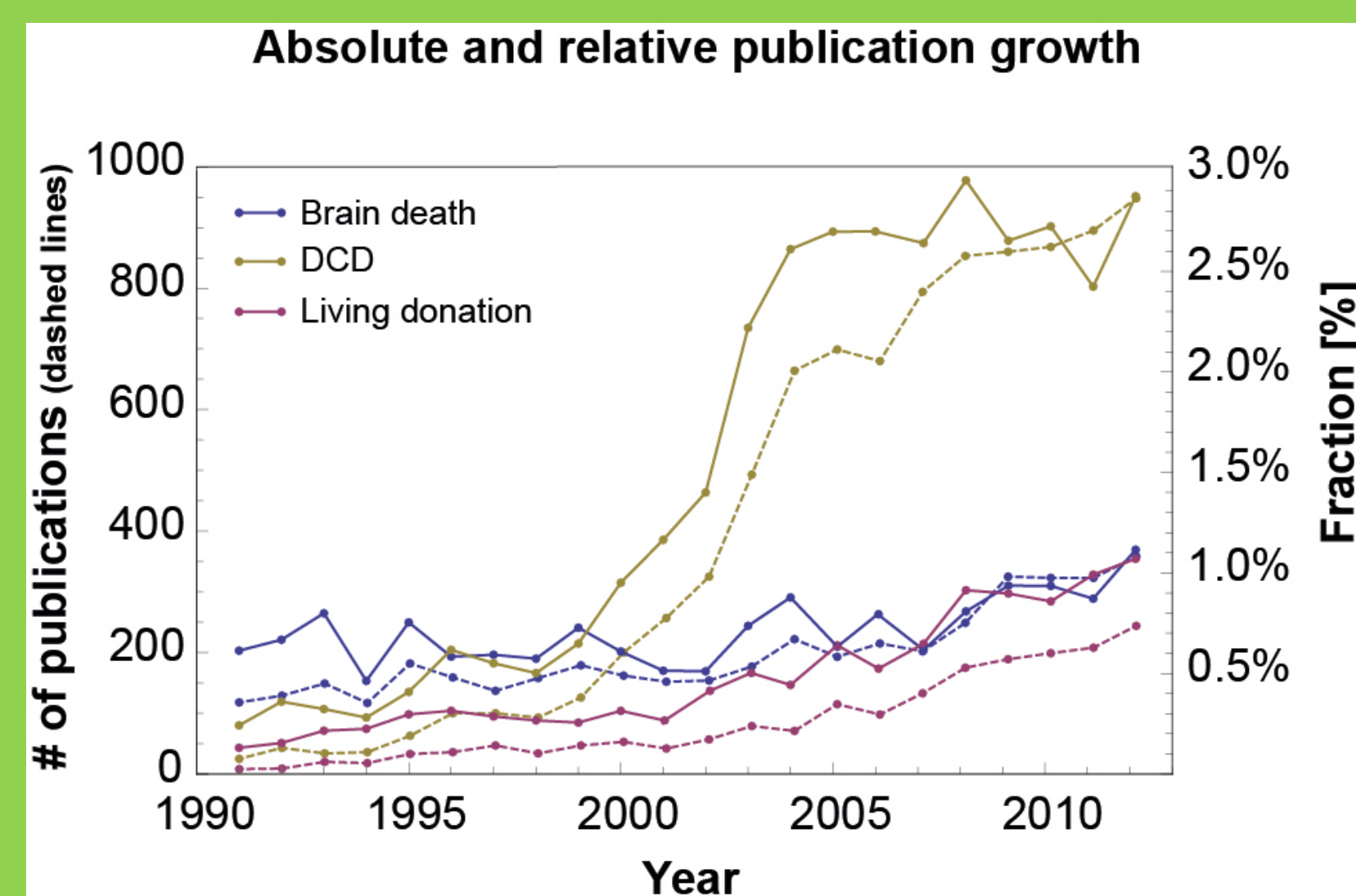


Figure 1 – General Publication Growth: Analyzing the absolute and relative growth (reference set estimates transplantation literature) of the three topics indicates that, in particular, the topic living donation grew tremendously since 1998. Also for DCD an increased growth since 2001 is discernible, but for BD the increase is less pronounced in the relative growth data. Correlation analysis reveals that literature with Western origin dominates temporal dynamics both for BD ($c=0.958^{***}$) and DCD ($c=0.998^{***}$), but not for living donation, where statistical significant correlation vanishes after 2003, indicating that other countries (in particular China and India) contribute significantly to the dynamics of the debate. In Web of Science, we identified all contributions emerging from India (i.e. papers include authors with Indian affiliations). 32 publications were found on BD, 8 on DCD and 181 on living donation, where all but six were published since 2003. The most often mentioned institutions were Sir Ganga Ram Hospital in Delhi (59), Indraprastha Apollo Hospital in Delhi (18) and Postgraduate Institute of Medical Education & Research in Chandigarh (15).

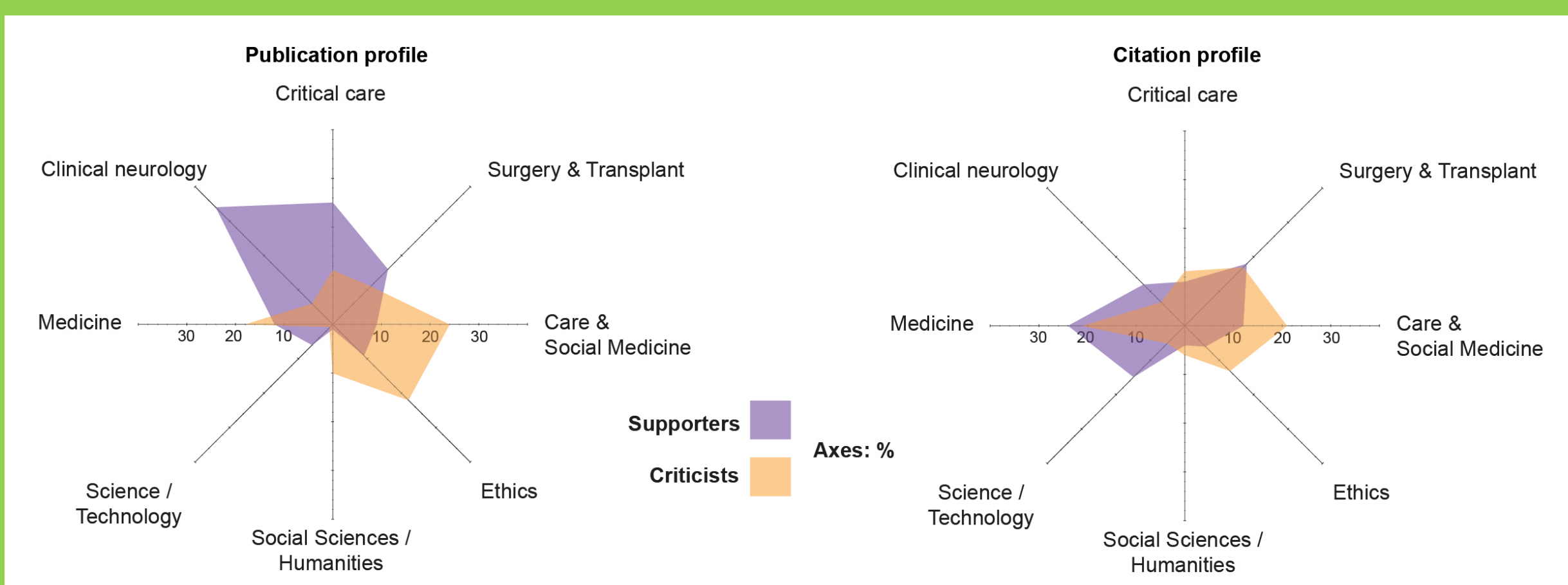


Figure 2 – Exponents of BD/DCD-Debate: Among advocates and critics of BD and DCD we identified 10 most prominent exponents of either side and calculated their cumulative publication and citation profiles for eight ISI subject category groups. We find that supporters publish in the core disciplines of organ donation, whereas critics publish primarily in ethics, care & social medicine and other medical fields. With respect to citations, supporters achieve considerable impact in other fields, whereas critics have less impact on other fields than their origin. When comparing the time series (publications per year), $c=0.897^{***}$ indicates that the number of publications of supporters and critiques co-vary. In India, the exponents are barely unrecognized: only 4 Indian papers cited the supporters and only 2 cited the critics of brain death.

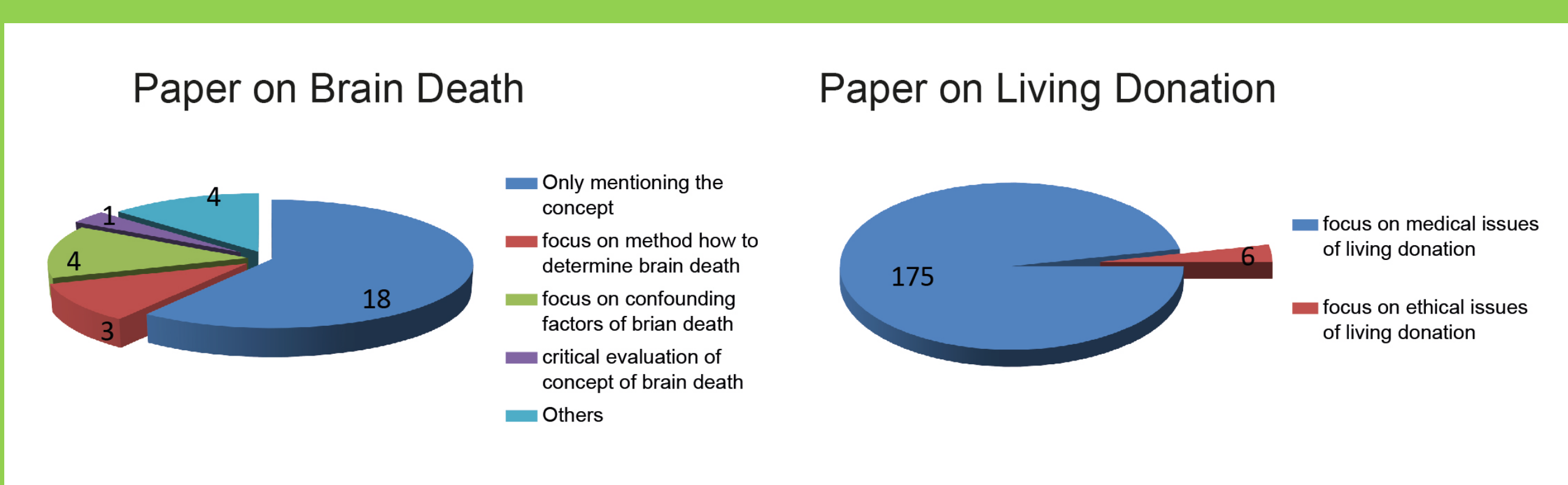


Figure 3 – Literature in India: We classified all identified Indian papers of the three topics by analyzing their abstracts – see figures for categories. For the few DCD papers we used three categories: only mentioning of the concept (5); positive discussion of DCD (2); critical discussion of DCD (1). This confirms that ethical issues in BD, DCD and even living donation are seldom a prominent topic in the Indian literature. When classifying all papers into the ISI subject category groups of Fig. 2, we find that two groups (Surgery & Transplantation: 58.5%; other medicine: 35.7%) contain almost 95% of the publications. Also 78.6% of all papers citing the Indian transplantation literature fall into these two classes (Ethics: 1.5%).

Key observations

- Debate in India on BD and DCD is still mainly biomedical.
- Most medical articles perceive wider acceptance of brain death as a means to fulfill large unmet need for organs and thus as an indirect solution for illegal organ trade.
- Ethical questions on BD and DCD are very rarely discussed, and even in living donation mentioning of ethical issues are sparse.

Questions for further research

- We have identified a need to discuss ethical, social and cultural issues related to BD, DCD and living donation in the Indian context (to be checked: coverage of WoS with respect to India):
- How do lay people and particularly families of brain dead patients understand brain death?
 - Do they trust the health system enough to accept this definition of death?
 - Is the health system capable to carry out fair distribution of the organs in spite of huge disparity in social, economic, caste-based or gender differences in India?