

On the Stand. Another Episode of Neuroscience and Law Discussion From Italy

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Abstract After three proceedings in which neuroscience was a relevant factor for the final verdict in Italian courts, for the first time a recent case puts in question the legal relevance of neuroscientific evidence. This decision deserves international attention in its underlining that the uncertainty still affecting neuroscientific knowledge can have a significant impact on the law. It urges the consideration of such uncertainty and the development of a shared management of it.

Keywords Neuroscience · Law · Neurolaw

The Fact

After his arrest *in flagrante delicto* by the police, a school pediatrician from the North of Italy confessed to have harassed 6 different child, all less than 10 years old, with groping, rubbing and in one case attempting to rape. Moreover, he was found guilty of manufacturing

child pornography: he has taken pictures of his abuse and filmed 3 incidents.

The defense attorney required the consultation of the same experts already appointed in three previous Italian cases, in Trieste, Cremona and Como. These experts, after a functional Magnetic Resonance Imaging (fMRI) scan showing an acute brain pathology (chordoma of clivus) and referring to two scientific studies [1, 2], claimed that the pedophilia of the defendant was acquired as a consequence of the pressure on the hypothalamus by a tumor. According to the scientists, it is also possible that such a tumor caused orbitofrontal and cortical damage. As a result, the defense asked the defendant to be acquitted.

Starting from the same evidence, the experts appointed by the prosecution came to a different conclusion. According to them the tumor does not press the orbitofrontal area, which is in front of the tumor's area: the chordoma presses the pons, the medio-inferior part of the brainstem with the pituitary gland. The prosecution's experts agreed with the defense's experts that the tumor had psychiatric consequences, like spastic crying and dysmetria, but they added that such consequences are not legally relevant for the case in question. They concluded that it is not possible to affirm that the defendant had a totally or partially compromised ability to understand the nature of the acts for which he is accused.

The experts appointed by the prosecution added that the chordoma of clivus can cause an altered perception of risk, but neither the absence nor the diminishment of

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the capacity to perceive the negative value of the actions can emerge from such tumor. This ability is assumed by the experts to be relevant to determining the accountability of the defendant: the perception of risk emerging from an action knowing that such action is wrong does not diminish accountability.

Finally, given these two so very different scientific opinions, the judge decided to not take into account the request by the defense, for two reasons:

- Generally speaking, to date the correlation between some organic pathologies and pedophilia has been showed in a very limited number of cases (the defense's experts cited only two), so that such correlation can be assumed as an experimental hypothesis which is not unanimously accepted by the scientific community.
- Regarding the particular case in question, there is a fundamental difference between the interpretations of the defense's and of the prosecution's scientific experts. The judge held this difference, better explained as a contrast, legally relevant because it shows that science does not give a common interpretation of the same evidence, which therefore remains problematic.

The only shared conclusion of the different scientists consulted within the proceeding is that the defendant had sexual emotional and psychological dysfunctions, but according to the judge these are not signs of mental impairment so that they did not affect his accountability.

Finally the defendant was sentenced to 5 years and to perpetual interdiction from public offices.

Discussion

As other previous proceedings [3], this case deserves particular attention in the international debate about the neuroscience-law relationship for two fundamental reasons:

- It underlines that neuroscience is not an unproblematic body of knowledge: the same evidence can be differently read.
- It underlines that the neuroscientific claims potentially affecting the legal proceedings are often only hypothetical and experimental, not objective.

Regarding the first point it is relevant that the experts appointed by the defense and by the prosecution came to different conclusion starting from the same evidence. The instrumental finding is neither self-evident nor self-explanatory data, but it needs to be interpreted by experts. This interpretation even if not relativistic is however affected by the personal background of who interprets. Moreover, some data are still scientifically uncertain, so that a shared knowledge is only partially possible. This condition of uncertainty necessarily affects the feasibility of the use of neuroscience in legal proceedings: some interpreters claim neuroscientific findings and tools could or should be used in courtrooms, while others claim not [4, 5].

Regarding the second point, the nature of the neuroscientific thesis potentially affecting the legal proceedings is often still hypothetical or grounded on few experimental findings. This results in an increased responsibility for judges and courts: to decide if the hypothetical nature of some scientific thesis is or is not a limit for their application in legal proceedings. The problematic point is that this decision could be excessively subjective and not grounded on an objective epistemic assessment of neuroscience. It might be necessary to improve the scientific knowledge of the judges.

Furthermore, even if there is a general agreement about the functions of specific cerebral areas and about their influence on human behavior, the question of their relevance for the law is still open: do the mechanisms in our brain affect our responsibility and accountability? There is not a definitive answer [6, 7], with a proliferation of different voices from different countries [8, 9].

Conclusion

The cited Italian case outlines that to date neuroscience is not an unproblematic tool for legal proceedings. To date there are many promises and premises of actual applications of neuro-evidences in the courtroom, but a lot of theoretical assessment is needed. At the current time, the uncertainty surrounding neuroscientific findings makes its application in legal proceedings risky.

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