Neuroprediction in Forensic Contexts: Legal and Ethical Implications

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THE MIND RESEARCH NETWORK

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Overview

- Why prediction?

- Present 3 studies involving forensic neuroscience



- Identify the legal and ethical issues associated with using neuroscience to inform assessments and decision making within the legal system

What are we trying to predict?

Not

But

Recidivism

Recidivism is a LARGE category of DIFFERENT types of behavior

- ✓ general recidivism/nonviolent crime
- ✓ violent crime
- ✓ sexual crime
- ✓ sexually violent crime

Different outcome variables that are

Assessed with different methods and

Predicted with varying levels of accuracy

Risk assessment

- **What is the general goal of risk assessments?**

- **To place individuals into one of three categories of risk**

Why Neuroscience?

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Because of the information we can get from neuroscience…

Does neuroscience data add predictive utility?

Studies to date suggest that it does.

2011
Neuroprediction of recidivism

- **Question: Can brain activity predict which offenders would be rearrested after release?**

- **Results: Yes.**

- **Conclusion: These results suggest a potential neurocognitive biomarker for persistent antisocial behavior.**

Aharoni, Eyal, et al. Neuroprediction of future rearrest, 110.15 *Proceedings of the National Academy of Sciences* 6223-6228 (2013).

2014
Neuroprediction of tx completion

- **Question: Can brain activity predict who would successfully complete a 12-week substance abuse treatment program?**
- **Results: Yes.**
- **Conclusion: These results may help in the development of individualized therapies, which could lead to more favorable, long-term outcomes.**

Vaughn R. Steele et al. Brain potentials measured during a Go/NoGo task predict completion of substance abuse treatment. 76(1) *Biological psychiatry* 75-83 (2014).

2014
Brain differences in homicide

- **Question: Are there structural brain differences between adolescent offenders that had committed homicide and those that had not?**

- **Results: Yes.**

- **Conclusion: Brain data may help identify those at the highest risk for committing serious violent offenses.**

Cope, L. M., et al. Abnormal brain structure in youth who commit homicide. *NeuroImage: Clinical* 4 (2014): 800-807.

Neuroprediction:
Legal & Ethical Implications

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“Risk triage”

Predicted Risk ➔ True risk ⬇	Low Supervision/ Treatment	High Supervision/Treatment
Low Risk	Correct rejection	False alarm = Civil liberties Near-term waste
High Risk	Miss = Public safety cost, long-term waste	Hit

Neuroprediction: Legal issues

Constitutional implications of (biologically based) risk assessments:

4th, 5th, and 8th Amendments

- Testimonial or physical evidence
- Due process
- Equal protection
- Liberty interests and mandated treatment

Neuroprediction: Ethical issues

Ethical considerations regarding linking brain structure & function variables to high-risk behavior:

- Individual vs. Group relevance
- Privacy/confidentiality
- Access to treatment and care
- Implications for treatment
- Stigmatization/Discrimination
- False positives and false negatives
- Over-interpretation/”Genetization”
- Self-fulfilling prophecy
- Eugenics

Neuroprediction: Use Responsibly

“The real challenge for the future is to use neuroscience as a precise tool that may facilitate predictions of future dangerousness and not as a means to further deprivations of liberty, dictated by the accentuated societal need for security, under the pretext of treatment and rehabilitation.”

Gkotsi, G. M., & Gasser, J. (2016). Neuroscience in forensic psychiatry: From responsibility to dangerousness. Ethical and legal implications of using neuroscience for dangerousness assessments. *International Journal of Law and Psychiatry*.

Neuroprediction: Goals

- Advance understanding of neurobiological risk factors for a variety of outcomes
- Improve our ability to assess these factors
- Develop targeted treatments and ways to mitigate the risks
- **Improve outcomes**

Thank you

Questions and feedback welcome:

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