Ethical evaluation of genetic testing and neuroimaging for children at risk for mental illness

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PREVALENCE of MENTAL ILLNESS

- 20% Children and adolescents affected by mental illness worldwide
- 50% of mental disorders begin before age 14
- 36% Those with mental illness who are receiving treatment

THE COST of MENTAL ILLNESS
- $193 Billion (prenatal testing)
- $24 Billion (neural changes in late adolescence)
- $57.5 Billion (overall, the U.S. spends on disability benefits)

FINDINGS of OUR RESEARCH

- People we interviewed:
  - Psychiatrists / Psychologists
  - Mental Health Counselors
  - Nurses / Social Workers

- Overview of people:
  - Mental health professionals specializing in children or adolescents
  - English-speaking
  - 38 participants (28 for neuroimaging, 9 for genetic testing)

- Qualitative Data Analysis:
  - Interviews transcribed and coded for emerging themes
  - Descriptive Accounts
    - Interpreted accounts for comparison and expansion to wider applications

- Our goal was to identify the risks and benefits associated with brain imaging and genetic testing to diagnose mental illness in children and adolescents.

- We asked our interviewees if they would consider using either brain imaging or genetic testing in their practice for prediction or diagnosis of mental illness.

- BENEFITS
  - Improved understanding of the brain and mental illness
  - Evidence-based diagnosis for improved accuracy and early detection
  - Informed treatment plan to facilitate better patient management

- RISKS
  - Misuse or misinterpretation of results
  - Societal impacts on employment and insurance affairs
  - Infringements on self-esteem or motivation
  - “Having a brain scan will indicate this is not the patient’s fault it’s something that is going on in the body. I think it would be helpful for all of us to have a clearer understanding, to help us appreciate that these changes are very real.”
  - “So, if there could be some definitive test that could identify mental disorders, it would be helpful in treatment for sure—choosing the appropriate medications and kind of overall treatment planning.”
  - “Again we would now have some validity, some agreement. Everybody looking at the picture hopefully would see the same thing and would know the implications and treatment would be more streamlined and specific.”
  - “And my fear is that imaging would simplify things unduly, and we would miss treating the subtleties of this disease. And instead we would just slap together a prescription and here’s your meds and good luck.”
  - “There might be employment opportunities, schooling opportunities that would be closed to you if people knew that you were at risk for those conditions.”
  - “There can be a sense of feeling defeated or feeling that their opportunities in the future are limited.”

PICTURE of MENTAL HEALTH RESEARCH

- Researchers are currently using neuroimaging and genetic testing to study mental illness. Both modalities provide unique contributions towards the understanding and diagnosis of mental illness.

- Neuroimaging:
  - Identifies neural correlates of disease
  - Facilitates diagnosis by examining neural activation patterns and changes in brain structure
  - Provides brain-based predictors of disease

- Genetic Testing:
  - Supports pre-symptomatic and prenatal testing
  - Facilitates disease prediction

- These contributions have 3 key implications for mental healthcare: Prediction by genetic testing for early intervention, diagnosis using biologically oriented classification, and more effective interventions as a result of better understanding of mental disorders.

- Past survey results showed that parents of children with mental illness are receptive to neuroimaging and genetic testing for diagnosis of mental illness.

Support by funds from NIH/NIMH RO1MH84282
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