

HANDOUT FOR PRESENTATION
BEYOND DSM-5: THE FUTURE OF PSYCHIATRIC/PSYCHOLOGICAL DIAGNOSES
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The National Institute of Mental Health did not endorse DSM-5. Instead, in 2009, it launched an ambitious research project, Research Domain Criteria (RDoC). The purpose of this research is to create more accurate diagnoses that lead to more precision treatment of mental health diagnoses.

The seven pillars of RDoC are: (1) The basic science of genetics, neuroscience, and behavioral science serve as a starting point; (2) There will be a dimensional approach with full range variation from abnormal to normal. It may be nonlinear with certain tipping points; (3) There will be an emphasis on reliable and valid measures of fundamental components. There will be cutting points along distributions from normal to dysfunctional; (4) DSM-5 Diagnoses will not be used. Instead, research will locate a sampling frame. An independent variable will be specified (such as working memory). The dependent variable will be neuroimaging and real world behavioral dysfunction. There will be an attempt to identify genes involved; (5) There will be an emphasis on integrating behavioral function with neural circuits. There are two criteria: strong evidence of a construct or behavioral function along with behavior that maps onto a specific biological system, such as a brain circuit; (6) Concentrate on constructs with solid evidence that can serve as a platform for future research; (7) Research is not tied to fixed definitions or disorders.

The goal of RDoC is a radically new classification system to determine the exact nature of the problem, which can inform optimal treatment. Our old diagnoses may become obsolete. Instead, the proposed diagnostic system will be based on domains: (1) Negative valence system—fear, anxiety, loss, frustration, nonreward; (2) Positive valence systems—reward learning, reward valuation, habits; (3) Cognitive systems—attention, perception, declarative memory, working memory, cognitive control; (4) Systems for Social Processes—attachment formation, social communication, perception of self, perception of others; (5) Arousal/Modulatory Systems—arousal, circadian rhythm, sleep and wakefulness.

There is considerable overlap of symptoms and also heterogeneity of symptoms with our existing classification systems. One reason may be that the different diagnoses

have common causal pathways. Subcortical areas of the brain (that project onto the cerebral cortex) are frequently researched because they have such a strong impact on human functioning. The limbic system was once called the emotional area of the brain, but the limbic system impacts cognition, memory, and attention as well.

The hippocampus is frequently discussed in terms of its role in a variety of disorders. The hippocampus is one of several areas of the brain that is capable of neurogenesis. The healthy brain can, to a certain degree, heal itself. A brain under chronic stress does not do so well because of disruptions in brain chemistry and neurotransmitters.

There is increased interest in areas of the brain, including white matter and glial cells. These areas were once viewed as relatively non-active, perhaps merely padding for the neurons. Current research indicates a more important role in functioning and dysfunction based on these areas.

The Human Genome Project completed mapping the human genes in 2003. Humans do not have the most genes of any organism, and we actually share 50% of our genes with the banana. We have between 20,000 and 35,000 genes. There is usually no one gene that controls such complex conditions as depression, schizophrenia, or PTSD. Instead, there are a number of genetic factors that work on concert to create conditions that interact with the environment and result in certain emotional/cognitive/behavioral reactions. Improved understanding of the brain/body complex should help inform us as to how to improve treatment of mental health conditions.

The study of epigenetics is growing increasingly important in understanding human behavior. Genes can be switched on or off (demethylation or methylation) depending on environmental factors, including stress. The first three years of life are extremely important in this process. Adverse Childhood Experiences impact genes, genetic functioning, and human functioning.

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