Use and Misuse of Psychological Testing in the Evaluation of Black Patients

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President, Black Psychiatrists of America Inc.

September 16, 2021
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Mental Health Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration


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MHTTC Network Coordinating Office
Stanford University
MHTTC Purpose

The MHTTC Network vision is to unify science, education and service to transform lives through evidence-based and promising treatment and recovery practices in a recovery-oriented system of care.
Central East MHTTC Goals

Funded by SAMHSA to:

- **Accelerate** the adoption and implementation of mental health related evidence-based practices
- **Heighten** the awareness, knowledge, and skills of the behavioral health workforce
- **Foster** alliances among culturally diverse practitioners, researchers, policy makers, family members, and consumers
- **Ensure** the availability and delivery of publicly available, free of charge, training and technical assistance
Central East Region 3

Delaware
District of Columbia
Maryland
Pennsylvania
Virginia
West Virginia

Central East (HHS Region 3)
Mental Health Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration
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Use and Misuse of Psychological Testing in the Evaluation of Black Patients

Benjamin Roy, MD
President, Black Psychiatrists of America

Health Equity Webinar Series
A collaboration of the CE-MHTTC and the Black Psychiatrists of America
September 16, 2021

Moderator:
Annelle B. Primm, MD, MPH
Black Psychiatrists of America, Council of Elders
COVID-19: Unprecedented Disaster

• Catastrophic impact on Black and other marginalized communities: disparate levels of death and economic fallout superimposed on layers of pre-existing inequities

• Rise in anxiety, depression, and substance use, and exacerbation of pre-existing mental disorders in adults and children in the Black community

• Evaluation of psychiatric conditions may include psychological testing which does not occur in a vacuum

• Consider historical, social, and political contexts
Today’s Program

• Special thanks to the CE-MHTTC for its support of this fiscal year’s session of the Black Psychiatrists of America Health Equity Webinar Series

• Focus is regional on Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, and West Virginia yet the information has national relevance

• Today’s webinar features Benjamin Roy, MD, President of the Black Psychiatrists of America
Use and Misuse of Psychological Testing in the Evaluation of Black Patients
Social Value of Psychological Tests

- Clinical diagnosis and treatment
- Disability determination
- Justice system:
  - Incarceration
  - Sentencing
  - Probation and Parole
- Employment
  - Fitness
- C-Suite
Physiognomy
Portrait of a Man Suffering from Delusions of Military Command
Theodore Gericault, 1822
Étienne-Jean Georget, the chief physician of the Salpêtrière
Patients at Surrey County Lunatic Asylum
Henry Welch Diamond 1855
On the Application of Photography to the Physiognomy and Mental Phenomena of Insanity, The Photographic Journal, July, 1856

National Science and Media Museum.
Royal Photographic Society Collection

Wikimedia Commons
Eugenics Foundation of Psychological Testing

- Enlightenment: free will, people choose or make poor decisions that lead to crime
- Charles Darwin
  - *On the Origin of Species*, 1859
  - *The Descent of Man*, 1871
- Social Darwinism: behavior is innate, inborn, irremediable
- Francis Galton
  - Coined the word Eugenics
  - *Hereditary Genius*, 1869
  - *The History of Twins*, 1875
  - adoption studies for nature vs. nurture
“. . . criminals closely resemble not the insane but savages. All travelers know among the Negroes and savages of America, sensitivity to pain is so limited that the former laugh as they mutilate their hands to escape work, [Dysesthesia ethiopica] while the latter sing their tribe’s praises while being burned alive.”

“Race shapes criminal organizations. Both Bedouins and Gypsies can be considered races of organized criminals. The same seems to apply to Negroes in the United States . . .”
The facial features of biracial Khoi/Boer were the criminal type.
Historians claim Francis Galton devised “regression to the mean” in 1875 studying generations of peas.


“I am sure that you will be curious to learn whether the Hottentot Ladies are really endowed with that shape which European milliners so vainly attempt to imitate. They are so, it is a fact, Darwin. I have seen figures that would drive the females of our native land desperate ... I sat at a distance with my sextant, and as the ladies turned themselves about, as women always do, to be admired, I survej'ed them in every way and subsequently measured the distance of the spot where they stood—worked out and tabulated the results at my leisure.”
Steatopygia
Welcome Collection, 1930
Saartjie Baartman 1789-1815
“The Hottentot Venus”

Muséum d'histoire naturelle d’Angers, France
Sextant
“If you bring the white man into contact with the black, you too often suspend the very process of natural selection which the evolution of a higher type depends. . . . They naturally sink into the position of master and servant, if not admittedly or covertly into that of slave-owner and slave. . . . Thus it comes about that when the struggle for existence between races is suspended, the solution of great problems may be unnaturally postponed . . . Such problems in suspense, it appears to me, are to be found in the negro population of the Southern States of America, in the large admixture of Indian blood in some of the South American races, but above all, in the Kaffir factor in South Africa.”
PSYCHOMETRICS
$500 million a year industry
Meyer-Briggs administered to 2.5 million people each year, collecting $20 million
National Research Council meta-study reports personality tests (particularly Meyer-Briggs) have no validity
Popular because of belief in their utility
Problem of Measurement in Psychology

- Psychological variables, e.g., emotions, do not have a physical presence so are not directly observable, i.e. are “latent”
- Can latent variables be measured or not?
  - Yes (Edward Lee Thorndike)
    - Introduction to the Theory of Mental and Social Measurements, 1904
    - The Measurement of Intelligence, 1927
  - No (Norman Robert Campbell)
    - Physics: The Elements, 1920
- Ferguson Committee 1932 of the British Association for the Advancement of Science
Scales of Measurement

Nominal
- Variables are categories assigned a name or label

Ordinal
- Variables are noncalculable, named, and in a specific order.
- Likert scale

Interval
- Named, ordered, but numerical with proportionate intervals

Ratio
- Named, ordered, proportionate intervals, and zero point
Nominal Scale

- Definition:
  - Variables are categories assigned a name or label
  - Numbers are tags and have no quantitative meaning
  - Responses can be counted

- Data:
  - Open-ended questions
  - Multiple choice questions

- Statistical Analysis:
  - Sums
  - Percentages
Ordinal Rating Scales

- Data:
  - Relative rank
  - Interval does not have a Real value
  - Measure of non-numeric traits
  - Add-on to nominal data
  - Ordinal data has a median

- Statistical analysis
  - Mann-Whitney U Test: difference between 2 groups
  - Kruskal–Wallis H test: more than 2 groups
Conjoint Measurement Theory

“axiomatization for the comparison of the effects of (or response to) pairs formed from two specified kinds of “quantities”"

A single item about depressed mood:

1 - Depressed Mood (sadness, hopeless, helpless, worthless)

- 0 Absent.
- 1 These feelings states only indicated on questioning.
- 2 These feeling states spontaneously reported verbally.
- 3 Communicates feeling states non-verbally, i.e., through facial expression, posture, voice, and tendency to weep.
- 4 Patient report VIRTUALLY ONLY these feeling states in his spontaneous verbal and nonverbal communication.
“Depressed Mood” constitutes four “feeling states,” i.e., sadness, helplessness, hopelessness, and worthlessness but is ranked by a single integer value 0-4.

No weighted value although only hopelessness correlates with suicide

There is no unit of measure. A score of 2 is not twice the depression of 1, etc. So there is no norm.

One cannot perform arithmetic operations, e.g., you cannot add or multiply scores, meaning the scale does not function in a mathematical space (normed vector space, etc.) - no proof

Non-verbal communication is nonspecific (motor not psychic):

Hypomimia facial expression in Parkinson’s disease or drug-induced parkinsonism is described as flat or depressed affect.

Tearfulness in pseudobulbar palsy secondary to subcortical lacunar infarcts may not have associated sadness, etc.

Pittsburgh Tribune Review
Muhammad Ali and wife Lonnie

Photo credit: Kwaku Alston for AARP 2014
Attention Deficit Hyperactivity Disorder

- There are 50 million school age children in the United States.
- The prevalence of ADHD ranges from 3-18%; 6 million (12% of 50 m) have been treated with medications
- The gold standard for ADHD testing is the Conners Rating Scale, a subjective scale for parents and teachers. Purported sensitivity is 0.94 (false positives is 0.06) and specificity is 0.92 (false negatives is 0.08)
There are two kinds of errors made by medical tests:
- false negatives (the test misses someone who has the disease)
- false positives (the test mistakenly identifies a healthy person as diseased).

These are aspects of a test’s sensitivity and specificity, respectively. These are not the same and each has important consequences for determining a child’s risk for ADHD.
Percent of Youth 4-17 Ever Diagnosed with Attention-Deficit/Hyperactivity Disorder by State: National Survey of Children's Health 2011
Pounds of Pesticides Applied to Crops by Watershed

For corn, cotton, barley, wheat, soybeans, sorghum, oats, peanuts, potatoes, beets, tobacco, sunflowers, and rice, 1992.

U.S. Department of Agriculture
Natural Resource Conservation Service
Resource Assessment and Strategic Planning Division
Map ID: BMW.1065  September 1997
Serotonin, Aggression, and Parental Psychopathology in Children With Attention-Deficit Hyperactivity Disorder

**Fig. 2** Peak Δ prolactin (PRL) response to fenfluramine challenge in aggressive children with (P-AGG+) and without (P-AGG−) a parental history of aggression ($t_{(16)} = 2.54$, $p < .05$).
Evolution of Personality Tests

- Woodworth Psychoneurotic Inventory (Robert Woodworth)
  - WWI to identify soldiers at risk for shell shock (PTSD)
  - Single scale: emotional instability
  - Hospitalized psychiatric patients

- Bernreuter Personality Inventory (Robert Bernreuter, 1930)
  - Multiscale: neurotic tendency, self-sufficiency, introversion-extraversion, sociability, confidence and dominance-submission

- Thematic Apperception Test (Henry Murray and Christiana Morgan, 1935)
  - Projective test has the patient weave a story in response to 32 pictures
  - Inspiration Carl Jung, *Personality Types 1921*

- Minnesota Multiphasic Personality Inventory (MMPI)
  - All white, Protestant, Scandinavians (“Minnesota Normals”)
  - Atheoretical, patient interviews
  - Starke Hathaway and Charnley McKinley, 1943
Sixteen Personality Factor Questionnaire
- Raymond Cattell
- Five Factor Model
- Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (OCEAN)
"Another thing that struck me was the great influence of the Negro, a psychological influence naturally, not due to the mixing of the blood. The emotional way an American expresses himself, especially the way he laughs . . . The peculiar walk with loose joints, or the swinging of the hips . . . American music draws its main inspiration from the Negro, and so does the dance . . . other abnormalities are strongly influenced by the Negro . . . Everything seems to be street.

This infection by the primitive, of course, can be observed in other countries . . . the white man is a diminishing minority and must protect himself from the Negro by observing the most rigorous social forms, otherwise he risks "going black." If he succumbs to the primitive influence he is lost.

It is natural that in the dreams of my American patients the Negro should play no small role as an the expression of the inferior side of their personality."
Carl Jung’s *Psychological Types*, 1921 is the basis of the Myers-Briggs Type Indicator (MBTI)

- Katharine Cook Briggs (mother) and Isabel Briggs Myers (daughter), amateurs, created the test in 1943
- Katharine Cook Briggs worshipped Jung as a “god”
- Isabel Briggs Myers authored a novel about whites who after learning they had black blood committed suicide

**Pseudoscience**

- Stein R and Swan AB. Evaluating the validity of Myers-Briggs Type Indicator theory. A teaching tool and window into intuitive psychology. Social and Personality Psychology Compass 2019; 13(2):e12434
Kenneth B Clark and Mamie Katherine Phipps Clark


- Briggs v. Elliott 1952
  - Harry Briggs and 19 other parents brought suit against segregation and R.W. Elliott, the president of the school board for Clarendon County, South Carolina
  - “discrimination, prejudice and segregation have definitely detrimental effects on the personality development of the Negro child. The essence of this detrimental effect is a confusion in the child's concept of his own self-esteem—basic feelings of inferiority, conflict, confusion in the self-image, resentment, hostility towards himself, hostility towards whites . . . [or] a desire to resolve his basic conflict by sometimes escaping or withdrawing”
Identical siblings, wards of Louise Wise adoption services, by policy were placed in separate families on recommendations by Dr. Viola Bernard with Columbia University.

Dr. Peter Neubauer of Jewish Board of Guardians’ Child Development Center and NYU exploited the policy and placed siblings in families of disparate socioeconomic status to research nature vs. nurture and whether mental illness was genetic.

Investigators tracked their development with personality and other psychometric tests. The source of funding is not known.

The research papers are sealed at Yale until 2065.

Documentary films:
Genetic Tests of Personality

- 'Karmagenes’ Personality DNA test
  - Employs a proprietary algorithm psychological assessment based on the five-factor model (The Big Five) that links 14 behaviors to single nucleotide polymorphisms in DNA
- **Easy DNA**
- Genomelink - (The Big Five)
- Circle DNA - (The Big Five)
- Others
23andMe has patented information elicited from its customers’ DNA but its customers have no property rights in these patents

US 8,187,811 B2: Polymorphisms Associated with Parkinson’s Disease

There is the prospect then that companies compiling DNA and psychological data may patent “personality” or mental health disorders or even intelligence characteristics

Police agencies have used DNA relatives’ information from commercial sites to track felons

Will “personality DNA” be used for forensic purposes?
Forensic Psychological Testing


- Forensic Assessment Instruments:
  - Minnesota Multiphasic Personality Inventory-2 (MMPI-2)
  - Wechsler Adult Intelligence Scale (WAIS)
  - Personality Assessment Inventory
  - Evaluation of Competence to Stand Trial-Revised (ECST-R)
  - MacArthur Competence Assessment Tool-Criminal Adjudication (MacCAT-CA)
  - Juveniles’ Adjudicative Competence Interview (JACI)

- Forensically Relevant Instruments:
  - Structured Assessment of Violence Risk in Youth
  - Historical Clinical Risk Management 20 (HCR-20)
  - Hare Psychopathy Checklist - Revised (PCL-R)

- Clinical Assessment Instruments:
Artificial Intelligence and Psychological Testing

- ELIZA: a chatbot created in 1966 simulated a psychotherapist
- Capabilities superior to human therapists
  - Infrared imaging to recognize temperature changes
  - Facial recognition
  - Optical sensing interprets facial expression and eye blinking
  - Vocal analysis of speech characteristics
  - Olfaction (smell) analysis
  - Fuzzy logic
- Augmented Virtual Reality Therapy (cell phones, iPads)
- Virtual Life Coaching, e.g., Second Life
Artificial Intelligence in Psychology

- Watson Health
- Mental Health Diagnostic Expert System
- RP-VITA
- Detection and Computational Analysis of Psychological Signals (DCAPS) - DARPA (Defense Advanced Research Projects Agency)
- Computer Science and Artificial Intelligence Laboratory at MIT
Checklist

- What are the credentials of the test developers?
- Is the test published in a peer-reviewed journal?
- Has the test been validated and normed for the subject’s age, race, and gender?
- Check publications for and against the test.
- Is the person administering the test certified?
- Does the test serve the needs of the subject?
- Does the test serve a social agenda?
Questions
Appreciation
Contact Us

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