COMMENTARY



Unconscious Bias and the Diagnosis of Disruptive Behavior Disorders and ADHD in African American and Hispanic Youth

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Diagnostic evaluation of psychiatric disorders in children and adolescents relies in part on subjective interpretations of information from a clinician. Clinicians must interpret and contextualize information obtained from family, caregivers, and educators in order to assign an appropriate diagnosis. However, environmental and sociocultural influences can make the diagnosis of psychiatric disorders challenging, and appreciating these influences should be a priority in academic psychiatry. This can be particularly true for the provision of a diagnosis of oppositional defiant disorder (ODD), conduct disorder (CD), and attentiondeficit/hyperactivity disorder (ADHD), as diagnosing these complex conditions can be nuanced. There is a growing body of evidence indicating that when compared to non-Hispanic white youth, some ethnic and racial minority youth are more likely to receive a diagnosis of a disruptive behavior disorder and are less likely to receive a diagnosis of ADHD [1-8]. When controlling for confounding variables such as adverse childhood experiences, prior juvenile offenses, genetics, and sociodemographics, these diagnostic and treatment disparities remain [6-8]. Although the cause of these diagnostic disparities is multifactorial, there is concern that unconscious biases may play a role in diagnostic decision-making. As a result of these biases, psychiatrists and trainees may judge and interpret behaviors seen in ODD, CD, and ADHD differently based on race or ethnicity, putting vulnerable populations at risk [5, 9]. Additionally, the current standard of practice is to routinely consider a broad differential of

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comorbid disorders when youth exhibit disruptive symptoms; however, biases may lead clinicians less likely to explore these potential explanations for behavior [10–12].

When a diagnosis of a disruptive behavior disorder is provided in place of ADHD (or ADHD is not included as a concurrent diagnosis), there are significant clinical implications, as this can limit access to medications, therapy, and other supportive services. This lack of services can put ethnic and racial minority children at risk for perpetuating the disparities which currently exist in the medical, educational, and juvenile justice systems. Recognizing the magnitude of this concern, this commentary reviews how unconscious bias can lead to diagnostic disparities in the assessment of disruptive behavior disorders and ADHD, the implications that these biases can have on ethnic and racial minority youth, and how this challenging clinical topic should be addressed in academic psychiatry.

Disruptive Behavior Disorders and ADHD: Prevalence, Disparities, and Risk Factors

Disruptive behavior disorders are rooted in difficulties in self-control and emotional and behavioral regulation. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) recognizes that symptoms of ODD and CD may occur to some degree in typically developing individuals; therefore, the frequency, persistence, and pervasiveness of the behaviors must be evaluated relative to what is normative for a child's age, gender, and culture [13].

ODD is characterized by a pervasive pattern of angry and irritable mood, argumentative tendencies, defiant behavior, and vindictiveness. Children and adolescents with ODD frequently lose their temper, are easily annoyed with others, and will often argue with authority figures or refuse to comply with rules. A diagnosis of CD is assigned when behaviors violate the rights of others and major societal norms, including bullying, threatening



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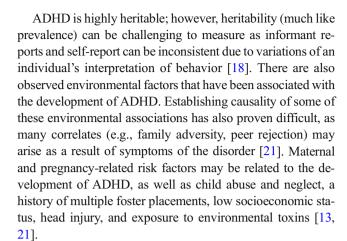
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others, initiating physical fights, sexual assault, and stealing [13]. Although ODD is often thought of as a precursor diagnosis to CD, many children who receive a diagnosis of ODD do not go on to subsequently develop CD [13, 14].

Risk factors for a diagnosis of ODD include lower socioeconomic status, harsh and inconsistent parenting practices, and family dysfunction [15]. Risk factors for a diagnosis of CD are similar and include parental rejection and neglect, harsh discipline, physical or sexual abuse, frequent changes of caregivers, parent criminality, caregiver substance-use, and neighborhood exposure to violence [13]. Racial and ethnic diagnostic disparities in disruptive behavioral disorders are well-documented, in particular among urban, low-income African American and Latino youth [1, 2, 16]. For example, one study found that among 1173 youth living in residential treatment facilities, less than one quarter of non-Hispanic white youth were given a diagnosis of CD (24.4%), whereas Hispanic youth (43.3%), and African American youth (34.4%) were significantly overrepresented (p<.0001 for each comparison) [2].

Symptoms of ADHD include those related to inattention and/ or hyperactivity and impulsivity. Youth with ADHD often have difficulty paying close attention to details, are reluctant to engage in tasks requiring sustained attention, or may experience difficulty with impulse control such as leaving their seat when sitting is expected, or speaking out of turn excessively. In order for a diagnosis of ADHD to be made, the behaviors and symptoms may not solely be a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions [13]. The true prevalence of ADHD is challenging to measure as diagnosis is dependent on individual interpretations of behavior as well as the manner in which a clinician integrates multiple informant reports from parents, caregivers, and teachers [17]. Additionally, the reliability of one individual's self-report of their ADHD symptoms in adolescence and adulthood may be inconsistent with multiple-informant reports [18]. However, one study of 842,830 children treated between the years of 2001 and 2010 found that in 2010, the prevalence of ADHD among non-Hispanic white children was 5.6%, whereas the prevalence among African American youth and Hispanic youth was 4.1% and 2.5%, respectively [19].

Race and ethnicity alone, when controlling for other variables, exerts an effect on the likelihood of ever receiving a diagnosis of ADHD: In one nationally representative sample of 17,100 children, African Americans, Hispanics, and children of "other races/ethnicities" were 69% (95% CI 60%-76%), 50% (95% CI 34–62%), and 46% (95% CI 26–61%) less likely, respectively, to receive a diagnosis of ADHD compared to non-Hispanic white children [8]. In the USA, there are also regional differences in ADHD diagnosis. For example, children in some regions such as the southeast are diagnosed with ADHD more frequently than children in other parts of the country such as the northeast (e.g. North Carolina 12.8%, Connecticut 5.5%) [20].



Contrary to diagnoses of ODD and CD, ethnic and racial minority youth are less likely to receive a diagnosis of ADHD compared to non-Hispanic white youth. One longitudinal study of 4297 children and caregivers found that compared to non-Hispanic white children, African American children had significantly lower adjusted odds of receiving a diagnosis of ADHD both in the fifth grade (adjusted odds ratio 0.40, 95% CI 0.27–0.59) and 10th grade (adjusted odds ratio 0.42, 95% CI 0.27–0.67). Similarly, Latino children had significantly lower adjusted odds of ever receiving a diagnosis of ADHD in the fifth grade (adjusted odds ratio 0.37, 95% CI 0.22–0.60) and 10th grade (adjusted odds ratio 0.46, 95% CI 0.26–0.79) [7]. Studies indicate that this diagnostic disparity is the result of ethnic and racial minority youth not receiving a diagnosis of ADHD when it is likely indicated, and less so the result of non-Hispanic white youth receiving a diagnosis when it is not indicated [4, 7].

Disruptive Behavior Disorders and ADHD: Challenges in Assessment

Diagnostic assessment of ODD, CD, and ADHD requires a broad and informed perspective on historical and environmental determinants of behavior. Studies have indicated that many of the behaviors associated with diagnoses of ODD and CD may be the result of either comorbid or standalone mood, anxiety, and adjustment disorders [11, 22]. For example, among 519 adolescent males in a juvenile detention center, 17% had previously received a sole diagnosis of CD. However, when assessed for other mental health conditions, 92% met criteria for either major depressive disorder, generalized anxiety disorder, PTSD, or had a history of a manic episode or panic attacks. Among this group, 66% met criteria for at least two of these conditions. In the same study, among 78 adolescent females in juvenile detention, 6% received a sole diagnosis of CD; however, 97% met criteria for at least one other disorder and 82% met criteria for two or more conditions [12].



Symptoms in disruptive behavior disorders, ADHD, and other mental health conditions may appear superficially similar. Oppositional behaviors may be apparent in a young child who refuses to engage with his teacher in class, but instead it may be their undiagnosed social anxiety that inhibits a willingness to participate. A student may not be able to sustain effort or attention, but their behavior can be perceived as apathy or opposition rather than undiagnosed ADHD. Another child may display chronic and pervasive irritability and have difficulties with emotional regulation leading to a diagnosis of ODD, even though their behaviors are the result of undiagnosed anxiety and mood disorders. Substance use disorders may influence conduct-like behaviors (stealing, ganginvolvement, weapon carrying) but only as a means of further obtaining or using substances, not necessarily as behaviors exclusively attributed to CD.

Exposure to behaviors such as stealing, gang-involvement, weapon-carrying, and aggression may be common for youth who live in dangerous and unsettling environments, and certain disruptive behaviors may reflect these exposures. The DSM-5 states that individuals with CD frequently misperceive the intentions of others as more hostile and threatening than is the case, and respond with aggression that they feel is reasonable and justified [13, 23]. However, with many youth, there are environmental factors which shape these misperceptions, as children who are chronically exposed to violence and danger may be conditioned to perceive others to be more hostile and threatening [24]. These perceptions of danger and hostility may influence behavior seen in CD, explaining why children raised in impoverished neighborhoods with greater exposure to neighborhood violence are at higher risk for the development of CD [16].

Unconscious Bias

Bias is a personal judgment or prejudice in favor of or against a certain thing, person, or group that is considered to be unfair [25]. Biases toward individuals or groups of people can occur on an individual level or systemically in society. Seminal work suggests that much of bias is unintentional and occurs outside of an individual's awareness, also known as unconscious bias [26]. Findings have demonstrated that biased thoughts, feelings, and behaviors toward African Americans and other ethnic and racial minorities can emanate from pejorative stereotypes that are activated unconsciously, even among clinicians whose values strongly oppose bias. Thus, unconscious biases are shaped by past experiences and repeated exposures and are not introspectively noticed by the individual who may be inflicting them [27]. It is for this reason that unconscious biases are such powerful determinants of behavior, attitudes, and judgements, as the individual is not necessarily aware of their own bias [28]. Even those who appear to consciously reject racism, prejudice, and stereotypes may still demonstrate behaviors or cognitions that are not congruent with their perceived beliefs. Biases can adversely influence medical decisions and evaluations [29–33], and studies have indicated that healthcare professionals exhibit the same levels of unconscious bias as the wider population [33]. For example, African American patients are more likely to be diagnosed with schizophrenia than non-Hispanic white patients even when accounting for symptomatology using standardized diagnostic criteria, which can lead clinicians to overlook other potential comorbid or standalone conditions [34–36].

Disruptive Behavior Disorders: Clinician Biases, Systemic Biases, and Limbic Reactivity

Clinician Biases

Biases can occur as a result of either implicit (unconscious) or explicit (conscious) cognitions, and clinicians are just as susceptible to bias as others [33]. For example, clinicians often over-pathologize behaviors of ethnic and racial minorities as more dangerous and disobedient, and can hold personal and inadvertent biases of criminal behavior, aggression, violence, and hostility toward certain minority groups [9, 37, 38]. These biases can lead to diagnostic disparities, explaining why non-Hispanic white children who demonstrate comparable behaviors (that are often diagnosed as CD and ODD in ethnic and racial minority youth) tend to be diagnosed with conditions such as mood, anxiety, development, or adjustment disorders [1, 6, 9, 22].

Systemic Biases and Structural Racism

Individual biases, whether they are implicit or explicit, can lead to systemic biases and structural racism as a whole. Structural racism is defined as the ways in which a society fosters racial discrimination through mutually reinforcing systems such as housing, education, employment, benefits, media, health care, and criminal justice [39]. For example, studies have indicated that young African American boys are viewed by others as older and less innocent compared to non-Hispanic white peers of the same age [40]. Findings such as these indicate how bias and racism can be implicated in police arrest decisions, prosecutorial charges, and judicial sentencing [40–42]. These systemic injustices and hostilities toward minority youth may instigate behaviors which commonly lead to labels of ODD and CD, perpetuating a cycle of structural racism: If minority youth perceive others viewing them as older, more dangerous, more aggressive, and less innocent than they really are, they may respond with aggressive and defiant behaviors based on these perceptions [40].



Limbic Reactivity

In order to better understand the behaviors that some youth may display, it is important to appreciate how environments and social interactions can influence a vulnerable developing brain. Although trauma is difficult to define objectively, the Adverse Childhood Experience (ACE) questionnaire assesses the presence of childhood experiences such as parent divorce, physical or emotional abuse, sexual abuse, household substance use, or incarceration of a family member. Higher ACE scores during childhood have been significantly correlated with an increased likelihood of mental health burden [43], and youth of ethnic and racial minorities are exposed to violence and poverty at a significantly higher rate than non-Hispanic white youth and experience a greater frequency of adverse childhood experiences [44].

Childhood trauma and adverse events alter trajectories of brain development, disrupting neural circuitry and architecture related to threat detection and emotional regulation [45]. Sustained exposure to environmental danger and potential physical harm recalibrates the neural responsiveness of brain regions such as the amygdala, enhancing vigilance to threat and predisposing youth to reactive aggression, which may help explain some of the symptomatology in ODD and CD [45]. More specifically, this could help explain why disruptive behavior diagnoses are often given among those who grow up in dangerous and oppressive environments of violence or victimization, which are primary factors in predicting conduct problems [46]. Similarly, limbic reactivity could help explain why youth in juvenile detention services have substantially more trauma exposure than the general population [44]. By understanding the influence of trauma and adverse events on behavior, clinicians will be able to make more informed decisions about the diagnoses that they provide.

ADHD and Diagnostic Biases

Clinician Biases

ADHD is less frequently diagnosed in ethnic and racial minorities, even when controlling for confounding variables such as adverse childhood experiences, prior juvenile offenses, and sociodemographics [3–8]. African Americans are two and a half times more likely to receive a diagnosis of CD than they are ADHD and five times more likely than non-Hispanic white children to receive a diagnosis of adjustment disorder than ADHD [5]. Among children with a potential need for ADHD medication (children with ADHD symptoms or diagnosis), African American and Latino children are much less likely to ever receive ADHD medication than non-Hispanic white children [7]. Clinicians are also disproportionately responsive to non-Hispanic white parents who are more likely to solicit an ADHD diagnosis and treatment for their child [47].



There are also systemic factors which contribute to delayed treatment or missed treatment opportunities for ADHD among racial and ethnic minorities. African Americans and Latinos are less likely to receive a referral by a school professional, are more likely to report limited ability to pay for healthcare, and in some racial/ethnic subcultures, may hold negative attitudes toward identification of a mental health diagnosis [48]. African Americans and Hispanic children are more likely to discontinue medication and are more likely to disengage from treatment altogether, despite having greater overall mental healthcare needs [49]. Children living in higher-income households (>\$70,000 a year, p < .001) are more likely to receive a diagnosis of ADHD [19], while children with Medicaid and public insurance are five times more likely (6.5% vs. 1.3%, p < .001) to have a diagnosis of conduct or behavioral problems compared to children who were privately insured when controlling for other demographic variables [50].

ADHD, ODD, and CD: Clinical and Social Implications

When children are diagnosed with ADHD, they are diagnosed with a condition that is supported with pharmacotherapy, behavioral interventions, and educational accommodations. Although diagnosis of CD or ODD can be a catalyst for interventions such as behavioral therapy, the treatment atmosphere is much more supportive in other mental health conditions such as ADHD. Additionally, disruptive behavior disorders may perpetuate bias, as physicians who provide a child or adolescent with a diagnosis of CD are more likely to make pessimistic predictions toward future behaviors of criminality [16, 51]. These biases and perceptions of behavior may also influence educators and school administrators [52].

Broadly, adolescents with mental health conditions often report feeling stigmatized and isolated from peers, educators, and even family members [53]. Parents themselves report feeling stigmatized as well as a result of their child's diagnosis [54], particularly parents of children with ODD [55]. Although research in this area continues to grow, it is in the clinical and educational experience of the authors and other clinicians [56] that disruptive behavior disorders such as ODD and CD are more stigmatized and therefore less socially supported than ADHD.

Biases toward ethnic and racial minority children, as well as those with disruptive behavior disorders, can have detrimental effects on educational achievement. These biases may lead educators to rely on harsh disciplinary practices toward students to keep classroom order, leading minority students to disengage from their education or mistrust educators [52]. Studies have suggested that biases may play a role in



the significant disparities that exist for exclusionary disciplinary practices (suspension, expulsion) among ethnic and racial minority students [57]. A diagnosis of a disruptive behavior disorder may also negatively impact a teacher's ability to objectively evaluate other behaviors such as inattention or hyperactivity [58]. Bias can create a dangerous cycle for vulnerable youth; African American students admit to being defiant when teachers demonstrate low expectations for them, and consequently, African American students are perceived as defiant and subject to disciplinary measures when they do not appear to be engaged in their schoolwork [59].

This cycle of low expectations and perceived defiance can also lead to exclusionary disciplinary practices, which are not only predictive of future contact with the juvenile justice system, but also put students at risk for further disengagement in school and poor academic achievement [57]. Suspension from school is a stronger predictor of dropout than grade point average or socioeconomic status and leads to a significant increase in the risk of juvenile justice system involvement, particularly for African American students [60, 61]. These findings indicate concern that diagnoses of ODD and CD may perpetuate structural racism and the unsettling cycle of disciplinary disparities, poor academic achievement, school dropout, and increased risk of juvenile or criminal justice involvement.

Strategies to Reduce Diagnostic Disparities in Academic Psychiatry Settings

Addressing Unconscious Bias in Psychiatry Training

The disparate diagnoses in ADHD and disruptive behaviors underscore the need for recognition of the role of unconscious bias in evaluations and treatment plans, and calls for strategies to address unconscious bias in psychiatric training. Unfortunately, many interventions to address unconscious bias are not evidence-based and some efforts may have unintended consequences [62, 63]. For example, training individuals to take ownership of their unconscious biases resulted in increased racially biased behavior toward African Americans among individuals who had low internal motivation to respond without prejudice [63]. Additionally, few interventions in implicit bias have been tested longitudinally, which is problematic given that in order to mitigate a social problem such as implicit bias, the results of the intervention must prove durable over time [64].

The only intervention with documented success in addressing unconscious bias is the prejudice habit-breaking intervention [65]. The prejudice habit-breaking intervention was specifically developed to produce enduring change by conceptualizing bias as a habit that can be broken by increasing awareness and concern about bias, understanding one's own role in perpetuating bias, instilling motivation to overcome bias, and providing strategies to reduce bias [28]. Broadly, the prejudice

habit-breaking intervention is an interactive presentation which provides evidence of implicit bias, origins and consequences of implicit bias, and the cognitive strategies to overcome bias such as perspective-taking and counterstereotypic imaging. Additionally, participants of the prejudice habitbreaking intervention are given feedback about their own implicit biases as measured by the Implicit Association Test (IAT), which is among the most commonly used methods of measuring implicit bias [66]. The IAT provides data regarding automatic associations that an individual has regarding two concepts (such as African American and white), as well as evaluations (good and bad) and stereotypes (athletic and clumsy) [67]. Feedback from the IAT can be particularly educational in that it can provoke an unsettling awareness of one's own implicit biases and therefore serve as a catalyst for selfacceptance of bias and cognitive and behavioral changes [28]. Although promising, this intervention has not yet been empirically tested in medical professionals, and the extent to which it would result in reductions in diagnostic biases is unknown.

However, in order for any intervention in mitigating unconscious bias to be effective, trainees and clinicians must be cognizant of how unconscious bias can influence their own practice. Subsequently, personal awareness is not the only need, but a concern with the implications of these effects is also needed in order to effect change [65]. Although more research is needed in how unconscious bias training can be more effectively measured and implemented (and without any unintended consequences of perpetuating prejudice or negative evaluations), a delivery of a basic understanding of these principles during psychiatric training is warranted. For example, at the Medical University of South Carolina, incoming psychiatry residents participate in a four hour seminar on implicit bias as part of the core intern year orientation. This educational opportunity follows a similar paradigm as Devine's prejudice habit-breaking intervention, utilizing self-evaluation of bias through the IAT. Strategies to improve awareness of implicit bias and to influence cognitive and behavioral change should model the prejudice habit-breaking intervention, and the material could be delivered through modalities such as didactic lectures, panel discussions, and small group activities. It may also be instructive to allow residents and programs to better understand their own practices by examining the provision of ADHD, ODD, and CD diagnoses among ethnic and racial minorities in their own clinics. Tangible evidence of diagnostic rates could help inform practice and add to the discussion of implicit bias in residency training.

Education on Burnout and Bias

Clinician burnout is characterized by depersonalization, emotional exhaustion, and a reduced sense of personal accomplishment [68]. Clinicians who experience burnout rely more heavily on implicit and explicit biases during periods of stress and increased cognitive workload, as their capacity to regulate



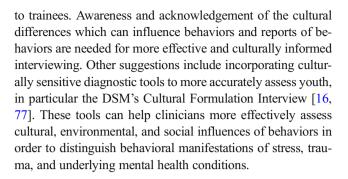
biases may be reduced during these times [68, 69]. In addition to the stress of working in demanding clinical environments, a sense of powerlessness in treating patients who are subjected to adverse social situations and inadequate resources can also contribute to burnout [70, 71]. This can be particularly true for those working with patients affected by severe mental health conditions [72].

Although individual recognition of the relationship between burnout and biases is important, it is also necessary for those in education leadership to ensure that trainees are allowed sufficient time and resources for thoughtful and informed diagnostic evaluations. Ensuring that trainees have the skills and information to recognize the effects of burnout within themselves and others is a responsibility that program leadership shares with their residents and medical students. Providing education on how the effects of fatigue and burnout can influence clinical evaluations and decision-making is also critical. In addition to education, trainees should be provided an opportunity to reflect on how long hours, high patient volume, feelings of powerlessness, and other cognitive stressors can potentiate implicit biases. Studies have shown that facilitated physician discussion groups which incorporate reflection, mindfulness, and shared experiences can lead to a lasting improvement in meaning and engagement in work, as well as reduce depersonalization [73].

Cultural Formulation

Once trainees have been taught to identify some of their own biases, they can then more readily appreciate that there are cultural and ethnic differences in how families, parents, and peer groups may describe symptoms of disruptive behavior. A family's cultural background can influence the expression, interpretation, and value given to the symptoms that are observed in disruptive behavior disorders [74]. Cultural factors can also affect diagnosis in that some cultures may be more or less tolerable of dysfunctional behaviors [75]. For example, African American parents are more likely to describe their children's symptoms in ways that emphasize disruptive behavior, which may lead to an incomplete representation or misattribution of symptoms [5]. On the other hand, youth from families of Asian cultures commonly are taught to suppress anger and strong emotions [75, 76]. These findings alone do not account for the disparate rates of disruptive behavior disorders and ADHD, but add to the aforementioned complexity of providing a diagnosis. A broad awareness of these cultural differences should not be used to consciously filter parent reports of symptomatology as this could only reinforce biases; however, it is important for clinicians to at least be aware that parents of differing races, cultures, and ethnicities may have differences in the way they report similar behaviors.

Academic psychiatrists should be encouraged to find ways in which they can teach more culturally informed interviews



Structural Competency

In addition to developing a more culturally appropriate formulation for patients, education should also aim to improve structural competency. Structural competency is defined as the trained ability to discern how symptoms, behaviors, attitudes, or diseases represent the downstream implications of upstream influences such as healthcare and food delivery systems, zoning laws, and infrastructure [78]. Broadly, structural competency allows clinicians to better understand how social conditions undermine the ability of patients to access care, adhere to treatment, and modify lifestyle choices [79]. Structural competency has become a recent priority in academic medicine, and the structural vulnerability assessment tool is a questionnaire and guide that has been developed in order to promote structural competency and expand the traditional social history component of a psychiatric interview [79]. Incorporating interventions such as the structural vulnerability assessment tool will help psychiatry residents better understand how negative health outcomes can be imposed by social determinants of health, leading to more relevant history-taking and more informed diagnosis and treatment plans.

In conclusion, disruptive behaviors can derive from a myriad of sources including depression, anxiety, and adverse childhood experiences. The evidence is clear that the diagnoses of ODD and CD are given in a disparate fashion to ethnic and racial minority youth, and clinician biases may be contributing. Diagnoses affect whether treatment plans offer supportive or behavioral control measures, and may also affect adults' perceptions of a young person, and even a youth's self-perception. These perceptions can influence the way in which systems interact with youth and the way young people interact with authority figures and systems, which has implications for medical, educational, and juvenile justice settings. Addressing unconscious bias in psychiatric training is imperative to ensure that vulnerable ethnic and racial minority youth receive fair, objective, and culturally informed evaluations.

Compliance with ethical standards

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