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Diversity in Diagnosis: A Comparative Relationship Between the Social Behavioral Effects and Timing of ADHD Diagnosis in African American Adults

K. N'Kira Hailey
Bard College

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Diversity in Diagnosis: A Comparative Relationship Between the Social Behavioral Effects and
Timing of ADHD Diagnosis in African American Adults

Senior Project Submitted to
The Division of Science, Math, and Computing
of Bard College

by
K. N’Kira Hailey

Annandale-on-Hudson, New York

May 2023

Dedication

Dedicated to the younger me, who never fully acknowledged what was happening to them, and to the older me, who can now fight for what I believe in. This is also dedicated to young Black adults who are walking so that future generations can run into their purpose.

Acknowledgments

I first want to give an abundance of thanks to my Lord and Savior; truly, if it was not for how you showed up in my life, this project would not have been possible.

I am grateful for my future spouse and how you were able to be supportive of me throughout this process, while also allowing me the room to laugh with you.

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Table of Contents

Introduction.....10
Methods.....36
Results.....44
Discussion.....50
References.....65
Appendix A.....76
Appendix B.....79
Appendix C.....82
Appendix D.....83
Appendix E.....84
Appendix F.....85
Appendix G.....87
Appendix H.....89
Appendix I.....93
Appendix J.....99
Appendix K.....100
Appendix L.....102
Appendix M.....107
Appendix N.....108
Appendix O.....109

Abstract

The symptoms of attention-deficit/hyperactivity disorder (ADHD) are first seen during childhood and can persist throughout adolescence and into adulthood. Symptoms of ADHD can differ between childhood and adulthood, and there can also be a difference in symptoms for African American adults compared to other groups. Childhood social support and mental health stigma can affect the probability of a person seeking professional help. In addition, the severity of their symptoms, especially if untreated, may lead to experiences of impostor syndrome. This study examined these three social behavioral effects in Black adults in three diagnosis conditions: diagnosed as (1) a child, (2) an adult, or (3) undiagnosed but believe they experience symptoms. I hypothesized that those diagnosed as a child would have high childhood social support, low perception of mental health stigma, and low symptoms of impostor syndrome. Black adult participants ($n = 224$) completed an online survey about their demographic backgrounds, ADHD symptoms, and attitudes toward ADHD stigma, childhood social support, and impostor syndrome. I did not find a significant relationship between the timing of an ADHD diagnosis and the social behavioral measures. However, from exploratory analyses, there was a significant correlational relationship between the severity of ADHD symptoms and mental health stigma, childhood social support, and impostor syndrome symptoms. The study's results suggest that early diagnosis benefits Black individuals' quality of life and that the diagnostic criteria for ADHD should include social dynamics.

Keywords: ADHD, African American, mental health stigma, impostor syndrome, adults, social support

Introduction

A quick mention of attention-deficit/hyperactivity disorder (ADHD) could evoke a related memory or image, possibly from a film or social media post; the challenge would be to question if that mental image included those of African descent and the difficulties faced with receiving a diagnosis. The African American community does not know about psychopathology, and if there is a percentage of knowledge, it may often relate to some form of medical disparities or discrimination. Moreover, mental health, not to mention mental disorders, can be considered a taboo in the African American community as it is argued that talking about one's problem is, in a way, exploiting it and can be further seen as weak and inferior (Mental Health America, n.d.). From these opposing viewpoints, there can be more substantial ignorance about mental disorders, which could result in stigma and the severity of symptoms, given that there is a delay in diagnosis and treatment. Eventually, there is no moment of recovery from mental health issues as the underlying problems will continue to manifest in the person's life and become, to a degree, unmanageable.

Avoidance in mental health can be associated with how African Americans acknowledge and are treated for mental disorders. Within the community, the widespread mental health stigma, specifically self-stigma, has contributed to Black people avoiding medical services from mental health professionals (Samuel, 2015). Furthermore, this withdrawal from mental health might also affect how caregivers socially support children through their daily challenges. As we look at the socio-political aspect of mental disorders, there should also be prominence on the psychopathology of diagnoses. When defining the origins of attention-deficit/hyperactivity disorder (ADHD), researchers found that the disorder's symptom onset occurs during childhood (American Psychiatric Association [APA], 1968). The APA recently identified that ADHD can

persist throughout adolescence and into adulthood, yet it is strongly recommended for neuropsychiatric evaluation to occur during childhood (2013). Therefore, there can be adverse effects of being undiagnosed as a child, as there are complications with being diagnosed as an adult, and adult ADHD symptoms can intensify over time. There could be highly detrimental effects for Black adults being undiagnosed with ADHD, particularly if they face other mental challenges that go unnoticed. Within this same context of missing gaps in research, scientific research has briefly touched on how ADHD is present in the African American community, mainly on how it is underdiagnosed and not adequately treated.

Mental disorders are often comorbid with each other as they have symptoms that can be similar to one another. Individuals with ADHD tend to be comorbid with mood and behavioral disorders, which would require further care as all disorders must be medically treated (Hervey-Jumper et al., 2006); however, there is not a complete understanding of how ADHD is associated with other disorders or behaviors, such as impostor syndrome. Impostor syndrome, which is a phenomenon that is technically not classified as a disorder, is characterized by the person feeling like a fraud, specifically with the type of work they produce (Clance & Imes, 1978). This behavior is related to different identity groups, such as gender and race, yet there is no strong connection with how it is presented in conjunction with ADHD symptoms. However, the feeling of self-rejection, shown in impostor syndrome, could be associated with ADHD, given that individuals with a diagnosis may feel like a fraud because of having to apply themselves more during work and not feeling comfortable disclosing this information to their peers or coworkers.

With these social principles in mind, this study intends to identify if social behavioral effects (ADHD stigma, childhood social support, and impostor syndrome) will mediate the

relationship between African Americans and ADHD, specifically if these effects will be associated with children having a delayed diagnosis. Furthermore, this senior project will examine how social behavioral factors affect each other. From statistical testing, there will be a comparative analysis of how social support and mental health stigma within the African American community will affect the presence of impostor syndrome symptoms. The study's implications suggest that there needs to be a different clinical approach to diagnosing African Americans as they deal with environmental factors that are interfering with seeking mental health treatment.

ADHD Diagnosis

What is ADHD?

According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), attention-deficit/hyperactivity disorder (ADHD) is defined as a disorder characterized by dysfunction in a person's attention span in various situations, organizational patterns, physical movement, and impulsive behaviors (APA, 2013). Within the DSM-5, the onset of ADHD symptoms begins in early childhood, often upon entering elementary school. A diagnosis at an earlier age will be hard to assess as toddlers have a wide range between typical functioning and neurodivergence. For instance, language delays or deficits are common in ADHD diagnosis, but they may also be associated with other mental disorders, such as Autism Spectrum Disorder (APA, 2013). Since symptoms typically begin to show during childhood, diagnosis becomes essential at this stage as the symptoms can be more severe and significantly affect the safety and productivity of a person. A Danish study found that adults who were diagnosed with ADHD had more deaths than those who were diagnosed as a child and adolescents (Dalsgaard et al., 2015). During childhood, there are disparities between genders as

young boys tend to be clinically diagnosed more than young girls, yet young girls tend to show more severe symptoms and may need a higher threshold for diagnosis (Mowlem et al., 2019).

Three symptom clusters characterize ADHD. The first symptom is inattention, shown in lacking focus in different situations, such as task management or following verbal instructions (APA, 2013). The DSM-5 states another two symptoms, one being hyperactivity, which is described as peculiarly having excessive movements or an inability to be still in social settings, and the other being impulsivity, which is described as acting upon a potentially dangerous thought without an awareness of consequence. Given that hyperactivity is inappropriate and excessive movements, the DSM-5 categorizes it and impulsivity together as it is theorized that hyperactive movements are based on an impulse decision. Thus, an experience of inattentiveness and/or hyperactivity with impulsivity is the basis for ADHD diagnosis criteria; there is a possibility for a person to have a diagnosis with inattentiveness symptoms and not experience hyperactive and impulsive symptoms or vice versa.

There are different specifiers with ADHD based on whether the patient meets the criteria for inattention and/or hyperactivity-impulsivity. If a person meets the criteria for all three symptoms, their diagnosis would be specified with a combined presentation, indicating severe inattentive and hyperactive-impulsive symptoms for the past six months. However, a patient can possibly only meet the criteria for inattention. In that case, they have a predominantly inattentive presentation, and if they only meet the criteria for hyperactivity-impulsivity, they have a predominantly hyperactive/impulsive presentation. The presentation specifiers do not mean that someone cannot experience symptoms of the unmet criteria; rather, it indicates that the person may not have the same severity level across all symptoms. There is variability in the way a patient may experience symptoms. Thus, this wide range of variation could present as the patient

experiences symptoms that can cause impairment in their daily functioning and need further clinical supervision. However, there should be a primary focus on the criteria they do meet, given that they may not be able to meet every criterion of the diagnostic manual.

The DSM-5 classifies two subtypes of ADHD disorders, other specified attention-deficit/hyperactivity disorder (OS ADHD) and unspecified attention-deficit/hyperactivity disorder (US ADHD). OS ADHD is described as the person experiencing ADHD symptoms, yet they may not be able to meet the full criteria nor the criteria for other neurodevelopmental disorders. For example, a person may be diagnosed with this disorder if they almost experienced the required number of inattentive symptoms, such as having shown five instead of six, which is considered diagnosable. From not meeting the diagnostic criterion, the person is not experiencing severe inattentive symptoms as would be seen as someone with an ADHD diagnosis. However, they might experience a lack of focus, which could disrupt their daily function. In addition, US ADHD is similar to OS ADHD as the patient may not meet the required diagnostic criteria but still experience a high prevalence of symptoms. Conversely, the two subtype disorders differ because US ADHD does not clarify why the patient could not meet the criteria. The diagnosis of US ADHD could have resulted from the clinician making this decision or inadequate information to see if the patient experiences another type of neurodevelopmental disorder.

Adults vs. Children

There are different ADHD diagnostic criteria for adults and children, as there is variability in the expression of symptoms and behavior at various stages of development. Attention-deficit/hyperactivity disorder was initially recognized in children and was considered a childhood disorder (Sibley, 2021). ADHD is first recognized in child behaviors; however, as

more research was developing, it was found that the symptoms can persist throughout adolescence and adulthood. The progression of these changes took over 45 years of research, yet further research is required as the expression of ADHD varies across different genders, races/ethnicities, ages, and other demographic groups.

The second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II) first introduced the concept of excessive movement. However, it was called the “Hyperkinetic Reaction of Childhood” (APA, 1968). This edition described the disorder as similar to the three symptom clusters in the DSM-5, explaining how the patient experiences “overactivity, restlessness, distractibility, and short attention span” (APA, 1968, p. 55). Although they did mention that it can be present during adolescence, hyper-behavior was considered to diminish throughout this developmental stage. Comparatively, the third edition (DSM-III) of the manual renamed the disorder “Attention-Deficit Disorder (with or without Hyperactivity)” and defined more characteristics, such as impulsive and hyperactive behaviors along with inattentiveness (APA, 1980). The diagnostic manual determined that the child is diagnosed with the disorder if they meet three different criteria, compared to the DSM-5, which has two criteria. The DSM-III states that the child must show at least three inattention symptoms, at least three impulsivity symptoms, and at least two hyperactivity symptoms. The APA also stated that clinicians could not make neuro-evaluation reports on the child as the behavior is mainly shown in school and home settings, in addition to the child possibly experiencing different symptoms in a new setting. In addition, these same criteria are used for diagnosing attention deficit disorder without hyperactivity, except there is no presence of hyperactive symptoms. After renaming the disorder to “Attention-Deficit/Hyperactivity Disorder” in the fourth edition (DSM-IV), the fifth

manual (DSM-5) finally acknowledged the prevalence of ADHD in adolescents and adults (APA, 1994; APA, 2013).

Nonetheless, the DSM-IV and DSM-5 are similar in their diagnostic criteria: to experience severe inattention and/or hyperactivity-impulsivity symptoms and have dysfunction in at least two settings. However, the two editions differ because in the DSM-IV, there was not sufficient information on the prevalence and effects of ADHD in adulthood, so they were not able to report statistics of adults with ADHD, which was reported at 2.5% (APA, 2013). They did not add US ADHD until the fifth edition, which may have also shown once they collected information about how the disorder affected those in more mature developmental stages. Also, the fourth edition required the patient to present symptoms before age seven, while the DSM-5 states that they must show symptoms before age 12. The changing of diagnostic criteria has changed the understanding of neurodevelopmental disorders' psychopathology, as it is known that the onset of symptoms may begin to develop during the late ages of childhood and early adolescence. Thus, there is an understanding that although ADHD is first noticeable during childhood, it can be present during all ages and can become more severe.

The DSM-5's criteria for diagnosing children with ADHD begin with inattention, hyperactivity, and impulsivity. The child must show at least six inattention symptoms to be considered a functional impairment. An adolescent or adult over the age of 17 must show at least five of the inattention symptoms. The same diagnostic criteria are applied for the hyperactivity-impulsivity criterion for each age group. When comparing symptoms across developmental stages, only hyperactivity is expressed differently in children and adults, given that children have excessive movement in inappropriate situations. Adults do not experience the same presentation of such behaviors (APA, 2013).

Moreso, an adult with ADHD may show signs of fidgeting or excessively talking despite not showing symptoms of hyperactivity. Impulsivity is defined the same for both age groups as it refers to the way a person will make rash decisions that could negatively affect the person or others around them. As an adolescent, the symptoms of ADHD may become more intense, and the person may become impaired from being inattentive and/or hyperactive-impulsive. As the person begins to develop and experience adulthood, they may not show as many symptoms of hyperactivity as before. However, their ADHD symptoms of restlessness, poor planning, inattention, and impulsivity will persist into adulthood, which can create further problems, such as the risk of suicide attempts (APA, 2013). The minimum five (for adolescents and adults) or six symptoms (for children) from Criterion A1 and Criterion A2 must be present and persistent for at least the past six months to be considered clinically significant (APA, 2013). The person must have shown inattention, hyperactivity, and impulsivity symptoms before age 12. This age is essential as it can indicate the onset age for symptoms while indicating that symptoms that develop after 12 do not indicate ADHD.

The symptoms must also show in at least two environmental settings, such as with friends or at school, work, or home, while also contributing to clinical distress and interfering with the person's daily functioning that is not a result of other psychotic or mental disorders. Furthermore, there are different neuropsychiatric evaluations for adults and children. It can be difficult for a child to describe their symptoms, incredibly, before age 12, since their understanding of themselves is limited, and they lack autonomy. So, the neuropsychiatric evaluation for ADHD must be a collaborative effort from all individuals involved in the child's life.

Childhood is the recommended period for diagnosis as there is more extensive knowledge about how ADHD appears in youth than in adults. The earlier DSM editions showed that the

disorder is first shown during childhood as this is when abnormal behavior is made present, as children with ADHD, compared to neurotypical children, do not act as socially expected (Lange et al., 2010). Diagnosing as a child is not only helpful from a psychopathological standpoint but also from a logistical standpoint, as being diagnosed as a child requires adult figures to write diagnostic reports. The DSM indicates that the most effective diagnostic reports came from the parents and teachers, as they could have more observations about the child's behaviors at home and in the classroom. When ADHD, specifically Hyperkinetic Reaction of Childhood, was first introduced, it was seen as a school disorder, and teachers were the only additional source to give evaluation reports (Bied et al., 2017). Reports from school personnel were important because teachers spend a significant amount of time with the child and can speak, theoretically, clearly about their behavior in school. However, there was an indication, specifically in the DSM-5, that there needed to be multiple informants, such as parents/guardians or teachers, to provide adequate information for the diagnosis (APA, 2013). Therefore, a teacher and parent are essential for helping with diagnosing a child because they can give multiple reports on the child's behavior in multiple settings, which will create more reliability for the diagnosis. In a Colombian study, the researchers found that the parent's rating on the Behavioral Assessment System for Children was high and could distinguish children with and without ADHD (Pineda et al., 2005). The same study also found the same results for teacher's ratings, but teachers also reported that children with ADHD are more anxious than control children (Pineda et al., 2005). There could be an argument that during school, children with ADHD may experience many anxiety symptoms, and this may not have been seen if only the parents' report had been considered.

More people are involved with being diagnosed as a child, which is helpful with having a broader perspective of the child's symptoms, and treatment can occur sooner. The reports from

caregivers and instructors help recognize the symptoms early and receive the proper attention for the child, such that they can distinguish ADHD from other comorbid mental disorders (Hervey-Jumper et al., 2006). However, the same diagnostic guidelines may not be applied to patients diagnosed during adolescence and adulthood as there may be challenges to prevent them from having an adequate diagnosis.

Equally, as children's diagnoses are based on observations from adult figures, the supplemental reports provided for adolescent diagnosis are helpful with detecting the onset of symptoms as early as possible. However, this has created an issue as the older the patient gets, the more difficult it becomes to curate reports from authority figures. Research has found that there is a pressing need for an adolescent to have an assessment completed by a teacher, yet this can cause another issue as there may be multiple teachers that the person reports to daily and may have different relationships with (Subcommittee on Attention-Deficit/Hyperactivity Disorder, 2011). The same article stated that although adolescents can have a more descriptive report about their symptoms than children, they may be less accurate as they may minimize their experience of ADHD symptoms. Therefore, ADHD diagnosis can become more complicated as the person ages compared to being diagnosed as a child. There are more obstacles to receiving a clear assessment of their symptoms and may require additional resources; this could be avoided if a child is evaluated for ADHD during elementary school.

Furthermore, adult diagnoses need assistance from secondary sources as their neuropsychiatric evaluations depend on adult primary care clinicians' competency in ADHD. Previous research has shown a lack of knowledge about adult ADHD symptoms among clinicians, specifically on using diagnostic instruments to diagnose adults (MD Weiss & JR Weiss, 2004). As stated earlier, it was only in the DSM-5 that the APA collected sufficient

information to interpret how symptoms are presented in adults and effectively report statistics about their prevalence. More research is necessary regarding the neurodevelopmental disorder, simply because it mainly focuses on having symptoms before the age of 12, which excludes any indication that the onset of symptoms can begin in adulthood. Also, there may be difficulty with being diagnosed as an adult because it was found that most adults with ADHD have comorbid disorders, so it must be distinguished if the symptoms are explained by which disorder; there could be a problematic judgment on if the adult meets the criteria of having symptoms during childhood and in multiple settings as retrieving information from a person's younger years is not accessible nor reliable (Murphy & Adler, 2004).

In addition to primary care clinicians being aware of adult ADHD, parents play a critical role in observing the patient's symptoms. However, there are issues with parents reporting child behaviors because parents have been shown not to give accurate reports and will affect the diagnosis process by suggesting that the patient does not have a diagnosis, which is false (Sibley, 2021). Because there is a lack of education in medical practices and inaccessibility to retrieve childhood memories successfully, adult diagnosis has presented to be more of a challenge than being diagnosed as a child, which can lead to other consequences, such as changes in the severity of the symptoms. Therefore, time is vital in diagnosing as it correlates to proper evaluations and treatments.

Importance of ADHD Diagnosis for Adults

There are multiple benefits to having a clinical diagnosis of ADHD, especially when diagnosed with an adult. Although there are advantages to being diagnosed early, an adult can benefit from being diagnosed with ADHD. Hansson Halleröd et al. (2015) found that most 21 participants experienced a positive outcome when diagnosed as an adult. This qualitative study

showed that a clinical diagnosis could help a person have a better life in either its value or their understanding of their behavior and development. Thus, since a diagnosis can help with the satisfaction of an adult's life, the same argument could be applied to diagnosing children early as they would have a better experience in their environment.

A study found that a child can receive pharmaceutical and psychological treatment for ADHD, such as behavioral therapy. From this, there can be improvements in their well-being for approximately three months that can improve their well-being (The MTA Cooperative Group, 1999). Although no long-term effect was shown, there is a difference between having some improvement from receiving treatment early and not at all, given that not having a diagnosis can worsen a person's symptoms. Social support can be as beneficial as medical support as it can transform the way a child perceives themselves and their ADHD diagnosis. Prior research concluded that academic accommodations, such as additional time on tests and moral support from peers, can positively affect how a child behaves and perceives their diagnosis (Gius, 2007; Owens, 2020). There may be implications on child diagnosis, such as giving the same treatment to adults with childhood ADHD (meets the B-criterion). This form of care can help readjust and validate their behaviors in different settings, such as the workplace, family, and relationships. Nonetheless, the fact of the matter stands that from ADHD symptoms onset during childhood, there are repercussions from having a late diagnosis, which would further emphasize why there should be further work into diagnosing children young.

Consequences of being Undiagnosed as an Adult. With not having an ADHD diagnosis as an adult, there can be detrimental effects on the overall health and disorder expression as the symptoms become more excessive and intense. Since hyperactivity becomes less common in adulthood, the symptoms tend to be expressed as restlessness and tension; these behaviors are

associated with the patient having a comorbid diagnosis with other mental disorders, such as anxiety, substance, and intermittent explosive (Ginsberg et al., 2014; Kessler et al., 2006).

Further, if the mental disorder is not treated, it can affect various factors in a person's life, such as their financial, academic, and psychological state (Hamed et al., 2015). The comorbidity of other mental disorders can cause financial issues as there is a higher need to treat the illnesses, which causes there to be more expenses (Biederman, 2004). Since the symptoms have been untreated, they can significantly impair a person's life, which may make the person feel overwhelmed and stressed and want to use great efforts and resources to overcome this barrier (Ginsberg et al., 2014).

Since adults express ADHD symptoms differently than children, they tend to have different effects on how they experience their day and their behaviors in educational, professional, and romantic settings. An adult with ADHD can have difficulty resting or relaxing and may be more impulsive about starting new intimate or work-related relationships (Hansson Halleröd et al., 2015). This hasty decision to start new relationships can cause for there to be a high prevalence of divorce rates; previous research found that adults diagnosed with ADHD were previously married (Kessler et al., 2006). When comparing adult diagnosis to child diagnosis, researchers have found that adults may need to use medicated treatment longer than children but will get approved doses at half the rate as children (Newcorn et al., 2007). In addition, when looking at the trajectory of ADHD symptoms across ages, inattention symptoms may become more intense as ADHD persists into adolescence, and the person may be more impaired in their functioning because they have more of a responsibility to be independent and to be socially conscious (Wolraich et al., 2005). Impairment may be shown in how the person interacts with others and may demonstrate depressive and anxious symptoms. Therefore, from

the intensity of symptoms as a person develops, they must be aware of their behaviors and receive appropriate mental attention immediately.

Impostor Syndrome

What is Impostor Syndrome?

In 1978, there was a conceptualization of women, specifically those in professional positions, and their external perception of themselves in society. Clance and Imes conducted a study that observed the behavior of doctoral women in psychotherapy, specializing in psychological and therapeutic practices, health services, humanities, and education (1978). The clinical psychologists, from their research, coined the term "impostor syndrome" to reflect the attitudinal measures they collected from the women. Although this behavior is not clinically defined as a disorder in the DSM-5, it is defined as the person doubting themselves in their success because they believe they are a fraud or 'impostor' (Clance & Imes, 1978). The researchers further explain the concept as they believe that women lack knowledge, especially compared to their counterparts, and will trick people into thinking they are capable of such intelligence and success. Furthermore, the female participants experience clinical symptoms of generalized anxiety, depression, low self-esteem, and irritation of not believing they can do high-level work (Clance & Imes, 1978).

Further, within the study, there was an analysis of what types of categories the women would fall under when experiencing symptoms of impostor syndrome, which will continue to prevent the participants from overcoming these behaviors. The first category was that the doctoral woman would work hard to prevent people from discovering she is an impostor by continuing to submerge herself in her work. The issue with this technique is that there was no long-term validation for the woman's accomplished work, as she could still be under the

precedent of being a fake in the workplace. The second category is that certain women will suppress their thoughts or ideas when collaborating with other professionals and instead support other people's perspectives because she feels she has no meaningful information to bring to the work. There are complications with this type of behavior as this does not allow the participant to discover if they lack intelligence. Lastly, the woman may display characteristics of attempts to impress her work superiors by relying on charisma and basing her work on what she believes would be validated by others. In this category, the woman sees her capabilities as an external extension as she is forming her self-assurance from the acceptance of her supervisor; nonetheless, this raises an issue because the woman will not trust any appraisal from others as she believes her work is not truly from her intellect.

Impostor Syndrome vs. Marginalized Groups. There is a connection between impostor syndrome and marginalized groups as the phenomenon was introduced as a way to differentiate between binary genders; in addition, women can be commonly referred to as a marginalized group, given that they are often discriminated against in societal groups and work settings. In Clance and Imes' study, there were indications of prejudice against the woman as she was not seen as capable of contending with her male counterparts. From this comparison of women to marginalized groups, it would be interesting to examine how impostor syndrome appears in other groups, specifically in African Americans, as this demographic group is the leading focus of this study. The African American community may experience impostor syndrome symptoms because of racial discrimination, specifically with internalized racial remarks, increased mood disorder symptoms, and low self-esteem (Bernard et al., 2018). There is also a cultural model that indicates impostor syndrome symptoms may be caused by there being the presence of social positions that cause someone to be socially disadvantaged, such as race, gender, economic status,

parenting styles and racial teaching, and life coping strategies (Bernard & Neblett, 2018).

Impostor syndrome has shown to be prevalent in marginalized groups as individuals within this group may feel like they have to put in more effort to complete a task, which their counterparts do not, and could result in them feeling like frauds. Through this analytic scope, there could also be further development into how impostor syndrome interacts with marginalized groups and those diagnosed with mental disorders.

Impostor Syndrome vs. Mental Disorders

When looking at the women participants from Clance and Imes' study, they had a sense of self-doubt, which created a gap between self and reality. As stated before, the woman's experience with impostor syndrome can be tied to further persistence in mood behaviors, such as depression and anxiety. Women have higher anxiety levels when examining their experience of impostor syndrome and perfectionism in Russian college students (Wang et al., 2019). Wang et al. also indicated that within the same sample, the participants showed a relationship between depression, perfectionism, and impostor syndrome. Those who show higher signs of perfection discrepancy will also have higher severity in impostor syndrome symptoms, which is correlated with depression symptoms (2019). Furthermore, impostor syndrome can differ across various identifying groups and how severe a person's symptoms can be.

Impostor Syndrome vs. ADHD. There is not much research that associates impostor syndrome with ADHD; however, there have been website blogs that theorize that from people having to disguise their diagnosis and believing that they have to work harder than their peers to complete tasks, they might feel like frauds (Edge Foundation, n.d.). In addition to being required to show more effort during work, individuals with ADHD may experience impostor syndromes because of the feedback they would receive from others. One website blog indicated that adults

who have their "ADHD inner child" within them may have experienced negative comments about their work and are expected to behave a certain way, like not daydreaming (Roberts, 2021). There is now an implication that because the person is not behaving up to traditional societal standards, they will have negative views about their work and think of themselves as inadequate, even when they performed excellently. The development of ADHD and impostor syndrome symptoms are similar. Clance and Imes suggested that the symptoms are present during childhood (1978), which is also how ADHD was introduced in the diagnostic manual (APA, 2013). There could be an assumption that during this development of ADHD symptoms, there could also be a presence of children feeling like a fraud because of their behaviors feeling different than others, and having to have academic accommodations to help them with their studies. As further research would have to verify this relationship, there might be a connection between the phenomenon and neurodevelopmental disorder since both are significant with other disorders, such as depression and anxiety.

ADHD shares similar symptoms with anxiety, such as inattention and restlessness in attention, as well as depression with difficulty concentrating (APA, 2013). There are differential characteristics between ADHD, mood, and anxiety disorders, such as ADHD inattentive symptoms are due to being stimulated by an external factor, while anxiety disorder inattentive symptoms are due to constant worrying about an external factor; nonetheless, ADHD is often found to be comorbid with these types of disorders (Torgersen et al., 2006; Sobanski et al., 2007). With multiple overlaps between mental disorders and phenomenon symptoms, there could be a correlated relationship between ADHD and impostor syndrome, which should be further examined. Furthermore, the various principles of impostor syndrome, such as being present in marginalized groups, could be implied for ADHD symptoms; there could also be implications of

social factors, such as family relationships, support, and mental health stigma, that could mediate how each of the symptoms is presenting in individuals.

The African American Community & Mental Health

Social Support for Mental Health in the African American Community

Defining Social Support. Social support can be seen as environmental behaviors that affect how different social groups (e.g., families, friend groups, neighborhood communities) respect and care for individuals (Barnes & Duck, 1994). Examples of this behavior include different communication styles (verbal and nonverbal) that essentially will reassure some form of safety and stability between the person receiving support (recipient) and the person providing support (providers) (Albrecht & Adelman, 1987). Social support helps resolve conflicts and strengthen personal and intimate relationships. Furthermore, researchers have found five types of social support that a person can experience: informational, emotional, esteem, social network, and tangible (Cutrona & Suhr, 1992). The first category is relaying objective information to someone, such as advice or feedback. The emotional category refers to actions performed from positive emotions, such as empathy, concern, and caring; esteem social support is similar to the informational category as it is defined as sharing information with someone, yet the intentions are to strengthen how the person perceives their self-worth. Lastly, social networks and tangible support are physical efforts that help someone feel belonging to a group and perform physical actions that meet a person's needs. These types of social support aid in the health of individuals and can play a crucial role in a person's cognitive and behavioral functioning.

Benefits of Social Support. Social support can positively influence an individual's life, especially as they develop from childhood to adulthood. For instance, the care recipients obtain from providers can positively impact their health. Previous research has found that these

environmental factors have formed stress resistance, which can affect an individual's physical and psychological health (Cassel, 1976). Stress can be linked to different personality behaviors, such as perfectionism. From this, the severity of the person's stress and their perfect behaviors can be affected by strengthening support networks and how satisfied the person feels cared for (Molnar et al., 2012). In other words, social support can be beneficial as it can lessen harmful behaviors, such as stress, and decrease a person's tendency to perform perfectly. These perfect behaviors are shown as someone ruminating over mistakes and setting unrealistic expectations. A 2021 study found that emerging adults, which are individuals transitioning from adolescence to adulthood, need social support as the type of relationship the adult has with parents will, directly and indirectly, affect their quality of health outcomes; more specifically, it will show that the presence of a positive relationship with a parent may also show the presence of having better psychological or physical health qualities (Szkody et al.). To further examine social support and an individual's health, it is worth noting how positive social behaviors affect their mental health.

Social Support in Mental Health. When examining the relationship between psychological stress, social support, and mental health symptomatology in 368 undergraduate students, it was found that their social support and depression symptomatology have a current relationship that is mediated by psychological stress. Thus, this indicates that a decrease in symptoms can be associated with increased social support, and a decrease in psychological stress can partially influence this correlation (Watkins & Hill, 2018). From scientific research, there could be a theory that social support does have a link to mental health, such as depression, more specifically, that severe mental disorder symptoms have been present with decreased levels of social support. When examining the relationship between social support and ADHD, it can be established that a similar relationship would show, such that those who experience more severe

symptoms would also experience low social support from their communities. A 2015 study found that adults who experienced ADHD symptoms before seven presented having more family support and better functionality in work settings than those who experienced symptoms between seven and 12 years old (Lin et al.). This study's findings show there is a relationship between social support, daily functioning, and symptomatology, given that when showing symptoms at an early age, a person may be more likely to receive family social support, specifically in the five types of social support, which could help with better quality of life. Thus, this supports the idea from earlier that it is essential to diagnose and be aware of symptoms earlier as they may be able to experience more positive effects in their life.

Furthermore, social networks and informational social support, specifically in the youth diagnosed with ADHD, are associated with having improved mental health (psychological, social, and emotional well-being) as there is now a form of resistance that protects against the adverse effects of symptoms (Harris-Lane et al., 2021). Further analysis needs to be done regarding being diagnosed early versus not having a diagnosis, as it seems social support varies across the timing of diagnosis. For instance, those diagnosed young may experience less support than those who do not experience symptoms, as children and adolescents with a diagnosis may face harsh judgment and behaviors from their peers (Emser & Christiansen, 2021). Social support is crucial as it can help with the quality of life for all individuals, yet it tends to show differently for neurodivergent individuals seeing as they may face difficulties with their symptoms and at different ages. As stated previously, individuals with ADHD have comorbid diagnoses with other disorders, such as depression; given this relationship, it has been found that social support can benefit not only the experience of those diagnosed with ADHD but with depression as well (Karawekpanyawong et al., 2021). There is a need for social support for those

who have mental disorders, particularly ADHD, as this could be a preventative measure from experiencing severe symptoms. From this relationship between social support and ADHD, it is worth examining how these factors are affected when compared to other social factors, such as race.

Social Support for ADHD Symptoms in the African American Community. Social support can be presented differently in the African American community as multiple factors affect the degree of support a person can receive. In Black families, there are different ways that parents will be supportive towards children compared to other races, such as White families; it was found that Black parents tend to show social support by doing physical assistance, like doing chores or providing child care (Sarkisian & Gerstel, 2004). From this racial difference in community support, there could be a difference in how social support affects ADHD symptoms and treatment in African American children. For instance, with regards to ADHD, parents, or more so mothers, felt the need to be personally involved with physicians when treating and caring for a child with a diagnosis, given that they were concerned about their child being racially profiled and having a misdiagnosis of a behavior disorder (Saulsberry et al., 2020). In the 2020 study, the qualitative analysis showed a difference in support from parents as the mothers tended to be more involved with the children, and the father refused to help and lacked social support. This division in parental support helps understand that there is social support within the African American community surrounding ADHD diagnosis. However, there is an interruption if one of the two parents is unwilling to give emotional and tangible support to the child. Social support can then tend to influence the expression of symptoms. Scientific research found that children with an ADHD diagnosis tend to experience fewer symptoms when they receive more support from their caregivers (Woerpel et al., 2017). This analysis further states that having less

social support can affect the behaviors of symptoms, negatively affecting the individuals' quality of life, causing them to behave oppositionally in different settings, and have more familial conflicts. As social support is present in the African American community, parents and caregivers cannot show positive behaviors toward children with mental disorders; this can be caused if families cannot be supported as they may face challenges that conflict with the individual's well-being.

Mental Health Stigma in African American Community

Stigma can be one of the leading causes of interference for a person to receive mental health treatment. This study examines how stigma can affect the social support a Black person may receive and how this will impact their ADHD symptomatology. Before this argument can be made, it is essential to introduce stigmatization and how it has affected the social views of mental health. Stigma is societal disapproval towards certain concepts found in individuals and identifying groups (APA, n.d.). This disapproval can be represented in two ways: public stigma and self-stigma, and both play different roles in how people's perceptions of others can enact negative behavior. Public stigma is external disapproval as there is a societal influence on how people are marginalized or made an 'outsider' (Peluso et al., 2009; Yu et al., 2022). More than half of 500 Brazilians were found to have a public stigma against individuals with depression. From this attitude, they thought that people with depression would pose a threat to others, and almost half of the participants thought that people would not associate with nor have a positive perception once finding out that they had a depression diagnosis (Yu et al., 2022). A similar finding was reported in a qualitative study about adults with ADHD. The article stated that the participants believed they would be discriminated against once people knew about their diagnosis (Hansson Halleröd et al., 2015). Therefore, there is a societal fear and isolation derived

from mental disorders because of the risk of judgment and being outcasted by community members. Public stigma can become more individualistic as people apply this negative attitude to their ingroup.

Self-stigma is a self-disapproval of certain characters, specifically where the person would take their ingroup stigmatization and internalize it as their attitude (Brohan et al., 2011; Yu et al., 2022). This type of stigma is found to be in three steps. First, the person must be aware of their ingroup stereotype, and second, they must agree with this belief. Finally, they must adapt it to their lifestyles (Corrigan et al., 2009). When it comes to mental disorders, such as ADHD, people will have self-stigma and affect themselves by changing their quality of life. Markowitz found within a sample of participants with mental illnesses that the higher a person's degree of self-stigma is, the lower their self-esteem would be (2011). The researchers also indicated a direct relationship between self-esteem and life satisfaction, such that as one variable increases in severity, so does the other variable. From these results, a person's self-stigma could infer how well they will feel about themselves and influence how they navigate life. However, how can self-stigma be applied to how Black people experience and approach mental disorders?

African Americans have been found to have self-stigma towards mental health services and mental disorders, which has been one of the main factors for not receiving a clinical diagnosis and treatment. This stigma can transform into self-denial as individuals might start to doubt themselves and believe that what they are experiencing is not happening. Fifty-four male African Americans reported that they did not believe in their mental health struggles, which resulted in them not having the drive to outsource mental health services (Samuel, 2015). The stigmatization of mental health in the Black community has manifested in how youth confront mental

challenges. This avoidance of medical support can result in them avoiding the problem and dealing with the adverse consequence later.

Furthermore, stigma may present in the African American community due to them experiencing racial discrimination within the medical practices and internalizing that behavior. Zoubaa et al. suggested from their study's results that African American participants may be more likely to have a stigmatized attitude towards mental health because of experiencing racial and ethnic microaggressions (2021). This study implies that there are medical disparities among Black patients. The discrepancies in medical practices increase the likelihood that they would begin to express similar attitudes toward individuals with mental disorders. As mental health discrimination can play a role in stigmatized attitudes, spirituality, which is very common in the African American community, may also factor into the presentation of negative attitudes. African Americans involved in religious practices are not associated with those that experience mental health problems, which is a form of stigmatized behavior (Pederson et al., 2023). There is also an indication that having religious practices in the Black community can make individuals think it is inappropriate to talk about mental disorders (Alvidrez et al., 2008). This cognitive behavior explains that having faith-based practices may have a negative relationship with mental health, as individuals may be habitual to rely solely on their spirituality for mental health management instead of additionally seeking medical treatment and evaluations.

Ignorance about ADHD

ADHD diagnosis is not as prevalent in the African American community as in any other racial or ethnic group. African Americans are less likely to be diagnosed with ADHD than White Americans as African Americans may not have access to or seek out medical services, which can cause their behaviors to become more severe (Miller et al., 2009). The lack of medical treatment

could result in African Americans only seeking treatment when they have severe symptoms compared to White Americans, who can identify the symptoms early and receive appropriate treatment. In addition, Black children may not be diagnosed due to a lack of support from academic professionals. Teachers and school administrators, who teach Black students, do not effectively report ADHD behaviors in the classroom. This lack of reporting raises an issue as it is required from the diagnostic criteria that an individual needs to experience dysfunction in at least two settings, the most common being the home and the classroom (Hillemeier et al., 2007).

There is a disadvantage as children without social support have more severe symptoms and tend to misbehave in academic settings more. Therefore, there is a present ignorance among the African American community about how ADHD symptoms appear in children, which is detrimental to the proper treatment for this neurodevelopmental disorder. This type of ignorance is spread among the parents as African Americans have less knowledge than European Americans about ADHD and are not receiving assistance from medical professionals (Bussing et al., 1998). Undiagnosed African Americans continue to become a more significant issue as the ignorance about how ADHD can cause for there to be a misrepresentation of symptoms, which leads to Black children being diagnosed with conduct disorder at a disproportionate rate.

ADHD and conduct disorder share similar symptoms, such as hyperactivity and impulsivity, that can be disruptive to others; nonetheless, conduct disorder symptoms are distinguished by the individual intentionally violating societal norms of behaviors, which is not a characteristic of ADHD symptoms (APA, 2013). From the overlapping of symptoms, it is common for clinicians to diagnose African American children with a conduct disorder, even when they are experiencing ADHD symptoms. However, misdiagnosis is not the main root of why African American individuals have a higher prevalence of conduct disorders. Research has

found that clinicians may hold racial biases, which could result in them viewing African American children differently, thinking that their symptoms are more aggressive and oppositional than White American children (Nelson, 2002; Mandell et al., 2007). The diagnosis of having a conduct disorder can be harmful as it may lead to African Americans being hospitalized (Lapointe et al., 2010). Nevertheless, there are socioeconomic disadvantages where the individual may not receive proper care because it is inaccessible to them (Alegria et al., 2002). As there is a disproportionate rate of conduct disorders in the African American community, there is an increase of individuals who are not being treated for ADHD while also experiencing racial discrimination and stigma at an early age. Within this study, the goal is to examine further how the social factors in the African American community, such as social support and stigma, are affecting ADHD diagnosis in children and how this is affecting their behaviors, like impostor syndrome.

Purpose of the Study

As stated previously, this study focuses on the relationship between African American social behavioral effects and ADHD diagnosis. The dependent variable within the study is social behavioral effects, defined as the attitudes and behaviors present in in-groups, such as African Americans. The dependent variables will be measured by the participants' degree of ADHD stigma, perception of childhood social support, and impostor syndrome symptoms. Also, the timing of diagnosis, which is the independent variable, is when the participant was diagnosed with ADHD or if they are an undiagnosed adult who does believe they experience symptoms.

Furthermore, the main research question will be: "What are the social behavioral effects of being undiagnosed with ADHD as an African American child?". There is also interest in observing how social behavioral measures interact with each other, such as if mental health

stigma will moderate the relationship between social support and the timing of an ADHD diagnosis.

As reported in the pre-registration (see *Appendix O*), I hypothesize that participants who were either diagnosed as an adult or not diagnosed at all, compared to those diagnosed as children, will have a high perception of the African American stigma towards ADHD. In other words, these participants will have a higher perception that their African American community has a negative view towards those with ADHD than those diagnosed as children. In addition, participants diagnosed as an adult or undiagnosed will experience frequent symptoms of impostor syndrome. I hypothesize that there will be a relationship between mental health stigma and childhood social support in the African American community, with them having a direct relationship with one another. Lastly, mental health stigma will moderate the relationship between the participants' timing of diagnosis and childhood social support.

Methods

Participants

This study was conducted as an online Qualtrics survey through the Prolific recruitment platform. When publishing the survey on the recruitment platform, a pre-screener was applied so only Black/African American participants could respond to the scales and be included in the data analysis. Two hundred thirty-one participants consented to the study and completed the demographics section (see *Appendix G*). However, seven participants were stopped from answering the social behavioral measures scales as they indicated that they were not raised in the United States between the ages of six and twelve, which was required to participate in the study. One participant's response was deleted because they had two submitted responses; the first submitted response was included in the data analysis. Once they completed the study, they

received a payment of \$2.00 based on the participants completing the study in 10 minutes and Prolific's minimum wage requirement of \$12.00 per hour.

As shown in *Table 1*, 224 participants completed the study. From this sample, 117 participants identified as men, 104 as women, two as gender variant/gender non-conforming, and one as another gender. The participants' age ranged from 18 years old and 72 years old, with the mean age being 37 years old. The majority of the participants (42%) were raised in the Southeast region of the United States between the ages of 6 and 12 years old, eight of the participants who identified as men had a conduct disorder, and the average number of individuals that were in the participants' childhood household was approximately four.

Table 1

Descriptive Statistics of Participants' Demographics Background

| Variable | Overall, N = 224 ¹ | Gender Variant/Gender Non- Conforming, N = 2 ¹ | Man, N = 117 ¹ | Other, N = 1 ¹ | Woman, N = 104 ¹ |
|---|----------------------------------|--|------------------------------|------------------------------|--------------------------------|
| Age | | | | | |
| Mean | 37 | 34 | 35 | 31 | 40 |
| Range | 18, 72 | 32, 35 | 18, 67 | 31, 31 | 18, 72 |
| Transgender Identity | 6 (2.7%) | 1 (50%) | 3 (2.6%) | 1 (100%) | 1 (1.0%) |
| U.S. Region | | | | | |
| Midwest | 34 (15%) | 0 (0%) | 21 (18%) | 0 (0%) | 13 (12%) |
| Northeast | 53 (24%) | 1 (50%) | 26 (22%) | 0 (0%) | 26 (25%) |
| Southeast | 94 (42%) | 0 (0%) | 51 (44%) | 1 (100%) | 42 (40%) |
| Southwest | 18 (8.0%) | 0 (0%) | 8 (6.8%) | 0 (0%) | 10 (9.6%) |
| West | 25 (11%) | 1 (50%) | 11 (9.4%) | 0 (0%) | 13 (12%) |
| Conduct Disorder Diagnosis | 9 (4.0%) | 0 (0%) | 8 (6.8%) | 0 (0%) | 1 (1.0%) |
| Number of Individuals in Childhood Household | | | | | |
| Mean | 3.59 | 4.00 | 3.55 | 7.00 | 3.60 |
| Range | 0.00, 13.00 | 3.00, 5.00 | 0.00, 13.00 | 7.00, 7.00 | 0.00, 10.00 |
| ¹ n (%) | | | | | |

Materials

Adult ADHD Self-Report Scale

The World Health Organization and the Workgroup on Adult ADHD created the Adult ADHD Self-Report Scale (ASRS-v1.1). This scale measured the diagnosis consistency of the participant's ADHD symptoms. The ASRS-v1.1 consisted of 18 Likert scale items based on the DSM-IV Criterion A symptoms, which stated that the participants had to experience six or more behaviors of inattention or hyperactivity-impulsivity symptoms for the past six months. The participants responded to each item on a 4-point scale ranging from "Never" (0-point) to "Very Often" (4-point).

The items within the scale are split into two parts, Part A and Part B, with the first part containing the first six items and the second part containing the remaining items. Part A included items where participants had to rate "How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?". In contrast, Part B included questions like "How often do you make careless mistakes when you have to work on a boring or difficult project?". From a 2005 study that tested the validity and reliability of the ASRS-v1.1, it was found that six of the 18 unweighted items were found significant from a stepwise logistic regression analysis (Kessler et al.). This analysis indicates that the scoring of Part A is the most effective when measuring if someone has a high consistency for an ADHD diagnosis. For this study, participants' score for ADHD symptoms was based solely on their responses from Part A. Participants must select four or more gray boxes when scoring for Part A, as explained in *Appendix H*. Thus, a participant with a high consistency for a diagnosis would be indicated by a score at or above 13, while a low consistency would be indicated by a score below 13. However, it is encouraged that Part B is used when wanting to look further into the participants' symptoms and have better support for their diagnosis.

ADHD Stigma Questionnaire

The ADHD Stigma Questionnaire (ASQ) was used to measure (1) participants' stigmatized attitudes toward having an ADHD diagnosis and (2) participants' perception of their African American community's stigmatized attitudes towards ADHD. The scale included 26 Likert scale items, where the participants had to rate each item, on a 4-point scale, from "Strongly Disagree (SD)" to "Strongly Agree (SA). Three subscales are used to examine further the attitudes of the participants, which are Disclosure Concerns, Negative Self-Image, and Concern with Public Attitudes. The Disclosure Concerns Subscale, which had seven items, measures how worried the participant is about disclosing their diagnosis. The Negative Self-Image Subscale, which had six items, measures how negatively the participant views themselves for having a diagnosis. The Concern with Public Attitudes Subscale, which had 13 items, measures how worried the participant is about the public attitudes towards the mental disorder. As shown in *Appendix I*, four different scores were collected from the scale: (1) overall stigma score, (2) Disclosure Concern Subscale score, (3) Negative Self-Image Subscale score, and (4) Concern with Public Attitude Subscale score. Each score was continuous, meaning a higher score indicates a higher perception of ADHD stigma.

The ASQ was tested among students who had a low and high risk for ADHD between the years 1998 and 2008. This scale was adapted from the Human Immunodeficiency Virus (HIV) Stigma Scale, measuring a patient's attitude toward HIV diagnosis (Kellison et al., 2011). The results found that the subscales were highly correlated with each other and that there was a significant effect of the overall stigma factor within the scale; thus, this indicates that there was substantial internal consistency and test-retest reliability for the overall stigma score ($\alpha = 0.93$), Disclosure Concern Subscale ($\alpha = 0.83$), Negative Self-Image Subscale ($\alpha = 0.81$), and Concern

with Public Attitudes Subscale ($\alpha = 0.87$) among the student participants as a percentage of them met the criteria for having an ADHD diagnosis (Kellison et al., 2011).

The ASQ was only responded to by participants ($n = 75$) who disclosed that they were diagnosed with ADHD or were undiagnosed but believed they experienced symptoms. Furthermore, the study modified the scale better to evaluate African Americans' social behaviors during childhood development. Participants were instructed that the term *African American community* was defined as "the Black people that were present during your childhood (between ages 6 and 12 years old) and includes, but not limited to: parents/guardians, teachers, school administrators/personnel, friends, school peers, coworkers, online social media accounts, etc." Therefore, the items were modified to include statements that would better relate to the participant's background, such as "the African American community thinks that a person with ADHD is lazy." Also, the instructions indicated for the participants to respond to each item with attitudes between the ages of 6 and 12.

African American Childhood Social Support Scale

The African American Childhood Social Support Scale (AACSS) measures the participant's perception of the social support they received between the ages of 6 and 12. The scale is based on Interpersonal Support Evaluation List (ISEL) - shortened version, a 12-item Likert-scale used to measure perceptions of social support and has three subscales, Appraisal Support, Belonging Support, and Tangible Support. These subscales examine how available a person is to talk about someone's issues, how available a person is to do physical labor for someone, and how available someone is to assist the person in need. The ISEL-shortened version was based on the ISEL long form, which included 40 items and had strong validity and reliability

(Merz et al., 2014). However, as the AACSS was based on the ISEL and was not tested for validity and reliability, the scoring of the three subscales was not used in the study.

The AACSS includes eight Likert items, where the participants rate each item, on a 4-point scale, from "Definitely False (1)" to "Definitely True (4)" (see *Appendix K*). There were initially nine-item questions when submitting the study's proposal to the Bard Institutional Review Board (IRB). However, the eighth item was dropped during the final data analysis because this item was not shown in the online Qualtrics survey. The participants were scored on a continuous scale, between 8 and 32, with a higher score indicating that the participant received more social support during childhood. The participants were also instructed about the terminology used in each item, such as the term "African American Community/African Americans, which was defined as "the Black people that were present during your childhood (between ages 6 and 12 years old) and includes, but not limited to: parents/guardians, teachers, school administrators/personnel, friends, school peers, coworkers, online social media accounts, etc."

Clance Impostor Phenomenon Scale

The Clance Impostor Phenomenon Scale (CIS) was used to measure participants' severity of impostor syndrome (or impostor phenomenon) symptoms. When testing for the internal consistency reliability of the scale, it was found that there was strong consistency of the total scale score, $\alpha = .92$ (French et al., 2008). As shown in *Appendix L*, the scale included 20 Likert scale items, where participants could rate each item on a 5-point scale from "not at all true (1)" to "very true (5)". The participants were scored on a continuous scale, between the range of 20 and 100, with a score at or higher than 80 indicating that the person has intense impostor syndrome experiences and a score at or below 40 indicating few impostor syndrome symptoms. For the

study, the scale was modified to instruct participants to answer each item when they were between the ages of 6 and 12 years old.

Procedure

Before data collection, a pilot study was run to calculate the average time participants would take to complete the survey, which was ten minutes, as well as ensure that the survey could be completed on any electronic device. Afterward, this study was approved by the Bard IRB and received a grant award from the Bard Center for the Study of Hate, as shown in *Appendices C and D*. Participants were collected from the Prolific recruitment platform through a Qualtrics survey. When selecting the study, participants read a brief description, as shown in *Appendix E*, about the study and participation requirement, which stated that they had to identify as Black and were raised in the United States between the ages of 6 and 12. They were then directed to the informed consent statement, shown in *Appendix F*, and they had to agree to have read the consent form, met the age requirement of 18, and would like to participate in the study. Each participant was asked to complete demographic questions about their background and was only required to answer the questions about their racial identity and if they were raised in the United States between 6 and 12 years old. If they did not meet those requirements, they could not proceed to the scales and were not compensated as they did not complete the entire survey. Participants were also asked if they received a diagnosis for ADHD and, if so, at what age they were diagnosed. If they were not diagnosed, participants were asked if they believed they experienced ADHD symptoms.

Next, every participant was required to complete every item on the ASRS-v1.1 before continuing to the following scale. Once completing this scale, participants who disclosed having an ADHD diagnosis or were undiagnosed but believed they experienced symptoms were directed

to complete the ASQ. All eligible participants were required to complete the Attention Check 1 question, which can be seen in *Appendix J*; they were asked to type the word "purple" in the box. Responses would be excluded from all data analysis if the word was not written correctly in the box; however, all participants succeeded in this attention check. The participants were directed to complete AACSS, which the CIS followed. Then, the participants were required to complete the Attention Check 2 question, as shown in *Appendix M*, which asked them to confirm that they answered each question to the best of their ability. They would be excluded from all data analyses if they indicated they did not answer as best as possible; however, all participants succeeded. After completing the second attention check, the participants submitted the survey. They were provided with the debriefing statement, which gave further details about the study, cited articles, and mental health resources they could contact if they needed extra support (see *Appendix N*). Lastly, participants were directed back to Prolific to receive their compensation.

Data Analysis

Seventy-five out of the 224 participants were included in the timing of diagnosis groups: diagnosed as a child (before 17 years old), an adult (after 17 years old), or an adult undiagnosed but believed they experienced symptoms. These three groups were used for data analysis as this study examined social behavioral measures across the timing of diagnosis. Their overall scores for each scale were a summation of all their item rating points, except those who did not answer each item and could not receive a total score. For the subscales on the ASQ, participants were scored based on their responses on selected items that corresponded with each subscale. When scoring participants' responses on the AACSS, items 1, 2, 6, 7, and 8 were reversed scored. Each graph and figure for the statistical test were created through RStudio. After data analysis, all

statistical tests were significant with a *p-value* less than 0.05 and were completed through Jamovi.

Results

Primary Outcomes

ADHD Stigma Overall Score Across Timing of Diagnosis

A one-way analysis of variance (ANOVA) was conducted to compare a participant's stigmatized attitude towards ADHD with the timing of diagnosis. Seven participants were in the children group, 14 in the adults group, and 54 in the undiagnosed but believed they experienced symptoms group. No significant difference was found between the ASQ scores across the three groups, $F(2, 72) = 1.589, p = 0.211$, as shown in *Table 2*. This finding indicates that participants diagnosed at any age or not all showed a similar stigmatized attitude towards ADHD.

Table 2

Social Behavioral Mean Scores by Timing of Diagnosis

| Variable | Child, N = 7 ¹ | Adult, N = 14 ¹ | Belief, N = 56 ¹ | p-value ² |
|--------------------------------------|---------------------------|----------------------------|-----------------------------|----------------------|
| ADHD STIGMA Questionnaire | 57 (23) | 56 (14) | 49 (16) | 0.21 |
| Unknown | 0 | 0 | 2 | |
| Clance IP Scale | 56 (19) | 64 (18) | 63 (17) | 0.52 |
| Unknown | 0 | 0 | 3 | |
| Disclosure Concerns Subscale | 15.9 (6.0) | 15.0 (4.9) | 13.8 (4.7) | 0.47 |
| Unknown | 0 | 0 | 2 | |
| Negative Self-Image Subscale | 13.6 (4.7) | 13.4 (3.3) | 11.1 (3.7) | 0.059 |
| Unknown | 0 | 0 | 2 | |
| Concern with Public Attitudes | 27 (13) | 28 (7) | 24 (8) | 0.25 |
| Unknown | 0 | 0 | 2 | |

¹ Mean (SD)
² One-way ANOVA

ADHD Stigma Subscales Scores Across Timing of Diagnosis

A one-way ANOVA showed that there was no significant difference between the three groups and the Disclosure Concerns Subscale ($F(2, 72) = 0.756, p = 0.473$), Negative Self Image Subscale ($F(2, 72) = 2.936, p = 0.059$), and Concern with Public Attitudes Subscale ($F(2, 72) = 1.394, p = 0.255$) as shown in *Table 2*. The participants' timing of ADHD diagnosis did not differ in their attitudes toward how their African American community would treat them about having or potentially having a diagnosis. Further, the three groups showed a similar attitude about having a negative perspective of having or potentially having an ADHD diagnosis and how worried they were about disclosing their diagnosis to those in their African American community.

Impostor Syndrome Score Across Timing of Diagnosis

A one-way ANOVA was conducted to see if the timing of diagnosis for participants would be associated with their score on the CIS. There were no significant differences between the three groups and their level of impostor syndrome, $F(2, 71) = 0.655, p = 0.522$, as shown in *Table 2*. Thus, participants experienced moderate to frequent impostor syndrome symptoms regardless of if they were diagnosed and at what age.

Overall ADHD Stigma Overall Score Compared to Childhood Social Support Score

A correlation analysis was conducted to see if there would be an association between the degree of ADHD stigma among participants and their attitude toward social support during childhood. There was no significant association between the participants' stigma towards ADHD and their childhood social support, $r(73) = -0.151, p = 0.197$.

ADHD Stigma Subscales Scores Compared to Childhood Social Support Score

A correlation analysis was conducted to see if there would be an association between the ASQ subscales and the participants' Childhood Social Support Scale scores. There was not a significant correlation between the participants' report of childhood social support and the ASQ's Disclosure Concern Subscale ($r(73) = -0.115, p = 0.326$), Negative Self Image Subscale ($r(73) = -0.151, p = 0.196$), or Concern with Public Attitudes Subscale ($r(73) = -0.156, p = 0.181$). From this analysis, there is an indication that the presence of social support from their parents/guardians does not guarantee the presence of their negative attitudes toward disclosing an ADHD diagnosis to others, their self-esteem of having a diagnosis, and how their African American community will perceive their diagnosis.

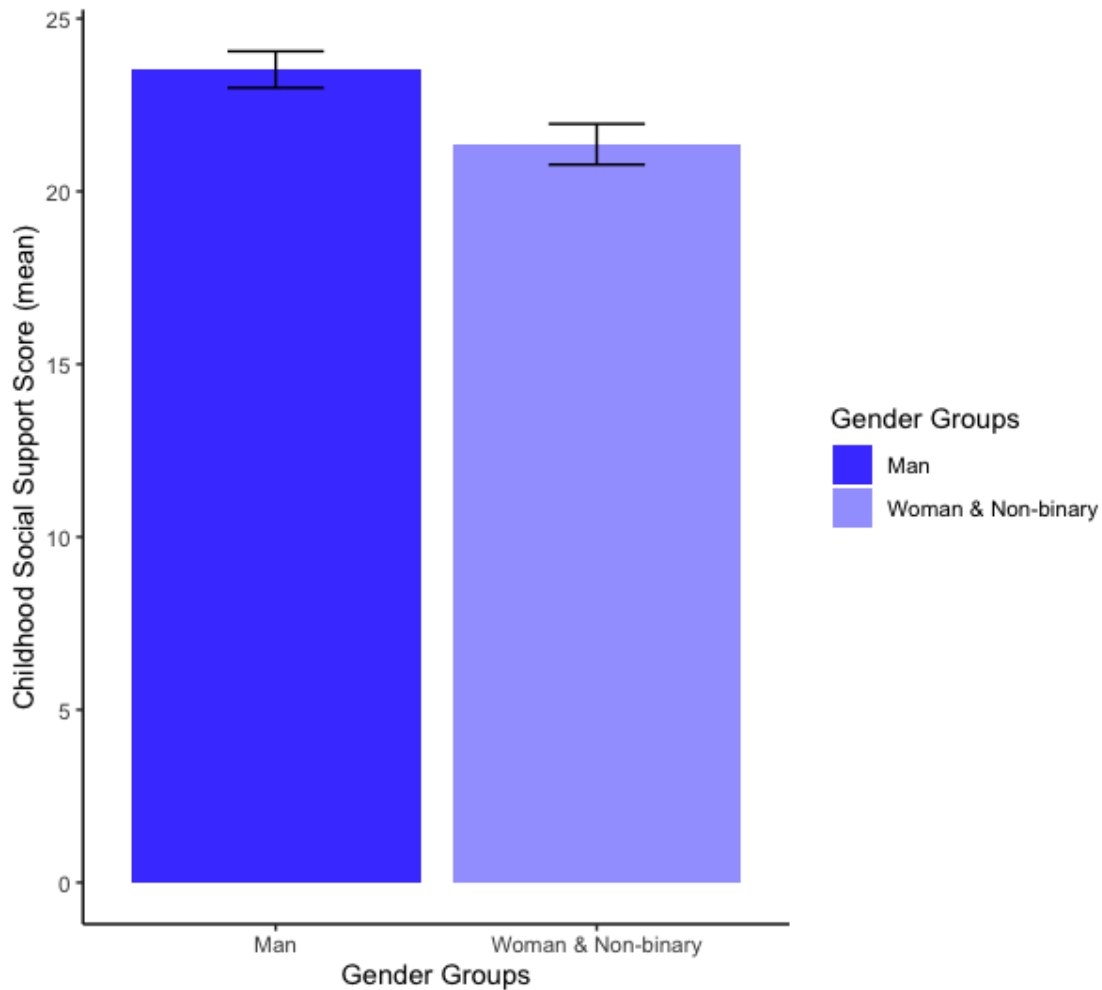
Relationship Between Timing of Diagnosis and Childhood Social Support Score Moderated by ADHD Stigma Overall Score

A moderation analysis was conducted to examine if the participants' overall score on the ASQ would moderate the relationship between the participants' timing of diagnosis and AACSS scores. There was no significant effect between the variables as the presence of stigma did not strengthen or weaken the relationship between childhood social support and timing of diagnosis, $z = -0.435, n = 75, p = 0.664$.

Exploratory Analyses

Childhood Social Support Score Across Gender

An independent sample t-test was conducted to compare participants' AACSS scores across gender; this study hypothesized that women and non-binary participants would differ in scores compared to men. There was a significant difference between the genders ($t(213) = 2.66, p = 0.008$), with men participants having a higher score ($n = 116, M = 23.5, SD = 5.86$) than women and non-binary participants ($n = 99, M = 21.4, SD = 6.03$) as shown in *Figure 1*.

Figure 1***Childhood Social Support by Gender Groups***

Note. A bar graph representing the African American Childhood Social Support mean scores across gendered groups (Man vs. Woman/Non-Binary)

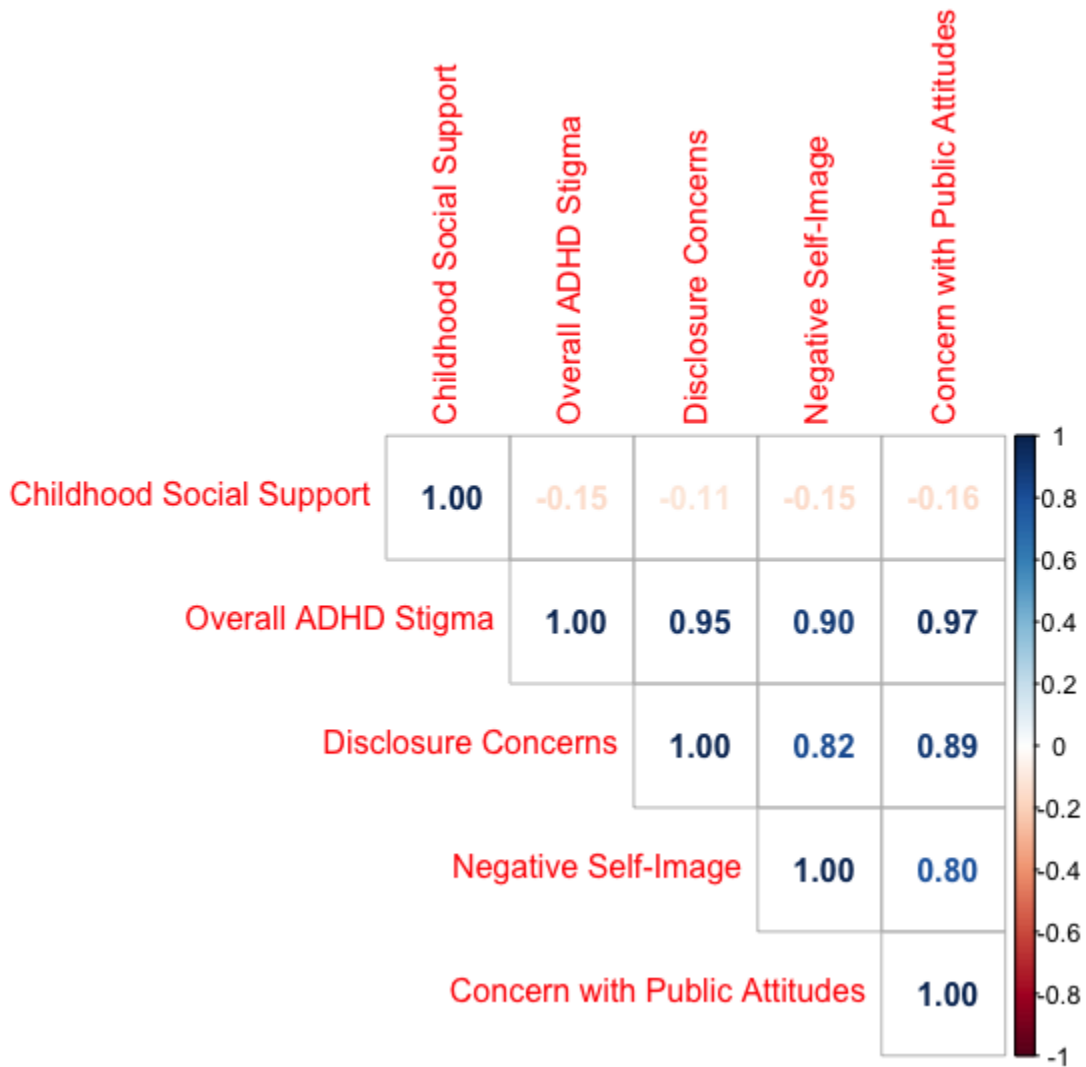
ADHD Symptoms Score Compared to Childhood Social Support Score

As shown in *Figure 2*, a correlation analysis, which was not pre-registered, was conducted to see if scores on the ASRS-v1.1 would associate with childhood social support scores. There was a significant relationship between the variables, $r(216) = -0.277, p < .001$. This

analysis indicates an indirect relationship between ADHD symptoms and childhood social support, suggesting that the other variable decreases as one variable increases.

Figure 2

ADHD Symptoms Score in Relation to ADHD Stigma Measures



Note. A correlation matrix between participants' African American Childhood Social Support

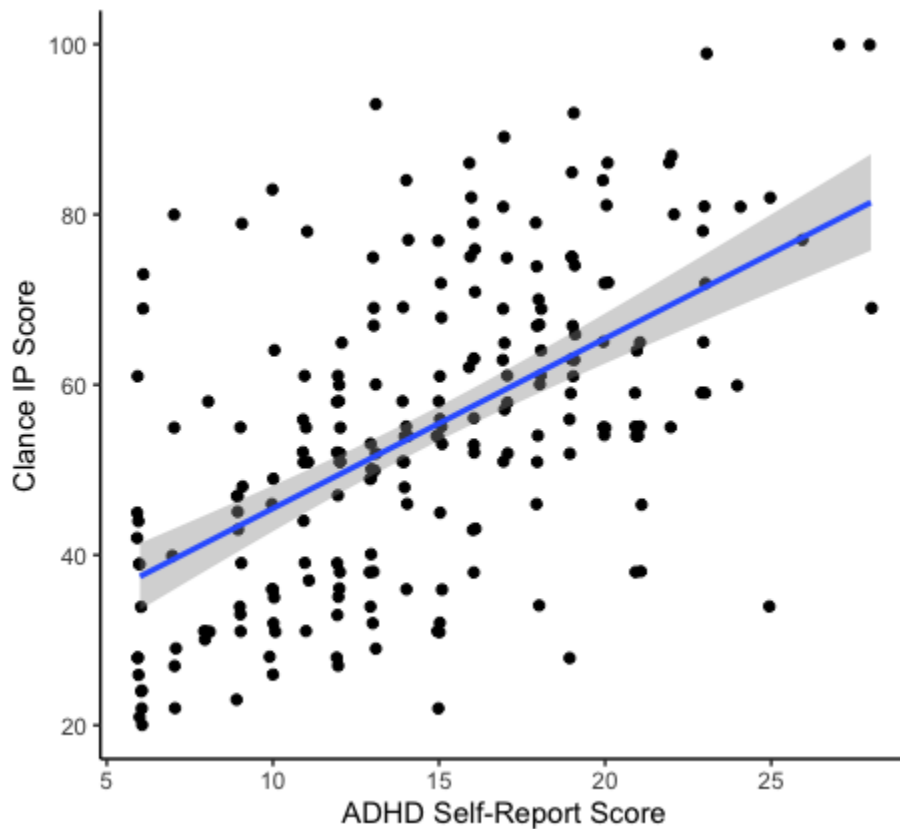
Scale scores and ADHD Stigma Questionnaire Scale and Subscales scores

ADHD Symptoms Score Compared to Impostor Syndrome Score

A correlation analysis, which was not pre-registered, was conducted to examine if a participant's ADHD symptoms would be associated with their CIS score. As shown in *Figure 3*, the analysis showed a significant difference between participants, $r(214) = 0.565$, $p < .001$. This correlated relationship indicates that as the score increases on the ASRS-v1.1, the score on the CIS will also increase.

Figure 3

ADHD Self-Reported Symptoms in Relation to Impostor Syndrome Symptoms



Note. A scatter plot between participants' Adult ADHD Self-Report Scale scores and Clance Impostor Phenomenon Scale scores

ADHD Symptoms Score Compared to ADHD Stigma Scale Overall and Subscales Scores

A correlation analysis, which was not pre-registered, was conducted to compare participants' ASQ and ASRS-v1.1 scores (see *Figure 2*). This analysis showed a significant correlation between the two variables, with those with severe ADHD symptoms having a robust stigmatized attitude towards a diagnosis, $r(73) = 0.388, p < .001$. Also, there was a significant difference between the ASRS-v1.1 and Disclosure Concerns Subscale score ($r(73) = 0.372, p < .001$), Negative Self-Image Subscale score ($r(73) = 0.458, p < .001$), and Concern with Public Attitudes Subscale score ($r(73) = 0.327, p = 0.004$). Thus, as the participants experience more ADHD symptoms, they tend to be worried about disclosing their ADHD diagnosis to their African American community, have a negative self-image, and be concerned about how others perceive an ADHD diagnosis.

Discussion

For this study, African American adults were surveyed to analyze if their childhood social behaviors (ADHD stigma attitude, childhood social support, and impostor syndrome symptoms) would influence the timing of ADHD diagnosis. The main hypotheses stated that participants who were diagnosed as children would have more positive social behaviors (lower stigmatized attitudes, higher childhood social support, and lower impostor syndrome symptoms) than those who were diagnosed as an adult or not at all but believe they experience symptoms. From completing data analysis, the main hypotheses were not supported as the three groups showed a similar effect for each measured social behavior. The average scores for each group showed to be in the middle of the scoring range, which could indicate some prevalence of having a negative perception of ADHD amongst the African American participants. However, it does not differ based on whether they were diagnosed. Further, this states that the timing of diagnosis did not

affect the participants' stigma towards an ADHD diagnosis, as all participants showed moderate signs of having a stigmatized attitude.

The ASQ subscales showed a similar pattern as all 75 participants seemed to score in the middle of the range. The average score for the Disclosure Concerns Subscale for every three groups suggests that the participants are nervous about disclosing their diagnosis or potential diagnosis to their African American community. In addition, the average score for the Negative Self Image Subscale showed that the participants have a negative attitude toward themselves because of a diagnosis or potential diagnosis. Lastly, each group's scores on the Concern with Public Attitudes Subscale indicated that they thought other African Americans had a negative perception of them because of an ADHD diagnosis. The third group did show lower scores than the other two groups, which was insignificant but could suggest that those not diagnosed may perceive that there is not much stigma surrounding ADHD diagnoses in their African American community. This could be explained by the fact that those diagnosed may be more exposed to negative commentary and reactions when discussing their diagnosis. However, this relationship theory would require more testing.

Each group showed moderate to frequent symptoms of impostor syndrome, which indicates that they mainly felt like a 'fraud' during their childhood. The participants did not show a difference in the Clance IP Scale scores based on their timing of diagnosis. Those who were diagnosed as an adult had a slightly higher average score than those diagnosed as a child or not all; however, the scores between the groups were not significant, which could indicate that regardless of diagnosis, the African American participants felt that during childhood, they did not put in good work and were nervous that others would find out about them being frauds. There could also be the assumption that with this slight difference in score, those diagnosed as an

adult may have felt more fraud during their childhood, which could be related to them being diagnosed late and not recognizing that their ADHD symptoms were contributing to their 'inadequate' work. A further study would need to be examined to observe how ADHD symptoms affect a child's perception of their work and how untreated symptoms can impact it.

There was no correlation between the ASQ scores and the AACSS scores. From this analysis, it can be concluded that the participants' childhood social support does not guarantee they will also experience a stigma towards an ADHD diagnosis or vice versa. An assumption from this analysis could hint that other types of social support are more common among the participants, which may not be connected to receiving support for mental disorders, such as practical support (e.g., completing household work and help with transportation) shown in Black families (Sarkisian & Gerstel, 2004). Further analysis could be needed to see if there is any relationship between their social support and receiving a diagnosis, such that if the participant does not have accessible supportive and administrative help from their parents/guardians, then they could have trouble with receiving a diagnosis. A study with 124 emerging adults showed that social support weakened the relationship between ADHD symptoms and depression, given that when the participant had strong family support, they experienced less severe mental disorder symptoms (Karawekpanyawong et al., 2021). Their stigma towards an ADHD diagnosis could be explained from the spiritual practices and family teachings, as it has shown that Black patients were encouraged by their families and religion not to discuss mental health issues and that receiving any help is seen as inappropriate or inferior (Alvidrez et al., 2008). Moreso, another correlational analysis was conducted to examine if there is a relationship between the ASQ subscales scores and the AACSS scores. There was not a correlation between the variables as a person's perception of whether they are comfortable with disclosing their diagnosis to their

African American community, have a negative perception of themselves due to their diagnosis, or believe others have a negative image towards them is not associated with how well they were supported with their ADHD symptoms during childhood.

Finally, for my primary outcomes, a moderation analysis was conducted to predict how the ASQ scores would mediate the relationship between the timing of diagnosis and AACSS scores. There was no significant moderation effect as a participant's stigmatized attitude did not strengthen or weaken the relationship between when the person was diagnosed and their level of social support as a child. An explanation for these insignificant results could be that there was no current relationship between childhood social support and the timing of diagnosis. A participant's diagnosis may not be influenced by not having strong childhood social support; instead, their timing of diagnosis could be associated with the extensive knowledge their family has about ADHD symptoms and how to be aware of its presence in children. Bussing et al. found that Black parents were less likely to be aware of ADHD diagnosis and to be informed about it from physicians than White parents (1998). This ignorance of psychopathology, in turn, could support the idea that the participants receive emotional and physical care from their families in other areas of their life, such as academic and social issues, instead of for their symptoms. However, they may not have been aware that they needed support from a mental health standpoint. Therefore, if there is no current relationship between the two factors, then a person's and community mental disorder stigma would not impact childhood social support, which would not affect their neurodivergent development. There would need to be further studies to observe if there is a current relationship between the participant's social support and the timing of diagnosis and then try to see if other social behavior factors impact it.

Further exploratory analyses were conducted to see if there is a relationship between the social behavioral measures and other responses the participants gave, such as their age, gender, and number of individuals in their childhood households. Only one demographic response showed a significant result with one of the social behavioral measures. From completing an independent t-test, participants' African American Childhood Social Support Scale scores showed a significant difference across genders. From a small sample of participants who responded as gender variant/gender non-conforming, the analysis was completed across two groups, with Group 1 being male-identifying participants and Group 2 is a combination of female and gender variant/gender non-conforming identifying participants. Group 1 had higher social support during childhood than Group 2; this could give rise to the fact that male students are more likely to be diagnosed with ADHD than any other gendered student. A 2019 study conducted a population-based analysis across binary genders and found that ADHD symptoms and diagnosis were more prevalent in males, yet diagnosed female participants experienced similar levels of symptom severity as males (Mowlem et al.). Therefore, these findings suggest that sex biases within clinical samples affect the outcome of individuals receiving a diagnosis and treatment. This social attitude can explode in there being more support for male students as there is now universal knowledge of young boys experiencing ADHD symptoms. In addition, there were three correlational analyses conducted that were not pre-registered. These analyses were performed because the primary analyses only examined participants diagnosed or undiagnosed but believed they experienced symptoms. Therefore, this did not include participants who may be experiencing ADHD symptoms and undiagnosed but did not report they believed they experienced it. As each participant was required to complete the ASRS-v1.1 to

show if they had a high consistency of having an ADHD diagnosis, it would be interesting to see how their scores would compare to the social behavioral measures.

There was a significant correlation analysis between the scores on the Adult ADHD Self-Report Scale and the scores on the African American Childhood Social Support Sale, Clance Impostor Phenomenon Scale, ADHD STIGMA Questionnaire, and its subscales. First, the relationship between scores on the ASRS-v1.1 and the AACSS alluded that those who experience more severe symptoms will also experience less childhood social support. This relationship was not expected as it is assumed that those experiencing ADHD symptoms would have more support from their caregivers as they need more emotional and physical support from neurological dysfunction. However, this relationship may be present because of the idea that ADHD symptoms in Black children are mistaken for conduct disorder symptoms or not well known by their caregivers, which could lead to participants who are experiencing symptoms not receiving the most effective care. In addition, the relationship between participants' ADHD symptoms and impostor syndrome symptoms shows that those with a high consistency for a diagnosis, indicated by a score higher than 13, will also experience severe impostor syndrome symptoms. This relationship may be present because a person's ADHD symptoms may affect their work capabilities, given that they may have to apply more effort to complete a task or have difficulty with time management. This increased physical labor could make them feel like frauds even if they produce successful work. A factor in impostor syndrome is that it may seem as if the person can produce work efficiently, which can often be commented on by others around them, such as family, and may further internalize that the person needs to meet the expectation of being successful without any difficulty.

During the exploratory analyses, participants showed that those who scored at or above 13 on the ASRS-v1.1 scored highly on the Disclosure Concerns Subscale, Negative Self-Image Subscale, and Concern with Public Attitudes Subscale. This significant result explains that those with a high consistency with a diagnosis had a high degree of negative attitude toward disclosing their diagnosis, simply having a diagnosis, and how other people would perceive it. The participant's perception of their African American community's attitudes towards ADHD could allude to the fact that because they are experiencing severe symptoms, they are having more exposure to this stigmatized attitude, which is then being internalized and having the participants have a negative view about themselves. Further research would have to be conducted to see what the relationship would look like in a clinical sample, as the participants for this study were from a non-clinical study. More specifically, it would be interesting to see if adults' negative attitudes are being influenced and internalized by children and if this affects the severity of their symptoms. Another possibility would be that pre-deposition to stigma during childhood could worsen a Black person's symptoms, which could create adverse behavioral effects during adulthood and how they can navigate different spaces, such as work, friendships, and romantic relationships.

Limitations

This study collected responses from a non-clinical African American sample on Prolific, and from this, there was a relatively small sample of participants who were diagnosed with ADHD. The sample size did not have a high statistical power to find significant results between the timing of diagnosis and the social behavioral measures, leading to more variability between the participants' scores. The analyses with the ASRS-v1.1 did support the hypothesis that the severity of ADHD symptoms is associated with significant differences between social behaviors;

therefore, if there was a larger sample size from clinical participants, there could have been differences between African American diagnosis and social attitudes. In addition, the primary analyses did not include those that were undiagnosed and did not believe they experienced symptoms; it would have been interesting to have another control group to see if there is a differentiation between neurodivergent and neurotypical individuals' social attitudes.

It is worth noting that the African American Childhood Social Support Scale was based on the Interpersonal Support Evaluation List - shortened version, so it is hard to conclude the scale's validity and if it correctly measured the attitudes of the participants' childhood social support. Most scale items mentioned how available the person could talk to or receive help from a parent/guardian about their symptoms. However, it did not specifically indicate how helpful their parent/guardian would be in creating a safe space to discuss their concerns and receive help. Although there was a significant difference between childhood social support and the timing of diagnosis, the variability between the responses is broad. Thus, this variation could create false positive results that may not show the difference in the level of social support. There would need to be further testing to discover how well the scale can capture how supportive parents/guardians are during childhood and if it can be applied to how much support African Americans receive regarding their symptoms. The AACSS did not include subscales that were included in the referenced scale, so the study could not compare how the social support varies based on the level of advice, empathy, and physical help they receive from their families. Since the study examined how social support affected the timing of diagnosis, it would have been helpful to see if different types of support are more affected by the age of diagnosis than others.

The social behavioral scales measured the attitudes from the participants' childhood; however, there is no complete certainty that each response was a true reflection of their past

behaviors. The majority of the participants were able to respond entirely to the scales. However, there may have been challenges with the validity of their attitudes and how it affected their experiences with ADHD. As shown with diagnosing adults with ADHD, it is difficult for older individuals to recall certain instances from their past. Thus, it can be assumed that the participants may have minimized their experiences, which could have led to under-reporting for the behavioral scales. Another limitation was that, although participants could have recalled their childhood experiences, they may not be able to identify if they were experiencing ADHD symptoms. There is a lack of knowledge regarding mental health within African American communities; stigmatized behaviors are also shared and internalized among individuals. From this, Black children may not be able to understand that the behaviors that they are experiencing are associated with neurodevelopmental dysfunction.

The demographics section of the study included age and gender, yet there were complications with collecting this information in a small sample. There were no age criteria for the participants, as anyone who identified as African American, was raised in the United States, and completed the attention check questions was able to complete the study and be included in data analysis. However, this raised an issue as different ages, and generations will have different experiences with mental disorders and social behaviors in their community. As ADHD was not recognized in adulthood until the early 2000s, there was an assumption that individuals with ADHD would stop experiencing symptoms once they approached adolescence. Knowledge about this neurodevelopmental disorder was more inaccessible in the African American community as scientific research did not include different backgrounds. If their background was studied, it was often used in a form of discrimination. An article review on the book "The Protest Psychosis: How Schizophrenia Became a Black Disease" noted that during the 1970s and 1960s, Black

activists, specifically men, were diagnosed with schizophrenia as their social advocacy was seen as hostile and abnormal (Richardson, 2021). The book further looked into how the DSM-II supported this behavior, as the manual language usage pushed this racist narrative. From this, there is an understanding that the scientific studies contributed to this immense problem of inaccurate information, which is further associated with medical professionals not knowing how to diagnose African Americans. Moreover, there could have been challenges for older participants as they completed the study as they may not have been able to relate or accurately interpret the items on the scale, which can cause for there to be variability and error in conducting data analysis.

The study wanted to evaluate the behaviors amongst different ingroups in African American communities, such as gender. There were no significant analyses between gender and the social behavioral measures because there was a small sample size in individuals who identified as gender non-conforming/non-binary. Women were grouped with non-binary individuals as this was the most effective approach to evaluate social attitudes across gender, yet it is inconclusive on how non-binary individuals are experiencing ADHD symptoms differently than binary genders. Also, there can be issues with grouping different genders, as it is not the most appropriate way to represent varying backgrounds. The attitudes and experiences faced by one gender can be similar but not equivalent to another. Thus, combining different scores can raise issues with how the data is communicated within scientific research. The study did not include sexuality, which could also show varying behaviors. Those with marginalized backgrounds, such as queer individuals, may experience symptoms differently than those who are heterosexual. Sexuality could have been an important variable to explore throughout the

study as it could give further insight into how psychopathology and social behaviors affect the African American community.

Lastly, the demographic section inquired about the participant's diagnosis of conduct disorder and the number of individuals they lived with during childhood. As exploratory analyses were conducted on these variables across different social behavioral measures, participants had no significant differences in attitudes and backgrounds. This insignificant relationship may have been due to there not being a further examination of how these factors affected them, such as the type of treatment they received for conduct disorder and how they may have affected their social attitudes. Conduct disorder is commonly diagnosed in Black children, so it would have been interesting to see how the age of this order corresponded to the ages of those diagnosed with ADHD. In addition, ADHD diagnoses are often contributed by reports from parents, guardians, and teachers. Nevertheless, the study did not ask the participants who raised them between 6 and 12. This information may have been helpful as it could give information regarding how individuals raised by those besides their biological parents may affect the severity of their symptoms, such as being unable to cope with not having a solid relationship with their parents and having difficulty managing their symptoms.

Future Directions

Most primary analyses were insignificant, partially due to not having a large sample size and collecting information from a non-clinical sample. Therefore, a future direction for this study would be to include participants, specifically children diagnosed with ADHD, and compare their responses to those who do not experience symptoms and those who are undiagnosed but experience severe symptoms. More significant results could come from collecting data responses from a psychiatric clinic or a database that stores information about children's medical history.

From collecting information from children, there may be more accurate information about how they are experiencing their symptoms, given that the symptoms begin to present at a young age. However, further data collection from parents, guardians, teachers, and school administrators would need to be collected as they can provide more detailed and insightful information about the child's daily behaviors, which could help differentiate between normal behaviors and other comorbid disorders.

Further, a future goal of this study could be to look into other social variables that may affect ADHD symptoms in African Americans. Research has suggested that children with an ADHD diagnosis struggle with family and social dynamics. While the symptoms persist into adulthood, there is a complication in romantic and work dynamics (Harpin, 2005). Therefore, it would be interesting to observe how ADHD can affect the functioning of a Black person's personal and professional life; this may provide further information on the direction of the relationship between an ADHD diagnosis and social behavioral effects, such as in what ways social behavioral affects the experience of symptoms within a Black community. Future research could include what environmental factors explain the variance in the social support and mental health stigma scores. From the primary data analysis, there were no significant scores between the variables and the timing of diagnosis, so this could be explained by other factors, like social dynamics, that could explain why children may receive a delayed diagnosis.

If this study was to be replicated within an adult clinical sample, it could be helpful to have responses from the participants' parents and guardians. As stated before, adult patients have the frequency to minimize their symptoms due to various reasons, such as not being able to recall childhood information accurately; therefore, there could be further insight from caregivers as they can give external observations about the patient's behaviors. Also, the participants in this

study gave responses on how they perceive others' social attitudes, such as ADHD stigma, so data responses could be more accurate if the parents and guardians could complete the scales. From this information, there could be a comparison between the adults' and their caregivers' responses, given that if there is a discrepancy between the two groups' attitudes, then children interpret and respond to social experiences differently than what is intended by the caregiver. Thus, there would be implications for better ways to support African Americans through child development.

The study results could be supported if participants could give qualitative responses to the scale measures. Participants rated their attitudes for different measures, such as how highly available their caregivers were for emotional support. Nevertheless, there was no further indication of this support's effectiveness and if it helped them with their symptoms. If participants were interviewed about their experiences and social attitudes, there would be information on how well they know about ADHD and mental disorders and what common patterns are shown amongst Black caregivers. A qualitative analysis could result in the standard ways Black adults are internalizing stigma about ADHD and if there are present factors that are contributing to negative attitudes, such as faith-based practices and family teachings that may repress feelings about mental health. Lastly, if allowed participants to elaborate on their responses, they may be able to show how racial identity and their awareness of it can promote certain attitudes, such as thinking that children experiencing hyperactive symptoms have behavioral problems.

Conclusion

This comparative study examined the relationship between social behavioral effects and attention-deficit/hyperactivity disorder (ADHD) symptoms in African American participants.

More specifically, the study aimed to observe if social factors were associated with the diagnosis timing in African American adults. Research has shown that although the onset of ADHD symptoms is shown during childhood, these behaviors persist into adulthood. The symptoms can become severe, and difficult to function throughout daily activities without early treatment. Children, who experience ADHD symptoms and do not have sufficient support from caregivers, can have more trouble with symptoms. The presence of mental health stigma can deter individuals from seeking professional help. Considering these findings, 224 participants completed an online survey about when they were diagnosed with ADHD and attitudes about their self-reported ADHD symptoms, attitudes about ADHD stigma and childhood social support, and imposter syndrome symptoms.

From the data analysis, the primary analysis that compared social behaviors (ADHD stigma, social support, and impostor syndrome) and timing of diagnosis (child, adult, and undiagnosed but believe they experience symptoms) was not significant as there was no statistical power to show differences between participant groups. When conducting tests with participants' ADHD symptoms, there were differences between their scores and their attitudes on the social behavior scales. Participants who scored high on the Adult ADHD Self-Report Scale (ASRS-v1.1), which indicated that they had more severe symptoms and a high consistency for a diagnosis, had high scores for ADHD stigma and impostor syndrome and low scores for childhood social support. Therefore, it can be concluded that individuals who frequently experience symptoms exhibit negative attitudes about ADHD diagnosis while also thinking of themselves as frauds, specifically when completing work. Also, they are receiving less support from their parents or guardians regarding their symptoms and receiving a diagnosis. With these findings, it is essential for all those involved in the neuropsychiatric evaluation (e.g.,

parents/guardians, teachers, school personnel, clinicians, physicians, and other healthcare professionals) should be aware of these social factors to provide effective treatment for the child and prevent them from developing negative attitudes into adulthood. There is also an emphasis for caregivers to be taught and supported through the process as their attitudes can be projected and internalized by the child, which could lead to them having difficulty managing their symptoms and their perception of themselves.

Mental health has shown and continues to be a difficult conversation in the African American community as it has been weaponized against them and further pushed out of the community so that families are not taught how to care for neurodivergent children. This medical mistreatment has been connected with stigmatized attitudes, which can affect how much a person knows about their symptoms and how they can be treated. Scientific research should be encouraged on including social behaviors in neurodevelopmental disorders diagnostic criteria and treatment given that racial groups, such as Black individuals, have experiences with and accessibility to mental health that varies from other individuals. From the conclusions of this study, there is more to be evaluated as Black communities face other challenges that interfere with receiving a proper diagnosis. There is a call to consider the current presence of psychopathology in Black communities and what role researchers can have in drawing attention to how children behave and how they can be treated before things become severe over time.

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Appendix A

IRB Proposal

Section 1

Please enter the following information about yourself:

Today's date: Nov 08, 2022

Name: N'Kira Hailey

Email: nh0440@bard.edu

Your Academic Program/Department/Office: Psychology

Your status (faculty, staff, graduate or undergraduate student): Undergraduate

Adviser or Faculty Sponsor (if applicable):

If you are a graduate or undergraduate student, has your Adviser or Faculty Sponsor seen and approved your application? Yes

Your Adviser's or Faculty Sponsor's email address (if applicable): jdainerbest@bard.edu

Please list all individuals (full name and status, i.e. faculty, staff, student) involved in this project that will be working with human subjects. Note: Everyone listed must have completed Human Subject Research Training within the past three years.
N'Kira Hailey, undergraduate student

Do you have external funding for this research? No

What is the title of your project?
The Relationship Between Mental Disorders and Social Behaviors

When do you plan to begin this project? (Start date): Jan 01, 2023

Describe your research project:

The focus of the research project is to investigate the social effects of African Americans who went undiagnosed with attention deficit hyperactivity disorder (ADHD) as a child. Diagnosis for ADHD typically happens during childhood, yet the symptoms can persist into adulthood; thus, the symptoms can worsen if not treated in a timely manner. Further, there is stigma around mental health in the Black community because of historical racial and medical discrimination in the United States. African American parents may not be as knowledgeable and/or comfortable with mental health professionals, such as clinicians and psychiatrists, which can interfere with African American children being diagnosed. My study is to overlap these two issues of ADHD underdiagnosis and racial mental health perception and to see if this relationship has and will cause social-behavioral effects in African American children. I predict that African Americans diagnosed with ADHD as an adult will have had issues with receiving social support from authority figures as a child and had a negative perception of mental health. Thus, I believe that those who do have a stigma perception of ADHD and lack social support will affect their social behaviors, specifically experiencing impostor syndrome.

There are three condition groups, which are African Americans who were diagnosed as a child, diagnosed as an adult, or undiagnosed but believe they experience symptoms. The participants will be assigned to a group based on their response in the demographic section.

Describe the population(s) you plan to recruit and how you plan to recruit participants. Please submit all recruitment material, emails and scripts to IRB@bard.edu

I plan to recruit African Americans that were diagnosed with ADHD as a child, an adult or are not diagnosed but believe they show symptoms. I will collect data from the online participant recruitment platform Prolific, so I will post the study on that platform. The study will be called "The Relationship Between Mental Disorders and Social Behaviors" and the description participants will see will be:

"This study serves the purpose of examining this relationship between neurodiversity and social behaviors in children. You will be asked to complete up to 11 demographic questions and 4 questionnaires. Please answer them as honestly as possible. Since the approximate time of completing the survey is 10 minutes, you will receive a payment of \$2.00. Thank you for being interested in participating in the study!"

After completing a pilot test with four classmates, the average time to complete the test was 10 minutes, so I have adjusted the payment cost for each participant. The payment is based on the rate of \$12/hour, so the participants will be paid \$2.00 for completing the study. I will still proceed with having a prescreener for African American participants and have a race identity question in the demographic section of the survey. In addition, I have made it an exclusion criteria that the participants should be raised in the United States during school ages as that is my main focus for my study. When completing the demographic section of the survey, if the participant does not identify as Black/African American and/or were not raised in the United States between the ages of 6 and 12 years old, they will be stopped from completing the survey.

Will your participants include individuals from vulnerable or protected populations (e.g., children, pregnant women, prisoners, or the cognitively impaired)? no

Approximately how many individuals do you expect to participate in your study? 200

Describe the procedures you will be using to conduct your research. Include descriptions of what tasks your participants will be asked to do, and about how much time will be expected of each individual. NOTE: If you have supporting materials (printed surveys, questionnaires, interview questions, etc.), email these documents separately as attachments to IRB@bard.edu. Name your attachments with your last name and a brief description (e.g., "WatsonSurvey.doc").

The survey will be posted on Prolific with a pre-screener of participants that are Black/African American. If the participant is interested in the study, they will click on the survey and read the informed consent form. After consenting to participate, they will complete a Qualtrics survey. All questionnaires on the survey have been emailed to the IRB in the appendix. If the participant chooses not to participate, then they will be stopped from completing the survey.

The participants will be asked to complete demographic questions, including age, gender, racial identity, region they were raised in, if they have been diagnosed with ADHD and at what age, if they have been diagnosed with a conduct disorder during childhood, number of individuals in household during childhood. Those who were diagnosed only with a conduct disorder and not ADHD will be excluded from statistical analysis. Also, those who claim that they do not identify as African American nor were not raised in the United States during school ages will be stopped from finishing the survey.

The first measure on the survey is the Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist, which has 18 items that measure inattention and hyperactivity-impulsivity symptoms. This measure is being used because it indicates that those who score high enough will be consistent with an ADHD diagnosis. The participants who do not receive a high score on the scale will be excluded from statistical analysis. Scoring for the ASRS-v1.1 Symptom Checklist will be included in the appendix.

Next, the participants will complete the Attention Deficit Hyperactivity Disorder (ADHD) STIGMA Questionnaire, which has 26 items that measures a person's stigma perception about ADHD. The items will be adapted to measure the participants' perception about them having an ADHD diagnosis in the African American community. These modifications are apparent in the version of the questionnaire emailed to the IRB.

The participants will complete the Interpersonal Support Evaluation List - shortened version (ISEL-short form), which has 12 items to measure the participants' perception of social support. The items will be adapted to evaluate the participants' perception at the ages between six and twelve years old (childhood).

To check if participants are paying attention in the survey, they will complete one of two attention check questions after the

ISEL-short form questionnaire. The question will ask them to write a word in a text box.

The fifth scale that the participants would complete is the Clance IP Scale , which has 20 items that measures if a person experiences symptoms of impostor syndrome. The items will be adjusted to measure the participants' self- assessment of symptoms during childhood.

Before the participants move onto the debriefing statement, they will be given the second attention question that will ask if they committed thoughtful answers to each questionnaire as well as if they responded as if they were between the ages of 6 and 12 years old for required questions.

After they have completed the last scale, they will receive the debriefing statement and receive a compensation of \$2.00.

Appendix B:

IRB Proposal Amendments

Dear Bard Institutional Review Board,

Thank you for approving my Senior Project proposal. After reviewing the materials with my advisor this semester, I have made slight changes to the wording and format of my survey. Please find the revisions below:

- The participant agreement question in the informed consent section and questions 4, 5, 7, 8, and 9 in the demographics sections are required responses from the participants. The participants are also required to answer all of the item questions on the “Adult ADHD Self-Report Scale (ASRS-v 1.1) Symptom Checklist”. These questions are required because the participants must meet a certain criteria to participate in the study: to be at least 18 years old and identify as a Black individual raised in the United States between the ages of 6 and 12 years old. Also, for the scale items and ADHD diagnosis demographics questions, I am not able to run statistical analysis on the participants’ responses if they do not indicate if they have a diagnosis or believe they do and if they do not give responses on the ADHD Self-Report scale.
- The participants will only receive the “Attention Deficit Hyperactivity Disorder (ADHD) STIGMA Questionnaire” if they answer yes to question 7 (“have you ever been diagnosed with attention deficit hyperactivity disorder (ADHD)”) or question 9 (“do you believe that you currently experience attention deficit hyperactivity disorder (ADHD) symptoms”) in the demographic section. The flow of the survey was changed to provide better clarity on who is to respond to this question and avoid collecting data from participants who do not have a diagnosis and do not believe they experience symptoms of ADHD.
- I have changed the name on the “Interpersonal Support Evaluation List (ISEL) -

shortened version) to “African American (AA) Social Support Scale) because I have modified the entire scale to fit within the parameters of my study. I have now indicated

that the scale is based on the ISEL and is focused on evaluating African American participants’ attitudes toward their childhood social support.

- I have rephrased the instructions “please answer the questions as if you were between the ages of 6 and 12 years old” to say “please answer the questions below about you when you were between the ages of 6 and 12”. This was to provide better clarity on how the participants should respond to the survey; it was noticed that the participants may have made assumptions about the items instead of specifically answering on items based on their childhood experiences.
- I have rephrased the word “circle” to the word “select” in the various scales instructions. The change of word choice was to match the format of the scale, which is on the computer instead of on paper as it was initially intended.
- I have rephrased “authority figures” to “caregiver” on the “AA Social Support Scale”. It was noticed that authority figures may give the wrong connotation, such as someone that is not emotionally close to the person (e.g, law enforcement, principal, etc). The term “caregiver” gives a better focus on how the participants can explain their relationship with their parental figures.
- From the “AA Social Support Scale” being a modified version of the “ISEL - shortened version”, I have changed the scoring for the participants’ responses. They will now be scored only on their overall scale score and not on any subscales.
- I have changed the prolific survey description to indicate the criteria for the study, which is to “**identify as a Black individual raised in the United States**”. Also, I have removed

information about the timing and the payment as this would be stated in another location on the Prolific account.

Appendix C:

IRB Amendments Approval

Bard College

Institutional Review Board

Date: 2/28/2023
To: N'Kira Hailey
Cc: Justin Dainer-Best; Nazir Nazari
From: Ziad M. Abu-Rish, IRB Chair
Re: The Relationship Between Mental Disorders and Social Behaviors


DECISION: APPROVED AMENDMENTS

Dear N'Kira,

The Bard Institutional Review Board reviewed and approved the amendments you submitted on 2-15-2023 to your protocol 2022DEC05-NKI.

Please notify the IRB if your methodology changes or unexpected events arise.

We wish you the best of luck with your research.



Ziad M. Abu-Rish, Ph.D.
IRB Chair
Associate Professor of Human Rights and Middle Eastern History
Bard College
zaburish@bard.edu

Appendix D:

Grant Award

Bard College

Associate Vice President for Academic Affairs
Dean of Studies

December 2022

N’Kira Hailey
Via email

Dear N’Kira,

It is my pleasure to inform you are the recipient of a \$600 Bard Center for the Study of Hate award. The Bard Center for the Study of Hate award supports Senior Project research that examines human hatred and its manifestations. A check in this amount will be mailed to your home address in January and we will look forward to receiving a brief report detailing how you used the funds.

We took much pleasure in reading about your work and we look forward to hearing about its progress over the spring semester. Your plan, along with all the others we received, reinforced the pride we hold in the work done by members of senior classes over many years. We were also impressed by the support you received from faculty connected with your work.

Sincerely yours,



David Shein
Dean of Studies

cc: Justin Dainer-Best, Adviser
Robert Laity, Stewardship and Development Services Manager, Bard College Fund
Ken Stern, Director of the Bard College Center for the Study of Hate
Danielle Riou, Associate Director, Human Rights Project

Appendix E:

Prolific Study Description

This study serves the purpose of examining the relationship between neurodiversity and social behaviors in children. You will be asked to complete 11 demographic questions and 4 questionnaires. Please participate if you **identify as a Black individual raised in the United States**. Thank you for being interested in participating in the study!

Appendix F:

Informed Consent

Title

The Relationship Between Mental Disorders and Social Behaviors

Researchers & Institutional Affiliation

N’Kira Hailey and faculty advisor Justin Dainer-Best

Psychology Program

Bard College

Purpose & Study Procedure

Please read the following information carefully before participating in this study.

Welcome and thank you for participating in the study! I am a Bard College student and conducting a study for my Senior Project. The purpose of this study is to examine the relationship between mental disorder diagnoses and social behaviors during childhood development in Black individuals that were raised in the United States. If you agree to participate in the study, you will answer questions about your demographic information (e.g, age, gender, race/ethnicity, region you were raised in, and information about your childhood household) and mental disorder diagnoses now and in childhood. Next, you will complete four questionnaires about your attitudes and perceptions about mental health and social behaviors during childhood. The approximate time of completing the experiment is 10 minutes.

Risks/Discomforts

Although there are no major risks foreseeable, you may potentially express emotions of being overwhelmed, uncomfortable, or upset due to the questions in this study. This discomfort could be similar to expressing your emotions in personal and safe settings, such as with close friends/family or mental health professionals. If you are experiencing any signs of distress, you are able to contact resources such as National Crisis Hotline (call 988) or Crisis Text Line (text HOME to 741741). If you believe that you will experience discomfort from disclosing information about your childhood, you should not participate in the study.

Benefits

There are no foreseeable benefits from the study, but from completing the study, there may be more extensive knowledge and interest about diagnoses and social behaviors during childhood development.

Compensation

Once you have completed the entire study, you will receive \$2.00 through the Prolific platform.

Participant's Agreement

I understand the purpose of this research project and am aware of potential risks and benefits from completing the study. My participation is voluntary and I am able to stop or withdraw my responses at any given point without any explanation or penalties.

I understand that the base time for the experiment is 10 minutes and may be longer given the time I take for each question.

I understand that if I agree to participate that my identity is anonymous and any information I give will not be linked to my personal identity. Furthermore, all information gathered will be stored into password-protected devices. I understand that my data may be shared, in aggregate and without being linked to me, as part of publications that result from this research study. I understand that this study is a part of a Senior Project and any anonymous information provided will be permanently and publicly available in the finished publication located at the Bard College library and online.

Questions

If you have any questions or would like a copy of the informed consent, you can email N'Kira Hailey (nh0440@bard.edu), advisor Justin Dainer-Best, Ph.D. (jdainerbest@bard.edu) and/or the Bard College Institutional Review Board (irb@bard.edu). You can also save this webpage to your device and access the form at a later point.

By clicking the box below, you confirm that you read the consent form, are at least 18 years old and are willing to participate in this experiment.

I agree and wish to participate

I do not agree and do not wish to participate

Appendix G:

Demographics

1. How old are you?
 - a. Open Response (Numbers Only):
2. What gender do you identify as?
 - a. Woman
 - b. Man
 - c. Gender Variant/Gender Non-Conforming
 - d. Other:
 - e. Prefer not to answer
3. Do you identify as transgender?
 - a. Yes
 - b. No
4. Do you identify as Black/African American (e.g, you are of African descent and were raised in the United States)?
 - a. Yes
 - b. No (if participants choose this option, then the survey will end)
5. Were you raised in the United States between the ages of 6 and 12 years old?
 - a. Yes
 - b. No (if participants choose this option, then the survey will end)
6. (If answered yes to question 5, then this question will appear) What region in the United States were you raised in?
 - a. Northeast
 - b. Southwest
 - c. West
 - d. Southeast
 - e. Midwest
7. Have you ever been diagnosed with attention deficit hyperactivity disorder (ADHD)?
 - a. Yes
 - b. No
8. (If answered yes to question 7, then this question will appear) At what age were you diagnosed with attention deficit hyperactivity disorder (ADHD)?
 - a. Open Response (Numbers Only):
9. (If answered no to question 7, then this question will appear) Do you believe that you currently experience attention deficit hyperactivity disorder (ADHD) symptoms?
 - a. Yes
 - b. No
10. Have you been diagnosed with a conduct disorder between the ages of 6 and 12 years old?

- a. Yes
- b. No

11. How many people, including you, lived in your home between the ages of 6 and 12 years old? If this number changed, give an average number.

Open Response (Numbers Only):

Appendix H:

Adult ADHD Self-Report Scale Symptom Checklist and Scoring

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, select the appropriate box that best describes *how you have felt and conducted yourself over the past 6 months*.

| | Never | Rarely | Sometimes | Often | Very Often |
|---|-------|--------|-----------|-------|------------|
| Part A | | | | | |
| 1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done? | | | | | |
| 2. How often do you have difficulty getting things in order when you have to do a task that requires organization? | | | | | |
| 3. How often do you have problems remembering appointments or obligations? | | | | | |
| 4. When you have a task that requires a lot of thought, how | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| often do you avoid or delay getting started? | | | | | |
| 5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time? | | | | | |
| 6. How often do you feel overly active and compelled to do things, like you were driven by a motor? | | | | | |
| Part B | | | | | |
| 7. How often do you make careless mistakes when you have to work on a boring or difficult project? | | | | | |
| 8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work? | | | | | |
| 9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly? | | | | | |
| 10. How often do you misplace or have difficulty finding things at home or at work? | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| <p>11. How often are you distracted by activity or noise around you?</p> | | | | | |
| <p>12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?</p> | | | | | |
| <p>13. How often do you feel restless or fidgety?</p> | | | | | |
| <p>14. How often do you have difficulty unwinding and relaxing when you have time to yourself?</p> | | | | | |
| <p>15. How often do you find yourself talking too much when you are in social situations?</p> | | | | | |
| <p>16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish them themselves?</p> | | | | | |
| <p>17. How often do you have difficulty waiting your turn in situations when turn taking is required?</p> | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| 18. How often do you interrupt others when they are busy? | | | | | |
|---|--|--|--|--|--|

Scoring:

- Scoring Part A: If four or more marks appear in the darkly shaded boxes, then the patient has symptoms highly consistent with ADHD in adults and further investigation is warranted; the items in Part A are most predictive of the disorder and are best for use as a screening instrument

Appendix I:

Attention Deficit Hyperactivity Disorder (ADHD) Stigma Questionnaire and Scoring

This study asks about some of the social and emotional aspects of having ADHD. For most of the questions, just select the option that goes with your answer. There are no right or wrong answers, we would just like your opinions.

This set of questions asks about some of the experiences, feelings, and opinions people with ADHD might have and how they are treated. Please do your best to answer each question.

The term *African American Community/African Americans* refers to the Black people that were present during your childhood (between ages 6 and 12 years old) and includes, but not limited to: parents/guardians, teachers, school administrators/personnel, friends, school peers, coworkers, online social media accounts, etc.

For each item, select your answer: Strongly disagree (SD), disagree (D), agree (A), or strongly agree (SA).

| | SD | D | A | SA |
|--|----|---|---|----|
| 1. I have (or potentially have) ADHD and I feel guilty about it. | | | | |
| 2. The African American community's attitudes about ADHD may make me feel worse about myself. | | | | |
| 3. I have (or potentially have) ADHD and would think it's risky to tell people in the African American community about it. | | | | |

| | | | | |
|---|--|--|--|--|
| <p>4. I have (or potentially have) ADHD and will lose my job when my employer finds out.</p> | | | | |
| <p>5. I have (or potentially have) ADHD and work hard to keep it a secret.</p> | | | | |
| <p>6. I have (or potentially have) ADHD and feel that I am not a good person because of it.</p> | | | | |
| <p>7. I have (or potentially have) ADHD and am treated like an outcast.</p> | | | | |
| <p>8. I have (or potentially have) ADHD and feel damaged because of it.</p> | | | | |
| <p>9. After learning that I have (or potentially have) ADHD, I feel set apart and isolated from the African American community.</p> | | | | |
| <p>10. The African American community thinks that a person with ADHD is lazy.</p> | | | | |

| | | | | |
|--|--|--|--|--|
| 11. I have (or potentially have) ADHD and I feel bad because of it. | | | | |
| 12. I am rejected when African Americans find out that I have (or potentially have) ADHD. | | | | |
| 13. I have (or potentially have) ADHD and I am careful about who I tell about it. | | | | |
| 14. Some people who learn that I have (or potentially have) ADHD grow distant from me. | | | | |
| 15. After learning that I have (or potentially have) ADHD, I worry about others discriminating against me. | | | | |
| 16. Most people are uncomfortable around me because I have (or potentially have) ADHD. | | | | |
| 17. I worry that the African American community may judge me when they learn that I have (or potentially have) | | | | |

| | | | | |
|--|--|--|--|--|
| ADHD. | | | | |
| 18. I regret having told some African Americans that I have (or potentially have) ADHD. | | | | |
| 19. As a rule, I feel that telling African Americans that I have (or potentially have) ADHD is a mistake. | | | | |
| 20. The African American community does not want me around them or others once they know that I have (or potentially have) ADHD. | | | | |
| 21. The African American community acts as though it is my fault that I have (or potentially have) ADHD. | | | | |
| 22. I have lost friends by telling them that I have (or potentially have) ADHD. | | | | |
| 23. I have told others close to me to keep that fact that I have (or potentially have) | | | | |

| | | | | |
|---|--|--|--|--|
| ADHD a secret. | | | | |
| 24. The good points of having (or potentially having) ADHD tend to be ignored. | | | | |
| 25. The African American community seems to not understand me once they learn that I have (or potentially have) ADHD. | | | | |
| 26. When the African American community learns that I have (or potentially have) ADHD, they look for flaws in my character. | | | | |

Scoring:

- Disclosure Concerns Subscale: items 3, 5, 13, 17, 18, 19, 23
- Negative Self Image Subscale: items 1, 2, 6, 8, 9, 11
- Concern with Public Attitudes Subscale: items 4, 7, 10, 12, 14, 15, 16, 20, 21, 22, 24, 25, 26

- Strongly disagree (SD) = 1 point
- Disagree (D) = 2 points
- Agree (A) = 3 points
- Strongly agree (SA) = 4 points

- Overall scale score: sum up the raw score of all items; can range between 26 and 104
- Disclosure Concerns Subscale score: sum up the raw score of belonging items; can range between 7 and 28
- Negative Self Image Subscale score: sum up the raw score of belonging items; can range between 6 and 24
- Concern with Public Attitudes Subscale: sum up the raw score of belonging items; can range between 13 and 52

All scores are kept continuous; higher score means a higher perception of ADHD stigma

Appendix J:

Attention Check 1

The following question is to verify that you are a real person.

Please enter the word purple into the box below.

Appendix K:

African American Childhood Social Support Scale and Scoring

Please answer the questions below about you when you were between the ages of 6 and 12.

This scale is made up of a list of statements each of which may or may not be true about you. For each statement select “definitely true: if you are sure it is true about you and “probably true” if you think it is true but are not absolutely certain. Similarly, you should select “definitely false” if you are sure the statement is false and “probably false” if you think it is false but are not absolutely certain.

The term *mental health professional* refers to individuals who have been trained to deal with mental health problems (e.g, psychologists, psychiatrists, social workers, and family physicians). The term *caregiver* refers to: parents, guardians, and parental figures.

| | Definitely False | Probably False | Probably True | Definitely True |
|--|------------------|----------------|---------------|-----------------|
| 1. If I wanted to find a mental health professional to talk about my ADHD symptoms, I would have a hard time asking my caregiver to help me find a provider. | | | | |
| 2. I feel that I could not share my most private worries and fears about my diagnosis/symptoms with my caregiver. | | | | |
| 3. If I were having trouble with a school task because of my ADHD symptoms, I could easily ask my caregiver to help me with it. | | | | |
| 4. I can turn to | | | | |

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|--|--|--|--|--|
| caregiver for advice about handling problems with my symptoms. | | | | |
| 5. When I need suggestions on how to deal with negative feelings of stigma about ADHD, I know I can turn to my caregiver for help. | | | | |
| 6. My caregiver does not often invite me to talk about my symptoms or mental health issues. | | | | |
| 7. If I had lost something very important, it would be difficult to ask my caregiver to help me look for it. | | | | |
| 8. If I needed someone to write an evaluation report for my ADHD symptoms, I would not be able to ask my caregiver to do so. | | | | |

Scoring:

- Reverse scored items: 1, 2, 6, 7, 8

- Definitely False = 1 point
- Probably False = 2 points
- Probably True = 3 points
- Definitely True = 4 points

- Overall Scale Score: sum up the raw scores of all items; can range between 9 and 36

All scores are kept continuous; higher scores mean higher social support the person’s perceives

Appendix L:

Clance Impostor Phenomenon Scale and Scoring

Please answer the questions below about you when you were between the ages of 6 and 12.

For each question, please select the number that best indicates how true the statement is of you. It is best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

| | Not at all true | Rarely | Sometimes | Often | Very True |
|---|-----------------|--------|-----------|-------|-----------|
| 1. I have often succeeded academically even though I was afraid that I would not do well before I undertook the task. <i>(excluding times that I did not prepare ahead of time for the test or task).</i> | | | | | |
| 2. I can give the impression that I'm more competent than I really am. | | | | | |
| 3. I avoid evaluations if possible and have a dread of others evaluating me. | | | | | |
| 4. When people praise me for something I've accomplished, I'm afraid I won't be able to live up | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| to their expectations of me in the future. | | | | | |
| 5. I sometimes think I gained my present success because I happened to be in the right place at the right time or knew the right people. | | | | | |
| 6. I'm afraid people important to me may find out that I'm not as capable as they think I am. | | | | | |
| 7. I tend to remember the incident in which I have not done my best more than those times I have done my best. | | | | | |
| 8. I rarely do a project or task as well as I'd like to do it. | | | | | |
| 9. Sometimes I feel or believe that my success in my life has been the result of some kind of error. | | | | | |
| 10. It's hard for me to accept compliments or praise about my intelligence or accomplishments. | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| <p>11. At times, I feel my success has been due to some kind of luck.</p> | | | | | |
| <p>12. I'm disappointed at times in my present accomplishments and think I should have accomplished much more.</p> | | | | | |
| <p>13. Sometimes I'm afraid others will discover how much knowledge or ability I really lack.</p> | | | | | |
| <p>14. I'm often afraid that I may fail at a new assignment even though I generally do well at what I attempt.</p> | | | | | |
| <p>15. When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.</p> | | | | | |
| <p>16. If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of</p> | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| what I've done. | | | | | |
| 17. I often compare my ability to those around me and think they may be more intelligent than I am. | | | | | |
| 18. I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well. | | | | | |
| 19. If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact. | | | | | |
| 20. I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement. | | | | | |

Scoring:

- Overall Scale Score: sum up the raw scores of all the items; The higher the score, the more frequently and seriously the Impostor Phenomenon interferes in a person's life.
- Total score of 40 or less: few Impostor characteristics,
- Total score between 41 and 60: moderate IP experiences,
- Total score between 61 and 80: frequently having Impostor feelings

Total score of 80 or higher: intense Impostor experiences

Appendix M:

Attention Check 2

Have you answered all of the above questions as truthfully and thoughtfully as you can (including answering required questions as if you were between the ages 6 and 12)? (This will not affect your compensation.)

- Prefer not to answer
- Yes, I have
- No, I have not

Appendix N:

Debriefing Statement

Thank you for completing the experiment! This study was to examine the social effects of being diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) as an adult, specifically in the African American community. From racial discrimination and medical disparities towards Black people in the United States, such as clinical bias and tone-deaf racial differences, there is an underrepresentation of African American children that are diagnosed with Attention Deficit Hyperactivity Disorder and an overrepresentation of African Americans being diagnosed with a conduct disorder (Pastor & Reuben, 2005; Atkins-Loria et al., 2015). Furthermore, the purpose of this study is to investigate if African Americans who were diagnosed with ADHD as a child will, during their school-ages, (1) have higher social support from family and teachers, (2) have a lower perception of mental health stigma, and (3) show fewer symptoms of impostor syndrome than those who are diagnosed with ADHD as an adult or not diagnosed with ADHD yet.

As you were completing the study, you may have felt distress or been overwhelmed with reporting about your childhood and behaviors. If you would like to have further discussions or support about any emotions that arose, you can contact the following resources:

- National Crisis Hotline (call 988)
- Crisis Text Line (text HOME to 741741)
- National Alliance on Mental Health (NAMI) Helpline (call 1-800-950-6264)
- BlackLine (call 1-800-604-5841)

If you would like to find information about connecting with a mental health professional, you can connect with the following organizations:

- Black Emotional and Mental Health Collective (BEAM) (<https://beam.community/>)
- Black Mental Health Alliance (call 410-338-2642)
- Melanin and Mental Health (<https://www.melaninandmentalhealth.com/>)

Please contact N’Kira Hailey (nh0440@bard.edu), Professor Justin Dainer-Best (jdainerbest@bard.edu), and/or the Bard College Institutional Review Board (irb@bard.edu) for further information about the study’s results, copy of the informed consent form or overall questions, comments, or concerns.

Appendix O:

Pre-registration

Preliminaries

Study Title

“Diversity in Diagnosis: The Social Behavioral Effects of going Undiagnosed with ADHD as a Child”

Investigator's Name and Affiliation

N’Kira Hailey, Bard College

Date of Preregistration

December 14, 2022

IRB Status: Choose one and delete the others

- Approved, date: December 5, 2022

Variables

What are your independent / grouping / predictor variables (including mediators and moderators)? Explain how you operationalize each variable.

- Independent Variable:
 - Timing of ADHD diagnosis, 3 levels:
 - African Americans diagnosed with ADHD as a child
 - African Americans diagnosed with ADHD as an adult
 - African Americans not diagnosed with ADHD but believe they have it

What are your dependent / outcome variables? Explain how you operationalize each variable.

- Outcome Variables:
 - Perception of ADHD stigma (as measured by the Attention Deficit Hyperactivity Disorder (ADHD) STIGMA Questionnaire - 26 items)
 - Subscales:
 - Disclosure Concerns Subscale: assesses an individual’s concerns or worries about disclosing their ADHD diagnosis to the African American community
 - items: 3, 5, 13, 17, 18, 19, 23
 - Negative Self Image Subscale: assesses an individual’s negative feelings towards oneself due to ADHD diagnosis
 - items: 1, 2, 6, 8, 9, 11

- Concern with Public Attitudes Subscale: assesses people's attitudes towards individuals with ADHD diagnosis
 - items: 4, 7, 10, 12, 14, 15, 16, 20, 21, 22, 24, 25, 26
- Social Support from African American community (based on the Interpersonal Support Evaluation List - shortened version - 12 items; excluded 3 items)
 - Subscales:
 - Appraisal Support Subscale: measures the individual's perceived availability of authority figures to talk to about one's problems regarding ADHD
 - items: 2, 4, 6
 - Belonging Support Subscale: measures the individual's perceived availability of authority figures with whom one can spend time doing things that pertain to their ADHD symptoms
 - items: 1, 7, 9
 - Tangible Support Subscale: measures the individual's perceived availability of authority figures who would provide one with material aid for ADHD symptoms/diagnosis if needed
 - items: 3, 8, 12
- Imposter Syndrome (as measured by Clance Imposter Phenomenon (IP) Scale)
 - Measures if a person experiences symptoms of impostor syndrome during their childhood

List any exploratory variables. These are variables that you included in your study, but are not central to your main predictions.

- Gender
 - Woman
 - Man
 - Gender Variant/Gender Non-Conforming
 - Other:
 - Prefer not to answer
- Transgender identity
- Number of individuals in childhood household

Did you create new, or modify existing, variables for this study? (Delete all that do not apply)

- Some variables were modified from their original form

If you indicated above that 'Some variables were modified,' describe how you modified existing variables here:

The outcome variables are measured using existing scales. The participants' perception of ADHD stigma is measured using the "Attention Deficit Hyperactivity Disorder (ADHD) STIGMA Questionnaire"; the items were modified to specify which group of people (African American community) the participant would be concerned about if they disclosed their (potential) diagnosis. There were also added instructions about how the term 'African American community' is defined in the

questionnaire. In addition, the participants are instructed to answer the items for themselves between the ages of 6 and 12 years old. This is to provide insight on how they were socially behaving during school ages, which are the common ages for ADHD diagnoses in children.

The participants' social support was measured based on the "Interpersonal Support Evaluation List - shortened version", which originally included 12 items. However, three items (#5, 10, 11) were removed for the sake of reducing time for the study and not holding relevance to the study. The items were modified to measure the participants' perception of their childhood social support from authority figures, such as being able to talk to adults about their experience with ADHD or emotional problems. Also, the modified scale includes the term 'authority figure' instead of the term 'someone' as this focuses more on how the parents/caregivers, teachers, or other adult figures affects a person emotionally and mentally during their development. There were also added instructions about how the terms "mental health professional" and "authority figures" are defined in the scale. In addition, the participants are instructed to answer the items for themselves between the ages of 6 and 12 years old.

The participants' symptoms of imposter syndrome was measured using the "Clance IP Scale" which was modified to include the instructions that the participants must answer the items as they would have when they were between the ages of 6 and 12 years old.

Hypotheses

What are your primary study hypotheses / research questions?

H1: Participants who were either diagnosed as an adult or not diagnosed at all (as compared to those diagnosed as children) will have a high perception of the African American's stigma towards ADHD (as measured on the ADHD STIGMA scale).

- They would perceive that their African American community has a negative view towards those with ADHD diagnosis (as measured by the Concern with Public Attitudes Subscale)

H2: Participants who were diagnosed 'late' (as an adult) or not at all would have experienced symptoms of imposter syndrome (as measured by the Clance IP Scale)

H3: Perception of authority figures as having high degrees of mental health stigma towards ADHD (as measured on the ADHD STIGMA scale) will lack social support for children (based on the modified ISEL)

- Their perception of how comfortable they are about disclosing their ADHD diagnosis (as measured by the Disclosure Concern Subscale) will correlate with their perception of how available they can talk to authority figures

H4: The perception of authority figures' stigma (on the ADHD STIGMA scale) will moderate the relationship between the participants' timing of diagnosis (childhood, adult, or not at all) and childhood social support (modified ISEL).

Do you have any exploratory hypotheses / research questions? If so, describe them below:

H1: Participants that identify as women and non-binary will have a later timing of diagnosis than male participants

- H1a_1: If H1 is supported, it will be because women and non-binary individuals have a higher perception of authority figures' ADHD stigma

- H1a_2: If H1 is supported, it will also be because women and non-binary individuals have a lack of social support

H2: Participants that identify as transgender will also have a later timing of diagnosis than cisgender participants.

H3: Participants who lived with more individuals in their childhood household will have a later timing of diagnosis than those fewer individuals.

At the time of this preregistration, describe the status of data collection (delete those that do not apply):

- Data collection has not started for this study

Sampling

What is your target sample size?

My target sample size is 200 participants.

How was your target sample size determined? (Delete all that do not apply)

- Power analysis: A power analysis determined that a minimum of 42 participants in each of the three levels of the IV would be ideal. Given that group assignment is not possible (as the grouping variable is based on participant characteristics), a sample size of 200 is estimated to approach that number.
- Target sample size based on constraints / convenience (e.g., size of subject pool, available money to pay participants, access to participants): funds have been received for paying 200 participants, which approaches the possibility of hitting the needed sample size.

How will you determine when to stop collecting data (i.e., your stopping rule)? (Delete all that do not apply)

- When the target sample size is reached
- A particular amount of time has passed (e.g., the end of the semester)

Assuming 200 participants are reached, data collection will stop. If 200 participants are not reached but the date of March 15, 2023 has been reached, data collection will be stopped.

Research Design

What type of research design are you using? (Delete all that do not apply)

- Quasi-experiment, dividing into groups based on participants' characteristics: timing of ADHD diagnosis (child, adult, or not at all)

Data Analysis Plan

What will be your criterion for determining statistical significance? (Delete all that do not apply)

- $p < .05$

Will your tests of significance be: (Delete all that do not apply)

- Two-tailed

Will you exclude participants from data analysis based on any of the reasons listed below?
(Delete all that do not apply)

- Failed attention check: participants who fail either of two attention checks will be dropped from analysis
 - 1. Failing to write “purple” or some variation as specified
 - 2. Not indicating that data should be used for analyses
- Missing data: participants who fail to complete any of the self-report measures will be excluded from analyses for that specific measure
 - Participants may choose not to complete scales, but will be reminded if they leave any questions unanswered
- Incomplete ADHD Self-Report Scale: participants who fail to complete the ADHD self-report but complete all other scales will be excluded from analyses

Describe any additional exclusion criteria here:

Participants who indicate in the survey that they do not identify as African American and/or were not raised in the United States during school ages will be stopped from finishing the survey.

What criterion (if any) will you use to determine whether a participant is an outlier?

- No data will be considered outliers at this time.

Which statistical tests will you use to conduct your data analyses?

- ANOVA
 - H1: one-way ANOVA with timing of diagnosis predicting score on ADHD STIGMA scale
 - H2: one-way ANOVA with timing of diagnosis predicting score on Clance IP
- Correlation
 - H3: correlation between ADHD STIGMA scale and modified ISEL
- Regression
 - H4: regression with predictors of timing of diagnosis (categorical) and ADHD STIGMA scale and outcome of Social Support scale

Exploratory Analyses

- Chi-squared
 - H1: comparing gender and timing of diagnosis
- *t*-test
 - H1a_1: *t*-test comparing scores on ADHD STIGMA for women and non-binary individuals (grouped together) compared to men
 - H1a_2: *t*-test comparing scores on Social Support scale for women and non-binary individuals (grouped together) compared to men
- Chi-squared
 - H2: comparing cis/trans gender identity and timing of diagnosis
- ANOVA (or chi-squared)
 - H3: timing of diagnosis predicting number of individuals in the household

If relevant, describe what types of follow-up tests will you perform (e.g., Tukey post-hoc; simple main effects). If you will conduct planned comparisons, explain the nature of those comparisons below:

Significant ANOVA results will be followed up by simple main effect *t*-tests

For the analyses listed above, will you include any covariates or control variables? If so, describe them below and provide a justification:

No