Public perception of adults with ADHD in the United States: Stigma vs. strengths

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PUBLIC PERCEPTION OF ADULTS WITH ADHD IN THE UNITED STATES:
STIGMA VS. STRENGTHS

An Abstract of a Thesis
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Peyton S. Barton
University of Northern Iowa
December 2021
ABSTRACT

Stigma is a stereotyped judgement of a group of people (e.g. people with a mental illness; Goffman, 1963). Mentally ill individuals are often assumed to be dangerous, irresponsible, or incapable of taking care of themselves (Rüsch et al., 2005). The type of judgement and the level to which individuals are judged is influenced by the sociodemographic factors of the observer as well as the stigmatized individual (Martin et al., 2007). Additionally, in some cases people judge those with mental illness as having strengths; for example, believing people with bipolar disorder to be particularly creative (Galvez et al., 2011; Kiume, 2017). Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by hyperactivity, impulsivity, and inattention (American Psychiatric Association, 2013). Adults with ADHD often have problems with underachievement at work or in school (Kooij et al., 2019). In addition to the challenges of ADHD itself, people with ADHD may be judged by others as careless, stupid, or faking the disorder, which can discourage them from seeking the support they need to be successful (Law et al., 2007; Lefler et al., 2016). Although there is some research showing that there is stigma toward adults with ADHD, the existing literature is very limited regarding the demographic factors of the observer, as well any potential strengths attributed to individuals with ADHD. In this study, I measured the relation between an observer’s sex and their positive and negative attitudes toward adults with ADHD via three measures: a) a stigma measure (i.e., the Questionnaire on Stigmatizing Attitudes toward Adults with ADHD; QPS; Fuermaier et al., 2012), b) a Semantic Differential measure (based on Osgood et al., 1957), and c) a strengths measure (i.e., a modified
version of the Values in Action Global Assessment of Character Strengths-24; GACS-24; VIA Institute on Character, 2018). The mean for the stigma measure was above the scale midpoint, suggesting low levels of stigma in the overall sample. Women had higher stigma measure scores compared to men, suggesting lower stigma. Overall scores on the Semantic Differential measure indicated that participants believed adults with ADHD to have the favorable traits of being more honest than dishonest, more responsible than irresponsible, more intelligent than unintelligent, while having the unfavorable traits of being more disorganized than organized, and more careless than careful. Men considered adults with ADHD to be more responsible, more organized, and more careful compared to women, while women considered adults with ADHD to be more intelligent compared to men. Mean scores were above the midpoint for the strengths measure composite and all factors, suggesting a belief that adults with ADHD exhibit all sets of strengths. Men had a higher score on the Temperance factor of the strengths measure compared to women, suggesting a greater belief that adults with ADHD exhibit that strength.

Exploratory analyses were also conducted. A discussion of the implications of this research includes anti-stigma campaigns and self-stigma interventions.

*Keywords*: ADHD, stigma, strength, perceptions, adults
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Peyton S. Barton
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This Study by: Peyton S. Barton

Entitled: Public Perceptions of Adults with ADHD in the United States: Stigma vs. Strengths

has been approved as meeting the thesis requirement for the

Degree of Master of Arts

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PUBLIC PERCEPTIONS OF ADULTS WITH ADHD IN THE UNITED STATES: STIGMA VS. STRENGTHS

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity (American Psychiatric Association [APA], 2013). Although ADHD has historically been studied in children, we now know that ADHD often continues into adulthood. Adults with ADHD often struggle with functioning at school, at work, and in their relationships with others (Barkley et al., 2008; Skirrow & Asherson, 2013). Because these adults with ADHD tend to perform at a lower level than their peers, they may be perceived by others as irresponsible, or even assumed to be faking their symptoms for access to medication or accommodations (Lefler et al., 2016; Speerforck et al., 2019). Consequently, adults with ADHD sometimes fear others perceiving them as stupid, dishonest, or irresponsible, and this fear can keep adults with ADHD from seeking help (Lefler et al., 2016). These perceptions can be important for many reasons, including the intent to seek help.

Public perception of mental illness can either be positive or negative; strengths or stigma. Negative perceptions are known as stigma; a social judgement based on stereotypes of their disorder (Goffman, 1963). There are two sources of stigma that are likely involved in this process. Public stigma is judgement from individuals who perceive themselves to be outside of the stigmatized group; this can include classmates, coworkers, neighbors, professors, and employers, to name a few. Internalized stigma, or self-stigma, occurs when people within a stigmatized group apply those judgements to themselves (Martin et al., 2007). On the other hand, strengths are desirable attributes assumed to be present in
individuals with a mental illness. Mental illness research has largely focused on the stigma perspective, with much less emphasis on the strengths perspective, but both are important factors in overall public opinion.

In order to address issues of public perception, it is important to understand what perceptions are commonly held, and by whom. In this study, I examined both positive and negative public perceptions of adults with ADHD and how those perceptions related to the demographic factors of the participants. Although there is limited evidence that public stigma is directly linked to reduced help-seeking, internalized stigma has been linked to reduced help-seeking behaviors (Benuto et al., 2020; Eisenberg et al., 2009). In combination with Corrigan and colleagues' model of self-stigma (2011), wherein awareness of public stigma leads to internalized stigma, it is plausible that public stigma may become internalized stigma that then deters these individuals from seeking the help they need.

**Stigma**

Stigma is a social judgement based on a stereotype. These stereotypes are based on an attribute that makes someone different from the people around them. This attribute causes the person to be seen as less desirable; somehow bad, dangerous, or weak (Goffman, 1963). The attributes related to stigma come in three forms: physical differences, differences in group affiliation (e.g. nationality, religion), and perceived weaknesses in a person’s character (e.g. being weak-willed or irresponsible, having a mental disorder). Put simply, stigma is the way in which a personal attribute is stereotyped, leading to possible discrimination (Goffman, 1963). As stated above, stigma
is also categorized in terms of *who* is making the stigmatizing judgements (i.e., public stigma vs. internalized stigma; Martin et al., 2007). In the current study, I focused on public stigma.

Mental illness stigma falls within the third category as defined by Goffman: perceived weakness in a person’s character. Early research on mental illness stigma focused on individuals who had stayed in a mental hospital. These individuals were judged as being less responsible than ex-convicts, such that ex-convicts were preferred over ex-mental hospital patients for employment, job promotions, and even childcare (Lamy, 1966). Later research focused on individuals with specific disorders.

There are three main types of assumptions that are made about mentally ill individuals Rüsch et al., 2005). First, individuals with a mental illness are dangerous and should be feared. Second, individuals with a mental illness are irresponsible. Their decisions should be made by others on their behalf and they should not be trusted with important tasks. And third, individuals with a mental illness are essentially children and they should be pitied and cared for (Rüsch et al., 2005).

Adults who believe that mental health treatment stigmatizes children and their parents prefer greater social distance from children with mental health problems. Adults also prefer greater social distance from these children when they believe that the child’s mental illness is caused by bad character, lack of discipline, or violent TV or video games (Martin et al., 2007). This suggests that misunderstandings about mental illness contribute to greater stigma, especially when those misunderstandings portray mentally ill people as irresponsible or inherently bad. Unfortunately, the simple knowledge that
someone has a mental illness of any type can contribute to the following assumptions: the mentally ill person is lazy, the mentally ill person is not competent to make treatment or financial decisions for themselves, and the mentally ill person is more likely to “get into trouble” than their peers (Parcesepe & Cabassa, 2013).

For schizophrenia, labeling a person as having a mental illness increases perceptions of dangerousness and unpredictability. Higher perceptions of dangerousness and unpredictability are linked to increased desire for social distance. Labeling is also related to a decrease in blaming mentally ill individuals for their illness, but this does not decrease desire for social distance (Angermeyer & Matschinger, 2005). For depression, believing that the disorder is caused by a weakness in character is linked to higher stigma. Believing depression is caused by grief, traumatic events, or genetics is associated with lower stigma (Wang et al., 2007). In addition to being linked with higher stigma, believing a person is responsible for their mental illness is also associated with reduced helping behavior (Corrigan et al., 2009). Unfortunately, research suggests that public stigma has increased over time such that in the US, people were two and a half times more likely to believe that mentally ill individuals are dangerous in 1996 compared to 1950 (Rüsch et al., 2005).

The Etiology and Effects of Stigma Model

The Etiology and Effects of Stigma (EES) model (Martin et al., 2007) states that the sociodemographic characteristics (e.g. gender, ethnicity, age, religion, education) of both people with mental health problems and the people in their lives have an influence on their knowledge of mental illness as well as the specific experiences they have with
mental illness. These characteristics influence the media people consume, and whether they tend to attribute mental illness to biological causes, poor character, troubled home lives, lack of discipline, or even seeing violence on TV. These beliefs can then contribute to prejudice and stereotypes, such as the assumption that the mentally ill person is a danger to themselves or others, which may finally lead to discrimination against those individuals with a mental illness. This model highlights the importance of exploring demographic factors in stigma research; different demographic groups may tend toward entirely different perceptions of a disorder. Prior research has found specific differences in causal attributions and severity of stigma based on sex, age, and education level of the observer.

Positive Perceptions of Mental Illness

Although the literature on stigma spans a wide range of diagnoses over the years, literature on positive perceptions of mental illness in any form is quite limited. When the phrase ‘positive perception’ is used in an article about attitudes toward a mental illness, it is most often simply referring to a lack of stigma, rather than ideas about unique strengths. For the purposes of this study, positive perceptions will be referred to as “strengths,” much like negative perceptions are referred to as stigma. This terminology of “strengths” is borrowed from a positive psychology framework that posits there are 24 distinct strengths. This theory suggests that every person has all of these strengths in different degrees (e.g., some people excel at leadership, but every person has some capacity to lead; Peterson & Seligman, 2004). In the current study, we seek to explore not
just the lack of stigma towards those with ADHD, but perceptions of specific strengths in adults with ADHD.

Because the scientific literature in this area is limited, however, much of the information on strengths comes from more ‘pop-psychology’ style blog posts. For example, a *Psych Central* blog post about the strengths of bipolar disorder mentions creativity, energy, and exuberance; comparing the happiness of a manic episode to the beloved character Mary Poppins (Kiunte, 2017). A review of the scientific literature for bipolar disorder again mentions creativity as a strength of individuals with bipolar disorder, but also includes empathy, spirituality, realism, and resilience (Galvez et al., 2011). Sources also link creativity to schizophrenia, and frame depression as an adaptation for focused problem-solving (Andrews & Thomson, 2009; Hoeweler, 2012). Nonetheless, the literature on strengths of mental illness is sparse. More formal research is needed to sort out what positive perceptions are common and how those perceptions vary across disorders and demographic factors.

**Sex Differences in Perceptions of Mental Illness**

The most commonly researched demographic factor in stigma is sex. Prior research suggests that men and women tend to attribute mental illnesses to different causal factors and hold different attitudes toward people with mental illness. Women tend to be more knowledgeable about mental illness than men (Furnham et al., 2016). Men are more likely to attribute mental illness to stress and brain damage, while women are more likely to attribute mental illness to genetic factors, particularly chemical imbalances in the brain (Aggarwal et al., 2016; Schnittker et al., 2000). Men tend to be less afraid of
communication with people who are mentally ill as well as more open to the idea of marrying someone with a mental illness (Aggarwal et al., 2016). This may be due to men having less social fear than women in general (Reichenberger et al., 2019). However, men are also more likely than women to consider mentally ill people a public nuisance due to odd behavior (Aggarwal et al., 2016). So in general, women tend to be more knowledgeable about mental illness and slower to judge a person with mental illness, but men tend to be less fearful, possibly due to a general tendency toward less social fear.

Even at the high school level, girls prefer less social distance and have overall less stigmatizing attitudes toward people with mental illness than their male peers do (Ahmad et al., 2019). Boys are also more likely to avoid interaction with mentally ill individuals, and to think someone with a mental illness is a bad person (DuPont-Reyes et al., 2019). In short, boys have much more negative attitudes toward people with mental illnesses compared to girls. Girls are more likely than boys to pursue positive interactions with mentally ill community members. These results suggest that sex differences in attitudes toward people with mental illness may start early in life, such that adolescent girls are more accepting of peers with mental illness than boys.

Other Demographic Factors in Perceptions of Mental Illness

Although sex differences are arguably the most-researched demographic factor related to stigma, there are many other demographic factors that may play a role. For example, individuals with higher education levels are more likely to attribute mental illness to chemical imbalances in the brain than individuals with lower education levels. Individuals with higher education levels are less likely to attribute mental illness to bad
character (Schnittker et al., 2000). Individuals who attribute mental illness to chemical imbalances and genetic factors are more likely to endorse seeking professional treatment (Schnittker et al., 2000). Individuals with higher education levels may tend to be more familiar with mental illness due to either formal education on the topic or greater likelihood of meeting individuals with mental illness during their educational years.

Older individuals generally have more negative attitudes toward people with mental illness compared to younger individuals. Evidence suggests that this is likely a cohort effect as opposed to an effect caused by the aging process, due to a correlation of age with education and income (Whatley, 1959). Changing societal attitudes toward mental health may also make it more likely for younger individuals to have interactions with others whom they know have a mental illness. People tend to have less stigmatizing attitudes toward people with mental illness when they are more knowledgeable about mental illness (Angermeyer & Dietrich, 2006). According to US census data, younger adults are also more likely to have a college degree than older adults. As of 2019, 40% of adults aged 25 to 34 had at least a bachelor’s degree, whereas 31.7% of adults aged 55 or older had at least a bachelor’s degree (U.S. Census Bureau, 2020).

Black individuals are less likely than White individuals to believe that mental illness is caused by how a person was raised or genetic factors, but more likely to believe that it is caused by bad character. This difference may be a consequence of history: Black Americans have often been criticized in the past based on arguments of poor genetics and family upbringing, which may lead to hesitation in using these explanations for mental illness (Schnittker et al., 2000). At the high school level, Black and Latinx students
preferred greater social distance than their White peers. Black and Latinx students were less likely than their White peers to believe a person with Bipolar Disorder will improve with treatment (DuPont-Reyes et al., 2019). Asian Americans and Latinx individuals tend to hold more stigma toward the mentally ill than White Americans (Wong et al., 2018). Our knowledge of the relation between race and mental illness stigma is still limited; however, so we need more information to be able to make clear predictions.

In research conducted in 2000, residents of the US South were more likely than residents of the North to believe that bad character or life stress is the cause of mental illness (Schnittker et al., 2000). To our knowledge, no further research on mental illness stigma is available by US geographic region. Thus, more research is needed to further examine this demographic variable in relation to perceptions of mental illness.

Past research suggests that individuals with more conservative political views tend to have higher levels of mental illness stigma (Gonzales et al., 2017; Sargent & Newman, 2021). Like much of our knowledge of mental illness stigma, this information is in regard to mental illness stigma generally, and so results may differ in the context of ADHD specifically.

It is clear that stigma toward individuals with mental illness can be influenced by many things and can impact people with many types of psychopathology. Although many studies focus on stigma toward “mental illness” generally, it is clear from existing research that attitudes toward mental illness differ between diagnoses. Consequently, it is important to study attitudes toward specific disorders. This study focused on attitudes toward adults with ADHD.
ADHD

As stated above, ADHD is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity (APA, 2013). Inattention may present as a tendency to make careless mistakes, difficulty with organizing and scheduling, a tendency to lose things, forgetfulness, or being easily distracted. Hyperactivity and impulsivity may present as being fidgety, getting out of one’s seat when staying seated is expected, running and climbing at inappropriate times, difficulty waiting one’s turn both in lines and in conversations, a tendency to interrupt other people, and excessive chattiness (APA, 2013). These symptoms were developed with and for school-aged boys; recently more attention has been paid to the disorder in adults.

How ADHD Presents in Adults

Historically, ADHD was thought to be a disorder that only occurred in childhood; it was assumed that by the time children with ADHD reached adulthood, they grew out of it. We now know that ADHD often continues into adulthood (Barkley et al., 2008). Roughly 5% of adults worldwide have ADHD (Willcutt, 2012). The symptoms and impairment tend to present differently in adulthood than in childhood, and the *DSM-5* requires only five symptoms for adults to receive a diagnosis, compared to six for children (APA, 2013).

Specifically, in adults, hyperactivity tends to present in somewhat more subtle ways. Adults with ADHD are less likely than children to get out of their seats, run, or climb at inappropriate times (Kooij et al., 2019). Instead, adults with ADHD are more likely to feel restless and agitated, and like their train of thought is constantly switching
from one topic to the next. Adults with ADHD often struggle to relax, and some turn to
drugs or alcohol to relax or fall asleep (Kooij et al., 2019). Adults with ADHD are more
likely than adults without ADHD to have concentration and memory problems, fatigue,
and irritability. These problems are related to impairment at work, at school, and with
general life skills (Skirrow & Asherson, 2013).

By the time a person with ADHD is an adult, they tend to have less education
than their peers. They often have lower grades and are more likely to fail courses. They
are also less likely to finish high school or attend college than their peers (Barkley et al.,
2008). If these individuals do attend college, they are more likely than their peers to fail
courses or withdraw from courses before completing them (Barkley et al., 2008). After
leaving school, these problems persist in different forms. Adults with ADHD have lower
job performance ratings compared to their peers and are more likely to be fired from a
job. Employers report that their employees with ADHD are less likely to work
independently, complete tasks, or even do well at job interviews compared to their peers
without ADHD (Barkley et al., 2008). Unfortunately for adults with ADHD, impairment
continues outside of the professional realm and can cause problems in their home lives.
Adults with ADHD report lower relationship quality than their peers, in both dating
relationships and marriage. Adults with ADHD tend to have higher levels of parenting-
related stress than their peers, and struggle with consistent discipline (Barkley et al.,
2008). Adults with ADHD often struggle not only with finding success in these
endeavors, but in finding sympathy and support. Thus, ADHD is now considered a
lifelong disorder for most, and its effects can be seen well into adulthood.
**ADHD Stigma**

Research examining perceptions of individuals with ADHD shows that individuals are judged by their peers starting at an early age. When asked to choose words that best described a child with ADHD in a vignette, elementary school children in the UK chose the words “careless,” “lonely,” “crazy,” and “stupid” (Law et al., 2007). When adults were asked to describe a child with ADHD in a vignette, they used negative and even animalistic adjectives, such as “wild,” “beast,” and “untamed.” Additionally, these adults reported feeling anger toward the child (Meza et al., 2019). Consequently, individuals with ADHD often learn that they are different, and not necessarily well-liked, at a young age.

Unfortunately, this judgement continues and takes new forms as children with ADHD grow up to become adults with ADHD. Adults with ADHD often fear that they will be judged by employers or instructors based on their disorder (Lefler et al., 2016; Masuch et al., 2019). In a survey of German adults with ADHD, more than 70% of respondents anticipated discrimination from an employer and more than half anticipated discrimination from teachers or professors (Masuch et al., 2019). US college students with ADHD reported a fear of judgement by professors made them hesitant to make use of academic accommodations such as extra time on tests or testing in a less distracting location (Lefler et al., 2016). In some cases, this fear was fueled by discrimination they had already experienced. One student recounted a particularly embarrassing experience when a professor announced that the whole class was getting extra time on a test because of him (Lefler et al., 2016). Moreover, in a study of college students, Thompson and
Lefler (2016) found that participants were less likely to want to do group work with a college student demonstrating the symptoms of ADHD as compared to a non-ADHD partner.

Although discrimination from within school and work systems can make adults with ADHD hesitant to seek the help they need, it is not the only social obstacle they face. They also struggle with being seen as dishonest or stupid by their peers. Indeed, German adults with ADHD reported that they believed others thought adults cannot have ADHD, that ADHD was created by drug companies for profit, that people with ADHD are faking it, and that ADHD is caused by excessive exposure to video games or television, or bad parenting (Masuch et al., 2019). One US college student stated that people had told her that her disorder was “fake” or that she was “making it up” (Lefler et al., 2016). Another student said he was afraid of being seen as stupid by his peers for taking tests at the disability center (Lefler et al., 2016).

In addition to being judged as dishonest, adults with ADHD are also sometimes labelled as annoying or outright irresponsible. A separate study examining public opinions of ADHD in Germany through vignettes of adults with ADHD found that 1/4th of the participants felt annoyed. Roughly 1/5th of the participants would not want to introduce the adult with ADHD to a friend (Speerforck et al., 2019). When the situations that were asked about required more responsibility from the adult with ADHD, participants wanted more social distance. For example, only 34% of participants said they would be willing to recommend an adult with ADHD to a job, and a full 41% of the
participants said they would refuse to let an adult with ADHD take care of their children (Speerforck et al., 2019).

The relation between demographic factors and perceptions of ADHD mirrors that of perceptions of mental illness generally. Women tend to have less stigma toward individuals with ADHD than men and are less likely than men to consider children with ADHD “abnormal” (Martin et al., 2007; Speerforck et al., 2019). Likewise, older individuals tend to have more stigma toward individuals with ADHD; they are more likely to label children with ADHD as abnormal, and desire greater social distance compared to younger individuals (Martin et al., 2007; Speerforck et al., 2019). Finally, individuals in rural areas and individuals with less education tend to have more stigma toward those with ADHD compared to urban-dwelling and more highly-educated individuals (Martin et al., 2007)

Research has made it clear that individuals with ADHD struggle with stigma throughout their lives, being seen as annoying, irresponsible, dishonest, and unintelligent. However, not all perceptions of ADHD are negative; some people even consider individuals with ADHD to have unique strengths.

**ADHD Strengths**

Individuals with ADHD are often described as having strengths, such as being energetic, spontaneous, creative, and inventive (Nall, 2016). Parents may describe their children with ADHD as being particularly enthusiastic and optimistic when approaching life’s challenges, with a good sense of humor (ADHD Editorial Board, n.d.). Parents have also described their children with ADHD as compassionate and empathetic, with a strong
sense of what is fair and right. These children are happy to make friends with anyone, and do what they can to help those friends when life is not fair (ADHD Editorial Board, n.d.). Unfortunately, much of this evidence is anecdotal rather than research-based.

Individuals with ADHD have also been described as having certain achievement-related strengths. Although people with ADHD are generally known for inattention, they can also experience *hyperfocus*. Hyperfocus is an ability that many people with ADHD have that allows them to focus so intently on an engaging task that everything else gets tuned out, which can be helpful for getting things done (ADHD Editorial Board, n.d.; Nall, 2016). This hyperfocus can contribute to a tendency to notice and remember many details others might miss. Hyperfocus has some disadvantages as well, such as limiting a person’s ability to switch their attention away from the task when needed, but the advantages are also clear. Similarly, imagination can contribute to sharp problem-solving skills, and in a study of primarily mothers, children with ADHD have been described as seeing “better ways of doing things” because of this (Lench et al., 2013, p.145). Individuals with ADHD who struggle with their work can develop strong determination to deal with life’s challenges, and may keep going even when others would give up (ADHD Editorial Board, n.d.). Thus, imagination and grit seem to be two additional strengths of individuals with ADHD. However, this information has largely been collected through informal means for blog posts, as encouragement for individuals with ADHD and their parents.

Existing formal research almost exclusively examines the presence of stigma, or lack thereof. However, one study focused on the strengths of children with ADHD, and
examined the attitudes of parents who believed their children were “evolved to better deal with a complex environment than other children” (Lench et al., 2013, p. 142). Another study focused on the strengths of adults with ADHD through interviews with successful adults with ADHD. When sorted into the framework of the Values in Action (VIA) Institute on Character, it was decided that the strengths participants talked about were best represented by the categories of Courage and Humanity (Sedgwick et al., 2019). The current study was designed to examine public attitudes in the US toward adults with ADHD, to examine demographic differences in these public attitudes, and to examine which specific strengths the public associates with adults with ADHD.

CURRENT STUDY

Adults with ADHD are often perceived by others to be annoying, dishonest, irresponsible, or unintelligent. Fear of this judgement can discourage individuals with ADHD from seeking the support they need to be successful, but research on what judgements they face is still in its early stages. Existing research on ADHD stigma in the US has largely been focused on children and college students, as opposed to a more general adult population. Thus, this study focused on the public stigma toward adults with ADHD.

Moreover, existing research suggests that women tend to hold less stigmatizing attitudes toward people with mental illness compared to men. However, these demographic differences have not been examined specifically in the context of adult ADHD, and may differ from attitudes for other mental conditions. Additionally, strengths have not been studied much at all in the context of any mental illness. Information on the
strengths of ADHD is confined almost exclusively to informal, non-academic venues (e.g., blog posts written for individuals with ADHD and their families). It is important for research to focus not just on stigma, but also on the strengths of individuals with ADHD. A focus on strengths could encourage individuals with ADHD to be more optimistic about coping with their ADHD and the possibility of future successes (Climie & Mastoras, 2015). Furthermore, after they have been identified, strengths can be used as a tool to compensate for the difficulties of ADHD (Climie & Mastoras, 2015). When researchers focus only on stigma and not on possible strengths, they might be missing some important and more positive information about perceptions of ADHD. Thus, the current study examined public perceptions of both stigma and strengths toward adults with ADHD, with a focus on the demographic characteristics of the participants. To that end, the following hypotheses were tested:

**Hypotheses**

Hypothesis 1: Stigma (QPS) total scores

1a. Overall stigma (QPS) scores will fall above the midpoint, indicating stigma towards adults with ADHD in the full sample.

1b. Women will have lower scores on the stigma (QPS) measures, representing less stigma, compared to men.

Hypothesis 2: Semantic Differential scores

2a. Overall semantic differential scores for the five pairs of semantic differential items will be higher than the midpoint, indicating stigma towards adults with ADHD in the full sample.
2b. Women will have lower average semantic differential scores, representing more positive attitudes, compared to men.

Hypothesis 3: Strength (GACS-24) scores

3a. Overall scores for the Courage and Humanity strengths will fall above the midpoint of the strengths (GACS-24) scale, representing a belief that adults with ADHD show these strengths more often than not.

3b. Women will have higher strengths (GACS-24) scores for all 6 strengths, suggesting that women believe people with ADHD have more strengths compared to men.

METHOD

Participants

The final sample included 392 participants. Participants ranged in age from 20 to 76 years ($M = 42.4$ years, $SD = 13.2$). Participants were mostly White (75.7%), followed by Black (8.4%), Latinx (6.4%), and Asian (6.2%) participants. There were very few participants who identified as Indigenous (1.2%), Pacific Islander (0.2%), Multiracial (1.0%), or not listed (1.0%). There were slightly more women than men who participated, as measured both by biological sex (52.2%) and gender identity (52.1%). The majority of the sample reported knowing someone with ADHD (72.8%), and for most of these participants this person with ADHD was a family member or friend. Additionally, 16.1% of the sample reported having ADHD themselves, which is a high proportion of the sample given the estimated 5% prevalence rate in adults (Willcutt, 2012). This may be an
issue of self-selection, as adults with ADHD may have been more interested in participating in a study on ADHD, thus the high prevalence rate in our sample.

An a-priori power analysis was conducted using G*power (Faul et al., 2019). An effect size of Cohen’s $d = .3$, between medium and small, was used because a clear effect size has not yet been established by prior research in this area. Parameters included an alpha level of .05, power level of .8, and allocation ratio of 1. G*power suggested a sample size of 352 participants for adequate power; to account for expected missing data, 422 participants were recruited (20% more than needed). Adults in the United States were recruited using Amazon’s Mechanical Turk (MTurk). MTurk pre-exclusion criteria were used to limit who was able to participate in the study. Only individuals located in the United States with a 95% hit approval rate and at least 50 approved hits were able to access the study. Premium Qualifications were used to ensure the sample is roughly half men and half women. Additionally, duplicate IP addresses, duplicate geocodes, and suspicious geocodes were blocked (participant exclusion criterion discussed below in the data preparation section).

**Measures**

**ADHD Stigma**

The Questionnaire on Stigmatizing Attitudes toward Adults with ADHD (QPS; Fuermaier et al., 2012) is a 37-item measure of people’s perceptions of adults with ADHD (see Appendix A), and served as the measure of stigma in the current study. The measure consists of 6 factors: Reliability and Social Functioning, Malingering and Misuse of Medication, Ability to Take Responsibility, Norm-Violating and Externalizing
Behavior, Consequences of Diagnostic Disclosure, and Etiology. Responses are measured on a 6-point Likert scale (1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=somewhat agree, 5=agree, 6=strongly agree), where higher scores indicate greater stigma. Items include “You cannot rely on adults with ADHD,” “Many adults pretend to have ADHD just to get access to medication,” and “If I had a business, I would not hire a person with an ADHD diagnosis.” In past research, Cronbach’s alpha was reported as .91 for the overall scale (excellent internal consistency). The QPS also has concurrent validity in that teachers and doctors (who have interactions with people with ADHD that differ from each other and from the general public) have significantly different subscale scores both from each other and from laypeople. In the current study, Cronbach’s alpha was .95 for the overall scale (excellent internal consistency), .81 for the Reliability and Social Functioning scale (good internal consistency), .93 for the Malingering and Misuse of Medication scale (excellent internal consistency), .81 for the Ability to Take Responsibility scale (good internal consistency), .79 for the Norm-Violating and Externalizing Behavior scale (acceptable internal consistency), .72 for the Consequences of Diagnostic Disclosure scale (acceptable internal consistency), and .87 for the Etiology scale (good internal consistency).

Semantic Differential

A Semantic Differential scale uses pairs of words that are opposite in meaning as anchors at either end of the scale (Osgood et al., 1957); one is able to examine a negative attitude (stigma) in direct contrast to a positive attitude (strength). The scale used in this study will include 5 items on a 7-point bipolar scale (see Appendix B). Word pairs were
selected based on the literature on ADHD. Three of the items are from Osgood et al.’s original set of word pairs (Careful-Careless, Intelligent-Unintelligent, Organized-Disorganized), and two items (Honest-Dishonest, Responsible-Irresponsible) were added to achieve a more complete picture of ADHD-related attitudes. Because it is normal procedure to choose adjectives for Semantic Differential scales on an intuitive basis (Hawkes et al., 2004), each scale is unique and therefore does not have pre-existing data for internal consistency.

**Strengths**

The Values in Action Global Assessment of Character Strengths-24 (GACS-24; VIA Institute on Character) is a 24-item measure of positive character traits, and is the measure of strengths in the current study. This study used a modified version of the GACS-24 where items are reworded to elicit opinions about adults with ADHD (see Appendix C). Responses are measured on a 7-point Likert scale (very strongly disagree, strongly disagree, disagree, neutral, agree, strongly agree, very strongly agree) where higher scores indicate greater endorsement of the presence of that particular strength. The measure first defines the strengths (e.g. “Kindness: People with this strength do good things for people; they help and care for others; they are generous and giving; they are compassionate.”) and then asks for level of agreement with a statement for each strength (e.g. “It is natural for adults with ADHD to express their Kindness strength.”). Cronbach’s alpha has been reported as .78 for the original overall scale (VIA Institute on Character, 2018). This internal consistency only falls in the “acceptable” range. However, this scale is heterogeneous in nature, with each item measuring a different trait. For the
purposes of this study, items are grouped into 6 factors for analysis. The six factors are wisdom, courage, humanity, justice, temperance, and transcendence. In the current study, Chronbach’s alpha was .94 for the overall scale (excellent internal consistency), .76 for the Wisdom scale (acceptable internal consistency), .68 for the Courage scale (questionable internal consistency), .70 for the Humanity scale (acceptable internal consistency), .75 for the Justice scale (acceptable internal consistency), .80 for the Temperance scale (good internal consistency), and .81 for the Transcendence scale (good internal consistency). The Courage scale will be interpreted with caution because of its questionable consistency.

Demographic Information

The demographics questionnaire, designed for the current study, assessed biological sex, gender identity, age, race/ethnicity, education level, political affiliation, urbanicity, geographic region, religion, ADHD diagnosis, and personal experience with adults with ADHD (See Appendix D and Table 1).

Procedure

This study was a non-experimental survey design. Participants accessed the study through Amazon’s Mechanical Turk (mTurk) using a device of their choosing, at a location of their choosing. The mTurk platform connected participants to the study hosted on Qualtrics. After completing the informed consent, participants were brought to a page defining ADHD as follows: “Attention-deficit/hyperactivity disorder (ADHD) is a disorder that makes it difficult to pay attention and control impulsive behaviors” (National Institute of Mental Health, 2016). Then, participants completed the Stigma
Measure (i.e., the QPS, which contained an attention check item; see Appendix E), the Semantic Differential measure, and the Strengths Measure (i.e., the GACS-24) in a randomized order, and then completed a demographics questionnaire. After the demographics questionnaire, participants were presented with a manipulation check which asked them which of three disorders the study was about (i.e., ADHD, or two other unrelated disorders: depression and schizophrenia; see Appendix E). Participants were then given a comment box to share any final thoughts, questions, or concerns regarding the study. Then participants were brought to the debriefing page, marking the end of their participation in the study. Participants received $0.75 compensation for an average of 10.5 minutes of participation. This rate of pay is equal to $4.29 per hour, which is above the average wage on mTurk of $3.13 per hour (Hara et al., 2018).

DATA PREPARATION

Participants who failed the attention check or the manipulation check were deleted from the dataset. Likewise, the second instance of duplicate IP address responses were deleted. Finally, participants with completion times more than 2.5 standard deviations from the mean time (i.e., 10.5 minutes) were deleted. A combination of these factors resulted in 89 participants being deleted, for a final analytic sample of \( N = 403 \). Participants with ADHD were kept in the dataset because in the majority of cases, the scores of participants with ADHD were not significantly different from participants without ADHD. Analyses that contrast the ADHD group and the non-ADHD group are presented below in the Exploratory Analyses section.
Items 14, 17, 28, 32, and 35 of the stigma measure were reverse-coded. Items 2 and 5 of the Semantic Differential were reverse-coded. Mean composite variables were created for the stigma measure, Semantic Differential, and strengths measure. Mean composite variables were created for each of the factors within the strengths measure and each of the factors within the stigma measure.

**Stigma Measure (QPS) Assumptions Testing**

The stigma measure composite, the Malingering and Misuse of Medication factor, and the Etiology factor were all negatively skewed with a Skewness Z-score less than -3, so each was transformed using a square root transformation. The square root transformation made the stigma measure composite score normal, but the remaining two factors were still significantly skewed. The Malingering and Misuse of Medication factor and the Etiology factor were then transformed using a logarithmic transformation, which made both distributions normal (the Skewness Z-score was between -3 and 3) so that the normality assumption was met for all factors of the stigma measure. Three outliers (cases more than 3 standard deviations from the mean) were deleted.

**Semantic Differential Assumptions Testing**

The Intelligent/Unintelligent item was positively skewed and the Careful/Careless and Organized/Disorganized items were negatively skewed, but transformations were not used because the items were analyzed individually. Outliers were kept specifically to be able to include individuals with the most extreme views of ADHD in the sample.
Strengths Measure (GACS) Assumptions Testing

The Skewness $Z$-scores of the composite and all of the factors were between -3 and +3, meaning that the normality assumption was met for all of the factors without transformations. Eight outliers (cases more than 3 standard deviations from the mean) were deleted.

Analysis of Psychometric Properties of Measures

The Stigma measure, the Semantic Differential measure, and the Strengths measure were each analyzed for basic descriptive statistics, including means, standard deviations, and ranges. The Stigma measure and Strengths measure were also analyzed in a reliability analysis for Cronbach’s alpha values (See Table 2). The Semantic Differential measure was not checked for internal reliability because each factor is a single item.

RESULTS

Hypothesis Testing

Hypothesis 1

Hypothesis 1a stated that overall stigma (QPS) scores would fall above the midpoint, indicating stigma towards adults with ADHD in the full sample. The mean of the stigma measure (QPS) composite score was 2.69, which is below the midpoint (3.5 is the midpoint, with 1 being the least stigma and 6 being the most stigma a person could endorse), suggesting low levels of stigma in the full sample. This result is inconsistent with the initial hypothesis, and suggests that overall there is a low level of stigma in this sample.
Hypothesis 1b stated that women would have lower scores on the stigma (QPS) measures, representing less stigma, compared to men. Women had significantly lower scores than men, \( t(388) = 2.376, p = .018, d = .25 \) indicating lower levels of stigma than men (See Table 3). This suggests that women endorse lower levels of ADHD stigma than men, with a small effect size.

**Hypothesis 2**

Hypothesis 2a stated that overall semantic differential scores for the five pairs of semantic differential items would be higher than the midpoint, indicating stigma towards adults with ADHD in the full sample. Mean attitude scores were calculated for each of the five Semantic Differential items. Scores below 4 indicate more positive attitudes (strengths), while scores above 4 indicate more negative attitudes (stigma). For the Honest/Dishonest item, the mean score was 3.06, suggesting that participants overall believe adults with ADHD to be more honest than dishonest. For the Responsible/Irresponsible item, the mean score was 3.51, suggesting that participants overall believe adults with ADHD to be more responsible than irresponsible. For the Organized/Disorganized item, the mean score was 4.62, suggesting that participants overall believe adults with ADHD to be more disorganized than organized. For the Intelligent/Unintelligent item, the mean score was 2.95, suggesting that participants overall believe adults with ADHD to be more intelligent than unintelligent. For the Careful/Careless item, the mean score was 4.04, suggesting that participants overall believe adults with ADHD to be more careless than careful. Thus, of the 5 pairs, 3 were rated as strengths and 2 were rated as stigma. That is, in the current sample, people with
ADHD are believed to be Honest, Responsible, and Intelligent, but also Disorganized and Careless. Hypothesis 2a was partially supported.

Hypothesis 2b stated that women would have lower average semantic differential scores, representing more positive attitudes, compared to men. T-tests by sex were run for each of the five Semantic Differential items. For the Honest/Dishonest item, there was no significant difference between men and women, \( t(379) = .432, p = .666, d = .04 \). For the Responsible/Irresponsible item, men had significantly more positive attitudes, \( t(385) = -3.35, p = .001, d = .34 \). For the Organized/Disorganized item, men had significantly more positive attitudes, \( t(359.122) = -4.46, p < .001, d = .46 \). For the Intelligent/Unintelligent item, women had significantly more positive attitudes, \( t(382) = 2.93, p = .004, d = .30 \). For the Careful/Careless item, men had significantly more positive attitudes, \( t(366.123) = -3.81, p < .001, d = .39 \). Thus, overall, women considered adults with ADHD to be more intelligent than men, with a small effect size; however, women also considered adults with ADHD to be more careless, irresponsible, and disorganized than men, with a small effect size (See Table 4). Hypothesis 2b was largely unsupported.

Hypothesis 3

Hypothesis 3a stated that overall scores for the Courage and Humanity strengths would fall above the midpoint of the strengths (GACS-24) scale, representing a belief that adults with ADHD show these strengths more often than not. Mean attitude scores were calculated for the strengths measure composite and each of the factors. Scores above 4 indicate more positive attitudes, while scores below 4 indicate more negative attitudes. For the overall strengths measure composite, the mean score was 4.61,
suggesting overall positive attitudes toward adults with ADHD. For the Wisdom factor, the mean score was 4.66; for the Courage factor, the mean score was 4.79; and for the Humanity factor, the mean score was 4.70; suggesting a belief that adults with ADHD show these particular sets of strengths. The mean score for the Justice factor was 4.39, suggesting a belief that adults with ADHD show this particular set of strengths. The mean score for the Temperance factor was 4.18 and the mean score for the Transcendence factor was 4.85, suggesting a belief that adults with ADHD show these particular sets of strengths. Across all 6 factors, participants rated adults with ADHD as having these strengths as opposed to lacking them.

Hypothesis 3b stated that women would have higher strengths (GACS-24) scores for all 6 strengths, suggesting that women believe people with ADHD have more strengths compared to men. T-tests by sex were run for the strengths measure composite and each of the factors. For the overall strengths measure composite, there was no significant difference between the scores of men and women, \( t(388) = 1.57, p = .117, d = .16 \). For the Wisdom factor, there was no significant difference between the scores of men and women, \( t(387) = 1.32, p = .189, d = .13 \). For the Courage factor, there was no significant difference between the scores of men and women, \( t(388) = -.74, p = .462, d = .07 \). For the Humanity factor, there was no significant difference between the scores of men and women, \( t(388) = .82, p = .411, d = .08 \). For the Justice factor, there was no significant difference between the scores of men and women, \( t(388) = 1.49, p = .137, d = .15 \). For the Temperance factor, men had significantly higher scores than women, suggesting more positive attitudes, \( t(388) = 3.84, p < .001, d = .39 \). For the
Transcendence factor, there was no significant difference between the scores of men and women, $t(388) = .69$, $p = .489$, $d = .07$. Thus, out of the 6 factors, there was only a significant difference between men’s and women’s attitudes on 1 (See Table 5). Men gave higher strengths scores for the Temperance factor compared to women, with a small effect size. Thus, this hypothesis was not supported.

**Exploratory Analyses**

In addition to the three formal hypotheses above, additional exploratory analyses were of interest in the current study. Specifically, various demographic factors might cause differences in ratings of strengths and stigma toward adults with ADHD, but not enough prior research has been conducted to have formal hypotheses. Thus, we tested differences in stigma and strength ratings by the following demographic factors to test for differences: race/ethnicity, geographic region, political affiliation, ADHD status, and proximity to ADHD.

**Race/Ethnicity Analyses**

**Stigma.**

Prior research has examined race/ethnicity in relation to mental illness stigma generally, but not in the context of strengths or perceptions of adults with ADHD specifically. Because there were so few non-White participants ($n = 96$) compared to White participants ($n = 297$), race/ethnicity data were grouped into White and non-White categories, where non-White includes all multiracial participants, instead of being broken down further into distinct race/ethnic groups. $T$-tests by race/ethnicity were run for the stigma measure composite and each of the factors. For the stigma measure composite,
non-White participants had significantly higher scores, suggesting higher stigma, compared to White participants, $t(142.31) = 3.28, p = .001, d = .40$. For the Reliability and Social Functioning factor, non-White participants had significantly higher scores, suggesting higher stigma, compared to White participants, $t(391) = -4.03, p < .001, d = .47$. For the Malingering and Misuse of Medication factor, non-White participants had significantly higher scores, suggesting higher stigma, compared to White participants, $t(391) = 3.06, p = .002, d = .35$. For the Ability to Take Responsibility factor, non-White participants had significantly higher scores, suggesting higher stigma, compared to White participants, $t(391) = -3.83, p < .001, d = .44$. For the Norm-Violating and Externalizing Behavior factor, non-White participants had significantly higher scores, suggesting higher stigma, compared to White participants, $t(391) = -3.32, p = .001, d = .38$. For the Consequences of Diagnostic Disclosure factor, there was no significant difference in scores between non-White and White participants, $t(135.191) = -1.28, p = .204, d = .16$. For the Etiology factor, there was no significant difference in scores between non-White and White participants, $t(391) = 1.47, p = .141, d = .17$. Thus, out of the 6 factors, non-White participants had higher stigma on 4 factors and on the composite, all with a small effect size. That is, in the current sample, non-White individuals had higher stigma for the Reliability and Social Functioning factor, Malingering and Misuse of Medication factor, Ability to Take Responsibility factor, and the Norm-Violating and Externalizing Behavior factor, and overall.
Strengths.

*T*-tests by race/ethnicity were run for the strengths measure composite and each of the factors. For the strengths measure composite, there was no significant difference in scores between non-White and White participants, $t(140.745) = .49, p = .628, d = .06$. For the Wisdom factor, there was no significant difference in scores between non-White and White participants, $t(390) = -.68, p = .496, d = .08$. For the Courage factor, there was no significant difference in scores between non-White and White participants, $t(391) = .25, p = .804, d = .03$. For the Humanity factor, there was no significant difference in scores between non-White and White participants, $t(139.687) = 1.22, p = .224, d = .15$. For the Justice factor, there was no significant difference in scores between non-White and White participants, $t(135.607) = .11, p = .912, d = .01$. For the Temperance factor, there was no significant difference in scores between non-White and White participants, $t(391) = 1.18, p = .240, d = .13$. For the Transcendence factor, there was no significant difference in scores between non-White and White participants, $t(135.355) = .41, p = .686, d = .05$.

Thus, out of the 6 factors and the composite, there were no significant differences in strengths scores between non-White and White participants. That is, in the current sample, non-White and White individuals had similar opinions regarding the strengths of adults with ADHD.

Geographic Region Analyses

Stigma.

Research on how residents of different US geographical regions perceive people with mental illnesses is sparse, but these regions are considered to have distinct cultures,
which may influence mental illness stigma or strengths. US geographical regions were split into 5 options: Midwest ($n = 79$), Northeast ($n = 80$), Southeast ($n = 107$), Southwest ($n = 53$), and West ($n = 67$). One-Way ANOVAs by US regions were run for the stigma measure composite and each of the factors. For the stigma measure composite, there was no significant difference in scores between any of the regions, $F(4,386) = .59, p = .668$, partial $\eta^2 = .006$. For the Reliability and Social Functioning factor, there was no significant difference in scores between any of the regions, $F(4,386) = .50, p = .734$, partial $\eta^2 = .005$. For the Malingering and Misuse of Medication factor, there was no significant difference in scores between any of the regions, $F(4,386) = .45, p = .774$, partial $\eta^2 = .004$. For the Ability to Take Responsibility factor, there was no significant difference in scores between any of the regions, $F(4,386) = 1.12, p = .346$, partial $\eta^2 = .011$. For the Norm-Violating and Externalizing Behavior factor, there was no significant difference in scores between any of the regions, $F(4,386) = .58, p = .679$, partial $\eta^2 = .006$. For the Consequences of Diagnostic Disclosure factor, there was no significant difference in scores between any of the regions, $F(4,386) = 1.50, p = .203$, partial $\eta^2 = .015$. For the Etiology factor, there was no significant difference in scores between any of the regions, $F(4,386) = .87, p = .480$, partial $\eta^2 = .009$. Thus, in the current sample, there were no significant differences in stigma levels between US regions for any of the subtypes of stigma toward adults with ADHD. These null results could be due to low power, given that only 53 participants reported living in the Southwest, making this cell smaller than the others. However, if the results are accurate, it suggests no difference by geographic region in terms of stigma of adult ADHD.
Geographic regions were initially separated into 5 categories. However, there were no significant results, which raised concerns about a lack of power due to small cell sizes. Consequently, another analysis was run with Midwest, Northeast, and West combined into the “North” category and Southeast and Southwest combined into the “South” category. *T*-tests were run for the stigma measure composite and each of the factors, comparing participants from the North and South. There was no significant difference in scores between participants from the North and South across the 6 factors and the composite. This suggests no difference by geographic region in terms of stigma of adult ADHD.

**Strengths.**

One-Way ANOVAs by US regions were run for the strengths measure composite and each of the factors. For the strengths measure composite, there was no significant difference in scores between any of the regions, $F(4,386) = .71, p = .586$, partial $\eta^2 = .007$. For the Wisdom factor, there was no significant difference in scores between any of the regions, $F(4,385) = .49, p = .746$, partial $\eta^2 = .005$. For the Courage factor, there was no significant difference in scores between any of the regions, $F(4,386) = 1.25, p = .290$, partial $\eta^2 = .013$. For the Humanity factor, there was no significant difference in scores between any of the regions, $F(4,386) = .42, p = .792$, partial $\eta^2 = .004$. For the Justice factor, there was no significant difference in scores between any of the regions, $F(4,386) = .72, p = .576$, partial $\eta^2 = .007$. For the Temperance factor, there was no significant difference in scores between any of the regions, $F(4,386) = 1.52, p = .195$, partial $\eta^2 = .016$. For the Transcendence factor, there was no significant difference in scores between
any of the regions, $F(4,386) = .44, p = .782$, partial $\eta^2 = .004$. Thus, there were not any significant differences in strengths scores between the various US regions.

$T$-tests were run for the strengths measure composite and each of the factors, comparing participants from the North and South. There was no significant difference in scores between participants from the North and South across any of the 6 factors or the composite. That is, in the current sample, individuals across the geographical regions had similar opinions regarding the strengths of adults with ADHD.

**Political Affiliation Analyses**

**Stigma.**

US states that are Democrat-leaning have better access to mental healthcare on average compared to states that are Republican-leaning (Mental Health America, 2017). It is possible that this is due to a tendency of Democrat voters to prioritize mental health issues more than Republican voters (Munsch et al., 2020). If not, Democrats are still more likely to be familiar with, or have access to, mental healthcare in their area, suggesting Democrats may hold less stigma toward mental illness than Republicans. For political affiliation, participants were given the three options for registering to vote in the United States: Democrat ($n = 183$), Republican ($n = 90$), and Independent ($n = 113$). One-Way ANOVAs by political affiliation were run for the stigma measure composite and each of the factors. For the stigma measure composite, there was a significant difference in scores between the political affiliations, $F(2,389) = 4.70, p = .010$, partial $\eta^2 = .024$. A Bonferroni post hoc test showed that Republican participants had higher stigma than Democrats, $p = .027$, and Republican participants also had higher stigma than
Independents, $p = .013$. For the Reliability and Social Functioning factor, there was a significant difference in scores between the political affiliations, $F(2,389) = 5.18$, $p = .006$, partial $\eta^2 = .026$. A Bonferroni post hoc test showed that Republican participants had higher stigma than Democrats, $p = .019$, and Republican participants also had higher stigma than Independents, $p = .008$. For the Malingering and Misuse of Medication factor, there was a significant difference in scores between the political affiliations, $F(2,389) = 4.06$, $p = .018$, partial $\eta^2 = .020$. A Bonferroni post hoc test showed that Republican participants had higher stigma than Democrats, $p = .020$. For the Ability to Take Responsibility factor, there was no significant difference in scores between any of the political affiliations, $F(2,389) = 2.84$, $p = .060$, partial $\eta^2 = .014$. For the Norm-Violating and Externalizing Behavior factor, there was a significant difference in scores between the political affiliations, $F(2,389) = 4.00$, $p = .019$, partial $\eta^2 = .020$. A Bonferroni post hoc test showed that Republican participants had higher stigma than Democrats, $p = .019$. For the Consequences of Diagnostic Disclosure factor, there was no significant difference in scores between any of the political affiliations, $F(2,389) = 1.42$, $p = .244$, partial $\eta^2 = .007$. For the Etiology factor, there was a significant difference in scores between the political affiliations, $F(2,389) = 3.19$, $p = .042$, partial $\eta^2 = .016$. A Bonferroni post hoc test showed that Republican participants had higher stigma than Independents, $p = .041$. Thus, Republican participants overall had higher stigma than both Democrats and Independents, and out of 6 factors, Republican participants had higher stigma than Democrats on 3 and higher stigma than Independents on 2. That is, in the current sample, Republicans were more likely than Democrats to believe that adults
with ADHD are unreliable, fake symptoms or misuse their medication, and behave poorly, with a small effect size. Republicans were also more likely than Independents to believe that adults with ADHD are unreliable and that ADHD is caused by non-genetic factors, with a small effect size.

**Strengths.**

One-Way ANOVAs by political affiliation were run for the strengths measure composite and each of the factors. For the strengths measure composite, there was no significant difference in scores between any of the political affiliations, $F(2,389) = 1.22, p = .296$, partial $\eta^2 = .006$. For the Wisdom factor, there was no significant difference in scores between any of the political affiliations, $F(2,388) = 1.52, p = .220$, partial $\eta^2 = .008$. For the Courage factor, there was no significant difference in scores between any of the political affiliations, $F(2,389) = .17, p = .842$, partial $\eta^2 = .001$. For the Humanity factor, there was no significant difference in scores between any of the political affiliations, $F(2,389) = .22, p = .802$, partial $\eta^2 = .001$. For the Justice factor, there was no significant difference in scores between any of the political affiliations, $F(2,389) = 2.38, p = .094$, partial $\eta^2 = .012$. For the Temperance factor, there was a significant difference in scores between the political affiliations, $F(2,389) = 4.06, p = .018$, partial $\eta^2 = .020$. A Bonferroni post hoc test showed that Democrat participants had more positive attitudes towards adults with ADHD than Independents, $p = .018$. For the Transcendence factor, there was no significant difference in scores between any of the political affiliations, $F(2,389) = .02, p = .979$, partial $\eta^2 = .000$. Thus, out of 6 factors, only one factor (Temperance) showed any significant differences between political affiliations on
strengths beliefs, with a small effect size. That is, in the current sample, Democrats showed greater belief in adults with ADHD showing the Temperance strength than Independents, but otherwise participants held similar views on strengths across political affiliations.

Participants With and Without ADHD Analyses

Stigma.

*T*-tests were run for the stigma measure composite and each of the factors, comparing participants who did and did not have ADHD themselves. Whereas all other analyses were focused mostly on public stigma, this analysis includes a brief look at self-stigma (and self-reported strengths below). For the stigma measure composite, there was no significant difference in scores between participants who did and did not have ADHD, *t*(78.235) = 1.12, *p* = .265, *d* = .166. For the Reliability and Social Functioning factor, there was no significant difference in scores between participants who did and did not have ADHD, *t*(391) = -.01, *p* = .994, *d* = .001. For the Malingering and Misuse of Medication factor, there was no significant difference in scores between participants who did and did not have ADHD, *t*(77.984) = .10, *p* = .921, *d* = .015. For the Ability to Take Responsibility factor, there was no significant difference in scores between participants who did and did not have ADHD, *t*(80.803) = .61, *p* = .541, *d* = .089. For the Norm-Violating and Externalizing Behavior factor, participants with ADHD had higher scores than participants without ADHD, suggesting more stigma, *t*(391) = -3.05, *p* = .002, *d* = .391. For the Consequences of Diagnostic Disclosure factor, participants with ADHD had higher scores than participants without ADHD, suggesting more stigma, *t*(81.804) = -
3.23, \( p = .002, \) \( d = .464 \). For the Etiology factor, there was no significant difference in scores between participants who did and did not have ADHD, \( t(79.964) = 1.69, p = .094, d = .247 \). Thus, out of the 6 factors and the composite, participants with ADHD had higher stigma on 2 factors, with a small effect size. That is, in the current sample, adults with ADHD had higher stigma for the Norm-Violating and Externalizing Behavior factor and the Consequences of Diagnostic Disclosure factor compared to adults without ADHD.

**Strengths.**

\( T \)-tests were run for the strengths measure composite and each of the factors, comparing participants who did and did not have ADHD. For the strengths measure composite, there was no significant difference in scores between participants who did and did not have ADHD, \( t(391) = .70, p = .484, d = .096 \). For the Wisdom factor, there was no significant difference in scores between participants who did and did not have ADHD, \( t(390) = 1.27, p = .203, d = .167 \). For the Courage factor, there was no significant difference in scores between participants who did and did not have ADHD, \( t(391) = .55, p = .583, d = .074 \). For the Humanity factor, there was no significant difference in scores between participants who did and did not have ADHD, \( t(391) = .67, p = .503, d = .094 \). For the Justice factor, there was no significant difference in scores between participants who did and did not have ADHD, \( t(391) = .49, p = .623, d = .068 \). For the Temperance factor, there was no significant difference in scores between participants who did and did not have ADHD, \( t(391) = .18, p = .862, d = .024 \). For the Transcendence factor, there was no significant difference in scores between participants who did and did not have ADHD,
Thus, out of the 6 factors and the composite, there were no significant differences in scores between adults with and without ADHD. That is, in the current sample, individuals with and without ADHD had similar opinions regarding the strengths of adults with ADHD.

**Personal Experience with ADHD (i.e., ADHD Proximity) Analyses**

**Stigma.**

*T*-tests were run for the stigma measure composite and each of the factors, comparing participants who did and did not know an adult with ADHD (i.e., proximity), not including participants with ADHD themselves. For the stigma measure composite, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, $t(327) = -.83, p = .405, d = .11$. For the Reliability and Social Functioning factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, $t(327) = -.05, p = .957, d = .01$. For the Malingering and Misuse of Medication factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, $t(327) = -1.12, p = .262, d = .18$. For the Ability to Take Responsibility factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, $t(327) = -.24, p = .811, d = .03$. For the Norm-Violating and Externalizing Behavior factor, participants who knew an adult with ADHD had higher scores, indicating higher stigma, $t(327) = 2.07, p = .039, d = .24$. For the Consequences of Diagnostic Disclosure factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, $t(327) = -.25, p = .805, d$
For the Etiology factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(327) = -1.25, p = .211, d = .17 \). Thus, out of the 6 factors and the composite, participants who knew an adult with ADHD had higher stigma scores for one factor, with a small effect size. That is, in the current sample, individuals who knew an adult with ADHD (i.e., those with higher ADHD proximity) had higher stigma on the Norm-Violating and Externalizing Behavior factor compared to individuals who did not know an adult with ADHD.

**Strengths.**

\( T \)-tests were run for the strengths measure composite and each of the factors, comparing participants who did and did not know an adult with ADHD (i.e., proximity). For the strengths measure composite, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(327) = -.94, p = .348, d = .11 \). For the Wisdom factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(326) = -1.27, p = .207, d = .15 \). For the Courage factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(327) = -1.41, p = .159, d = .17 \). For the Humanity factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(327) = -1.33, p = .185, d = .16 \). For the Justice factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(327) = -.93, p = .354, d = .11 \). For the Temperance factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, \( t(327) = .45, p = .658, d = .08 \).
For the Transcendence factor, there was no significant difference in scores between participants who knew and did not know an adult with ADHD, $t(327) = -0.81, p = 0.418, d = 0.09$. Thus, out of the 6 factors and the composite, there were no significant differences in strengths scores between participants who did and did not know someone with ADHD. That is, in the current sample, individuals who did and did not know someone with ADHD had similar opinions regarding the strengths of adults with ADHD. ADHD proximity was not a factor related to perceptions of strengths in the current study.

Neutral Response Frequency Analyses

The Semantic Differential measure was analyzed to determine whether participants tended to pick the neutral or “midpoint” response as opposed to making more decisive judgements. The item with the most neutral responses was the Honest/Dishonest item, with 27.2% midpoint responses and 61.6% positive responses (i.e., “honest”). The Responsible/Irresponsible item had 20.1% neutral responses and 50.4% positive responses (i.e., “responsible”). The Intelligent/Unintelligent item had 16.8% neutral responses and 68.1% positive responses (i.e., “intelligent”). The Careful/Careless item had 16.8% neutral responses and 47.6% negative responses (i.e., “careless”). Finally, the Organized/Disorganized item had only 11.6% neutral responses and 64.1% negative responses (i.e., “disorganized”).

The strengths measure was analyzed to determine whether participants tended to pick the neutral or “midpoint” response as opposed to making more decisive judgements. Across the 24 items in the measure, neutral responses ranged from only 12.3% of responses to as much as 42.5% of responses. Responses of disagreement (negative
judgments) ranged from only 6.9% of responses to as much as 52.9% of total responses. Responses of agreement (positive judgments) ranged from 30.8% to as much as 79.3% of total responses. Overall, this data suggests that participants did not over-endorse the midpoint response. Rather, many individuals truly endorsed positive traits for adults with ADHD. This suggests positive public opinion of adults with ADHD as well as the possibility of strong social support.

DISCUSSION

Amazon’s Mechanical Turk was used to recruit US adults for a survey of opinions on adults with ADHD. Very little research to date has examined the public stigma of adult ADHD, and even less the perceptions of strengths in adults with ADHD. The current study used three measures to capture a range of perceptions: a measure for stigma, a measure for strengths, and a measure directly comparing negative and positive traits. Each of these measures was used to identify the overall perceptions of the sample as well as sex differences in these perceptions. The Stigma and Strengths measures were also used to compare perceptions by race/ethnicity, geographical region, political affiliation, ADHD diagnosis, and personal experience with adults with ADHD. With a more complete knowledge base of how various demographic groups rate the strengths and weaknesses of adults with ADHD, anti-stigma campaigns and media portrayals may be fine-tuned to improve public opinion of adults with ADHD.

Because only a brief definition of ADHD was provided to participants, the question arises of what ADHD presentation or traits participants might have focused on while completing the survey. Multiple participants stated in the comment box that they
based their responses on a person with ADHD that they personally know. Given that most adults with ADHD have the inattentive presentation, participants likely had many inattentive symptoms in mind.

**Primary Findings**

Based on the first hypothesis, we found that the mean score on the Stigma measure was below the midpoint, suggesting low levels of stigma in the sample. This result aligns with what Fuermaier et al. (the creators of the stigma measure) found, where scores across the sample were below the midpoint to a similar degree (2012). We also found that women had lower scores on the stigma measure, indicating lower stigma compared to men. This suggests that Americans have low adult ADHD stigma overall, meaning the first portion of the hypothesis was unsupported. However, women had lower stigma compared to men, and thus the second section of this hypothesis was supported. This result is in line with past research showing that women and girls tend to hold less stigma than men and boys (Aggarwal et al., 2016; Ahmad et al., 2019; DuPont-Reyes et al., 2019). These results are very encouraging, as low stigma ratings are a good sign for the state of mental illness stigma in the US.

On the Semantic Differential measure (i.e., the second hypothesis), participants rated adults with ADHD as more honest than dishonest, more responsible than irresponsible, and more intelligent than unintelligent. However, participants also rated adults with ADHD as more disorganized than organized and more careless than careful. This suggests people tend to assume that adults with ADHD are generally capable (i.e., honest, responsible, intelligent), but are limited by their ADHD symptoms (i.e.,
disorganized and careless). This might suggest an accurate assessment of ADHD-related weaknesses; in fact, the diagnostic criteria for ADHD includes a tendency to make “careless mistakes” and “difficulty organizing tasks and activities” as symptoms (APA, 2013, p.59). Thus, these ratings might be considered accurate appraisals of behavior rather than a result of stigma. On the other hand, the hypothesis that all items would be rated negatively was mostly unsupported, which was surprising given the results of past research. Although people with ADHD have been described as having a strong sense of what is right (e.g. honesty; ADHD Editorial Board, n.d.), they have also been accused of faking their symptoms for accommodations or stimulant medication (Masuch et al., 2019). Although some parents have praised the problem-solving skills of their children with ADHD (Lench et al., 2013), peers have described individuals with ADHD as stupid (Law et al., 2007). Adults with ADHD have also been deemed by many to be irresponsible, to the point that peers would not recommend them for a job or let them babysit (Speerforck et al., 2019). These new results are largely positive for adults with ADHD. The average participant in the current study would assume them to be honest, responsible, and intelligent while recognizing they are likely to struggle with organization and careful decision making.

Next, for the second part of hypothesis 2, on the Semantic Differential measure, men rated adults with ADHD as more responsible, organized, and careful than women. Women rated adults with ADHD as more intelligent than men. There was no significant difference in men and women’s ratings of honesty in adults with ADHD. These results somewhat contrast the results of hypothesis 1, where women had less stigma than men.
This also seems to conflict with past research, where girls showed less stigma and were more willing to interact with mentally ill peers than boys (Ahmad et al., 2019; DuPont-Reyes et al., 2019). However, considering the specific traits that women rated less positively, it is possible that women do not have higher stigma, but actually have more accurate perceptions of ADHD symptoms. As stated above, these traits relate directly to diagnostic criteria: less careful, demonstrated by “careless mistakes”; less organized, demonstrated by “messy, disorganized work”; less responsible, demonstrated by “fails to finish schoolwork, chores, or duties in the workplace” (APA, 2013, p.59). Through this lens, the results align with past research that showed women tend to be more knowledgeable about mental illness (Furnham et al., 2016; Koyama et al., 2009). Overall, women’s more accurate perceptions of ADHD symptoms could be promising for adults with ADHD if that knowledge is used to better accommodate them (e.g. creating a more structured environment).

For the third hypothesis, related to the Strengths measure, the mean score was above the midpoint on both the composite and all of the factors, indicating a belief that adults with ADHD possess this collection of strengths. This suggests that Americans have overall positive perceptions of the abilities of adults with ADHD. The hypothesis was partially supported, in that the Courage and Humanity strengths both had scores above the midpoint. Sedgwick and colleagues’ interviews with adults with ADHD about their own strengths found that these strengths could be categorized as Courage and Humanity, so it is surprising that all six strengths were above the midpoint (Sedgwick et al., 2019). That is, even adults with ADHD did not rate themselves as high on Wisdom or
Justice, but participants in the current study did endorse these strengths for adults with ADHD. Overall, these results are also good news for adults with ADHD, because these perceptions generally assume competency. Research has so often focused on stigma, ignoring strengths, but the current study found many perceptions of strengths alongside stigma. This finding of several endorsed strengths in adults with ADHD is novel.

On the Strengths measure, men rated adults with ADHD as higher on the Temperance factor than women, suggesting a greater belief in the presence of that strength. There were no significant differences in men and women’s ratings of the other strengths factors or the composite. Temperance as a strength includes avoiding risks and managing emotions (VIA Institute on Character). Individuals with ADHD tend to struggle with this sort of self-regulation, however. People with ADHD, on average, switch between emotions more quickly, and have lower thresholds for both frustration and excitement (Skirrow & Asherson, 2013; Surman et al., 2013). Individuals with ADHD also often struggle to avoid risks, being more prone to injury and traffic accidents than their peers (APA, 2013). This incompatibility between the strength description and the symptomology of ADHD suggests that women may have had more accurate perceptions of what ADHD looks like in adults. This finding reflects the results of earlier studies, wherein women were nearly twice as likely to recognize the symptoms of schizophrenia than men and had more accurate knowledge of autism spectrum disorders (Koyama et al., 2009; Robles-García et al., 2013). This finding does not, however, support the hypothesis that women would consider adults with ADHD to have greater strengths compared to men.
Exploratory Findings

We also conducted several exploratory analyses to examine various demographic factors on the stigma and strengths measures. Below we will discuss differences by race/ethnicity, geographic region, political affiliation, diagnosis of ADHD, and proximity to ADHD. Overall we found that the most important demographic variables were sex (as discussed above in the primary findings) and political affiliation (discussed below).

First, for race/ethnicity, we found significant differences on the stigma measure such that Non-White participants had higher stigma than White participants overall (i.e., the total score) and on the Reliability and Social Functioning factor, the Malingering and Misuse of Medication factor, the Ability to Take Responsibility factor, and the Norm-Violating and Externalizing Behavior factor specifically. This suggests that Non-White Americans are more likely to believe that adults with ADHD are faking or exaggerating their symptoms, and also more likely to believe adults with ADHD are unreliable and act too impulsively. There were no significant differences between participants of different races/ethnicities for the Strengths measure.

Next, for geographical region, there were no significant differences on the stigma measure for the composite or any of the factors. Likewise, there were not any significant differences for geographical region in the composite or any factors of the Strengths measure. This was the case for the five-category analysis as well as the simplified North/South analysis. These null results contradict past research that found greater stigma in residents of the US South compared to individuals living in the North (Schnittker et al., 2000). There are multiple possible explanations for this discrepancy. There may not have
been enough power in the current study to identify existing regional differences, and/or public opinions regarding mental illness may have changed in these regions since the original studies. Furthermore, it is possible that public opinions about mental illness in general will not necessarily match public opinions of a specific disorder (i.e., ADHD). On the other hand, there simply may not be a regional difference in ADHD stigma.

Then, for political affiliation, we found significant differences on the stigma measure such that Republican participants had overall higher stigma scores than both Democrats and Independents. Republican participants also had higher stigma scores than Democrats on the Reliability and Social functioning factor, the Malingering and Misuse of Medication factor, and the Norm-Violating and Externalizing Behavior factor. Republican participants had higher scores than Independents on the Reliability and Social Functioning factor and the Etiology factor. On the Strengths measure, for political affiliation, Democratic participants rated adults with ADHD as having a more developed Temperance strength compared to Independents. These findings align with past research that showed a link between conservative views and higher levels of mental illness stigma (Gonzales et al., 2017; Sargent & Newman, 2021). These findings might suggest that Republicans hold more stigma than others, or might show that Democrats are more idealistic, or respond in a socially desirable way, in their ratings of people with a mental illness.

Finally, for ADHD diagnosis status and ADHD proximity, on the Stigma measure, participants with ADHD had higher stigma scores than their peers without ADHD on the Consequences of Diagnostic Disclosure factor. This difference in scores
for Consequences of Diagnostic Disclosure suggests that adults with ADHD may be more fearful of diagnosis-related judgement than their peers recognize. On the Stigma measure, participants who knew an adult with ADHD (i.e., had higher proximity to ADHD) had higher stigma than participants who did not know an adult with ADHD, and participants with ADHD themselves had higher stigma than participants without ADHD on the Norm-Violating and Externalizing Behavior factor. Regarding Norm-Violating and Externalizing Behavior, adults with ADHD and those who know someone with ADHD may have a more accurate understanding of how the symptoms manifest because they see or experience those symptoms regularly. Adults with ADHD are more likely to be involved in traffic errors or act without fully considering the consequences (APA, 2013). Thus, again, the issue of understanding of a diagnosis versus stigma comes into play. It is possible that what we often refer to as stigma might actually, at times, be an accurate understanding of the symptoms of a disorder. There were no significant differences between participants with and without ADHD on the Strengths measure. There were also no significant differences between participants who did and did not know anyone with ADHD.

Although there were significant differences between many demographic groups on the stigma measure, there were very few significant differences on the strengths measure. This may reflect how stigma relates to opinions of the mental healthcare system (which correlate with various demographic factors), while strengths are largely separate from those opinions. Alternatively, it is possible that the strengths measure is not
optimized to find existing differences in its current form. Possible adjustments to the measure are discussed in limitations and future directions.

The Semantic Differential measure was analyzed to determine whether participants tended to pick the neutral or “midpoint” response as opposed to making more decisive judgements. The results were overall not particularly neutral, with at most 27.2% of responses at the midpoint, on the Honest/Dishonest item. For the Responsible/Irresponsible, Honest/Dishonest, and Intelligent/Unintelligent items, responses favoring the positive descriptor ranged from 50.4% to 68.1% of the total responses, suggesting a distinctly positive overall opinion regarding these traits. For the Careful/Careless and Organized/Disorganized items, responses favoring the negative descriptor were 47.6% and 64.1% of the total responses respectively, suggesting a distinctly negative overall opinion regarding these traits. These results overall suggest an accurate finding that people assume positive things about adults with ADHD, except when it pertains to ADHD symptomology.

The strengths measure was analyzed to determine whether participants tended to pick the neutral or “midpoint” response as opposed to making more decisive judgements. This data suggests that participants did not over-endorse the midpoint response. Overall responses were quite positive, suggesting public acceptance of adults with ADHD. This acceptance may contribute to better treatment outcomes, as social support encourages individuals to feel more comfortable seeking the support and treatment they need.
Implications

The findings of this study could help in guiding anti-stigma interventions. The *Time to Change* campaign used advertisements on television, radio, magazines, and online to encourage people to talk openly about mental illness. The campaign increased knowledge about mental illness, and significantly decreased prejudice and exclusionary attitudes in UK communities (Evans-Lacko et al., 2014). However, increases in tolerance and support for community care were not significant. The information gained from the current study could extend this program to improve attitudes toward adults with ADHD specifically. One possible strategy is to target specific demographic groups that hold higher levels of stigma. Based on the results of the current study, the groups with overall higher stigma include men, Republicans, and non-White Americans. Another possible strategy is to focus on improving specific areas of public ADHD knowledge. This might include information on medication use and academic or workplace accommodations.

Common perceived strengths of adults with ADHD and other mental illnesses could be used to add positive components to anti-stigma interventions. Likewise, common negative attitudes as well as strengths could be utilized in constructing media portrayals of adults with ADHD, addressing these issues in a more approachable way for laypersons. The highest-rated strength was Transcendence, followed by Courage, but because of its low internal consistency reliability, this finding should be interpreted with caution. Transcendence includes traits like humor, the appreciation of beauty and excellence, and gratitude. Courage includes traits like “zest” (i.e., energy and enthusiasm), bravery, and honesty (VIA Institute on Character, 2018). Based on this,
anti-stigma campaigns can highlight how the energy and humor of adults with ADHD livens social interactions, how their bravery and honesty helps them address difficult situations, and how their gratitude and appreciation of beauty and excellence makes them supportive and appreciative friends.

Although the current study was focused on public stigma, we found evidence of self-stigma in participants with ADHD, especially surrounding externalizing behaviors, as well as a reluctance to disclose a diagnosis of ADHD to others. Self-stigma is correlated with feelings of shame, isolation, and low self-esteem (Martínez-Hidalgo et al., 2018). This begs the question: what can therapists do to help adults with ADHD combat this self-stigma? Successful treatments for self-stigma generally focus on cognitive restructuring to alter irrational self-beliefs, psychoeducation on the disorder and stigma, and development of coping skills (Alonso et al., 2019; Drapalski et al., 2021; González-Domínguez et al., 2019; Young, 2016). Sometimes these treatments are done in a group setting in order to improve social support and foster a sense of belonging amongst these clients who often feel isolated (Alonso et al., 2019; Young, 2016). For clients with ADHD specifically, cognitive restructuring may focus on beliefs that the client is seen as annoying or less competent. Coping skills might include learning who to share a diagnosis with to receive support and understanding instead of judgement that reinforces self-stigma. On an individual level, adults with ADHD have stated that finding similar peers (i.e., peers with some ADHD symptoms), learning who to trust with the knowledge of their diagnosis, and having a stable friend group helped in reducing their self-stigma (McKeague et al., 2015). Based on this information, the clear path to reducing self-stigma...
includes positive peer interaction. In this vein, Martínez-Hidalgo and colleagues organized artistic workshops (e.g., photography, painting, cooking) to foster social interaction between adults with and without mental illness. After these workshops, participants with mental illness reported reduced self-stigma, improved emotional and social well-being, and a greater sense of competence and self-worth (Martínez-Hidalgo et al., 2018). Ostensibly, then, one of the best client “homework” recommendations for self-stigma is to join a class, workshop, or club as an opportunity to befriend peers with similar interests.

**Limitations and Future Directions**

The findings in this study should be understood in light of some limitations. First, the sample was primarily White, limiting the ability to analyze ethnic differences in attitudes beyond a simplified White/Non-White binary. Although this sample was ethnically similar to the US population according to 2019 US Census data (U.S. Census Bureau, n.d.), many ethnic groups in this sample were represented by between 0-5 participants, making it impossible to properly examine attitude differences for these groups. Future studies should over-select these minority ethnic groups.

The sample had achieved higher education levels compared to the general US adult population, given that 65.8% of the sample reported having a bachelor’s degree or higher, while only 32.1% of adults over the age of 25 in the US have a bachelor’s degree or higher, according to the 2019 US Census (U.S. Census Bureau, n.d.). To obtain a more representative sample, future research endeavors should recruit more participants who do
not have a bachelor’s degree or higher. This could be achieved on MTurk by using premium qualifications.

This study was entirely based on a short survey. Participants’ responses may not generalize to real world interactions with adults with ADHD. Their judgments may be quicker or more nuanced when interacting with an adult with ADHD in person. Future research efforts to examine stigma and strengths in adults with ADHD could use vignettes or videos to add more context and nuance to the “adults with ADHD” that this survey focused on. Participants could rate a vignette or video subject on the traits and assumptions surveyed in the current study (e.g., intelligence, trustworthiness, leadership ability).

Moreover, the strengths measure is not traditionally used in research on perceptions of others and may not be well-suited to this research in its current form. Similarly, the stigma measure had slight internal consistency concerns, given that Chronbach’s alpha for the Norm-Violating and Externalizing Behavior (α = .79) and Consequences of Diagnostic Disclosure (α = .72) factors were in the acceptable range. The strengths measure had similar concerns for internal consistency, given that the Wisdom (α = .76), Justice (α = .75), and Humanity (α = .70) factors were in the acceptable range and the Courage factor (α = .68) was in the questionable range. The strengths measure can be improved by being re-balanced; in other words, the measure could be reformatted to allow for reverse-coded items and minimize the effects of acquiescent response bias.
This study may have suffered from the phenomenon of social desirability bias. Social desirability bias is the tendency for research subjects to respond in ways that others would consider desirable, instead of responding in the way that best reflects how they really think (Grimm, 2010). A social desirability bias scale consists of items that are false (or true) for nearly everyone (i.e., “My table manners at home are as good as when I eat out in a restaurant”; Crowne & Marlowe, 1960). People may not want to admit they have stigmatizing and otherwise negative opinions of others because they want to be perceived as agreeable, supportive, or otherwise “good”. To mitigate this, future research should adjust the semantic differential and strengths measures to have six response options instead of seven, eliminating the neutral response option and creating a forced choice. Future research could also use a social desirability scale to determine the extent of social desirability bias in responses, to better estimate how much results might be skewed (Nederhof, 1985).

Finally, prior research suggested that women tend to be more knowledgeable than men regarding mental disorders (Koyama et al., 2009; Robles-García et al., 2013). The findings in the current study suggest that this may apply to knowledge of ADHD specifically. Future research should assess this level of knowledge directly to draw more accurate conclusions on the relationship between sex, knowledge, and stigma.

Conclusion

Overall, stigma was lower than expected, and strengths were higher than expected. Essentially, perceptions of adults with ADHD were positive, but in areas where perceptions were less positive, they were generally accurate to the symptoms of ADHD.
(i.e. disorganization). These results are good news for adults with ADHD, as they suggest a relatively understanding and supportive American public.
REFERENCES


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<th>%</th>
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<tbody>
<tr>
<td><strong>Political Affiliation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Democrat</td>
<td>188</td>
<td>47.8</td>
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<tr>
<td>Republican</td>
<td>91</td>
<td>23.2</td>
</tr>
<tr>
<td>Independent</td>
<td>114</td>
<td>29.0</td>
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<tr>
<td><strong>ADHD Diagnosis</strong></td>
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<td></td>
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<tr>
<td>Yes</td>
<td>64</td>
<td>16.3</td>
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<tr>
<td>No</td>
<td>329</td>
<td>83.7</td>
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</table>

*Note. N = 392. Participants were on average 42.4 years old (SD = 13.2).*
Table 2 Psychometric Properties of Stigma/Strength Scales and Subscales

<table>
<thead>
<tr>
<th>Scale</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Chronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPS (Stigma Measure)</td>
<td>2.69</td>
<td>.81</td>
<td>1-6</td>
<td>.95</td>
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<tr>
<td>Reliability and Social Functioning</td>
<td>2.60</td>
<td>.82</td>
<td>1-6</td>
<td>.81</td>
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<tr>
<td>Malingering and Misuse of Medication</td>
<td>2.35</td>
<td>1.06</td>
<td>1-6</td>
<td>.93</td>
</tr>
<tr>
<td>Ability to Take Responsibility</td>
<td>2.86</td>
<td>1.11</td>
<td>1-6</td>
<td>.82</td>
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<tr>
<td>Norm-Violating and Externalizing Behavior</td>
<td>2.99</td>
<td>.96</td>
<td>1-6</td>
<td>.79</td>
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<tr>
<td>Consequences of Diagnostic Disclosure</td>
<td>3.41</td>
<td>.89</td>
<td>1-6</td>
<td>.72</td>
</tr>
<tr>
<td>Etiology</td>
<td>2.18</td>
<td>1.11</td>
<td>1-6</td>
<td>.87</td>
</tr>
<tr>
<td>Semantic Differential</td>
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<td>1.03</td>
<td>1-7</td>
<td></td>
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<tr>
<td>Intelligent/Unintelligent</td>
<td>2.93</td>
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<td>1-7</td>
<td></td>
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<tr>
<td>Careful/Careless</td>
<td>4.06</td>
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<td>1-7</td>
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</table>

(table continues)
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<thead>
<tr>
<th>Scale</th>
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<th>SD</th>
<th>Range</th>
<th>Chronbach’s α</th>
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</thead>
<tbody>
<tr>
<td>Organized/Disorganized</td>
<td>4.63</td>
<td>1.52</td>
<td>1-7</td>
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</tr>
<tr>
<td>Honest/Dishonest</td>
<td>3.03</td>
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<td>Responsible/Irresponsible</td>
<td>3.52</td>
<td>1.40</td>
<td>1-7</td>
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<tr>
<td>GACS (Strengths Measure)</td>
<td>4.61</td>
<td>.81</td>
<td>1-7</td>
<td>.94</td>
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<tr>
<td>Wisdom</td>
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<td>.77</td>
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<td>Courage</td>
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<td>Humanity</td>
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<td>Justice</td>
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<td>1-7</td>
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<td>Transcendence</td>
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<td>.87</td>
<td>1-7</td>
<td>.81</td>
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</table>
Table 3 Results of T-Tests for Sex Differences in the QPS (Stigma Measure)

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>t</th>
<th>p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Composite</td>
<td>2.78</td>
<td>.84</td>
<td>2.58</td>
<td>.78</td>
<td>2.38</td>
</tr>
<tr>
<td>Reliability and Social</td>
<td>2.66</td>
<td>.77</td>
<td>2.52</td>
<td>.84</td>
<td>1.64</td>
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<tr>
<td>Functioning</td>
<td>Malingering and Misuse of Medication</td>
<td>2.56</td>
<td>1.11</td>
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<td>.98</td>
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<tr>
<td>Ability to Take</td>
<td>2.94</td>
<td>1.09</td>
<td>2.77</td>
<td>1.13</td>
<td>1.59</td>
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<td>Responsibility</td>
<td>Norm-violating and Externalizing Behavior</td>
<td>2.98</td>
<td>.97</td>
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<td>.94</td>
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<tr>
<td>Consequences of</td>
<td>3.37</td>
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<td>3.43</td>
<td>.87</td>
<td>.68</td>
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<td>Diagnostic Disclosure</td>
<td>Etiology</td>
<td>2.39</td>
<td>1.21</td>
<td>1.98</td>
<td>.98</td>
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</tbody>
</table>

*Note.* This scale ranges from 1-6, where 1 represents the least stigma and 6 represents the most.
Table 4 Results of T-Tests for Sex Differences in the Semantic Differential

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>t</th>
<th>p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Intelligent/Unintelligent</td>
<td>3.16</td>
<td>1.52</td>
<td>2.72</td>
<td>1.40</td>
<td>2.93</td>
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<tr>
<td>Careful/Careless</td>
<td>3.79</td>
<td>1.45</td>
<td>4.33</td>
<td>1.32</td>
<td>3.81</td>
</tr>
<tr>
<td>Organized/Disorganized</td>
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<td>4.46</td>
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<td>Honest/Dishonest</td>
<td>3.07</td>
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<td>3.02</td>
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<td>1.42</td>
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</table>

Note. This scale ranges from 1-7, where 1 is the “positive” descriptor and 7 is the “negative” descriptor (e.g., 1=careful, 7=careless).
Table 5 Results of T-Tests for Sex Differences in the GACS (Strengths Measure)

<table>
<thead>
<tr>
<th>Strength</th>
<th>Men M</th>
<th>Men SD</th>
<th>Women M</th>
<th>Women SD</th>
<th>t</th>
<th>p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite</td>
<td>4.68</td>
<td>.84</td>
<td>4.55</td>
<td>.79</td>
<td>1.57</td>
<td>.117</td>
<td>.16</td>
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<tr>
<td>Wisdom</td>
<td>4.73</td>
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<td>4.60</td>
<td>.89</td>
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<td>.189</td>
<td>.13</td>
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<tr>
<td>Courage</td>
<td>4.76</td>
<td>.94</td>
<td>4.82</td>
<td>.91</td>
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<td>.08</td>
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<td>Humanity</td>
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<td>.98</td>
<td>4.66</td>
<td>.98</td>
<td>.82</td>
<td>.411</td>
<td>.08</td>
</tr>
<tr>
<td>Justice</td>
<td>4.47</td>
<td>1.06</td>
<td>4.31</td>
<td>1.05</td>
<td>1.49</td>
<td>.137</td>
<td>.15</td>
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<tr>
<td>Temperance</td>
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<td>1.11</td>
<td>3.98</td>
<td>1.07</td>
<td>3.84</td>
<td>&lt;.001</td>
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<td>Transcendence</td>
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<td>.88</td>
<td>4.83</td>
<td>.86</td>
<td>.69</td>
<td>.489</td>
<td>.07</td>
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</tbody>
</table>

*Note.* This scale ranges from 1-7, where 1 represents the lowest rating of a strength value and 7 represents the highest.
APPENDIX A

Questionnaire on Stigmatizing Attitudes toward Adults with ADHD (QPS)

Note: items marked with an asterisk are reverse-coded. Items are grouped here by subscale.

**Instructions:** For each statement, select the response from the drop-down menu that best matches how much you agree with that statement. You may feel somewhat uncomfortable judging people on these items, but we all judge people sometimes. It is normal and even adaptive to form initial opinions of others with limited information. For the sake of this study, we ask you to please answer honestly even if those judgments feel uncomfortable to make.

**Responses:** Strongly Disagree, Disagree, Somewhat Disagree, Somewhat Agree, Agree, Strongly Agree

**Items:**

**Reliability and Social Functioning**

15. Adults with ADHD care less about other’s problems.

*17. Adults with ADHD are able to take care of a group of children in kindergarten.

25. You cannot rely on adults with ADHD.

27. Adults with ADHD are self-focused and egoistic.

*28. I would go on a date with someone with ADHD.

*32. Adults with ADHD have no problems in making friends.

33. Adults with ADHD are less successful than adults without ADHD.

* 35. Adults with ADHD are able to lead a group of people.
36. Under medication, adults with ADHD are less trustworthy.

**Malingering and Misuse of Medication**

3. Many adults with ADHD simulate the symptoms.

4. Adults with ADHD misuse their medication (sell it to others, take too much…)

5. ADHD is invented by drug companies to make profit.

7. Many adults with ADHD exaggerate their symptoms in order to be medicated.

9. ADHD is a childhood disorder and not seen in adults.

10. Adults with ADHD lie more often than adults without ADHD.

11. Adults with ADHD have a lower IQ than adults without ADHD.

30. Many adults pretend to have ADHD just to get access to medication.

31. Adults with ADHD are less able to give advice.

**Ability to Take Responsibility**

1. Adults with ADHD are bad parents and have problems with raising children.

2. I would mind if my investment advisor had ADHD.

*14. I would not mind if a doctor who has ADHD treated me.

26. If I had a business, I would not hire a person with an ADHD diagnosis.

29. I would mind if the teacher of my children had ADHD.

**Norm-violating and Externalizing Behavior**

12. Adults with ADHD are more often involved in traffic errors.

18. I could tell when a person around me has ADHD.

19. Adults with ADHD act without thinking.

20. Adults with ADHD have a different sense of humor than adults without ADHD.
37. Adults with ADHD cannot deal with money.

**Consequences of Diagnostic Disclosure**

6. People’s attitudes about ADHD make persons with ADHD feel worse about themselves.

8. Adults with ADHD are of lower social status.

13. As a rule, adults with ADHD feel that telling others that they have ADHD was a mistake.

21. Adults with ADHD have a lower self-esteem than adults without ADHD.

24. Adults with ADHD feel excluded from society.

**Etiology**

16. ADHD is caused by bad parenting.

22. Extensive exposure to video games and TV shows can cause ADHD.

23. Adults with ADHD do not engage enough in sports.

34. ADHD is a consequence of childhood trauma.
APPENDIX B

SEMANTIC DIFFERENTIAL

Instructions: For this section, you will be given pairs of words that are possible descriptions of a person. Imagine the average adult with ADHD and mark between the words how you think adults with ADHD are most accurately described. You may feel somewhat uncomfortable judging people on these items, but we all judge people sometimes. It is normal and even adaptive to form initial opinions of others with limited information. For the sake of this study, we ask you to please answer honestly even if those judgments feel uncomfortable to make.

Here is how to use these scales. If you feel that adults with ADHD are very accurately described by one end of the scale, you should place the slider at 1 or 7.

If you feel that adults with ADHD are only slightly accurately described by one end of the scale (but it is not entirely neutral), you should place the slider at 2/3 or 5/6.

The direction toward which you check, of course, depends on which word you believe better describes adults with ADHD. If you consider adults with ADHD to be completely neutral on the scale, or believe they are described equally well by both sides, you should place the slider at 4.

Items:

Adults with ADHD are:

Intelligent_______:_______:_______:_______:_______:_______:_______Unintelligent

Careless_______:_______:_______:_______:_______:_______:_______Careful

Organized_______:_______:_______:_______:_______:_______:_______Disorganized
Honest: Dishonest
Irresponsible: Responsible
APPENDIX C

Values in Action Global Assessment of Character Strengths-24 (GACS-24), Modified

Instructions: This questionnaire asks you to describe aspects of the personality of an average adult with ADHD. The first page describes 24 elements of personality. On the next page you will be asked questions about each of those elements. Be as honest as you can.

1. Creativity: People with this strength are viewed as creative people; they see, do, and/or create things that are of use; they think of unique ways to solve problems and be productive.

2. Curiosity: People with this strength are explorers; they seek novelty; they are interested in new activities, ideas, and people; they are open to new experiences.

3. Judgment/Critical Thinking: People with this strength are analytical; they examine things from all sides; they do not jump to conclusions, but instead attempt to weigh all the evidence when making decisions.

4. Love of Learning: People with this strength often find ways to deepen their knowledge and experiences; they regularly look for new opportunities to learn; they are passionate about building knowledge.

5. Perspective/Wisdom: People with this strength take the “big picture” view of things; others turn to them for wise advice; they help others make sense of the world; they learn from their mistakes.
6. Bravery/Courage: People with this strength face their fears and overcome challenges and adversity; they stand up for what is right; they do not shrink in the face of pain or inner tension or turmoil.

7. Perseverance: People with this strength keep going and going when they have a goal in mind; they attempt to overcome all obstacles; they finish what they start.

8. Honesty: People with this strength are people of high integrity and authenticity; they tell the truth, even when it hurts; they present themselves to others in a sincere way; they take responsibility for their actions.

9. Zest: People with this strength are enthusiastic toward life; they are highly energetic and activated; they use their energy to the fullest degree.

10. Love: People with this strength are warm and genuine to others; they not only share but are open to receiving love from others; they value growing close and intimate with others.

11. Kindness: People with this strength do good things for people; they help and care for others; they are generous and giving; they are compassionate.

12. Social Intelligence: People with this strength pay close attention to social nuances and the emotions of others; they have good insight into what makes people “tick”; they seem to know what to say and do in any social situation.

13. Teamwork: People with this strength are collaborative and participative members on groups and teams; they are loyal to their group; they feel a strong sense of duty to their group; they always do their share.
14. Fairness: People with this strength believe strongly in an equal and just opportunity for all; they don’t let personal feelings bias their decisions about others; they treat people the way they want to be treated.

15. Leadership: People with this strength positively influence those they lead; they prefer to lead than to follow; they are very good at organizing and taking charge for the collective benefit of the group.

16. Forgiveness/Mercy: People with this strength readily let go of hurt after they are wronged; they give people a second chance; they are not vengeful or resentful; they accept people’s shortcomings.

17. Humility/Modesty: People with this strength let their accomplishments speak for themselves; they see their own goodness but prefer to focus the attention on others; they do not see themselves as more special than others; they admit their imperfections.

18. Prudence: People with this strength are wisely cautious; they are planful and conscientious; they are careful to not take undue risks or do things they might later regret.

19. Self-Regulation: People with this strength are very disciplined people; they manage their vices and bad habits; they stay calm and cool under pressure; they manage their impulses and emotions.

20. Appreciation of Beauty & Excellence: People with this strength notice the beauty and excellence around them; they are often awe-struck by beauty, greatness, and/or the moral goodness they witness; they are often filled with wonder.
21. Gratitude: People with this strength regularly experience and express thankfulness; they don’t take the good things that happen in their life for granted; they tend to feel blessed in many circumstances.

22. Hope: People with this strength are optimistic, expecting the best to happen; they believe in and work toward a positive future; they can think of many pathways to reach their goals.

23. Humor: People with this strength are playful; they love to make people smile and laugh; their sense of humor helps them connect closely to others; they brighten gloomy situations with fun and/or jokes.

24. Spirituality/Sense of Meaning: People with this strength hold a set of beliefs, whether religious or not, about how their life is part of something bigger and more meaningful; those beliefs shape their behavior and provide a sense of comfort, understanding, and purpose.

**Instructions:** For each statement, select the response that you feel best describes an average adult with ADHD.

**Responses:**
Very Strongly Disagree, Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree, Very Strongly Agree

**Items:**

It is natural for adults with ADHD to express their Creativity strength.

It is natural for adults with ADHD to express their Curiosity strength.
It is natural for adults with ADHD to express their Judgment/Critical Thinking strength.

It is natural for adults with ADHD to express their Love of Learning strength.

It is natural for adults with ADHD to express their Perspective/Wisdom strength.

It is natural for adults with ADHD to express their Bravery/Courage strength.

It is natural for adults with ADHD to express their Perseverance strength.

It is natural for adults with ADHD to express their Honesty strength.

It is natural for adults with ADHD to express their Zest strength.

It is natural for adults with ADHD to express their Love strength.

It is natural for adults with ADHD to express their Kindness strength.

It is natural for adults with ADHD to express their Social Intelligence strength.

It is natural for adults with ADHD to express their Teamwork strength.

It is natural for adults with ADHD to express their Fairness strength.

It is natural for adults with ADHD to express their Leadership strength.

It is natural for adults with ADHD to express their Forgiveness/Mercy strength.

It is natural for adults with ADHD to express their Humility/Modesty strength.

It is natural for adults with ADHD to express their Prudence strength.

It is natural for adults with ADHD to express their Self-Regulation strength.

It is natural for adults with ADHD to express their Appreciation of Beauty & Excellence strength.

It is natural for adults with ADHD to express their Gratitude strength.

It is natural for adults with ADHD to express their Hope strength.

It is natural for adults with ADHD to express their Humor strength.
It is natural for adults with ADHD to express their Spirituality/Sense of Meaning strength.
APPENDIX D

DEMOGRAPHIC QUESTIONS

1. What is your current age?

2. What is your biological sex?
   a. Male
   b. Female
   c. Intersex
   d. Not listed

3. What is your gender identity?
   a. Male
   b. Female
   c. Nonbinary
   d. Genderfluid
   e. Not listed

4. What is the highest grade in school, year in college, or post-college degree work you have completed?
   a. Some high school
   b. High school degree or equivalent
   c. Some college
   d. Associate’s degree
   e. Bachelor’s degree
   f. Master’s degree
g. Doctoral or professional degree

5. Although the categories listed below may not represent your full identity or use the language you prefer, for the purpose of this survey, please indicate which group below most accurately describes your race/ethnicity. (Check all that apply)
   a. Asian
   b. Black
   c. Latinx/Hispanic
   d. Middle Eastern/North African
   e. Native American/American Indian/Alaska Native/Indigenous
   f. Pacific Islander/Native Hawaiian
   g. White
   h. Multiracial (please specify)
   i. Not listed (please specify)

6. What is your political affiliation?
   a. Democrat
   b. Republican
   c. Independent

7. Do you live in an area that is rural, suburban, or urban?
   a. Rural
   b. Suburban
   c. Urban

8. In which US region do you live?
9. Which religion, if any, do you belong to?
   a. Agnostic
   b. Atheist
   c. Buddhism
   d. Christianity (Catholic)
   e. Christianity (Protestant)
   f. Hinduism
   g. Islam
   h. Judaism
   i. Not listed

10. Do you personally know an adult with ADHD? If so, what is your relationship to them?
    a. I do not know an adult with ADHD
    b. Family member
    c. Neighbor
    d. Coworker/Classmate
    e. Friend
f. Significant other

g. Not listed (please specify)

11. Do you have ADHD?

a. Yes

b. No
APPENDIX E

ATTENTION AND MANIPULATION CHECKS

Attention Check

1. Choose "Strongly Agree" for this item.
   a. Strongly Agree
   b. Agree
   c. Somewhat Agree
   d. Somewhat Disagree
   e. Disagree
   f. Strongly Disagree

Manipulation Check

1. What was this study about?
   a. Depression
   b. ADHD
   c. Schizophrenia