

Beyond the Overlap: How Cognitive Markers Help Differentiate ADHD from Autism Spectrum Disorder

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Abstract

Attention Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) are two neurodevelopmental conditions that frequently overlap in outward behavior, making accurate differentiation difficult in educational and clinical settings. ADHD is commonly associated with inattention, impulsivity, hyperactivity, and response inhibition difficulties, while ASD is more strongly associated with social communication differences, restricted or repetitive behaviors, sensory differences, and difficulty with flexibility (NIMH, 2024; CDC, 2025). However, symptoms such as distractibility, poor task completion, emotional dysregulation, and social difficulty can appear in both conditions, which means diagnosis cannot rely on one visible behavior alone.

This paper examines the research question: What cognitive markers most reliably distinguish ADHD symptoms from overlapping traits in individuals with Autism Spectrum Disorder? The study uses a mixed review-based and survey-based methodology. Secondary research was collected from clinical and peer-reviewed sources on ADHD-ASD overlap, executive functioning, response inhibition, attention regulation, social reciprocity, theory of mind, and cognitive flexibility. Primary data was collected through a Google Form designed for professionals such as clinicians, therapists, psychiatrists, educators, and behavior specialists. The form specifically examined markers including attention regulation, impulsivity, executive functioning, working memory, processing speed, cognitive flexibility, response inhibition, social communication, and repetitive behavior.

The survey received 19 professional responses. Therapists formed the largest respondent group at 63.2%, and 73.7% of respondents reported more than ten years of experience. The strongest ASD-leaning findings were social disengagement, where 78.9% agreed or strongly agreed that it is more prevalent in ASD, and repetitive behaviors, where 63.1% agreed or strongly agreed that they are more common in ASD. The strongest ADHD-leaning finding was hyperactivity/impulsivity, where 52.7% agreed or strongly agreed that it is more common in ADHD. However, responses on inattention were mixed: 42.1% agreed or strongly agreed that inattention is more common in ADHD, while 47.4% disagreed or strongly disagreed, suggesting that inattention alone is not a reliable differentiating marker. In the multiple-choice section, the

most useful differentiator was eye contact and social reciprocity, selected by 63.2% of respondents, followed by social communication patterns and impulsivity, each selected by 47.4%. Clinical observation was the most commonly used assessment method, selected by 84.2% of respondents.

The findings suggest that no single cognitive marker can fully separate ADHD from ASD. Instead, the most reliable distinction comes from a profile-based model: ADHD aligns more strongly with impulsive responding, poor response inhibition, scattered attention, and inconsistent task persistence, while ASD aligns more strongly with social-pragmatic difficulty, nonverbal communication differences, restricted interests, repetitive behavior, sensory sensitivities, and rigidity. This paper concludes that ADHD-ASD differentiation should focus on the cause and pattern behind behaviors rather than the behavior alone.

Introduction

In the United States, approximately 7 million children aged 3–17 years, or 11.4%, have at some point received an ADHD diagnosis (CDC, 2024). Autism Spectrum Disorder is also increasingly identified, with the CDC estimating that about 1 in 31 children aged 8 years has been identified with ASD (CDC, 2025). These numbers show that ADHD and ASD are not rare conditions, but common neurodevelopmental diagnoses that many schools, families, therapists, and clinicians now encounter regularly.

Attention Deficit/Hyperactivity Disorder, or ADHD, is usually associated with an ongoing pattern of inattention, hyperactivity, and impulsivity. Children with ADHD may struggle to stay focused, remain organized, complete tasks, wait their turn, or stop themselves from interrupting others (NIMH, 2024). Autism Spectrum Disorder, or ASD, is usually associated with persistent differences in social communication and social interaction, along with restricted, repetitive patterns of behavior, interests, or activities (CDC, 2025).

However, in everyday life, the boundary between ADHD and ASD is not always clear. A student with ADHD may appear socially awkward because they interrupt conversations, miss instructions, or react too quickly. A student with ASD may also interrupt or disengage, but the reason may be different: they may struggle to interpret facial expressions, tone of voice, body language, or the rhythm of conversation. Similarly, a student with ADHD may appear inattentive because their attention keeps shifting, while a student with ASD may appear inattentive because their focus is restricted to a preferred topic or because the environment feels overwhelming. The outward behavior may look similar, but the underlying cognitive process may be different.

This overlap is one of the main reasons ADHD and ASD can be difficult to distinguish. Executive dysfunction, inattention, emotional dysregulation, poor task completion, and social difficulty can appear in both conditions. Research comparing executive function in ASD and

ADHD has found that both groups can show impairments, but the pattern of difficulty may differ (Craig et al., 2016). More recent research suggests that response inhibition may be especially important in distinguishing ADHD from ASD, as impaired response inhibition appears more pronounced in ADHD than in ASD (Lee et al., 2024).

The central focus of this paper is therefore not simply whether a child is inattentive, impulsive, socially withdrawn, or repetitive in behavior. Instead, the paper asks what the behavior means. Is the child interrupting because of impulsivity, or because they do not read conversational timing? Is the child avoiding a task because their attention is scattered, or because the task does not fit their routine, interest, or sensory needs? Is poor task completion caused by ADHD-related inconsistency, ASD-related rigidity, or a combination of both?

This research paper examines the question: What cognitive markers most reliably distinguish ADHD symptoms from overlapping traits in individuals with Autism Spectrum Disorder? The study combines secondary research with primary survey data collected from professionals such as clinicians, therapists, psychiatrists, educators, and behavior specialists. The survey specifically focused on attention regulation, executive functioning, working memory, processing speed, cognitive flexibility, response inhibition, social communication, eye contact, sensory sensitivities, and repetitive behaviors.

The primary survey results also support the need for a profile-based approach. In the survey, 78.9% of respondents agreed or strongly agreed that social disengagement is more prevalent in ASD than ADHD, while 52.7% agreed or strongly agreed that hyperactivity/impulsivity is more common in ADHD than ASD. At the same time, responses on inattention were divided, showing that inattention alone is not a strong enough marker for differentiation.

The central objective of this paper is to compare ADHD-leaning cognitive markers, such as scattered attention, impulsive responding, poor waiting tolerance, and response inhibition deficits, with ASD-leaning markers, such as social-pragmatic difficulty, nonverbal communication differences, restricted interests, sensory sensitivities, and cognitive rigidity.

Figure 1 below demonstrates the major areas of overlap and distinction between ADHD and ASD.

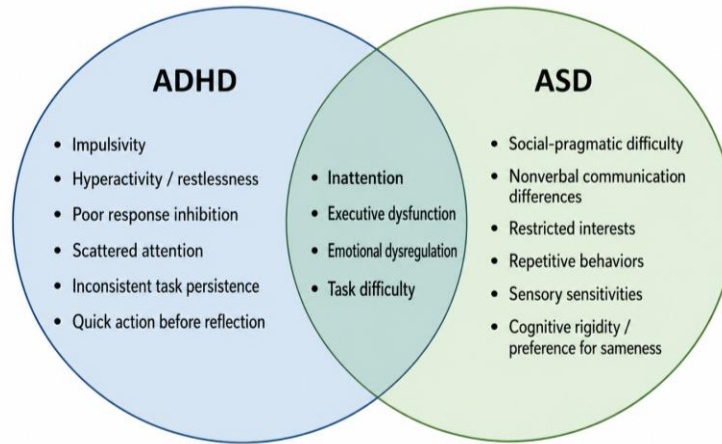


Figure 1
 Overlapping and Distinguishing Cognitive Markers in ADHD and ASD

Literature Review

Overlap Between ADHD and ASD

Attention Deficit/Hyperactivity Disorder and Autism Spectrum Disorder are both neurodevelopmental conditions, meaning they affect the way the brain develops and processes attention, behavior, communication, and social interaction. Although ADHD and ASD are clinically separate diagnoses, they often overlap in everyday presentation, especially in children and adolescents. This overlap creates difficulty for parents, educators, therapists, and clinicians because the same outward behavior may come from very different underlying cognitive causes.

ADHD is most commonly associated with inattention, hyperactivity, impulsivity, weak response inhibition, poor task persistence, and difficulty regulating behavior over time (NIMH, 2024). A student with ADHD may frequently lose focus, forget instructions, interrupt others, act before thinking, or struggle to complete assignments even when they understand the work. ASD, on the other hand, is more strongly associated with social communication differences, restricted or repetitive behaviors, sensory sensitivities, intense interests, and difficulty with flexibility or changes in routine (CDC, 2025). A student with ASD may avoid eye contact, misunderstand implied meanings, become distressed by changes, repeat certain behaviors, or focus deeply on a narrow area of interest.

However, these descriptions become complicated because many of the same behaviors can appear in both conditions. For example, a child with ADHD may seem socially disconnected because they interrupt, talk over others, or miss parts of a conversation due to distractibility. A child with ASD may also seem socially disconnected, but this may happen because they struggle to interpret tone, facial expression, body language, sarcasm, or conversational timing. Similarly,

both ADHD and ASD may involve difficulty completing tasks. In ADHD, this may come from distractibility, poor sustained attention, or impulsive shifting between activities. In ASD, task difficulty may come from rigidity, sensory discomfort, unclear instructions, or distress when the task does not fit an expected routine.

Research has repeatedly shown that ADHD and ASD can co-occur. Earlier diagnostic systems made it difficult to diagnose both conditions together, but DSM-5 allowed ADHD and ASD to be diagnosed in the same individual, reflecting the growing recognition that overlap is common (American Psychiatric Association, 2013). Studies have found that many individuals with ASD also show ADHD symptoms, while some individuals with ADHD show autistic-like traits such as social difficulty, sensory sensitivity, or rigidity (Leitner, 2014; Craig et al., 2015). Hours, Recasens, and Baleyte (2022) explain that the relationship between ADHD and ASD is complex because both conditions may share executive functioning problems, attentional difficulties, and emotional regulation challenges, while still having distinct core features.

One of the most confusing overlapping areas is executive dysfunction. Executive functions include skills such as planning, working memory, inhibition, flexible thinking, task initiation, and emotional control. Both ADHD and ASD can involve weaknesses in these areas, but the pattern may differ. ADHD is often more strongly linked to inhibition problems, impulsive responding, and inconsistent attention, while ASD is often more strongly linked to cognitive inflexibility, restricted interests, and difficulty shifting between tasks or perspectives (Craig et al., 2016). This distinction is important because simply saying that a child has “executive dysfunction” is too broad. The more useful question is which part of executive functioning is affected.

Inattention is another area of major overlap. ADHD-related inattention is usually described as scattered, inconsistent, and easily pulled away by distractions. ASD-related inattention may look different. An autistic child may appear inattentive during a non-preferred classroom task but may show intense focus on a preferred subject, object, or pattern. This means that the child’s attention is not always weak; it may be restricted or unevenly distributed. This idea is also reflected in Aditi’s primary survey, where one respondent noted that attention in ASD can be strong but restricted to preferred stimuli, while attention in ADHD is more scattered and inconsistent.

Social difficulty also overlaps but for different reasons. In ADHD, social problems may result from impulsivity, emotional reactivity, interrupting, or not listening long enough to respond appropriately. In ASD, social problems are more closely related to social-pragmatic communication differences, such as difficulty understanding facial expressions, tone, gestures, jokes, implied meanings, or reciprocal conversation (Baron-Cohen et al., 1985; Tager-Flusberg, 2007). Therefore, the same behavior, such as interrupting, may represent two different

mechanisms. In ADHD, it may come from poor response inhibition. In ASD, it may come from difficulty reading conversational pauses or social expectations.

This is why a profile-based approach is stronger than a symptom-based approach. A symptom-based approach asks whether a child is inattentive, socially awkward, restless, or rigid. A profile-based approach asks why that behavior is happening and what pattern it belongs to. ADHD-leaning profiles are more likely to include impulsivity, response inhibition deficits, scattered attention, and inconsistent task persistence. ASD-leaning profiles are more likely to include social-pragmatic difficulty, nonverbal communication differences, restricted interests, sensory sensitivities, repetitive behaviors, and cognitive rigidity.

Overall, the literature suggests that ADHD and ASD overlap significantly, but they are not the same. Their similarities are most visible at the behavioral level, while their differences become clearer when the underlying cognitive mechanisms are examined. This makes it essential to study not just what the child does, but why the child does it.

ADHD-Related Cognitive Markers

ADHD is often explained through difficulties in executive function, especially inhibition, sustained attention, working memory, and self-regulation. Response inhibition refers to the ability to stop oneself before acting, speaking, moving, or reacting. In everyday life, this may appear when a child waits their turn, resists blurting out an answer, pauses before touching something, or controls the urge to interrupt (Barkley, 1997; Nigg, 2005).

In ADHD, response inhibition difficulties are often visible. A student may answer before the question is finished, interrupt conversations, grab materials without waiting, make careless mistakes, or react emotionally before thinking. These actions are not always intentional. They may happen because the brain struggles to pause long enough to evaluate the situation. The NIMH description of ADHD specifically includes impulsivity such as interrupting, intruding on others, and trouble waiting for one's turn (NIMH, 2024).

Recent research supports the importance of inhibition. Lee et al. (2024) found that impaired response inhibition was more pronounced in ADHD compared to ASD and suggested that altered visual attention reflecting response inhibition may help differentiate ADHD from ASD during attentional assessment (Lee et al., 2024).

Aditi's survey also supports this. When respondents were asked whether hyperactivity and impulsivity are more common in ADHD than ASD, 31.6% strongly agreed and 21.1% agreed. However, 26.3% were neutral, showing that professionals see impulsivity as useful but not perfect as a single differentiating marker.

ASD-Related Cognitive Markers

ASD is more strongly linked with social-pragmatic communication differences, theory of mind differences, restricted interests, sensory sensitivities, and cognitive rigidity. Theory of mind refers to the ability to understand that other people may have different thoughts, feelings, intentions, or perspectives. When this is difficult, social interaction can become confusing (Baron-Cohen et al., 1985; Tager-Flusberg, 2007).

The CDC summary of DSM-5 diagnostic criteria states that ASD includes deficits in social-emotional reciprocity, nonverbal communicative behaviors such as eye contact and gestures, and difficulties developing or maintaining relationships. It also includes restricted and repetitive patterns such as insistence on sameness, fixed interests, and sensory differences (CDC, 2025).

These markers are different from ADHD. A child with ASD may not be inattentive because attention is weak. Instead, attention may be unusually strong but focused on preferred topics or patterns. Aditi's research outline makes the same point, identifying ASD-related markers such as difficulty understanding implied meaning, interpreting tone and facial expression, preference for routine, and distress with unpredictability.

The survey results also support the ASD connection. When asked whether repetitive behaviors are more common in ASD than ADHD, 36.8% of respondents strongly agreed and 26.3% agreed. This means that 63.1% of respondents viewed repetitive behaviors as more ASD-related.

Table 1

Cognitive Markers Commonly Used to Differentiate ADHD and ASD

Cognitive Marker	ADHD-Leaning Pattern	ASD-Leaning Pattern	Citation
Attention regulation	Scattered, inconsistent, easily distracted	Strong but narrow focus on preferred stimuli	NIMH, 2024; Hours et al., 2022
Response inhibition	Interrupting, blurting, acting before thinking	May interrupt due to conversational timing difficulty	Lee et al., 2024
Social reciprocity	Misses cues due to inattention or impulsivity	Difficulty interpreting cues, tone, facial expression, eye contact	CDC, 2025

Repetitive behavior	May repeat due to boredom or stimulation seeking	Repetition tied to sameness, sensory regulation, or restricted interest	CDC, 2025
Task persistence	Starts quickly but may not finish	May persist intensely on preferred tasks	Craig et al., 2016
Cognitive flexibility	May shift too often or abandon tasks	May resist shifting due to rigidity	Craig et al., 2016
Assessment tools	Vanderbilt, Conners, clinical observation	ADOS-2, DSM-5, clinical observation	WPS, 2012; Wolraich et al., 2003

Table 1: Cognitive Markers Commonly Used to Differentiate ADHD and ASD

Gaps in Knowledge

Although existing research has made it clear that ADHD and ASD often overlap, there are still several gaps in how this overlap is studied and explained. Much of the literature discusses ADHD and ASD as separate diagnoses, but fewer studies focus directly on how specific cognitive markers can help distinguish one condition from the other in real-life settings such as schools, therapy centers, and family environments. This is important because outward behaviors such as inattention, interruption, poor task completion, and social difficulty may appear similar even when their causes are different. Aditi's research outline also identifies this issue clearly, noting that differentiation based on one marker is unreliable and that a profile-based approach is stronger.

One major gap is that executive dysfunction is often treated too broadly. Many studies mention that both ADHD and ASD involve executive function difficulties, but executive function includes several different skills, such as inhibition, planning, working memory, emotional control, attention regulation, and cognitive flexibility. This makes it difficult to know which part of executive functioning is actually useful for differentiation. For example, ADHD may be more strongly related to response inhibition, impulsive timing, and attentional inconsistency, while ASD may be more strongly related to rigidity, restricted interests, and difficulty shifting between perspectives (Craig et al., 2016; Lee et al., 2024). Aditi's outline also emphasizes that the clearest distinction comes from comparing clusters rather than a single symptom.

Another gap is the lack of direct comparison between ADHD-only, ASD-only, ADHD+ASD, and non-diagnosed groups. Many studies examine either ADHD or ASD separately, while others

focus on comorbidity, but fewer studies compare all groups using the same cognitive and behavioral measures. Without this comparison, it becomes difficult to identify which markers are truly ADHD-leaning, which are ASD-leaning, and which are shared by both. This is especially important because Aditi's research question specifically asks which cognitive markers distinguish ADHD symptoms from overlapping ASD traits. Her proposed objectives also include comparing patterns across ADHD-only, ASD-only, combined, and non-diagnosed groups.

Methodology

This research paper uses a mixed methodology combining a detailed literature review with primary survey-based research. The purpose of using both methods was to understand the difference between ADHD and ASD from two angles: first, through existing academic and clinical research, and second, through the real-world observations of professionals who work with children and adolescents. Since ADHD and ASD often overlap in visible behaviors such as inattention, executive dysfunction, emotional dysregulation, and social difficulty, this paper does not rely on one source of evidence alone. Instead, it compares secondary research with survey responses to identify which cognitive markers appear most useful in distinguishing ADHD-like traits from ASD-like traits.

The first part of the methodology involved a literature review. Secondary research was collected from online academic and clinical sources related to Autism Spectrum Disorder, Attention Deficit/Hyperactivity Disorder, executive functioning, response inhibition, attention regulation, working memory, processing speed, cognitive flexibility, theory of mind, social communication, and repetitive behaviors. The student's research planning document specifically listed Google Scholar and other research articles as sources for collecting secondary research on the overlap and difference between ASD and ADHD. It also included studies on ADHD-ASD comorbidity and neuropsychological characteristics of children with mixed Autism and ADHD profiles.

The second part of the methodology involved primary data collection through a Google Form. The survey was designed to collect information from professionals such as clinicians, therapists, psychiatrists, educators, and others with relevant experience. The form focused on cognitive markers including attention regulation, impulsivity, executive functioning, working memory, processing speed, cognitive flexibility, response inhibition, and patterns that may point more strongly toward ADHD rather than ASD-related characteristics.

The survey used a structured format. Section A collected background information about the respondents, including profession, years of experience, and work setting. Section B used Likert-scale statements to examine symptom differentiation, including whether social disengagement is more prevalent in ASD than ADHD, whether hyperactivity/impulsivity is more common in ADHD than ASD, whether repetitive behaviors are more common in ASD than ADHD, and

whether inattention is more common in ADHD than ASD. Section C asked respondents to select up to three markers they found most useful in distinguishing ADHD from ASD, including response to structured tasks, social communication patterns, eye contact and social reciprocity, impulsivity, restricted/repetitive behaviors, sensory sensitivities, and task persistence versus distractibility. Section D asked which assessment tools respondents regularly used, including DSM-5 criteria, Conners Rating Scale, ADOS-2, Vanderbilt Scale, and clinical observation.

The survey received 19 responses as of April 19, 2026. The respondent group included therapists, educators, clinicians, and one BCBA. Therapists formed the largest professional group at 63.2%, followed by educators at 21.1% and clinicians at 10.5%. The experience level of the respondents was high, with 73.7% reporting more than 10 years of professional experience. This made the survey useful for collecting practice-based insights from people familiar with child behavior, therapy, education, and clinical observation.

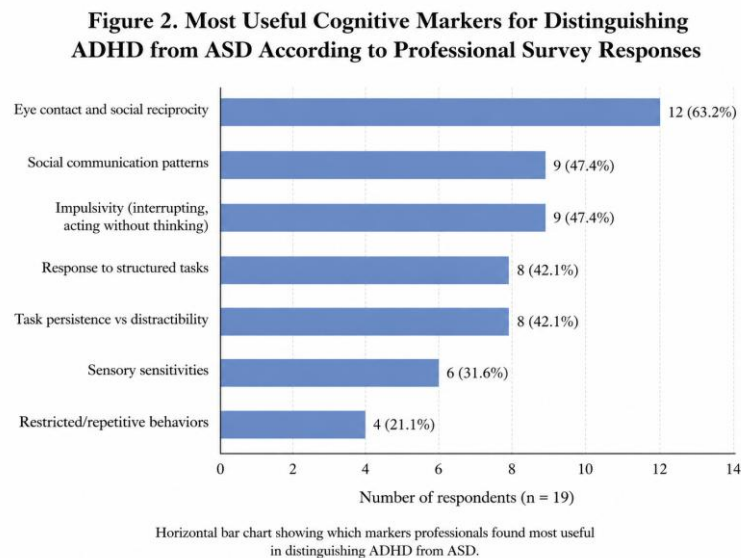


Figure 2: Overlapping and Distinguishing Cognitive Markers in ADHD and ASD

Results

The primary survey received 19 professional responses as of April 19, 2026. The results were analyzed using the percentage breakdowns shown in the Google Form charts. Since the purpose of this paper is to identify cognitive markers that may help distinguish ADHD symptoms from overlapping ASD traits, the findings were organized into four main categories: respondent background, ASD-leaning markers, ADHD-leaning markers, and overlapping markers. The survey was designed to collect professional opinions on attention regulation, impulsivity, executive functioning, working memory, processing speed, cognitive flexibility, response inhibition, social communication, and repetitive behavior.

Respondent Background

The respondent group was made up mainly of professionals working in therapy, education, clinical care, and behavior support. Therapists formed the largest group, making up 63.2% of the sample, followed by educators at 21.1%, clinicians at 10.5%, and one BCBA respondent. This suggests that the data mainly reflects the views of professionals who observe children and adolescents in therapeutic, educational, or developmental settings. The level of experience of the respondents was also strong. 73.7% reported having more than ten years of experience, which gives the survey findings practical value because most responses came from professionals with long-term exposure to ADHD, ASD, and overlapping neurodevelopmental traits.

Work settings were also varied. The largest group worked in private practice at 36.8%, followed by school settings at 21.1% and community centers at 10.5%. Other responses included clinic/hospital, NGO, home, home care, and preschool/daycare or early intervention settings. This variation is useful because ADHD and ASD symptoms often appear differently across home, school, therapy, and clinical environments. A child may appear inattentive in school, socially withdrawn in therapy, or rigid at home, so collecting responses across multiple settings helps provide a broader view of the overlap.

Findings Related to ASD-Leaning Markers

The strongest ASD-leaning result was connected to social disengagement. When respondents were asked whether social disengagement is more prevalent in ASD than ADHD, 42.1% strongly agreed and 36.8% agreed, meaning that 78.9% of respondents agreed overall. Only a small percentage disagreed. This suggests that professionals view social disengagement, social reciprocity, and difficulty with social connection as more closely related to ASD than ADHD.

This finding supports the idea that ASD-related social difficulty is not simply about being quiet or shy. It is often connected to deeper social-pragmatic differences, such as difficulty interpreting eye contact, facial expressions, tone, body language, implied meanings, or conversational rhythm. In contrast, ADHD-related social difficulty may happen because of interrupting, impulsivity, or losing track of the conversation. Therefore, the survey indicates that social disengagement is one of the clearer practical markers for ASD.

The second major ASD-leaning result was connected to repetitive behaviors. When asked whether repetitive behaviors are more common in ASD than ADHD, 36.8% strongly agreed, and 26.3% agreed, meaning 63.1% of respondents agreed overall. This suggests that professionals also see repetitive behavior, restricted patterns, and preference for sameness as stronger ASD markers.

These findings align with the profile-based model used in this paper. ASD-leaning markers appear to include social-pragmatic difficulty, nonverbal communication differences, repetitive behaviors, restricted interests, sensory sensitivities, and cognitive rigidity.

Findings Related to ADHD-Leaning Markers

The strongest ADHD-leaning result was connected to hyperactivity and impulsivity. When respondents were asked whether hyperactivity/impulsivity is more common in ADHD than ASD, 31.6% strongly agreed and 21.1% agreed, meaning 52.7% agreed overall. This shows that a slight majority of respondents viewed hyperactivity and impulsivity as more ADHD-related.

However, this result was not as strong as the result for social disengagement. 26.3% of respondents were neutral, while some disagreed. This suggests that professionals see impulsivity as useful but not fully conclusive. This is important because impulsive-looking behavior can also appear in ASD, but for a different reason. A child with ADHD may interrupt because they struggle with response inhibition, while a child with ASD may interrupt because they have difficulty reading conversational timing.

Therefore, the survey supports the idea that impulsivity is an ADHD-leaning marker, but only when interpreted with context. The strongest ADHD pattern is not impulsivity alone, but impulsivity combined with scattered attention, poor waiting tolerance, inconsistent task persistence, and quick action before reflection.

Findings Related to Overlapping Markers

The most important overlapping result was connected to inattention. When respondents were asked whether inattention is more common in ADHD than ASD, responses were divided. 15.8% strongly agreed, and 26.3% agreed, giving a total agreement of 42.1%. However, 26.3% disagreed and 21.1% strongly disagreed, giving a total disagreement of 47.4%. Another 10.5% remained neutral.

This was one of the most significant findings in the survey because it shows that inattention alone is not a reliable marker for ADHD. Professionals did not clearly agree that inattention is more common in ADHD than ASD. Instead, the result suggests that inattention appears in both conditions but may have different causes.

In ADHD, inattention may appear as scattered focus, distractibility, poor task completion, or difficulty sustaining attention. In ASD, inattention may appear when the child is focused on a preferred topic, overwhelmed by sensory input, or disengaged from a task that does not fit their routine or interest. One open-ended survey response captured this distinction clearly: “In ASD, attention can actually be very strong but restricted to preferred stimuli. Whereas, in ADHD, attention is scattered and inconsistent.”

This finding strongly supports the central argument of the paper: the issue is not whether behavior exists, but why the behavior is happening.

Table 2: Survey Findings from Primary Research

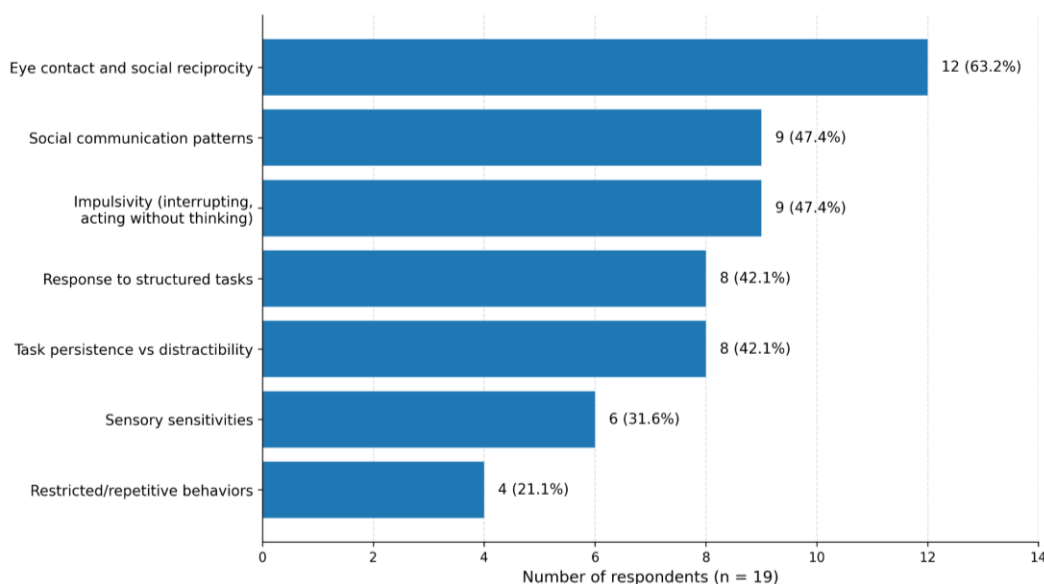
Survey Item	Main Result	Interpretation
Profession	Therapists formed 63.2% of the respondents	The survey mainly reflects therapy-based professional experience
Experience	73.7% had 10+ years of experience	Most respondents had long-term field experience
Social disengagement is more prevalent in ASD than ADHD	78.9% agreed/strongly agreed	Strong ASD-leaning marker
Hyperactivity/impulsivity is more common in ADHD than ASD	52.7% agreed/strongly agreed	Useful ADHD-leaning marker, but not conclusive alone
Repetitive behaviors are more common in ASD than ADHD	63.1% agreed/strongly agreed	Strong ASD-leaning marker
Inattention is more common in ADHD than ASD	42.1% agreed/strongly agreed; 47.4% disagreed/strongly disagreed	Inattention is an overlapping marker, not a reliable separator
Most useful differentiator	Eye contact and social reciprocity: 63.2%	Social-pragmatic markers were rated most useful
Most used assessment method	Clinical observation: 84.2%	Professionals rely heavily on real-world behavioral observation

Most Useful Markers for Differentiation

The survey also asked respondents to select up to three markers they found most useful in distinguishing ADHD from ASD. The most selected marker was **eye contact and social reciprocity**, chosen by **12 respondents**, or **63.2%**. This was followed by **social communication patterns** and **impulsivity**, each selected by **9 respondents**, or **47.4%**. **Response to structured**

tasks and task persistence versus distractibility were each selected by **8 respondents**, or **42.1%**. **Sensory sensitivities** were selected by **6 respondents**, or **31.6%**, while **restricted/repetitive behaviors** were selected by **4 respondents**, or **21.1%**.

These results show that professionals do not depend on only one marker. Instead, they appear to use a cluster of signs. Social reciprocity, social communication, impulsivity, task response, and distractibility were all seen as useful. This supports the profile-based model suggested in Aditi's research plan, where ADHD is linked more strongly with inhibition, impulsive timing, and attention drift, while ASD is linked more strongly with social-pragmatic interpretation, nonverbal cue differences, and rigidity.



Horizontal bar chart showing which markers professionals found most useful in distinguishing ADHD from ASD.

Figure 3: Most Useful Cognitive Markers for Distinguishing ADHD from ASD According to Professional Survey Responses

Overall Result Interpretation

Overall, the results suggest that **social-pragmatic markers were stronger ASD differentiators**, while **impulsivity and response inhibition were stronger ADHD differentiators**. Inattention did not clearly belong to only one condition, making it an overlapping marker rather than a reliable separator. The survey also showed that professionals value clinical observation because ADHD-ASD differentiation depends heavily on context.

The findings support the main argument of the paper: ADHD and ASD should not be separated by one symptom alone. A profile-based approach is stronger. ADHD appears to align more with impulsive responding, scattered attention, poor response inhibition, and inconsistent task persistence. ASD appears to align more with social disengagement, social-pragmatic difficulty,

nonverbal communication differences, restricted interests, repetitive behavior, sensory sensitivities, and rigidity. Broad traits such as inattention and executive dysfunction overlap too much to stand alone as diagnostic separators.

Discussion

ADHD-ASD Overlap and the Need for a Profile-Based Approach

The results of this study support the main argument that ADHD and ASD cannot be reliably distinguished through one symptom alone. Both conditions may involve inattention, executive dysfunction, emotional dysregulation, task difficulty, and social challenges. However, the survey results and literature review suggest that the **pattern behind the symptom** is more important than the symptom itself. Aditi's research outline also identifies this clearly, arguing that differentiation based on a single marker is unreliable and that a profile-based approach is stronger.

The survey findings show that professionals were most confident when identifying **social-pragmatic and reciprocity-based markers** as ASD-leaning. In the survey, **78.9%** of respondents agreed or strongly agreed that social disengagement is more prevalent in ASD than ADHD. Similarly, when respondents were asked which markers were most useful in distinguishing ADHD from ASD, the highest selected option was **eye contact and social reciprocity**, chosen by **63.2%** of respondents. This suggests that professionals rely strongly on social communication patterns when separating ASD-like traits from ADHD-like traits.

This finding is important because social difficulty can appear in both conditions, but the reason behind it may differ. In ADHD, social problems may come from interrupting, impulsive speech, emotional reactivity, or difficulty waiting. In ASD, social problems are more likely to involve difficulty reading facial expressions, tone, body language, implied meaning, or conversational rhythm. Therefore, a child with ADHD and a child with ASD may both interrupt a conversation, but the ADHD-related interruption may come from poor response inhibition, while the ASD-related interruption may come from difficulty understanding conversational timing.

Inattention as an Overlapping Marker

One of the most important findings of the survey is that **inattention was not clearly identified as an ADHD-only marker**. Only **42.1%** of respondents agreed or strongly agreed that inattention is more common in ADHD than ASD, while **47.4%** disagreed or strongly disagreed. This divided response suggests that professionals do not see inattention as a reliable differentiator by itself.

This is highly relevant to the paper's research question because inattention is one of the most common reasons ADHD and ASD are confused. In ADHD, inattention may appear as scattered

attention, distractibility, difficulty sustaining effort, or inconsistent task completion. In ASD, however, apparent inattention may reflect restricted focus, sensory overload, lack of interest in the task, or difficulty shifting away from a preferred topic. The open-ended response in the survey captures this distinction clearly: **“In ASD, attention can actually be very strong but restricted to preferred stimuli. Whereas, in ADHD, attention is scattered and inconsistent.”**

This means that future assessments should not simply ask whether a child is inattentive. Instead, it should ask what kind of inattention is present. If attention is scattered, inconsistent, and easily pulled away by distractions, the pattern may lean more toward ADHD. If attention is intense but limited to specific preferred topics or routines, the pattern may lean more toward ASD. This supports the profile-based model because it shows that the same outward behavior can have different cognitive causes.

Impulsivity and Response Inhibition as ADHD-Leaning Markers

The survey also showed that **hyperactivity and impulsivity were viewed as more ADHD-leaning**, although not as strongly as social disengagement was viewed as ASD-leaning. In the survey, **52.7%** of respondents agreed or strongly agreed that hyperactivity/impulsivity is more common in ADHD than ASD. This suggests that impulsivity is useful, but not conclusive by itself.

This fits with the literature review. ADHD-related markers are commonly linked to response inhibition problems, impulsive responding, attentional inconsistency, variable performance, and difficulty sustaining goal-directed behavior. Aditi's outline specifically identifies ADHD-related markers as response inhibition problems, impulsivity, attentional inconsistency, variable performance, and difficulty sustaining behavior.

The reason this matters is that impulsivity may look similar across ADHD and ASD, but the mechanism may differ. A child with ADHD may act quickly because they cannot stop or delay the response. A child with ASD may appear impulsive because they are overwhelmed, do not understand the social expectation, or are trying to return to a preferred routine. Therefore, impulsivity is strongest as an ADHD marker when it appears alongside scattered attention, poor waiting tolerance, quick action before reflection, and inconsistent performance.

ASD-Leaning Markers: Social Communication, Repetition, and Rigidity

The findings also support the idea that ASD is more strongly connected to social-pragmatic difficulty, nonverbal communication differences, restricted interests, repetitive behaviors, sensory sensitivities, and rigidity. In the survey, **63.1%** of respondents agreed or strongly agreed that repetitive behaviors are more common in ASD than ADHD. Additionally, **sensory sensitivities** were selected by **31.6%** of respondents as useful in distinguishing ADHD from ASD.

Aditi's research outline also identifies ASD-related markers as theory of mind differences, pragmatic language difficulty, nonverbal communication problems, rigidity, insistence on sameness, and restricted interests. It also explains that ASD-related attention can sometimes be focused strongly on topics that feel comfortable or familiar.

This is important because ASD-related behaviors are often misunderstood as defiance, lack of interest, or poor attention. For example, a child who resists a change in schedule may not simply be refusing to cooperate. The behavior may reflect cognitive rigidity or distress with unpredictability. A child who avoids eye contact may not be rude or disengaged. The behavior may reflect differences in nonverbal communication processing or sensory comfort. These examples show why ASD-related markers must be interpreted carefully.

Importance of Clinical Observation

The survey results showed that **clinical observation** was the most commonly used assessment method, selected by **84.2%** of respondents. This was much higher than DSM-5 criteria, Conners Rating Scale, ADOS-2, Vanderbilt Scale, and other tools.

This suggests that professionals often rely on real-world observation because ADHD and ASD traits may change depending on the setting. A child may behave differently at school, home, therapy, or in a clinical appointment. A short questionnaire may identify symptoms, but observation helps professionals understand context. For example, observation can show whether a child loses focus during all tasks or only during non-preferred tasks, whether interruption happens because of impulsivity or social misunderstanding, and whether task refusal is caused by boredom, rigidity, anxiety, or sensory discomfort.

This does not mean standardized tools are unimportant. Rather, it shows that tools should be combined with observation, developmental history, parent input, teacher input, and professional judgment. ADHD-ASD differentiation requires multiple sources of information because no one measure can fully explain overlapping traits.

Overall Interpretation

Overall, the findings indicate that the clearest distinction between ADHD and ASD comes from comparing clusters of traits rather than isolated behaviors. Aditi's outline states that ADHD aligns more with inhibition, impulsivity, and attentional inconsistency, while ASD aligns more with social-pragmatic difficulty, nonverbal cue differences, theory of mind differences, and rigidity. It also notes that broad executive dysfunction overlaps too much to stand alone as a separator.

The survey results support this conclusion. Social disengagement, eye contact, social reciprocity, repetitive behaviors, and rigidity were stronger ASD-leaning markers. Hyperactivity,

impulsivity, scattered attention, and response inhibition were stronger ADHD-leaning markers. Inattention and executive dysfunction were overlapping markers that required further explanation.

Therefore, the study's main contribution is the argument that professionals, educators, and parents should move beyond asking, "Does the child show this symptom?" Instead, they should ask, "What is causing this symptom?" A child may be inattentive because attention is scattered, or because attention is restricted to preferred stimuli. A child may interrupt because of impulsivity, or because of difficulty reading conversational timing. A child may struggle with tasks because of poor sustained attention, or because of rigidity and difficulty with transitions.

The strongest conclusion from this discussion is that ADHD-ASD differentiation works best as a **profile-based comparison**. ADHD-like profiles are more likely to involve impulsive responding, poor inhibition, scattered attention, and inconsistent task persistence. ASD-like profiles are more likely to involve social-pragmatic difficulty, nonverbal communication differences, repetitive behaviors, sensory sensitivities, and cognitive rigidity. Broad symptoms such as inattention and executive dysfunction are important, but they are not specific enough to separate ADHD from ASD on their own.

Conclusion

This study concludes that ADHD and ASD cannot be reliably distinguished through one visible symptom alone. Both conditions may involve inattention, executive dysfunction, emotional dysregulation, social difficulty, and task-related struggles. However, the underlying causes of these behaviors are often different. Aditi's research framework also supports this profile-based approach, noting that ADHD aligns more with inhibition, impulsivity, and attentional inconsistency, while ASD aligns more with social-pragmatic difficulty, nonverbal cue differences, theory of mind differences, and rigidity.

The survey findings support this conclusion. Professionals identified eye contact and social reciprocity as the strongest differentiating marker, while inattention showed mixed responses, suggesting that it overlaps too much to stand alone as a separator. The results also showed that social disengagement and repetitive behaviors leaned more toward ASD, while hyperactivity and impulsivity leaned more toward ADHD.

Overall, the most reliable distinction comes from asking **why** a behavior is happening. ADHD-related patterns are more likely to involve scattered attention, poor response inhibition, impulsive responding, and inconsistent task persistence. ASD-related patterns are more likely to involve social-pragmatic difficulty, restricted interests, repetitive behaviors, sensory sensitivities, and cognitive rigidity. Therefore, ADHD-ASD differentiation should rely on a cluster of cognitive markers, clinical observation, and context rather than a single symptom or checklist.

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