



## Research Article

# Co-Occurring Autism and ADHD as Predictors of Adolescent Psychopathological Tendencies: Basis for Psychoeducational Intervention

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**Abstract.** This study examined whether co-occurring autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) predict psychopathological tendencies among adolescents and how the findings may inform a psychoeducation and intervention program. However, limited local research has examined how co-occurring ASD and ADHD relate to a broad range of psychopathological, treatment-related, and interpersonal outcomes among Filipino adolescents, particularly in interdisciplinary settings. Guided by the Developmental Psychopathology framework, the study conceptualized adolescent psychopathological tendencies as outcomes shaped by the interaction of neurodevelopmental characteristics and psychosocial contexts. A quantitative predictive-correlational design was used with 391 adolescents diagnosed with co-occurring ASD and ADHD from an interdisciplinary institution in Sta. Maria, Bulacan. Standardized instruments were used to measure ASD traits, ADHD symptoms, and psychopathological tendencies, while descriptive statistics and multiple linear regression were used for analysis. Results showed that most respondents were classified within high ASD and ADHD probability ranges. Most psychopathological tendencies were within average or low ranges; however, mild anxiety and depression, high borderline traits, moderate stress and nonsupport, and high treatment rejection emerged as areas of concern. Regression findings indicated that ASD and ADHD were weak predictors of most clinical outcomes, suggesting that psychopathological tendencies cannot be attributed to neurodevelopmental symptoms alone. However, ASD significantly and positively predicted nonsupport and strongly predicted treatment rejection. These findings contribute to theory and practice by showing that treatment engagement and perceived support may be particularly important intervention targets among adolescents with co-occurring ASD and ADHD. The study supports the development of structured, adolescent-centered psychoeducation programs focused on emotional regulation, social support, family-school collaboration, and treatment engagement. The study's distinctive contribution is its focus on intervention readiness: instead of treating co-occurring ASD and ADHD as a broad explanation for all psychopathological tendencies, the findings identify perceived nonsupport and treatment rejection as priority targets for adolescent-centered psychoeducation and coordinated family-school support.

**Keywords:** *Attention-Deficit/Hyperactivity Disorder; Adolescents; Autism Spectrum Disorder; Co-occurring conditions; Psychopathological tendencies.*



Autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) are neurodevelopmental conditions that may affect adolescents' social communication, emotional regulation, executive functioning, academic adjustment, and interpersonal relationships. ASD is commonly associated with social-communication differences, restricted or repetitive behaviors, sensory-related concerns, and difficulties with adaptive functioning. ADHD is characterized by developmentally inappropriate patterns of inattention, hyperactivity, and/or impulsivity that interfere with functioning. The DSM-5-TR recognizes both conditions as neurodevelopmental disorders and emphasizes that symptom presentation may vary across developmental stages and social contexts (American Psychiatric Association, 2022).

In this study, the term co-occurring is used to describe the presence of both autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) in the same adolescent. This terminology is used intentionally rather than treating co-occurring and comorbid as completely interchangeable terms. Although the literature may use comorbidity to describe the presence of two or more diagnosable conditions in the same individual, the term may carry different conceptual or clinical meanings across research contexts. The present study therefore uses co-occurring ASD and ADHD to describe the documented presence of both neurodevelopmental conditions without implying that one condition causes the other or that their relationship necessarily represents a distinct clinical syndrome.

The co-occurrence of ASD and ADHD has received increasing research attention because adolescents who present with both conditions may experience more complex developmental, emotional, and behavioral challenges than those with either condition alone. Recent literature indicates substantial diagnostic and symptom overlap between ASD and ADHD, particularly in executive functioning, emotional regulation, social functioning, attention, and behavioral self-regulation (Hours et al., 2022; Martinez et al., 2024). Population-based research has also shown that children and adolescents with co-occurring ASD and ADHD frequently present with additional mental, behavioral, and developmental concerns, making comorbidity an important issue for assessment, school support, and mental health intervention (Casseus et al., 2023; Canals et al., 2024).

Psychopathological tendencies during adolescence are especially important to examine because this period is marked by rapid biological, cognitive, emotional, and social changes. Adolescents with neurodevelopmental conditions may be exposed to peer difficulties, school demands, stigma, social misunderstanding, family stress, and barriers to mental health care. These experiences may increase vulnerability to anxiety, depression, emotional dysregulation, stress, perceived lack of support, and treatment resistance. Global and public health sources continue to emphasize adolescent mental health as a priority area, noting that emotional problems, social exclusion, poor support, and service-access barriers can affect long-term functioning and well-being (UNICEF, 2024; World Health Organization, 2025).

This study is theoretically anchored in the Developmental Psychopathology framework. From this perspective, psychological difficulties do not emerge from a single cause; rather, they develop through dynamic interactions among individual characteristics, developmental timing, family processes, peer relationships, school environments, and broader social conditions (Cicchetti & Rogosch, 2002). This framework remains relevant in contemporary research on neurodevelopmental conditions among children and adolescents. Karalunas et al. (2021), for example, examined the co-development of temperament, executive functioning, and psychopathology symptoms among youth with and without ADHD, demonstrating the value of examining developmental processes and interacting domains rather than viewing symptoms as isolated characteristics. Similarly, prospective research involving children with ADHD, ASD, and co-occurring ADHD and ASD has examined developmental characteristics across these conditions, supporting a developmental rather than purely diagnostic interpretation of neurodevelopmental difficulties (Cervin et al., 2023). Recent scholarship has also emphasized the continued application of Developmental Psychopathology principles to ADHD research, particularly for understanding developmental trajectories and the interplay between individual vulnerabilities and environmental contexts (Hinshaw et al., 2024).

Applying this framework to adolescents with co-occurring ASD and ADHD suggests that neurodevelopmental symptoms may increase vulnerability to some forms of distress, but their effects may depend on contextual supports, social experiences, and intervention engagement. Therefore, the framework guided the present study by examining ASD and ADHD not as deterministic causes of psychopathology but as developmental risk

indicators that may relate differently to clinical, treatment-related, and interpersonal outcomes.

Although international scholarship increasingly recognizes the complexity of co-occurring ASD and ADHD, several gaps remain. First, much of the existing literature focuses on prevalence, diagnostic overlap, or symptom description, while fewer studies examine how ASD and ADHD jointly predict a broad range of psychopathological tendencies in adolescence. Second, many studies emphasize clinical symptoms such as anxiety or depression but give less attention to treatment-related and interpersonal indicators, such as treatment rejection and perceived non-support, which are highly relevant for psychoeducation and intervention planning. Third, there is limited local evidence involving Filipino adolescents with co-occurring ASD and ADHD in interdisciplinary educational and clinical settings. This gap matters because cultural expectations, family roles, school conditions, stigma, and access to services may influence help-seeking and psychosocial adjustment.

Accordingly, this study addresses the knowledge gap by examining the levels of ASD traits, ADHD symptoms, and psychopathological tendencies among adolescents with co-occurring ASD and ADHD and by testing whether ASD and ADHD significantly predict clinical, treatment, and interpersonal outcomes. The study advances theory-driven understanding by showing whether neurodevelopmental characteristics alone are sufficient to explain adolescent psychopathological tendencies or whether the findings point toward broader psychosocial mechanisms. Practically, the results provide an empirical basis for a psychoeducation and intervention program responsive to the emotional, social, and treatment-engagement needs of adolescents with co-occurring ASD and ADHD.

This study was guided by the following research questions: What is the level of ASD traits among adolescents with co-occurring ASD and ADHD? What is the level of ADHD symptoms among adolescents with co-occurring ASD and ADHD? What is the level of psychopathological tendencies among adolescents across clinical, treatment consideration, and interpersonal domains? To what extent do ASD and ADHD scores predict psychopathological tendencies among adolescents? The unique contribution of this study lies in moving beyond a purely symptom-count interpretation of co-occurring ASD and ADHD. Existing scholarship has documented high diagnostic overlap and elevated mental health risk among children and adolescents with ASD, ADHD, or both conditions (Casseus et al., 2023; Hours et al., 2022; Mutluer et al., 2022). This study extends that literature by examining a broader set of clinical, treatment-related, and interpersonal indicators among Filipino adolescents in an interdisciplinary service setting. This allows the analysis to distinguish between psychopathological symptoms, perceived support, and willingness to participate in intervention.

Theoretically, this contribution aligns with Developmental Psychopathology because the results test whether neurodevelopmental characteristics directly predict psychopathological tendencies or point to more contextual mechanisms. Practically, the study provides a basis for psychoeducation programs that do not merely address anxiety, depression, or behavioral symptoms but also target engagement, trust, perceived support, and family-school-clinical collaboration.

## Methodology

### Research Design

This study employed a quantitative predictive-correlational design using multiple linear regression analysis. This design was appropriate because the study aimed to determine whether ASD and ADHD scores statistically predicted selected psychopathological tendencies among adolescents with co-occurring conditions. The design did not establish causality; rather, it examined the strength and direction of predictive relationships among measured variables.

### Participants and Sampling Technique

The participants consisted of 391 adolescents diagnosed with co-occurring ASD and ADHD. Respondents were purposively selected from an interdisciplinary institution in Sta. Maria, Bulacan, which provides services such as speech therapy, occupational therapy, developmental pediatrics, language pathology, and special education programs. Inclusion criteria required participants to be adolescents aged 10 to 19 years with documented co-occurring ASD and ADHD conditions. Adolescents without confirmed diagnoses or with incomplete assessment data were excluded from the study.

### Research Instrument

Three standardized instruments were used to measure ASD traits, ADHD symptoms, and psychopathological tendencies. The selection of instruments was guided by their relevance to the study variables, age applicability, standardized administration procedures, and published psychometric evidence. To address cultural appropriateness, the researchers selected instruments based on their applicability to the participants' age group, standardized administration procedures, and established psychometric evidence. The researchers reviewed the instruments' content and wording before administration to ensure the items were understandable and relevant to the participants and did not intentionally introduce culture-specific situations, practices, or assumptions unrelated to the study population. No items were modified or rewritten for the present study, and the standardized wording and administration procedures prescribed for the instruments were retained. During administration, registered psychometricians and assisting professionals were available to clarify procedural instructions when necessary without altering the meaning or content of individual test items. The interpretation of responses therefore followed the standardized scoring procedures and assessment profiles of the respective instruments, rather than assumptions based on foreign cultural practices.

The Gilliam Autism Rating Scale-Third Edition (GARS-3) was used to assess ASD-related traits. The GARS-3 is a standardized rating scale designed to help identify autism spectrum disorder among individuals aged 3 to 22 years. It contains 56 clearly stated items organized into six subscales: Restricted/Repetitive Behaviors, Social Interaction, Social Communication, Emotional Responses, Cognitive Style, and Maladaptive Speech (Gilliam, 2014). Published psychometric evidence reports strong internal consistency, with subscale reliability coefficients above .85 and Autism Index coefficients above .93. Test-retest and interrater reliability estimates also meet acceptable standards, and validity evidence includes diagnostic accuracy indicators, factor-analytic support, and strong sensitivity and specificity estimates (Gilliam, 2014; Karren, 2017). These features support the instrument's content, construct, and criterion-related validity for assessing ASD traits.

The Attention-Deficit/Hyperactivity Disorder Test-Second Edition (ADHDT-2) was used to assess ADHD symptoms, particularly inattention and hyperactivity/impulsivity. The ADHDT-2 is a standardized rating scale for individuals aged 5 to 17 years and contains 33 items grouped into two subscales: Inattention and Hyperactivity/Impulsivity (Gilliam, 2015). Published psychometric data indicate acceptable to strong internal consistency, test-retest reliability, and interrater reliability. Diagnostic accuracy evidence also supports its use for screening ADHD-related behaviors, including reported sensitivity, specificity, and receiver operating characteristic evidence in the test manual and related reviews (Gilliam, 2015; Perdue, 2016). Thus, the instrument provides content validity through DSM-aligned symptom domains, construct validity through its factor structure, and criterion-related validity through evidence of diagnostic accuracy.

Psychopathological tendencies were measured using the Personality Assessment Inventory-Adolescent (PAI-A). The PAI-A is a standardized self-report measure for adolescents aged 12 to 18 years and consists of 264 items distributed across 22 non-overlapping scales, including validity, clinical, treatment consideration, and interpersonal scales (Morey, 2007). In this study, the relevant clinical and psychosocial domains included anxiety, depression, aggression, stress, paranoia, schizophrenia, borderline traits, nonsupport, treatment rejection, dominance, and warmth. The PAI-A includes validity indicators that help detect inconsistent, infrequent, negative, or positive response styles, thereby strengthening data interpretability. Published psychometric studies report acceptable internal consistency and test-retest stability, while evidence from clinical and adolescent samples supports its construct and criterion-related validity (Morey, 2007; Charles et al., 2022).

For the present study, the instruments were administered according to standardized procedures by registered psychometricians and allied professionals. Completed profiles were screened for completeness and interpretability before inclusion in the analysis. Reliability and validity in this manuscript are anchored in published standardization studies and test manuals; future analyses using item-level data may report sample-specific reliability coefficients, such as Cronbach's alpha, for the present participants.

### Data Gathering Procedure

Data collection took place within the interdisciplinary institution in designated assessment rooms to ensure participant comfort and minimize distractions. Registered psychometricians administered the assessment tools with the assistance of occupational therapists and psychologists. Parents or guardians and adolescent participants

were oriented regarding the purpose of the study, confidentiality protocols, and proper completion of assessment instruments. The researcher emphasized honest, accurate responses to improve assessment validity and support intervention planning. Because one assessment instrument, the PAI-A, contains 264 items, procedures were established to protect participants from undue fatigue or psychological distress during assessment. The assessment was conducted in a quiet and supportive setting, and registered psychometricians monitored participants throughout the administration. Participants could request a pause or discontinue the assessment if they experienced discomfort, fatigue, anxiety, or other signs of distress. When observable signs of distress occurred, the administration was suspended, and the participant was given an opportunity to rest and regain comfort. The attending psychologist was consulted when psychological distress required further assessment or support, while the occupational therapist assisted when behavioral, sensory, or task-related difficulties interfered with participation. If the participant could not safely or comfortably continue, the assessment was discontinued, and the appropriate parent or guardian and responsible professional were informed in accordance with the study's ethical and institutional procedures. No participant was required to continue the assessment against their wishes. These procedures were intended to prioritize participant welfare while maintaining standardized administration of the assessment instruments.

### **Data Analysis Procedure**

Descriptive statistics, including frequency counts, percentages, medians, means, and standard deviations, were used to determine the levels of ASD traits, ADHD symptoms, and psychopathological tendencies. Scores from each standardized instrument were interpreted according to the corresponding scoring and interpretive categories provided in the assessment profile or test manual. For the GARS-3, domain and overall scores were classified according to the instrument's prescribed interpretation categories, including the probability ranges for autism spectrum disorder. For the ADHDT-2, domain and overall scores were interpreted using the corresponding frequency and probability categories specified in the assessment profile. For the PAI-A, scores were interpreted according to the scale-specific interpretive categories provided in the assessment profile, such as very low, low, average, mild, moderate, moderately elevated, high, and very high, as applicable to the respective scales. The reported categories therefore reflect the standardized interpretation of the instruments rather than researcher-created cutoffs. Multiple linear regression analysis was used to examine whether ASD and ADHD scores predicted psychopathological tendencies. Separate regression models were conducted for each psychopathological outcome. The coefficient of determination (R-squared) was interpreted to determine the proportion of variance explained by ASD and ADHD. Statistical analyses were conducted using the R Programming Language.

### **Ethical Considerations**

The study adhered to ethical standards in psychological research involving adolescent participants. Informed consent was secured from parents or guardians, while assent was obtained from adolescent participants. Confidentiality and anonymity of participant information were maintained throughout the study. Participants were informed of their right to withdraw at any stage without penalty. The assessment process was conducted in a safe, supportive, and non-threatening environment to protect participants' psychological well-being.

## **Results and Discussion**

### **Level of Autism Spectrum Disorder Among Adolescents**

The findings show that adolescents in the sample demonstrated elevated ASD classification scores, with all participants falling within probability ranges suggestive of ASD. At the domain level, social communication, emotional responses, and cognitive style received higher median interpretations than restricted/repetitive behaviors, social interaction, and maladaptive speech. This pattern suggests that the respondents' ASD-related needs may be more visible in communication, emotional regulation, and thinking style than in overt repetitive behavior or maladaptive speech. The results are consistent with recent discussions that ASD and ADHD may share difficulties in executive, social, and emotional functioning, thereby complicating adolescent adjustment (Martinez et al., 2024).

From the Developmental Psychopathology perspective, these ASD-related characteristics may serve as developmental vulnerabilities that interact with school demands, peer expectations, and family support. However, these characteristics should not be interpreted as direct causes of psychopathology. Instead, they may increase the likelihood of social misunderstanding, emotional strain, or treatment disengagement when adolescents lack adequate support.

**Table 1.** *Level of Autism Spectrum Disorder Among Adolescents*

| Autism Spectrum Disorder        | Not at all         | Somewhat Like         | Very Much Like          | Median                 | Interpretation |                         |
|---------------------------------|--------------------|-----------------------|-------------------------|------------------------|----------------|-------------------------|
|                                 | 1                  | 2                     | 3                       |                        |                |                         |
| Restricted/Repetitive Behaviors | 329<br>(84.1%)     | 29<br>(7.4%)          | 33<br>(8.4%)            | 1                      | Not at all     |                         |
| Social Interaction              | 242<br>(61.9%)     | 89<br>(22.8%)         | 60<br>(15.3%)           | 1                      | Not at all     |                         |
| Social Communication            | 171<br>(43.7%)     | 127<br>(32.5%)        | 93<br>(23.8%)           | 2                      | Somewhat Like  |                         |
| Emotional Responses             | 68<br>(17.4%)      | 144<br>(36.8%)        | 179<br>(45.8%)          | 2                      | Somewhat Like  |                         |
| Cognitive Style                 | 86<br>(22.0%)      | 193<br>(49.4%)        | 112<br>(28.6%)          | 2                      | Somewhat Like  |                         |
| Maladaptive Speech              | 342<br>(87.5%)     | 34<br>(8.7%)          | 15<br>(3.8%)            | 1                      | Not at all     |                         |
|                                 | Unlikely<br>(≤ 54) | Probable<br>(55 – 70) | Very Likely<br>(71-100) | Very Likely<br>(≥ 101) | Median         | Interpretation          |
|                                 | 1                  | 2                     | 3                       | 4                      |                |                         |
| Autism Spectrum Disorder        | 0<br>(0.0%)        | 0<br>(0.0%)           | 320<br>(81.8%)          | 71<br>(18.2%)          | 3              | Very Likely<br>(71-100) |

Note. n = 391. Domain interpretations are based on the scale categories used in the assessment profile.

A deeper reading of the ASD profile suggests that the adolescents' needs are not limited to core diagnostic features but are concentrated in domains that directly affect daily adjustment. The relatively higher interpretations for social communication, emotional responses, and cognitive style are consistent with recent work describing ASD-ADHD overlap in social cognition, executive functioning, emotional regulation, and contextual adaptation (Benallie et al., 2021; Hours et al., 2022; Martinez et al., 2024). This pattern supports the view that psychoeducation should not be limited to explaining ASD characteristics; it should also help adolescents, parents, and teachers understand how communication differences and emotional responses may shape peer interactions, classroom participation, and help-seeking behavior.

The result also cautions against assuming that visible repetitive behavior or maladaptive speech is the primary indicator of need. In this sample, less outwardly disruptive domains appeared more salient, which may partly explain why adolescents can be perceived as functioning adequately while still experiencing relational strain, misunderstanding, or distress. This interpretation strengthens the study's theoretical alignment: neurodevelopmental traits may create vulnerability, but psychosocial context determines whether these traits become disabling, manageable, or buffered by support.

### Level of Attention-Deficit/Hyperactivity Disorder Among Adolescents

**Table 2.** *Level of Attention-Deficit/Hyperactivity Disorder Among Adolescents*

| TABLE 2. Level of Attention Deficit/Hyperactivity Disorder Among Adolescents |                |              |          |            |             |                |                |
|------------------------------------------------------------------------------|----------------|--------------|----------|------------|-------------|----------------|----------------|
| ADHD                                                                         | Never Observed | Occasionally | Often    | Very Often | Median      | Interpretation |                |
|                                                                              | 1              | 2            | 3        | 4          |             |                |                |
| Inattention                                                                  | 10             | 139          | 0        | 242        | 4           | Very Often     |                |
|                                                                              | (2.6%)         | (35.5%)      | (0.0%)   | (61.9%)    |             |                |                |
| Hyperactivity/<br>Impulsivity                                                | 0              | 242          | 105      | 44         | 2           | Occasionally   |                |
|                                                                              | (0.0%)         | (61.9%)      | (26.9%)  | (11.3%)    |             |                |                |
|                                                                              | Very Unlikely  | Unlikely     | Possible | Likely     | Very Likely | Median         | Interpretation |
|                                                                              | 1              | 2            | 3        | 4          | 5           |                |                |
| ADHD                                                                         | 0              | 0            | 0        | 63         | 328         | 5              | Very Likely    |
|                                                                              | (0.0%)         | (0.0%)       | (0.0%)   | (16.1%)    | (83.9%)     |                |                |

Note. n = 391. Domain interpretations are based on the scale categories used in the assessment profile.

Results indicated that most participants were categorized as very likely to exhibit ADHD-related symptoms. Inattention was especially prominent, with 61.9% rated as very often showing inattentive behaviors. Hyperactivity/impulsivity was most frequently rated as occasional, although a smaller proportion of adolescents showed frequent or very frequent hyperactive/impulsive behaviors. This profile is consistent with contemporary

ADHD literature emphasizing that inattentive, executive functioning, and self-regulation difficulties may persist during adolescence and affect learning, organization, peer interaction, and adaptive functioning (Faraone et al., 2024). The findings also suggest that inattention may be a central functional concern for adolescents with co-occurring ASD and ADHD in this sample. In school and intervention settings, inattentive symptoms may reduce task completion, increase frustration, and interfere with participation in counseling or psychoeducation. Therefore, program planning should include structured routines, visual supports, short instructions, and monitoring strategies that reduce cognitive load and improve engagement.

Inattention is particularly prominent during adolescence, when academic demands increasingly require planning, sustained attention, self-monitoring, and independent task completion. Contemporary ADHD research emphasizes that inattentive and executive-function difficulties often persist into adolescence and are associated with impairment even when hyperactivity becomes less obvious (Danielson et al., 2024; Faraone et al., 2021). Thus, the present findings suggest that psychoeducation should include concrete executive-function supports such as visual schedules, chunked tasks, predictable routines, written instructions, and progress monitoring.

At the same time, the ADHD results should be interpreted in relation to ASD traits rather than in isolation. Co-occurring ASD and ADHD may produce complex profiles in which attention difficulties interact with sensory sensitivity, cognitive rigidity, social fatigue, or anxiety (Canals et al., 2024; Casseus et al., 2022). The practical implication is that adolescents may not respond well to generic attention-management strategies unless those strategies are adapted to their communication style, sensory needs, and motivation for participation.

### Level of Psychopathological Tendencies Among Adolescents

**Table 3.** *Level of Psychopathological Tendencies Among Adolescents*

| PAI-A Scale               | Highest / Most Notable Result          | Median | Interpretation |
|---------------------------|----------------------------------------|--------|----------------|
| Somatic Complaints        | 337 / 86.2% Average                    | 1      | Average        |
| Anxiety                   | 172 / 44.0% Mild; 149 / 38.1% Moderate | 3      | Mild           |
| Anxiety-Related Disorders | 184 / 47.1% Very Low                   | 2      | Average        |
| Depression                | 190 / 48.6% Mild; 127 / 32.5% Moderate | 3      | Mild           |
| Mania                     | 286 / 73.1% Low                        | 1      | Low            |
| Paranoia                  | 362 / 92.6% Average                    | 1      | Average        |
| Schizophrenia             | 362 / 92.6% Average                    | 1      | Average        |
| Borderline Traits         | 154 / 39.4% High; 91 / 23.3% Very High | 3      | High           |
| Antisocial Features       | 257 / 65.7% Average                    | 1      | Average        |
| Alcohol Problems          | 391 / 100% Average                     | 1      | Average        |
| Drug Problems             | 391 / 100% Average                     | 1      | Average        |
| Aggression                | 201 / 51.4% Average                    | 2      | Average        |
| Suicidal Ideation         | 325 / 83.1% Average                    | 1      | Average        |
| Stress                    | 279 / 71.4% Moderate                   | 3      | Moderate       |
| Nonsupport                | 183 / 46.8% Moderate                   | 3      | Moderate       |
| Treatment Rejection       | 266 / 68.0% High                       | 4      | High           |
| Dominance                 | 131 / 33.5% Moderately Elevated        | 3      | Average        |
| Warmth                    | 180 / 46.0% Average                    | 3      | Average        |

*Note.* n = 391. PAI-A = Personality Assessment Inventory-Adolescent.

The results showed that many psychopathological tendencies were within average or low ranges, including somatic complaints, paranoia, schizophrenia, antisocial features, alcohol problems, drug problems, aggression, suicidal ideation, dominance, and warmth. This suggests that severe psychopathological tendencies were not uniformly elevated across the sample. However, clinically relevant concerns emerged in anxiety, depression, borderline traits, stress, nonsupport, and treatment rejection.

Anxiety and depression were interpreted as mild overall, with a considerable proportion of respondents falling within mild to moderate categories. This finding is important because adolescent emotional symptoms may interfere with school adjustment, peer relationships, and treatment participation even when they are not severe. Borderline traits received a high interpretation, suggesting emotional instability, interpersonal sensitivity, or difficulty regulating affect. Moderate stress and nonsupport indicate that many adolescents may experience psychological pressure while perceiving limited support from significant others. These patterns support research

indicating that adolescent mental health is shaped by the interaction of individual, family, peer, and school-related factors (Lin & Guo, 2024).

The high level of treatment rejection is one of the most important findings because it has direct implications for intervention design. Treatment rejection may reflect discomfort with unfamiliar services, limited insight into difficulties, stigma, previous negative experiences, communication challenges, or low perceived relevance of mental health support. Recent evidence on adolescent mental health services emphasizes that youth involvement, trust, shared decision-making, and individualized support can improve engagement and continuation in care (Viksveen et al., 2024). Therefore, psychoeducation programs for this population should not only teach coping skills but should also actively address motivation, trust-building, and adolescent participation in goal-setting.

The overall psychopathology profile is theoretically important because elevated ASD and ADHD classification did not correspond to uniformly elevated clinical scales. This finding supports a non-deterministic interpretation: adolescents with co-occurring neurodevelopmental conditions may show specific psychosocial vulnerabilities while maintaining average functioning in other domains. Longitudinal and population-based studies similarly indicate that co-occurring symptoms vary across development and are shaped by contextual supports, service access, and individual differences rather than diagnosis alone (Casseus et al., 2023; Mutluer et al., 2022; Orm et al., 2021).

The mild anxiety and depression findings should not be minimized. Recent studies show that autistic adolescents and youth with ADHD are at increased risk for internalizing symptoms, and these symptoms can reduce activity engagement, school participation, and treatment responsiveness even when they do not reach severe clinical thresholds (Leachman et al., 2024; Thapar et al., 2023; Wang et al., 2025; Wiggins et al., 2024). In this context, mild symptoms may represent an early intervention window rather than a low-priority finding.

The high borderline-trait interpretation should also be handled carefully. In adolescent assessment, this result should not be read as a fixed personality diagnosis. Rather, it may reflect emotional lability, interpersonal sensitivity, unstable self-perception, and difficulty regulating distress. These features are theoretically compatible with Developmental Psychopathology because they may arise from repeated mismatches between adolescent needs and environmental expectations. Therefore, intervention should focus on emotion identification, distress tolerance, relationship repair, and predictable adult support rather than labeling adolescents as resistant or difficult.

Treatment rejection further strengthens the study's contribution. Recent mental health service literature emphasizes that youth involvement, shared decision-making, trust, and service adaptation can improve engagement in adolescent mental health care (Pemovska et al., 2024; Viksveen et al., 2024). These findings therefore connect the statistical results to a concrete program priority: before psychoeducation can be effective, adolescents may need to understand why the program matters, have choice in goal-setting, and build trust with the adults delivering the intervention.

### **Impact of ASD and ADHD on Psychopathological Tendencies**

The regression findings indicate that ASD and ADHD were generally weak predictors of most psychopathological outcomes. Anxiety, depression, borderline traits, mania, paranoia, suicidal ideation, stress, and dominance were not significantly predicted by ASD or ADHD. The small R-squared values suggest that these outcomes are likely influenced by broader psychosocial mechanisms rather than neurodevelopmental symptom severity alone. This finding is theoretically meaningful because it supports the Developmental Psychopathology view that adolescent mental health outcomes emerge from multiple interacting risks and supports, not from diagnostic characteristics in isolation.

Two findings in Table 4 require caution: the negative prediction of schizophrenia scores by ADHD and the negative prediction of antisocial features by both ADHD and ASD. These findings should not be interpreted to mean that ADHD or ASD protects adolescents from schizophrenia or antisocial behavior. Rather, the negative coefficients indicate that, within this specific sample and after accounting for the predictors included in the regression models, higher ADHD and ASD scores were statistically associated with lower scores on these PAI-A scales. This pattern differs from much of the broader literature, which has generally documented ADHD as being

associated with behavioral difficulties and adverse outcomes during adolescence. For example, Sultan et al. (2021) found that adolescents with ADHD had higher rates of physical aggression and other adverse behaviors than adolescents without ADHD. Similarly, longitudinal evidence has identified ADHD symptoms as associated with increased odds of antisocial behavior during adolescence (Mannuzza et al., 2004). Therefore, the negative associations observed in the present study may reflect sample-specific characteristics, the restricted range of scores, the co-occurrence of ASD and ADHD, institutional or treatment-related factors, or other unmeasured variables rather than a protective effect of either neurodevelopmental condition.

**Table 4.** *Impact of ASD and ADHD on Psychopathological Tendencies*

| Outcome Variable          | Significant Predictor/s | Direction of Effect | R <sup>2</sup> | Overall Model               | Interpretation                                                                    |
|---------------------------|-------------------------|---------------------|----------------|-----------------------------|-----------------------------------------------------------------------------------|
| Anxiety                   | None                    | —                   | 0.002          | Not significant             | ADHD and ASD did not significantly predict anxiety.                               |
| Depression                | None                    | —                   | 0.007          | Not significant             | ADHD and ASD did not significantly predict depression.                            |
| Borderline Traits         | None                    | —                   | 0.001          | Not significant             | ADHD and ASD did not significantly predict borderline traits.                     |
| Mania                     | None                    | —                   | 0.006          | Not significant             | ADHD and ASD did not significantly predict mania.                                 |
| Paranoia                  | None                    | —                   | 0.007          | Not significant             | ADHD and ASD did not significantly predict paranoia.                              |
| Schizophrenia             | ADHD                    | Negative            | 0.015          | Marginal / near significant | ADHD significantly predicted lower schizophrenia scores; ASD was not significant. |
| Anxiety-Related Disorders | None individually       | —                   | 0.017          | Significant                 | ADHD and ASD were not individually significant, but the model was significant.    |
| Antisocial Features       | ADHD and ASD            | Negative            | 0.055          | Significant                 | Higher ADHD and ASD scores predicted lower antisocial features.                   |
| Aggression                | ASD                     | Negative            | 0.011          | Not significant             | ASD significantly predicted lower aggression, but the model was weak overall.     |
| Suicidal Ideation         | None                    | —                   | 0.008          | Not significant             | ADHD and ASD did not significantly predict suicidal ideation.                     |
| Stress                    | None                    | —                   | 0.009          | Not significant             | ADHD and ASD did not significantly predict stress.                                |
| Nonsupport                | ASD                     | Positive            | 0.038          | Significant                 | Higher ASD scores predicted higher nonsupport.                                    |
| Treatment Rejection       | ASD                     | Positive            | 0.917          | Significant                 | ASD strongly predicted treatment rejection.                                       |
| Dominance                 | None                    | —                   | 0.000          | Not significant             | ADHD and ASD did not significantly predict dominance.                             |
| Warmth                    | ADHD                    | Positive            | 0.016          | Significant                 | Higher ADHD scores predicted higher warmth.                                       |

*Note.* Separate regression models were conducted for each outcome variable. The values indicate the proportion of variance in the outcome explained by ASD and ADHD scores in each model.

The negative association between ADHD and schizophrenia scores should likewise be interpreted conservatively. Research has documented that ADHD and psychotic symptoms can co-occur, rather than establishing a general protective relationship between ADHD and psychotic-spectrum outcomes. For instance, Stickley et al. (2023) reported that ADHD symptoms were associated with greater odds of several adverse outcomes among individuals with psychotic experiences. The contrasting direction observed in the present analysis therefore warrants replication and should not be generalized beyond the study population. One possible explanation is that the PAI-A schizophrenia scale measures specific psychological and perceptual features rather than schizophrenia diagnosis itself; consequently, a lower score on this scale should not be interpreted as evidence that ADHD reduces the likelihood of schizophrenia.

The negative prediction of antisocial features by ASD and ADHD is also noteworthy because previous research has generally associated ADHD, particularly when accompanied by disruptive behavior disorders, with increased externalizing and antisocial difficulties. In a longitudinal study of children with neurodevelopmental problems,

ADHD was associated with increased odds of antisocial behavior during adolescence, while the combination of ADHD and disruptive behavior disorders was particularly relevant to aggression and conduct-related outcomes. These findings indicate that the direction and magnitude of associations may depend on comorbid conditions and contextual factors. In the present study, the negative coefficients may therefore reflect the specific clinical and developmental characteristics of adolescents with co-occurring ASD and ADHD in an interdisciplinary service setting.

From the Developmental Psychopathology perspective, these unexpected negative associations further demonstrate that neurodevelopmental characteristics should not be treated as deterministic explanations of psychopathological outcomes. The same developmental condition may be associated with different outcomes depending on comorbidity, environmental support, intervention exposure, family and school context, and individual developmental pathways. Thus, the present findings are better understood as sample-specific statistical associations that require further investigation rather than as evidence of protective effects of ADHD or ASD.

Several significant but low-variance findings require careful interpretation. ADHD negatively predicted schizophrenia scores, and ASD and ADHD negatively predicted antisocial features. ASD also negatively predicted aggression, although the overall model was weak. These results suggest that higher neurodevelopmental symptom scores were not necessarily associated with higher externalizing or severe clinical tendencies in this sample. Such findings may reflect the influence of institutional support, prior intervention exposure, caregiver monitoring, or differences in how behaviors were expressed and reported. Because the explained variance was small, these findings should not be generalized without replication.

The most theoretically and practically important results concerned nonsupport and treatment rejection. ASD positively predicted perceived nonsupport, suggesting that adolescents with higher ASD-related traits may be more likely to feel unsupported. This may be linked to communication differences, social misunderstanding, peer exclusion, or difficulty expressing needs. ASD also strongly predicted treatment rejection, with a notably high R-squared value. This result should be interpreted cautiously because very high explained variance may reflect conceptual overlap, restricted score ranges, or shared measurement effects. Nevertheless, the finding points to a critical intervention issue: adolescents with stronger ASD traits may require more structured, predictable, collaborative, and trust-building approaches before they fully engage in psychoeducation or psychological support.

Overall, the results refine the study's contribution. Rather than claiming that co-occurring ASD and ADHD broadly cause psychopathological tendencies, the findings show a more nuanced pattern: neurodevelopmental traits weakly explain most clinical outcomes but are highly relevant to treatment engagement and perceived support. This distinction advances the discussion from symptom severity to intervention readiness, social support, and service design. For Filipino adolescents in interdisciplinary settings, the findings suggest that psychoeducation should be developmentally sensitive, family-inclusive, school-linked, and youth-centered.

Critically, the weak predictive power of ASD and ADHD across most psychopathological outcomes prevents an overly medicalized or deterministic interpretation of the results. If neurodevelopmental scores alone explained anxiety, depression, borderline traits, stress, or suicidal ideation, intervention could reasonably focus mainly on symptom severity. Instead, the low R-squared values suggest that family support, peer acceptance, teacher response, stigma, service continuity, treatment history, and adolescent self-understanding may be more useful explanatory variables for future models. This interpretation is consistent with Developmental Psychopathology, which expects multiple pathways to similar outcomes and different outcomes from similar risk profiles.

The significant findings for nonsupport and treatment rejection are therefore the most distinctive findings rather than peripheral outcomes. They indicate that adolescents with stronger ASD-related traits may struggle most not simply with symptoms but with how support is perceived, accessed, and accepted. This finding advances the manuscript's theoretical and practical contribution by reframing intervention from a symptom-reduction model to an engagement-and-support model.

However, the strong ASD-treatment rejection association must be interpreted cautiously. The cross-sectional predictive-correlational design cannot establish causation, and the very high explained variance may partly reflect

restricted score ranges, shared measurement context, or conceptual overlap between ASD-related traits and treatment-related response patterns. Therefore, the finding should be presented as an association that identifies a high-priority intervention target, not as evidence that ASD causes treatment rejection.

### **Implications for Psychoeducation and Intervention Program**

The findings support a psychoeducation and intervention program with four priority components. First, emotional regulation modules should help adolescents identify emotions, manage stress, and use coping strategies during school, home, and peer-related challenges. Second, social support enhancement should include family sessions, teacher consultation, peer-sensitivity activities, and communication supports that reduce perceived lack of support. Third, treatment engagement strategies should be youth-centered and collaborative, helping adolescents understand the intervention's purpose, participate in goal-setting, and gradually build trust with professionals. Fourth, school and clinical monitoring should identify mild anxiety, depression, high borderline traits, stress, and treatment rejection before these concerns progress into more serious difficulties.

The intervention program should be structured, predictable, visual, and strengths-based. Sessions may include brief psychoeducation, visual schedules, skill demonstrations, guided practice, parent-teacher feedback, and follow-up monitoring. Given the strong association between ASD traits and treatment rejection, the program should avoid purely directive approaches and instead emphasize choice, routine, rapport-building, and shared decision-making.

The study's practical contribution is that the proposed intervention should be designed around engagement conditions, not only intervention content. Evidence from school-based and psychotherapy research suggests that multilevel approaches involving adolescents, parents, teachers, and clinicians can strengthen resilience, coping self-efficacy, school connectedness, and mental health support for autistic youth (Rosenau et al., 2024; Shochet et al., 2022). Similarly, social-skills and psychoeducational programs for adolescents with ADHD and co-occurring autism-related needs appear more useful when they are structured, developmentally appropriate, and responsive to social motivation and behavioral regulation (Geannopoulos et al., 2024).

For practice and policy, the findings suggest that schools and interdisciplinary centers should include perceived support and treatment readiness in routine screening. A psychoeducation program may include orientation sessions for adolescents, parent coaching, teacher consultation, peer-sensitivity activities, structured referral pathways, and periodic monitoring of anxiety, depression, stress, non-support, and treatment rejection. This approach aligns with the findings because it treats intervention participation as a clinical outcome.

### **Conclusion**

This study contributes to the understanding of adolescents with co-occurring ASD and ADHD by showing that psychopathological tendencies are not fully explained by neurodevelopmental symptoms alone. Although participants demonstrated high levels of ASD and ADHD indicators, most clinical scales remained within average or low ranges. However, mild anxiety and depression, high borderline traits, moderate stress, moderate nonsupport, and high treatment rejection were notable concerns. The study's unique contribution lies in identifying treatment rejection and perceived nonsupport as important intervention targets among adolescents with co-occurring ASD and ADHD. ASD significantly predicted nonsupport and strongly predicted treatment rejection, suggesting that adolescents with higher ASD-related traits may require more individualized and trust-oriented support before effective intervention can occur. Theoretically, these findings support the Developmental Psychopathology framework by demonstrating that neurodevelopmental characteristics alone do not uniformly account for psychopathological tendencies. Instead, the findings suggest that adolescent outcomes may emerge through interactions between developmental characteristics and contextual factors, including perceived social support, treatment engagement, family relationships, school experiences, and access to appropriate services. The generally weak predictive effects of ASD and ADHD on most clinical outcomes further support a non-deterministic understanding of psychopathology among adolescents with co-occurring neurodevelopmental conditions. Empirically, the study extends existing literature by examining clinical, treatment-related, and interpersonal outcomes within the same sample of Filipino adolescents with co-occurring ASD and ADHD. Rather than demonstrating uniformly elevated psychopathological symptoms, the findings identified specific areas of concern, particularly non-support and treatment rejection. This distinction contributes to a more differentiated understanding of the psychosocial needs of adolescents with co-occurring ASD and ADHD and provides

directions for future research examining the contextual factors that may better explain these outcomes. Practically, the findings inform the development of psychoeducation and intervention programs that focus not only on symptom reduction but also on emotional regulation, social support, treatment engagement, and family-school collaboration. The findings provide a basis for an intervention program that is youth-centered, developmentally appropriate, predictable, strengths-based, and responsive to the communication and support needs of adolescents with ASD and ADHD. Program components may address emotional regulation, stress coping, strengthening perceived social support, improving communication, increasing understanding of treatment, and promoting adolescent participation in goal-setting and decision-making. Coordination among adolescents, parents, teachers, and interdisciplinary professionals may further support continuity of intervention across settings. The findings also have implications for practice in interdisciplinary educational and clinical settings. Assessment and intervention planning may benefit from considering not only the presence or severity of neurodevelopmental characteristics but also the adolescent's perceived support and willingness to participate in treatment. Early identification of mild anxiety and depression, stress, lack of support, and treatment rejection may provide opportunities for supportive intervention before these concerns become more disruptive to participation and adjustment. In policy terms, the findings support coordinated referral systems between schools, families, and interdisciplinary clinics so that adolescents are not only assessed but also guided into services they understand and are willing to use. Future longitudinal studies should test whether improvements in perceived support and treatment engagement lead to later reductions in anxiety, depression, stress, and interpersonal dysregulation.

Future studies should also examine contextual variables that were not included in the present models, such as family support, peer relationships, school experiences, stigma, treatment history, service access, and previous intervention exposure. Longitudinal and larger multi-site studies may further determine whether the associations identified in the present study are maintained across developmental periods and settings. Future research may also report sample-specific reliability coefficients and conduct confirmatory validity analyses using item-level data to strengthen the methodological evidence. Overall, the findings provide an empirical and theoretical basis for intervention programs that move beyond a purely symptom-focused approach. For adolescents with co-occurring ASD and ADHD, effective psychoeducation and intervention should address not only emotional and behavioral concerns but also the conditions that influence whether adolescents feel supported, understand the purpose of intervention, and are willing to participate. In this way, the study's findings can serve as a basis for developing intervention programs that are individualized, family-inclusive, school-linked, and focused on sustained treatment engagement and psychosocial support.

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