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Attachment styles as mediators between autistic traits and psychological distress: The role of social and communication difficulties[1]

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Abstract: Autistic traits such as social skill and communication difficulties are linked to increased risk of depression and anxiety. Attachment theory offers a useful framework for understanding these associations, as insecure attachment styles are known to affect emotion regulation and mental health. This study examined whether adult attachment styles (secure, avoidant, anxious-ambivalent) mediate the relationship between autistic traits and psychological distress. A sample of 130 adults completed measures of autistic traits, attachment, and psychological functioning. Mediation analyses revealed that social difficulties – but not communication deficits – consistently mediated the link between attachment styles and psychological symptoms. Secure attachment was protective, while avoidant and especially anxious-ambivalent styles predicted greater distress. These findings highlight the importance of addressing attachment-related processes and social functioning in interventions for individuals with elevated autistic traits.
Key words: autistic traits, broader autism phenotype, attachment styles, social functioning, communication.

Introduction

Autism Spectrum Disorder (ASD) is a spectrum of neurodevelopmental condition characterized by challenges in social communication and interaction, alongside restricted and repetitive behaviors (WHO, 2023). The prevalence of ASD has been increasing, with estimates suggesting it affects about 1 in 36 children (Hirota & King, 2023; Hodges et al., 2020; Sharma et al., 2018). Individuals with ASD often experience difficulties in social interaction and communication, which can manifest as challenges in understanding social cues, maintaining conversations, or forming relationships (Hodges et al., 2020; Hyman et al., 2019; Lord et al., 2018; Sharma et al., 2018). Many individuals with ASD also experience comorbid conditions such as ADHD, anxiety, depression, and epilepsy, which can complicate diagnosis and treatment (Hirota & King, 2023; Lord et al., 2020; Sharma et al., 2018).

Autism spectrum disorders are influenced by a combination of genetic and environmental factors. ASD is highly heritable, with numerous genetic variants contributing to its risk. Both common and rare genetic mutations have been implicated (Havdahl et al., 2021; Yoon et al., 2020). Factors such as parental age, prenatal exposure to certain drugs, and environmental toxins may also increase ASD risk (Sharma et al., 2018; Yoon et al., 2020).

The broader autism phenotype (BAP) refers to a set of subclinical traits that are similar to, but milder than those observed in individuals with autism spectrum disorder (ASD). BAP includes mild expressions of autistic-like traits, such as social communication difficulties and rigid personality traits, which do not meet the full criteria for an ASD diagnosis (Ingersoll & Wainer, 2014; Landry & Chouinard, 2016; Piven et al., 1997).

1 Article in Polish language: https://stowarzyszeniefidesetratio.pl/fer/62P_sied.pdf

Key domains include social and communication deficits, stereotyped behaviors, and cognitive traits such as face processing and executive function (Dawson et al., 2002; Pickles et al., 2000; Piven et al., 1997).

These traits are often found in family members of individuals with ASD and can provide insights into the genetic and environmental factors associated with autism. Studies show a strong genetic component to BAP, with higher concordance rates in monozygotic twins compared to dizygotic twins, indicating heritability (Couteur et al., 1996; Piven et al., 1997). Siblings and parents of individuals with ASD often exhibit BAP traits, which can manifest as intermediate levels of autistic traits compared to typical controls and those with ASD (Pisula & Ziegart-Sadowska, 2015; Ruzich et al., 2015).

The presence of subclinical autistic traits is in negative relation to mental health (Pisula et al., 2015; Stimpson et al., 2021).This relation was also reported in parents of children with autism and older adults. Parents of children with autism often exhibit subclinical traits, which are linked to reduced mental health indicators, including increased symptoms of anxiety, depression, and stress. Psychological inflexibility and challenging parenting experiences are significant mediators in this relationship, suggesting that interventions targeting these areas could improve mental health outcomes for parents (El-Bouhali-Abdellaoui et al., 2024; Kulasinghe et al., 2021; Pruitt et al., 2018). Fathers with stronger subclinical autism traits also experience higher levels of emotional distress. In mothers, the presence of a child with autism and the child's emotional dysregulation are more closely associated with psychological distress (El-Bouhali-Abdellaoui et al., 2024).

Attachment theory, originally developed by John Bowlby and Mary Ainsworth (1982), is a psychological framework that explores the dynamics of long-term relationships between humans, particularly as it relates to how early attachments influence personal development and behavior throughout life. This theory has been widely applied across various domains, including developmental psychology, mental health, and organizational behavior. Attachment is considered an inborn behavioral system essential for survival, with individual differences in attachment security emerging during child development. These differences are traditionally explained by the internalization of experiences with caregivers into working models of attachment. Recent perspectives suggest that these differences can also be understood through the principles of classical and operant conditioning, integrating neurocognitive and endocrinological processes such as cortisol, oxytocin, and dopamine (Bosmans et al., 2020).

Attachment influences the processing of social information throughout life. Secure attachment models allow for open and safe processing of both positive and negative social information, while insecure models may lead to defensive exclusion or negatively biased processing. This pattern is consistent across childhood, adolescence, and adulthood, affecting attention, memory, and attributions (Dykas & Cassidy, 2011).

Attachment is potentially affecting mental health outcomes such as anxiety and depression. This theory posits that insecure attachment styles, characterized by anxiety and avoidance, can lead to increased vulnerability to these mental health issues. Research consistently shows that attachment anxiety is more strongly associated with depressive symptoms compared to attachment avoidance. Individuals with high attachment anxiety tend to experience greater depressive symptoms due to their heightened sensitivity to perceived threats in relationships and a constant need for reassurance (Zhang et al., 2022; Zheng et al., 2020). This relationship is moderated by factors such as cultural orientation, sex, and age, indicating that the impact of attachment anxiety on depression can vary across different demographic groups (Zheng et al., 2020). While attachment avoidance is also linked to depressive symptoms, the association is generally weaker than that of attachment anxiety. Avoidant individuals may suppress emotional needs and avoid closeness, which can lead to feelings of isolation and depression, but to a lesser extent than those with attachment anxiety (Zhang et al., 2022; Zheng et al., 2020).

Social anxiety can mediate the relationship between attachment styles and depression. For instance, the effect of attachment on depression can be partially mediated by social anxiety, suggesting that individuals with insecure attachment may develop social anxiety, which in turn contributes to

depressive symptoms (Manes et al., 2016). Emotion regulation strategies also mediate the relationship between attachment and depressive symptoms. Anxious attachment is associated with hyperactivating strategies, which exacerbate depressive symptoms, while avoidant attachment is linked to deactivating strategies, though evidence for their mediating role is mixed (Malik et al., 2015).

Persons with higher level of autism traits often experience attachment insecurity. Higher autism characteristics are linked to increased attachment anxiety and avoidance, which in turn affect relationship satisfaction. Specifically, pragmatic language difficulties are associated with avoidant attachment, while aloofness and rigidity contribute to both anxious and avoidant attachment styles (Beffel et al., 2021; Hirokawa et al., 2019; Lamport & Turner, 2014).

Research indicates that adults with high-functioning autism can form secure attachments, although they may exhibit less coherent narratives and lower reflective function compared to controls. This suggests that while attachment security is possible, it may manifest differently in this population (Taylor et al., 2008).

Attachment styles have been shown to mediate the relationship between childhood experiences and adult mental health outcomes. For instance, insecure attachment styles, such as anxious and avoidant attachment, are linked to higher levels of anxiety and depression (Widom et al., 2018). This mediation effect suggests that attachment styles could similarly mediate the relationship between autism traits and mental health problems, potentially exacerbating or mitigating mental health issues depending on the attachment style (Parada-Fernández et al., 2021; Sechi et al., 2020).

Understanding the mediating role of attachment styles can inform therapeutic strategies for neurodiverse population. Interventions that focus on enhancing secure attachment and addressing attachment-related issues may improve mental health outcomes for persons with high autistic traits (Jennissen et al., 2024). Additionally, targeting attachment styles in therapy could help reduce emotion dysregulation and improve psychological well-being (Parada-Fernández et al., 2021).

1. Aims and hypothesis

The present study aimed to examine whether attachment styles mediate the relationship between autistic traits – particularly communication difficulties and social skill deficits – and symptoms of depression and anxiety. Building on previous research linking subclinical autistic characteristics (Broader Autism Phenotype) with emotional distress, we investigated the role of three attachment styles (anxious-ambivalent, avoidant, and secure) as potential psychological mechanisms explaining how these traits may influence mental health.

Given that both autistic traits and insecure attachment have been associated with internalizing symptoms, we hypothesized that:

1. Higher levels of autistic traits, particularly difficulties in communication and social skills, would be positively associated with symptoms of depression and anxiety.
2. Insecure attachment styles (anxious-ambivalent and avoidant) would be positively associated with depression and anxiety symptoms, whereas secure attachment would be negatively associated with these symptoms.
3. The relationship between autistic traits (especially communication and social difficulties) and symptoms of depression and anxiety would be mediated by attachment styles:
   - The anxious-ambivalent and avoidant styles would increase symptoms.
   - The secure style would decrease symptoms, serving a protective role.

2. Methods

2.1. Participants

The study included 130 participants (65 couples) aged 25-55 years (M = 36.66, SD = 4.83). Groups included parents of children with developmental disorders – autism spectrum and Down syndrome. Participants were recruited through therapeutic and diagnostic centers that provide support for families of

children with developmental difficulties. Recruitment was conducted with the assistance of staff members at these institutions, who informed eligible parents about the opportunity to participate in the study. Parents who expressed interest received detailed information about the study's purpose, scope, and ethical considerations. Each participant provided written informed consent prior to participation. They were explicitly informed that the study was anonymous, voluntary, and that they could withdraw at any point without providing a reason and without any consequences. Participants completed the battery of questionnaires individually, in paper form. The study was conducted in accordance with the ethical standards of the 1964 Helsinki Declaration and its later amendments.

2.2. Measures

Autism Spectrum Quotient (AQ) is a self-report questionnaire used to measure autism traits in adults within the intellectual norm. The scale consists of 50 statements, to which the respondent responds on a four-point scale. High results on this scale indicate more pronounced autistic traits. Persons diagnosed with autism spectrum disorders achieve significantly higher results compared to the general population (Baron-Cohen et al., 2001). In addition to the overall score, five subscales can also be calculated: social skills, attention switching, attention to detail, communication, and imagination (Hoekstra et al., 2008). The Polish adaptation of the scale (Pisula et al., 2013) was proven to have satisfactory internal consistency and accuracy. In the Polish adaptation of the tool, 80% of people with ASD scored above 25 points (Pisula et al., 2013). The suggested cut-off point for screening for ASD in the original version was 32 points (Baron-Cohen et al., 2001).

The General Health Questionnaire (GHQ-30; Goldberg, 1972) is a self-report screening tool used to assess general mental health in adults. The 30-item version represents an intermediate form between the longer GHQ-60 and the shorter GHQ-12 and GHQ-20 versions. Respondents rate each item on a 4-point Likert scale, reflecting the frequency or intensity of psychological symptoms. Responses were scored using a 0-1-2-3 method, with higher scores indicating greater psychological distress. The Polish adaptation of the GHQ-30 (Małyszczak & Pawłowski, 2003) demonstrates excellent internal consistency (Cronbach's $\alpha = .97$) and good psychometric properties, including sensitivity (.85) and specificity (.80). The GHQ-30 has shown strong correlations with clinical diagnoses of mental disorders ($\tau = .53$) and with the Global Assessment of Functioning Scale ($r = -.74$), confirming its validity in assessing psychological functioning in the general population. The scale can be analyzed as either unidimensional or multidimensional, with three subscales: anxiety and depression, social functioning, and general well-being (Frydecka et al., 2010).

The Attachment Style Questionnaire (Kwestionariusz Stylów Przywiązania, KSP; Plopa, 2008) is a Polish self-report instrument based on the classic tripartite model of attachment. It measures three attachment styles in adults: secure, anxious-ambivalent, and avoidant. The questionnaire consists of 24 items, divided into three 8-item subscales. Each item is rated on a 7-point Likert scale, indicating the degree to which the statement reflects the respondent's typical experiences in close relationships.

The KSP has demonstrated high internal consistency (Cronbach's α ranging from .85 to .90) and has been validated in both clinical and non-clinical Polish populations. It is one of the most frequently used tools for measuring attachment styles in Poland.

2.3. Statistical Analysis

All statistical analyses were conducted using IBM SPSS Statistics version 29 with the PROCESS macro (version 4.2; Hayes, 2022). To examine the mediating role of attachment styles in the relationship between autistic traits and symptoms of depression and anxiety, a series of mediation models (Model 4 in PROCESS) were applied.

3. Results

Prior to conducting the main analyses, descriptive statistics were computed for all study variables, including means, standard deviations, skewness, and kurtosis. The Kolmogorov-Smirnov test was used to assess the normality of distribution. As shown in Table 1, most variables deviated significantly from the normal distribution, except for the anxious-ambivalent attachment style, which did not differ significantly from normality.

3.1. Bivariate correlations

Spearmans's correlation analyses were conducted to examine the associations between autistic traits, attachment styles, and symptoms of depression and anxiety. As shown in Appendix A, total autistic traits (AQ total) were positively correlated with overall mental health difficulties (GHQ total; *rho* = .32, $p < .001$), as well as with all three GHQ subscales, particularly anxiety and depression (*rho* = .27, $p = < .01$).

The secure attachment style was negatively associated with GHQ (*r*ho = -.27, $p < .01$), suggesting a protective role. In contrast, both the avoidant (*rho* = .25, $p < .01$) and anxious-ambivalent (*rho* = .46, $p < .001$) styles were positively associated with GHQ scores. Secure attachment also showed significant negative correlations with autistic traits (e.g., $r = -.46$ with AQ total), while insecure styles correlated positively with AQ subscales.

3.2. Mediation analyses of attachment styles in predicting general mental health problems

The series of three mediation models was conducted, employed Hayes' PROCESS macro (Model 4) for mediation in SPSS. In each model, the independent variable was a different attachment style (secure, avoidant, anxious), and the dependent variable was the total level of psychological symptoms (GHQ Total). Two concurrent mediators were included: AQ Social Skills (social difficulties) and AQ Communication (communication difficulties).

3.2.1. Model 1 – secure attachment

In the first model, secure attachment negatively predicted both social difficulties ($\beta = -1.78, p < .001$) and communication difficulties ($\beta = -1.39, p < .001$). An indirect effect through AQ – Social Skills was statistically significant, while the direct effect was non-significant. This indicates a full mediation via social functioning: individuals with a secure attachment style experienced fewer social difficulties, which in turn was associated with lower psychological symptom severity.

Table 1. Descriptive statistics and with Kolmogorov-Smirnov Test

Variable	Min	Max	Mean	SD	Skewness	Kurtosis	K – S test	p-value
AQ – Attention Switching	0	27	5.58	3.23	2.334	13.77	0.119	.000
AQ – Communication	0	14	2.16	2.43	1.702	4.108	0.199	.000
AQ – Attention to Detail	0	27	5.68	3.60	1.812	8.214	0.136	.000
AQ – Imagination	0	11	4.05	2.66	0.434	-0.207	0.093	.008
GHQ – Total Score	10	82	32.98	13.85	1.092	1.202	0.120	.000
GHQ – Anxiety and Depression	2	32	12.19	6.50	0.711	0.228	0.104	.001
GHQ – General Functioning	0	19	8.28	3.37	0.966	1.477	0.211	.000
GHQ – Interpersonal Relationships	0	7	3.37	1.40	0.299	0.835	0.273	.000
ASQ – Secure Attachment	2.75	6.75	4.49	0.70	-0.141	0.504	0.113	.000
ASQ – Avoidant Attachment	2.00	6.50	4.26	0.82	0.053	0.255	0.093	.008
ASQ – Anxious-Ambivalent Attachment	2.00	6.00	4.12	0.76	0.001	0.000	0.050	.200

3.2.2. Model 2 – avoidant attachment

Avoidant attachment positively predicted AQ – Social Skills (β = 1.21, p < .001) and AQ Communication (β = 0.76, p = .003). The model revealed both a significant direct effect on psychological symptoms (β = 3.37, p = .033) and a significant indirect effect through AQ – Social Skills. This indicates a partial mediation, with avoidant attachment contributing to increased symptom severity both directly and indirectly via impaired social functioning.

3.2.3. Model 3 – anxious-ambivalent attachment

Anxious attachment significantly predicted both AQ Social Skills (β = 0.60, p = .031) and AQ – Communication (β = 0.63, p = .024). The model showed a strong direct effect on psychological symptoms (β = 7.73, p < .001) and a significant indirect effect via AQ – Social Skills, but no mediation through AQ Communication. This pattern suggests that anxious attachment contributes to psychological distress through both direct and indirect pathways, the latter via increased social difficulties.

3.3. Mediation analyses of attachment styles in predicting anxiety and depression symptoms

This series of analyses aimed to examine whether the relationship between three adult attachment styles (secure, avoidant, anxious-ambivalent) and symptoms of anxiety and depression (GHQ – Anxiety and Depression subscale) is mediated by social (AQ Social Skills) and communication (AQ Communication) difficulties.

3.3.1. Model 1 – secure attachment

Secure attachment was a strong negative predictor of both social difficulties (β = -1.78, p < .001) and communication difficulties (β = -1.39, p < .001). There was a significant indirect effect via AQ – Social Skills, while the direct effect on GHQ – Anxiety and Depression was non-significant. This pattern supports a full mediation, suggesting that secure attachment protects mental health through its impact on social functioning.

3.3.2. Model 2 – avoidant attachment

Avoidant attachment significantly predicted both AQ Social Sikills (β = 1.21, p < .001) and AQ Communication (β = 0.76, p = .003). The indirect effect via AQ – Social Skills was statistically significant, while the direct effect on GHQ – Anxiety and Depression approached significance (β = 1.31, p = .077). This pattern is consistent with a partial mediation, with the avoidant attachment style affecting anxiety and depression symptoms both directly and through social difficulties.

3.3.3. Model 3 – anxious-ambivalent attachment

Anxious attachment showed the strongest direct effect on GHQ – Anxiety and Depresison (β = 3.60, p < .001), along with a significant indirect effect via AQ – Soccial Skills (CI = [0.03; 0.97]). Interestingly, AQ Communication played a suppressing role, with a significant negative indirect effect (CI = [-0.76; -0.01]). The total indirect effect was not significant, indicating a mixed mediation pattern. Anxious-ambivalent individuals experience greater anxiety and depression both directly and indirectly via AQ – Social Skills, but this is partially counterbalanced by communication effects.

3.4. Mediation analyses of attachment styles in predicting general psychological functioning

This set of analyses aimed to explore how different adult attachment styles predict general psychological functioning, measured by the GHQ – General Functioning subscale. Across the three models, none of the attachment styles demonstrated significant indirect effects through AQ – Social Skills or AQ – Communication.

3.5. Mediation analyses of attachment styles in predicting interpersonal functioning

The following mediation models were conducted to assess how distinct adult attachment styles influence interpersonal functioning, measured by the GHQ Interpersonal Relationships subscale.

3.5.1. Model 1 – secure attachment

In the model including secure attachment as the predictor, results revealed a significant negative direct effect of secure attachment on interpersonal dysfunction ($\beta = -0.46, p = .022$), indicating that individuals with a higher level of secure attachment report fewer interpersonal difficulties. Moreover, secure attachment was a significant negative predictor of both mediators: AQ – Social Skills ($\beta = -1.78, p < .001$) and AQ – Communication ($\beta = -1.39, p < .001$).

Table 2. Comparative summary of the three mediation models

Direct Effect (X ⟶ Y)	Total Indirect Effect	Mediation via AQ – Social Skills	Mediation via AQ – Communication	Mediation Pattern
-3.25 (p = .104)	-1.55	-2.44 [CI: -4.45; -0.28]	0.89 (ns)	Full via AQ – Social Skills
3.37 (p = .033)	1.18 (ns)	1.57 [CI: 0.07; 3.20]	-0.39 (ns)	Partial via AQ – Social Skills
7.73 (p < .001)	0.39 (ns)	0.92 [CI: 0.02; 1.93]	-0.53 (ns)	Partial via AQ – Social Skills

*Note: ns – not statistically significant

Table 3. Summary of mediation results for GHQ – anxiety and depressiom

Attachment Style	Direct Effect (X ⟶ Y)	Total Indirect Effect	Mediation via AQ - Social Skills	Mediation via AQ - Communication	Mediation Pattern
Secure	-1.22 (p = .193)	-0.73 (ns)	-1.32 [CI: -2.31; -0.34]	0.59 (ns)	Full via AQ_Soc
Avoidant	1.31 (p = .077)	0.57 (ns)	0.85 [CI: 0.14; 1.66]	-0.29 (ns)	Partial via AQ_Soc
Anxious-Ambivalent	3.60 (p < .001)	0.13 (ns)	0.47 [CI: 0.03; 0.97]	-0.33 [CI: -0.76; -0.01]	Mixed/Suppression

*Note: ns – not statistically significant

Table 4. Mediation models predicting GHQ - interpersonal relationships

Attachment Style	Direct Effect (X ⟶ Y)	Total Indirect Effect	Mediation via AQ - Social Skills	Mediation via AQ - Communication	Mediation Pattern
Secure	-0.46 (p = .022)	-0.15 (ns)	-0.25 [CI: -0.54; -0.00]	0.11 (ns)	Partial via AQ-Social Skills
Avoidant	0.30 (p = .055)	0.14 (ns)	0.19 (ns)	-0.05 (ns)	Marginal, borderline
Anxious-Ambivalent	0.48 (p = .003)	0.06 (ns)	0.11 [CI: 0.00; 0.27]	-0.05 (ns)	Partial via AQ-Social Skills

*Note: ns – not statistically significant

The indirect pathway through AQ – Social Skills was statistically significant (CI = [-0.54; -0.00]), confirming a partial mediation.

3.5.2. Model 2 – avoidant attachment

In the model with avoidant attachment as the independent variable, avoidant attachment was associated with higher levels of AQ – Social Skills difficulties ($\beta = 1.21$, $p < .001$) and AQ – Communication difficulties ($\beta = 0.76$, $p = .003$). The direct effect of avoidant attachment on GHQ-RI was marginally significant ($\beta = 0.30$, $p = .055$), indicating a possible tendency toward greater interpersonal dysfunction in avoidantly attached individuals. The indirect effect through AQ – Social Skills approached significance (CI = [-0.01; 0.40]), while the mediation via AQ – Communication was not significant.

3.5.3. Model 3 – anxious-ambivalent attachment

The final model, with anxious-ambivalent attachment as the predictor, showed the strongest direct effect on interpersonal dysfunction among the three models ($\beta = 0.48$, $p = .002$). Anxiously attached individuals also demonstrated higher levels of social ($\beta = 0.60$, $p = .031$) and communication ($\beta = 0.63$, $p = .024$) difficulties. Importantly, the indirect effect via AQ – Social Skills was significant (CI = [0.00; 0.27]), indicating that the impact of anxious attachment on interpersonal functioning is partially mediated by social deficits. No significant mediation via AQ – Communication was observed.

4. Discussion

The present study sought to investigate the psychological mechanisms linking adult attachment styles to various dimensions of psychological functioning, with a particular focus on potential mediating roles of social and communication difficulties. Across five subscales of the General Health Questionnaire (GHQ) – including overall psychological symptoms (GHQ Total), anxiety and depression (GHQ – Anxiety and Depression), general functioning (GHQ – General Functioning), and interpersonal functioning (GHQ – Interpersonal Relationships) – consistent and nuanced patterns emerged, highlighting the differential impacts of secure, avoidant, and anxious-ambivalent attachment styles. These findings offer both theoretical insights and clinically relevant implications regarding how early relational experiences, internalized as attachment patterns, shape mental health outcomes through interpersonal functioning.

One of the most robust findings across all models was the consistent predictive role of secure attachment in promoting psychological resilience. Secure attachment was associated with fewer social and communication difficulties, which in turn predicted lower levels of psychological symptoms. In particular, for general psychological distress and interpersonal functioning, the protective effect of secure attachment was mediated through better social skills, confirming long-standing theoretical assertions that secure attachment fosters interpersonal competence.

This aligns with previous literature demonstrating that secure individuals typically possess more adaptive emotion regulation strategies, greater trust in others, and more effective communication skills – all of which are fundamental to psychosocial adjustment. Secure attachment is associated with lower levels of anxiety, depression, and other mental health issues. Individuals with secure attachment styles generally have better emotional regulation, higher self-esteem, and the ability to form satisfying relationships, which contribute to their psychological well-being (Ginalska & Cichopek, 2024; Schuman et al., 2023; Watt, 2023; Xinchen, 2024). Secure attachment is also a key factor in resilience, providing individuals with the ability to cope with adverse life events without developing psychological or psychiatric symptoms. This resilience is partly mediated by better emotion regulation and social support (Karreman & Vingerhoets, 2012; Rasmussen et al., 2018; Svanberg, 1998). Studies show that individuals with secure attachment styles have higher resilience scores compared to those with insecure attachment styles, such as preoccupied, dismissive, or fearful attachments. Insecure attachment styles

are linked to higher levels of mental health problems and lower resilience (Başal et al., 2020 ; Schuman et al., 2023; Xinchen, 2024).

Notably, in the models predicting anxiety and depression, the mediation by social difficulties was again significant, further supporting the role of interpersonal competencies as a protective buffer. However, for general functioning, no significant indirect or direct effects were observed, suggesting that the benefits of secure attachment may not extend as clearly to global functional impairment, which may be influenced by broader psychosocial or contextual factors beyond the scope of interpersonal variables. Literature shows, that individuals with secure attachment styles experience less anxiety and depression and perceive more social support, which contributes to better affect regulation (Adar et al., 2022; Priel & Shamai, 1995). Social support partially mediates the relationship between attachment styles and psychological distress. Secure attachment enhances perceived social support, which in turn reduces anxiety and depression (Adar et al., 2022; Dark-Freudeman et al., 2020). Both social self-efficacy and emotional awareness are significant mediators for attachment anxiety and avoidance, impacting psychological distress and perceived social support (Mallinckrodt & Wei, 2005).

In contrast, avoidant attachment was consistently associated with increased interpersonal difficulties, particularly in social functioning and communication, yet its impact on psychological outcomes was more complex and, in some cases, less direct. While avoidantly attached individuals reported elevated interpersonal challenges, these did not consistently translate into higher levels of psychological symptoms across outcomes. This may reflect the avoidant individual's defensive deactivation of attachment needs and a tendency to suppress distress or vulnerability, which might attenuate the conscious experience or reporting of psychological symptoms despite underlying interpersonal dysfunction. Interestingly, in the domain of interpersonal functioning (GHQ-RI), avoidant attachment showed a marginally significant direct effect and a potential trend toward partial mediation via social difficulties. This suggests that while avoidant individuals may be socially withdrawn or emotionally distant, the subjective experience of dysfunction may be more subtle or context-dependent – emerging more clearly in relational settings that demand emotional availability or social reciprocity.

Anxious-ambivalent attachment, on the other hand, showed the strongest and most consistent associations with psychological distress across models. Individuals with this attachment style demonstrated elevated symptoms of anxiety, depression, interpersonal dysfunction, and poorer general functioning. Notably, these associations were explained both directly and indirectly, with social difficulties playing a key mediating role. This suggests that the heightened emotional reactivity, fear of abandonment, and relational preoccupation characteristic of anxious attachment contribute not only to direct psychological distress, but also to impaired interpersonal effectiveness. Anxiously attached individuals may display hyperactivating strategies – such as excessive reassurance seeking, emotional volatility, and dependency – which impair social relationships and, in turn, exacerbate symptoms of distress. These findings reinforce the notion that anxious attachment represents a particularly potent risk factor for internalizing psychopathology, particularly when social functioning is compromised.

Research shows that anxious – ambivalent and avoidant attachment styles are linked to higher levels of anxiety and depression. These styles often result in difficulties with emotional regulation and increased psychological distress (Cooley et al., 2010; Manning et al., 2017; Wang, 2023). Individuals with avoidant attachment often report higher levels of anxiety and depression. They tend to have smaller and less satisfying social support networks, which can exacerbate feelings of distress (Anders & Tucker, 2000; Mikulincer & Orbach, 1995; Priel & Shamai, 1995). Avoidant individuals often maintain emotional distance, which can lead to increased feelings of isolation and anxiety (Birnbaum et al., 1997; Tidwell et al., 1996). Anxious-ambivalent attachment style is strongly associated with anxiety and depression. Anxious-ambivalent individuals often experience high levels of anxiety and have difficulty regulating negative emotions, which can lead to depressive symptoms (Cooley et al., 2010; Mikulincer, 1998;

Mikulincer & Orbach, 1995). They tend to have a negative self-view and are highly concerned about their relationships, which can contribute to their mental health challenges (Mikulincer, 1995, 1998). Both avoidant and anxious-ambivalent individuals often have deficits in interpersonal communication competence, which affects their ability to form and maintain supportive social networks. This lack of social competence can mediate the relationship between attachment style and mental health outcomes, such as anxiety and depression (Anders & Tucker, 2000; Priel & Shamai, 1995). For avoidant individuals, lower levels of self-disclosure and assertiveness contribute to smaller social networks and less satisfaction with social support. Anxious individuals also struggle with assertiveness, which affects their social interactions and satisfaction (Anders & Tucker, 2000).

Across all models, a consistent and theoretically significant finding was the limited mediating role of communication difficulties (AQ – Communication). Despite being predicted by attachment styles, AQ Communication subscale did not mediate the relationship between attachment and psychological outcomes in a statistically robust manner in any model. This suggests that it is not general communication per se, but rather relational and emotional aspects of social functioning that form the crucial link between attachment and mental health. From a psychological standpoint, this supports the emphasis placed by attachment theory on affective attunement, emotional regulation, and relational responsiveness over the pragmatic or linguistic features of communication.

The implications of these findings are substantial. From a theoretical perspective, the results underscore the central role of social functioning in mediating the impact of attachment on mental health, providing empirical support for interpersonal and social-cognitive models of psychopathology. These models posit that early attachment experiences shape internal working models of self and others, which in turn influence social behaviors, interpersonal expectations, and emotion regulation strategies – all of which converge to impact mental health outcomes. Insecure attachment, particularly of the anxious type, appears to set the stage for maladaptive social patterns that may compromise both interpersonal functioning and psychological well-being.

From a clinical perspective, these results suggest that attachment-based interventions, particularly those aimed at enhancing social skills and interpersonal effectiveness, may hold promise for reducing psychological distress in individuals with insecure attachment patterns. Psychotherapeutic approaches such as Emotionally Focused Therapy (EFT), Mentalization-Based Therapy (MBT), and Interpersonal Therapy (IPT) that address relational schemas and promote healthier social functioning may be especially effective. In particular, interventions that target the improvement of social skills – such as assertiveness training, perspective-taking, and emotional expressiveness – may serve as key mediators in improving psychological outcomes among individuals with insecure attachment styles.

In conclusion, this study provides a comprehensive account of the relational pathways through which adult attachment styles contribute to various dimensions of psychological functioning. By illuminating the mediating role of social functioning – and to a lesser extent, communication – the findings point toward the interpersonal fabric of mental health. They call for both theoretical models and clinical approaches that place attachment, relationships, and social competence at the center of psychological well-being.

Appendix

Variables	GHQ total	AQ total	AQ Social Skills	AQ Attention Switching	AQ Commu nication	AQ Attention to Detail	AQ Imagination	GHQ – Anxiety & Depression	GHQ – General Functioning	GHQ – Interpe rsonal	ASQ – Secure	ASQ – Avoidant	ASQ – Anx-Ambiva lent
GHQ total	ρ = 1.000; p = –	ρ = .319; p<.001	ρ = .272; p = .002	ρ = .283; p = .001	ρ = .138; p = .117	ρ = .059; p = .502	ρ = .167; p = .057	ρ = .943; p<.001	ρ = .766; p<.001	ρ = .667; p<.001	ρ = – .269; p = .002	ρ = .250; p = .004	ρ = .456; p<.001
AQ total	ρ = .319; p<.001	ρ = 1.000; p = –	ρ = .606; p<.001	ρ = .587; p<.001	ρ = .650; p<.001	ρ = .603; p<.001	ρ = .693; p<.001	ρ = .273; p = .002	ρ = .212; p = .015	ρ = .358; p<.001	ρ = – .456; p<.001	ρ = .357; p<.001	ρ = .402; p<.001
AQ Social Skills	ρ = .272; p = .002	ρ = .606; p<.001	ρ = 1.000; p = –	ρ = .314; p<.001	ρ = .542; p<.001	ρ = .165; p = .060	ρ = .248; p = .004	ρ = .247; p = .005	ρ = .072; p = .418	ρ = .283; p = .001	ρ = – .534; p<.001	ρ = .442; p<.001	ρ = .250; p = .004
AQ Attention Switching	ρ = .283; p = .001	ρ = .587; p<.001	ρ = .314; p<.001	ρ = 1.000; p = –	ρ = .324; p<.001	ρ = .108; p = .220	ρ = .191; p = .029	ρ = .346; p<.001	ρ = .078; p = .379	ρ = .168; p = .056	ρ = – .245; p = .005	ρ = .178; p = .043	ρ = .319; p<.001
AQ Communi-cation	ρ = .138; p = .117	ρ = .650; p<.001	ρ = .542; p<.001	ρ = .324; p<.001	ρ = 1.000; p = –	ρ = .164; p = .062	ρ = .366; p<.001	ρ = .092; p = .298	ρ = .038; p = .669	ρ = .162; p = .066	ρ = – .415; p<.001	ρ = .208; p = .018	ρ = .224; p = .010
AQ Attention to Detail	ρ = .059; p = .502	ρ = .603; p<.001	ρ = .165; p = .060	ρ = .108; p = .220	ρ = .164; p = .062	ρ = 1.000; p = –	ρ = .386; p<.001	ρ = – .015; p = .861	ρ = .145; p = .099	ρ = .162; p = .065	ρ = – .140; p = .113	ρ = .259; p = .003	ρ = .273; p = .002
AQ Imagination	ρ = .167; p = .057	ρ = .693; p<.001	ρ = .248; p = .004	ρ = .191; p = .029	ρ = .366; p<.001	ρ = .386; p<.001	ρ = 1.000; p = –	ρ = .111; p = .211	ρ = .136; p = .124	ρ = .292; p = .001	ρ = – .243; p = .005	ρ = .194; p = .027	ρ = .147; p = .095
GHQ – Anxiety & Depression	ρ = .943; p<.001	ρ = .273; p = .002	ρ = .247; p = .005	ρ = .346; p<.001	ρ = .092; p = .298	ρ = – .015; p = .861	ρ = .111; p = .211	ρ = 1.000; p = –	ρ = .619; p<.001	ρ = .523; p<.001	ρ = – .223; p = .011	ρ = .221; p = .012	ρ = .436; p<.001
GHQ – General Functioning	ρ = .766; p<.001	ρ = .212; p = .015	ρ = .072; p = .418	ρ = .078; p = .379	ρ = .038; p = .669	ρ = .145; p = .099	ρ = .136; p = .124	ρ = .619; p<.001	ρ = 1.000; p = –	ρ = .562; p<.001	ρ = – .105; p = .236	ρ = .101; p = .255	ρ = .326; p<.001
GHQ – Interpersonal	ρ = .667; p<.001	ρ = .358; p<.001	ρ = .283; p = .001	ρ = .168; p = .056	ρ = .162; p = .066	ρ = .162; p = .065	ρ = .292; p = .001	ρ = .523; p<.001	ρ = .562; p<.001	ρ = 1.000; p = –	ρ = – .334; p<.001	ρ = .275; p = .002	ρ = .369; p<.001
ASQ – Secure	ρ = – .269; p = .002	ρ = – .456; p<.001	ρ = – .534; p<.001	ρ = – .245; p = .005	ρ = – .415; p<.001	ρ = – .140; p = .113	ρ = – .243; p = .005	ρ = – .223; p = .011	ρ = – .105; p = .236	ρ = – .334; p<.001	ρ = 1.000; p = –	ρ = – .572; p<.001	ρ = – .297; p = .001
ASQ – Avoidant	ρ = .250; p = .004	ρ = .357; p<.001	ρ = .442; p<.001	ρ = .178; p = .043	ρ = .208; p = .018	ρ = .259; p = .003	ρ = .194; p = .027	ρ = .221; p = .012	ρ = .101; p = .255	ρ = .275; p = .002	ρ = – .572; p<.001	ρ = 1.000; p = –	ρ = .335; p<.001
ASQ – Anx-Ambivalent	ρ = .456; p<.001	ρ = .402; p<.001	ρ = .250; p = .004	ρ = .319; p<.001	ρ = .224; p = .010	ρ = .273; p = .002	ρ = .147; p = .095	ρ = .436; p<.001	ρ = .326; p<.001	ρ = .369; p<.001	ρ = – .297; p = .001	ρ = .335; p<.001	ρ = 1.000; p = –

ρ - rho

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