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## Association of Comorbid Mood and Anxiety Disorders With Autism Spectrum Disorder

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### ABSTRACT

**Background:** The literature surrounding the association of comorbid mood and anxiety disorders with Autism Spectrum Disorder (ASD) reveals a multifaceted relationship characterized by significant prevalence rates, developmental trajectories, and implications for treatment and healthcare access. **Literature Review:** The main body of the review underscores the developmental aspect of anxiety in children with ASD, highlighting that anxiety symptoms tend to increase with the severity of autism symptoms (D. Rieske, 2012). This developmental trajectory indicates the necessity for early intervention to address anxiety and its impact on social functioning. Additionally, the barriers faced by individuals with ASD in accessing healthcare are discussed, with implications for both physical and mental health exacerbated by these challenges (Tye et al., 2019). The systematic review and meta-analysis conducted on adults with ASD further emphasize the high prevalence of anxiety and depression, while also pointing out gaps in the literature regarding the influence of demographic factors on these rates (J. Hollocks et al., 2019). The critical need for standardized diagnostic assessments is highlighted to better understand the complex interplay between ASD and psychiatric comorbidities. Moreover, the review identifies significant rates of psychiatric comorbidities among children and adolescents with ASD, with findings indicating that parental psychological distress plays a crucial role in the emotional and behavioral challenges faced by these individuals (Guerrera et al., 2022). This emphasizes the importance of integrated treatment approaches that consider both the child and the family's mental health. **Conclusion:** In conclusion, the literature presents a compelling case for recognizing the significant prevalence and complexity of mood and anxiety disorders in individuals with ASD. It emphasizes the importance of early intervention, tailored treatment approaches, and comprehensive healthcare access to improve outcomes for this population. The integration of neurobiological insights alongside behavioral and developmental considerations enhances the understanding of the multifaceted nature of these comorbidities, paving the way for future research and improved clinical practices.

**Keyword:** Comorbid Mood, Anxiety Disorders, Autism Spectrum Disorder

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## INTRODUCTION

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The association between comorbid mood and anxiety disorders with Autism Spectrum Disorder (ASD) has garnered increasing attention in recent years, reflecting the complex interplay between these conditions. The literature reveals a significant prevalence of anxiety disorders among individuals with ASD, as highlighted in the work of (A. Lehman, 2010), who reported anxiety rates ranging from 17 to 84 percent within this population. This stark contrast to the general population's anxiety rates underscores the need for further investigation into the underlying mechanisms and treatment strategies. (A. Lehman, 2010) posits that anxiety may be secondary to the ASD diagnosis, particularly in higher functioning individuals who experience heightened awareness of their social deficits ((A. Lehman, 2010)).

Building on this foundation, (D. Rieske, 2012) examined the relationship between autism symptomology and anxiety symptoms in younger populations. The study found that as autism severity increased, so did anxiety symptoms, indicating a potential developmental trajectory where anxiety builds throughout childhood. This suggests that early intervention may be crucial in mitigating anxiety's impact on social functioning and overall well-being ((D. Rieske, 2012)).

The integrative review by (Tye et al., 2019) further expands on the medical comorbidities associated with ASD, indicating that individuals with ASD often face barriers to accessing healthcare, which may exacerbate both physical and mental health issues. This highlights the importance of understanding the broader health context of individuals with ASD, as comorbid medical conditions may contribute to the overall burden of anxiety and mood disorders within this population ((Tye et al., 2019)).

(J. Hollocks et al., 2019) conducted a systematic review and meta-analysis, revealing a high prevalence of anxiety and depression among adults with ASD.

However, the authors noted significant gaps in the literature, particularly regarding the influence of factors such as age and gender on prevalence rates. The authors emphasized the need for well-defined diagnostic assessments to better understand the relationship between ASD and psychiatric comorbidities ((J. Hollocks et al., 2019)).

(Guerrera et al., 2022) focused specifically on the clinical characteristics of anxiety disorders in children and adolescents with ASD, noting that psychiatric comorbidity rates can be as high as 83%. Their findings underscore the critical need for targeted interventions that consider the interplay between ASD and anxiety disorders, as well as the significant role of parental psychological distress in this dynamic ((Guerrera et al., 2022)).

highlighted the implications of psychiatric comorbidities on healthcare utilization and the overall quality of life for youth with ASD. The study calls for more research into the prevalence and distribution of these comorbidities, particularly in non-English speaking populations, to ensure that interventions are culturally and contextually appropriate ().

Finally, (Dhar et al., 2023) explored the neurobiological underpinnings of comorbid depression in individuals with ASD, identifying correlations between gray matter volume in specific brain regions and the severity of depressive symptoms. This study adds a critical dimension to understanding how biological factors may interact with psychiatric comorbidities in ASD, suggesting that structural brain differences could influence the clinical manifestations of anxiety and mood disorders ((Dhar et al., 2023)).

Overall, the literature reflects a growing recognition of the prevalence and complexity of comorbid mood and anxiety disorders in individuals with ASD. It underscores the necessity for comprehensive research that addresses the multifaceted nature of these conditions, paving the way for improved clinical practices and outcomes.

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**LITERATURE REVIEW**

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In the article "Anxiety in Children with Autism Spectrum Disorders: An Examination of Reporting Trends Among Children, Parents, and Teachers," (A. Lehman, 2010) provides a comprehensive analysis of the prevalence and nature of anxiety disorders within the autism spectrum disorder (ASD) population. The article synthesizes findings from a significant review conducted by White et al. (2009), which examined over 40 studies and identified the most common anxiety disorders affecting children with ASD, including Generalized Anxiety Disorder, Separation Anxiety, Specific Phobias, Obsessive Compulsive Disorder, and Social Phobia.

(A. Lehman, 2010) highlights a striking disparity in anxiety prevalence between children with ASD and their typically developing peers, with reported rates among the ASD population ranging from 17 to 84 percent, compared to only 5 to 8 percent in the general population. This discrepancy underscores the critical need for a deeper understanding of the relationship between anxiety and ASD. Notably, the article points out that children with High Functioning Autism, Asperger's Disorder, and Pervasive Developmental Disorder (PDD) experience higher levels of anxiety than those with lower functioning autism, suggesting that the severity of ASD may correlate with the intensity of anxiety symptoms.

A significant aspect of (A. Lehman, 2010)'s discussion revolves around the theoretical frameworks regarding the relationship between anxiety and ASD. Some theorists argue that anxiety is a secondary phenomenon resulting from the challenges associated with ASD, while others maintain that anxiety is inherently linked to the core characteristics of autism, such as social withdrawal and compulsive behaviors. This debate is crucial as it influences treatment approaches; understanding whether anxiety is a consequence of ASD or a co-occurring disorder can lead to different therapeutic strategies.

Moreover, (A. Lehman, 2010) emphasizes the necessity for research focused on effective treatment modalities for children with both ASD and anxiety disorders.

The article notes that while self-report measures have been validated for assessing anxiety in typically developing children and those with other psychiatric conditions, their applicability to children with ASD remains underexplored. This gap in research highlights an urgent need for tailored assessment tools that account for the unique communication and cognitive profiles of children with ASD.

In "The moderating effect of autism symptomology on the relationship of cognitive and adaptive functioning with anxiety symptoms in infants and toddlers," (D. Rieske, 2012) explores the intricate relationship between autism spectrum disorder (ASD) and comorbid anxiety disorders, particularly focusing on Social Anxiety Disorder (SAD) and Obsessive-Compulsive Disorder (OCD). The article presents a critical examination of how anxiety symptoms are prevalent among individuals with ASD, especially those without accompanying intellectual disabilities.

(D. Rieske, 2012) highlights that individuals with ASD exhibit significantly higher rates of anxiety disorders compared to their neurotypical peers. This prevalence is particularly concerning given the correlation between the severity of autism symptoms and the intensity of anxiety experienced. The study reveals that as autism symptom severity increases, so too do anxiety symptoms, indicating a direct relationship that warrants further investigation. This finding underscores the importance of recognizing and addressing anxiety as a comorbid condition in individuals with ASD, as it can exacerbate social maladjustment and core ASD symptoms.

Moreover, the article discusses the overlapping characteristics of OCD and ASD, particularly emphasizing the challenges in distinguishing between the two due to shared repetitive behaviors. This overlap complicates the diagnostic process and treatment approaches, suggesting a need for more nuanced understanding and targeted interventions for anxiety disorders in the context of ASD.

(D. Rieske, 2012) also notes that anxiety symptoms tend to develop progressively throughout childhood, stabilizing in adolescence before potentially increasing again in adulthood. This developmental trajectory indicates that early intervention may

be crucial in managing anxiety symptoms in children with ASD. However, the article points out a significant gap in research regarding the treatment of anxiety disorders in very young children with ASD, as well as in adults. This lack of attention in therapeutic practices suggests a critical area for future research and clinical focus, as untreated anxiety can lead to detrimental outcomes in social functioning and overall quality of life.

The article "Characterizing the Interplay Between Autism Spectrum Disorder and Comorbid Medical Conditions: An Integrative Review" by (Tye et al., 2019) offers a comprehensive examination of the relationship between Autism Spectrum Disorder (ASD) and various comorbid medical conditions, emphasizing the implications for health care access and outcomes. The authors present a critical analysis of the increased prevalence of obesity and poor dietary habits among individuals with ASD. This observation is particularly concerning considering the potential long-term health consequences associated with these conditions, which may contribute to elevated mortality rates.

One of the significant insights from the article is the identification of barriers that individuals with ASD face in accessing general health services. The authors argue that these barriers are compounded by challenges such as impaired communication and heightened sensory sensitivities, which can severely impact the ability of individuals with ASD to engage with healthcare systems effectively. This highlights a pressing need for healthcare providers to develop tailored approaches that accommodate the unique needs of individuals with ASD, thereby improving their access to necessary health services.

Moreover, the article underscores the heterogeneity present within the ASD population, particularly concerning the variability of comorbid conditions. This variability necessitates a nuanced understanding of how different medical conditions can influence the functional profiles of individuals with ASD. The authors advocate for further research to explore these relationships, which could lead to more personalized and effective health interventions.

The article "Anxiety and depression in adults with autism spectrum disorder: A systematic review and meta-analysis" by (J. Hollocks et al., 2019) provides a comprehensive examination of the prevalence of anxiety and depression among adults diagnosed with Autism Spectrum Disorder (ASD). The authors emphasize the high heterogeneity of the studies included in their review, which complicates the determination of accurate prevalence rates. This variability underscores a significant challenge in the current understanding of mental health comorbidities associated with ASD.

One of the critical insights from the article is the authors' acknowledgment of the limitations inherent in their findings. The high heterogeneity among the studies suggests that the reported estimates may not fully capture the true prevalence of anxiety and depression in the ASD population. This limitation reflects the broader landscape of research on mental health comorbidities in ASD, where variability in study designs, sample characteristics, and diagnostic criteria can lead to inconsistent results. The authors call for future meta-analyses to address these factors as more empirical data becomes available, highlighting the need for rigorous research methodologies that can yield more reliable estimates of mental health issues in this population.

Moreover, the authors point out that the current literature often overlooks the role of alexithymia, a condition characterized by difficulties in identifying and expressing emotions, which is prevalent among individuals with ASD. The variability in symptoms associated with alexithymia may significantly influence reported levels of anxiety and depression. This gap in the literature suggests an area for future research that could enhance the understanding of emotional symptoms in individuals with ASD and their comorbid conditions.

In clinical practice, the findings of this systematic review hold value, particularly in informing practitioners about the potential prevalence of anxiety and depression among adults with ASD. However, the authors caution that the applicability of these findings to the wider community is limited due to the aforementioned heterogeneity and the lack of standardized diagnostic assessments in many studies. They advocate



for future research to prioritize the use of well-defined and validated diagnostic tools to better understand the relationship between ASD and other mental health disorders.

The article titled "Anxiety in Autism Spectrum Disorder: Clinical Characteristics and the Role of the Family" by (Guerrera et al., 2022) provides a comprehensive examination of the intersection between Autism Spectrum Disorder (ASD) and Anxiety Disorders (AD). The authors highlight the significant prevalence of psychiatric comorbidities in children and adolescents with ASD, noting that approximately 70-75% of this population experiences such conditions. This statistic underscores the critical importance of addressing mental health issues alongside the core features of ASD, which include deficits in social communication and restrictive, repetitive behaviors.

One of the key insights from the article is the identification of specific anxiety disorders that frequently co-occur with ASD. The authors report that 29.2% of their sample exhibited symptoms of social anxiety, while a notable 46% of children diagnosed with both ASD and Attention Deficit Hyperactivity Disorder (ADHD) also met the criteria for anxiety disorders. This finding is particularly concerning as it suggests that the presence of ADHD may exacerbate anxiety symptoms in children with ASD, potentially leading to a more complicated clinical picture.

Furthermore, the article delves into the implications of these comorbidities on the overall functioning and quality of life of affected individuals. The authors emphasize that anxiety disorders not only contribute to the severity of ASD symptoms but also correlate with significant functional impairments. This relationship highlights the need for integrated treatment approaches that address both ASD and its comorbid conditions to improve long-term outcomes for these individuals.

The role of Parental Psychological Distress (PPD) is another critical aspect of the study. (Guerrera et al., 2022) point out that parenting stress and parental mental health issues are closely linked to the emotional and behavioral challenges faced by



children with ASD and AD. This connection suggests that interventions aimed at alleviating parental distress may have a positive impact on the child's mental health and overall functioning.

The article "Psychiatric Comorbidities in Children and Adolescents with High-Functioning Autism Spectrum Disorder: A Study on Prevalence, Distribution and Clinical Features in an Italian Sample" by provides a comprehensive examination of the prevalence and clinical features of comorbid psychiatric disorders in youth with high-functioning Autism Spectrum Disorder (ASD). The authors effectively highlight the significant impact that these comorbidities have on healthcare utilization, treatment adherence, and long-term outcomes for individuals with ASD.

One of the key insights presented in this study is the correlation between comorbid psychiatric disorders and the increased use of psychotropic medications. This finding underscores the necessity for clinicians to be vigilant in identifying and managing psychiatric comorbidities in ASD, as untreated conditions can lead to heightened healthcare needs and interruptions in ASD-related interventions (). The article articulates that the presence of these comorbidities not only complicates the clinical management of ASD but also poses a risk for poorer long-term outcomes, including elevated mortality rates and diminished quality of life.

The authors emphasize the importance of understanding the distribution of psychiatric disorders within the ASD population, particularly in Southern Europe, where there is a notable lack of research on this topic. This gap in the literature is critical, as it limits the ability to formulate targeted interventions and support systems for affected individuals and their families. The authors advocate for further research to establish a clearer picture of the prevalence and impact of psychiatric comorbidities in diverse populations, which is essential for developing appropriate clinical practices and interventions ().

Moreover, the article points out the need for a nuanced understanding of how comorbid psychiatric conditions affect adaptive skills in children and adolescents with high-functioning ASD. The authors argue that this understanding is vital for

tailoring interventions that not only address the core symptoms of ASD but also enhance overall functioning and quality of life for these individuals.

The article "Gray matter volume correlates of Comorbid Depression in Autism Spectrum Disorder" by (Dhar et al., 2023) provides valuable insights into the neuroanatomical correlates of comorbid depression in individuals with Autism Spectrum Disorder (ASD). The authors focus on the relationship between regional gray matter volume (rGMV) and the severity of depression, particularly highlighting the right thalamus and its structural properties in the context of ASD.

The findings indicate that the rGMV of the right thalamus is inversely related to the severity of comorbid depression in individuals with ASD. This observation is significant, as lower thalamic volumes have been previously documented in ASD populations, yet the article points out the complexity of existing literature that also includes reports of greater thalamic volume and no significant differences when compared to typically developing (TD) individuals. This inconsistency underscores the necessity for further research to clarify the neuroanatomical underpinnings of ASD and its comorbid conditions.

Additionally, the authors link their findings to the core symptoms of ASD, such as restrictive repetitive behaviors and social cognitive functions, which they correlate with decreased thalamic volumes. This connection is particularly relevant as it suggests that alterations in thalamic structure may not only relate to mood disorders but also to the fundamental characteristics of ASD itself. By addressing this interplay between structural brain changes and behavioral manifestations, the study contributes to a more nuanced understanding of the neurodevelopmental mechanisms involved in ASD and its comorbidities.

Moreover, the article emphasizes the significance of the left Cerebellar Crus II, noting a significant interaction between the severity of comorbid depression and clinical manifestations associated with this region. This finding highlights the cerebellum's role in emotional regulation and cognitive processing, further

enhancing our understanding of the neurobiological factors that may exacerbate or mitigate symptoms in individuals with ASD.

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### CONCLUSION

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The literature surrounding the association of comorbid mood and anxiety disorders with Autism Spectrum Disorder (ASD) reveals a multifaceted relationship characterized by significant prevalence rates, developmental trajectories, and implications for treatment and healthcare access. The introduction of the review establishes that individuals with ASD exhibit a notably higher prevalence of anxiety disorders, with rates reported between 17 to 84 percent, contrasting sharply with the general population (A. Lehman, 2010). This suggests that anxiety may be exacerbated by the social challenges inherent in ASD, particularly in higher functioning individuals who are acutely aware of their social deficits (A. Lehman, 2010).

The main body of the review underscores the developmental aspect of anxiety in children with ASD, highlighting that anxiety symptoms tend to increase with the severity of autism symptoms (D. Rieske, 2012). This developmental trajectory indicates the necessity for early intervention to address anxiety and its impact on social functioning. Additionally, the barriers faced by individuals with ASD in accessing healthcare are discussed, with implications for both physical and mental health exacerbated by these challenges (Tye et al., 2019).

The systematic review and meta-analysis conducted on adults with ASD further emphasize the high prevalence of anxiety and depression, while also pointing out gaps in the literature regarding the influence of demographic factors on these rates (J. Hollocks et al., 2019). The critical need for standardized diagnostic assessments is highlighted to better understand the complex interplay between ASD and psychiatric comorbidities.

Moreover, the review identifies significant rates of psychiatric comorbidities among children and adolescents with ASD, with findings indicating that parental psychological distress plays a crucial role in the emotional and behavioral

challenges faced by these individuals (Guerrera et al., 2022). This emphasizes the importance of integrated treatment approaches that consider both the child and the family's mental health.

The neurobiological aspects of comorbid depression in ASD are also explored, revealing correlations between structural brain differences and the severity of depressive symptoms (Dhar et al., 2023). Understanding these neuroanatomical correlates contributes to a more comprehensive view of the relationship between ASD and its comorbid conditions.

In conclusion, the literature presents a compelling case for recognizing the significant prevalence and complexity of mood and anxiety disorders in individuals with ASD. It emphasizes the importance of early intervention, tailored treatment approaches, and comprehensive healthcare access to improve outcomes for this population. The integration of neurobiological insights alongside behavioral and developmental considerations enhances the understanding of the multifaceted nature of these comorbidities, paving the way for future research and improved clinical practices.

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#### DISCLOSURE STATEMENT

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Disclosure Statement: The authors have no conflicts of Interest to declare.

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