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## Comorbidity in autism spectrum disorder: A literature review



Arlene Mannion, Geraldine Leader\*

National University of Ireland, Galway, Ireland

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### ABSTRACT

Comorbidity is defined as the co-occurrence of two or more disorders in the same person (Matson & Nebel-Schwalm, 2007). The current study provides a review of the literature on comorbidity, in relation to comorbid psychiatric and medical disorders in babies and infants, children, adults and across the lifespan. We also examine comorbid conditions such as attention deficit/hyperactivity disorder (AD/HD), epilepsy, gastrointestinal symptoms, sleep problems, feeding problems and toileting problems in individuals with autism spectrum disorder.

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### Contents

1. Comorbid psychiatric and medical conditions .....	1596
1.1. Babies and infants .....	1596
1.2. Children .....	1596
1.3. Adults .....	1598
1.4. Lifespan. ....	1600
1.5. Attention deficit/hyperactivity disorder (AD/HD) .....	1600
1.6. Epilepsy .....	1603
1.7. Gastrointestinal symptoms .....	1605
1.8. Sleep problems .....	1608
1.9. Feeding problems .....	1611
1.10. Toileting problems .....	1611
2. Conclusion .....	1613
Acknowledgements .....	1613
References .....	1613

Comorbidity is defined as the co-occurrence of two or more disorders in the same person (Matson & Nebel-Schwalm, 2007). A comorbid condition is a second order diagnosis which offers core symptoms that differ from the first disorder. Comorbidity in the assessment of autism spectrum disorder (ASD) is a topic that has infrequently been addressed (Matson & Nebel-Schwalm, 2007). One of the main difficulties in diagnosing comorbid psychopathology is the lack of diagnostic

\* Corresponding author at: Irish Centre for Autism and Neurodevelopmental Research, School of Psychology, National University of Ireland, Galway, Ireland. Tel.: +353 91 49 3434; fax: +353 91 521355.

E-mail address: [geraldine.leader@nuigalway.ie](mailto:geraldine.leader@nuigalway.ie) (G. Leader).

instruments designed to screen for these disorders in individuals with ASD. Instruments are only recently being developed, piloted and tested for reliability and validity. Instruments designed for assessing comorbid psychopathology in adults with ASD include the Psychopathology in Autism Checklist (PAC) (Helverschou, Bakken, & Martinsen, 2009) and the Autism Spectrum Disorders–Comorbidity for Adults (ASD-CA) (Matson, Terlonge, & González, 2006).

Instruments designed to screen for comorbid psychopathology in children are a more recent development than the instruments designed for adults. Comorbid disorders often are more difficult to diagnose at a younger age. The Baby and Infant Screen for Children with aUtism Traits (BISCUIT), Part II (Matson, Boisjoli, & Wilkins, 2007) was developed to screen for comorbid psychopathology in infants aged 16–37 months and has been psychometrically validated (Matson, Fodstad, Mahan, & Sevin, 2009). The Autism Spectrum Disorders Comorbidity-Child Version (ASD-CC) (Matson & González, 2007) is another instrument used to diagnose comorbid psychopathology in children. Leyfer et al. (2006) modified the existing instrument The Kiddie Schedule for Affective Disorders and Schizophrenia for use with children and adolescents with ASD. The modified instrument, the Autism Comorbidity Interview-Present and Lifetime Version (ACI-PL) was used to research prevalence rates of specific disorders.

## 1. Comorbid psychiatric and medical conditions

### 1.1. Babies and infants

While there is now a great emphasis on the early diagnosis of ASD and the provision of early intensive behavioral intervention programs, there is a lack of research regarding comorbid conditions in very young children. The Baby and Infant Screen for Children with aUtism Traits (BISCUIT), Part II (Matson et al., 2007) is an instrument developed to screen for comorbid psychopathology, and has been used in all of the following studies. Fodstad, Rojahn, and Matson (2010) divided participants into the ASD group and atypically developing group. They then divided participants by age groups into 12–18 months, 19–24 months, 25–31 months and 32–39 months. The authors found that those with ASD had more severe comorbid symptoms than atypically developing toddlers. Younger children had fewer problems, and there was an increasing trend as the older age groups displayed the most severe problems across all classes of behaviors.

Kozlowski, Matson, Belva, and Rieseke (2012) compared feeding and sleeping issues using items on the BISCUIT Part II, in children with Autistic disorder, Pervasive Developmental Disorder-Not otherwise specified (PDD-NOS) and atypically developing children without an ASD. Children with Autistic disorder presented with significantly more feeding and sleeping problems than children with PDD-NOS or atypically developing children. Those with PDD-NOS presented with more feeding and sleeping issues than atypically developing children. When developmental functioning is controlled for, there was a difference between groups in terms of feeding and sleeping issues.

Infants with autistic disorder had higher avoidance and anxiety scores than infants with PDD-NOS or atypically developing infants (Davis et al., 2010). Davis et al. (2012) found that as communication scores increased, so did anxiety scores in children with autistic disorder. The authors discussed the importance communication plays in terms of anxiety. Infants and toddlers with ASD need to understand from others what they should be anxious of, and through this lack of understanding, they may be likely to be overly anxious. The authors also commented on the likelihood that children with lower communication ability may be unable to accurately communicate any anxiety experienced, thus appearing that they experience lower levels of anxiety overall. Additionally, females were found to have significantly higher communication scores.

Matson and Tureck (2012) conducted a literature review about the current status of BISCUIT-Parts 1, 2 and 3. While Part 2 is used to determine comorbid psychopathology, Part 1 is used as a diagnostic tool for ASD, and Part 3 is a measure of challenging behavior. The article gives an overview of all the research conducted using the BISCUIT as well as research that is currently underway, such as a 15 nation study using the BISCUIT (Table 1).

### 1.2. Children

Investigation of co-occurrences of medical and psychiatric conditions, such as sleep disorders, epilepsy, food intolerance, gastrointestinal dysfunction, mood disorder, aggressive and self-injurious behaviors were examined in a study (Ming, Brimacombe, Chaaban, Zimmerman-Bier, & Wagner, 2008). Sleep disorders were found to be associated with gastrointestinal dysfunction and with mood disorders (Ming et al., 2008). No association was found between epilepsy and any of the co-occurring conditions. Individuals with a pervasive developmental disorder (PDD) diagnosis were more likely to have a medical disorder, while participants with Asperger syndrome were more likely to have psychiatric comorbidities (Ming et al., 2008).

Hess, Matson, and Dixon (2010) used the Autism Spectrum Disorder Comorbidity-Child Version (ASD-CC) (Matson & González, 2007) to compare symptoms in children and adolescents with and without autism spectrum disorder. Differences lay between children and adolescents with autism spectrum disorder and typically developing children in symptoms of worry/depressed behavior, under-eating, avoidant behavior and repetitive behavior. There was no significant difference between the two groups in conduct and tantrum behaviors. Matson, Fodstad, and Dempsey (2009) used the under and over eating subscale of the ASD-CC to investigate feeding difficulties among four groups; autism, pervasive developmental

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