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# Socioemotional Functioning of Individuals with Fetal Alcohol Spectrum Disorders

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## Introduction

Since the identification of fetal alcohol syndrome (FAS) over 35 years ago, mounting evidence about the impact of maternal alcohol consumption during pregnancy has prompted increased attention to the link between prenatal alcohol exposure (PAE) and a constellation of developmental disabilities that are characterized by physical, cognitive and behavioural impairments.[1] These disabilities include a continuum of developmental disorders known as fetal alcohol spectrum disorders (FASD). The entire continuum of effects is estimated to represent at least 1% of all live births in the United States,[2] suggesting that FASD represents a significant public health concern. Longitudinal studies suggest that individuals with FASD are at a greatly increased risk for adverse long-term outcomes, including mental health problems and poor social adjustment.[3]

## Subject

©2011-2026 ABILIO | FETAL ALCOHOL SPECTRUM DISORDERS (FASD)

A substantial body of research has documented significant neurocognitive difficulties among individuals with FASD.[4,5,6,7,8,9] Given the neurocognitive problems associated with PAE, it is not surprising that psychosocial dysfunction has been consistently noted in the literature.[3] Furthermore, reports suggest that individuals with PAE are overrepresented in psychiatric samples[10] and in juvenile detention and correctional settings.[11,12] This review summarizes much of the existing literature on mental health outcomes of individuals with PAE across the lifespan, including findings in infancy and early childhood, middle childhood, and adolescence and early adulthood.

**Problem**

Reviews of studies examining the relationship between parental alcohol use and various indices of children's emotional adjustment have noted that some of these linkages may be attributable to PAE and yet these linkages remain relatively unexplored in the literature. Furthermore, despite the evidence of a significant association between alcohol exposure in utero and psychiatric risk, experience suggests that exposure, and even FAS, is infrequently identified by mental health practitioners.[13] Failure to recognize the broad and unique needs of individuals with FASD and their families can lead to multiple treatment failures, consequent worsening of symptoms, and high personal and societal costs.

**Research Context**

There are a number of methodological problems with much of the available research on the etiological role of PAE on socioemotional outcomes[14] Key methodological concerns include biased sample representations, the reliance on self-report measures, and a failure to adequately consider other factors that might play a significant role in explaining a reported relation between alcohol consumption in pregnancy and later mental health.[15,3] These variables include (but are not limited to) the use of other substances and smoking during pregnancy, maternal nutrition, socioeconomic status, the individual's genetic loading for mental health problems, problems in parenting, and early deprivation or abuse. In spite of these potential limitations, well-designed studies do exist that shed light on the mental health outcomes of individuals with FASD.

**Key Research Questions**

What are the mental health outcomes of individuals with PAE across the lifespan?

**Recent Research Results**

*Infancy and early childhood*. Some studies examining the relationship between parental alcohol use and various indices of young children's emotional adjustment have noted that some of these linkages may be attributable to PAE and yet these linkages remain relatively unexplored. This is surprising considering that there is a substantial body of literature on the association between maternal alcohol consumption during pregnancy and poor neurobehavioural outcomes in their offspring. At birth, there are signs of central nervous system dysfunction in infants born to mothers who report consuming alcohol during pregnancy. These include reports of jitteriness, irritability, autonomic instability, slow habituation, low levels of arousal, increased levels of activity and disturbances in sleep patterns.[7] Behavioural difficulties continue into early childhood with deficits in sustained attention, heightened emotional reactivity, increased activity levels, and irritability.[16] The significance of these early neurobehavioural effects is apparent in the impact they may have on early mother-child transactions. Thus, the effects of alterations in child behaviour on the mother-child relationship may be one of the most significant results of PAE.

A few studies have incorporated a transactional model to explain the relation between PAE and socioemotional functioning in infancy and early childhood.[17,18,19,20,21,22] For example, one study of middle-class women and their infants found that mothers who drank more heavily during pregnancy had infants who displayed higher levels of negative affect in mother-child transactions, as compared to infants with less prenatal exposure.[21] The mothers of these more negative infants interacted in ways that were less responsive and developmentally stimulating, and their infants displayed higher levels of insecure attachment behaviours. In a follow-up study through the end of early childhood, results indicated that young children exposed to more alcohol during gestation had higher self-reported depression scores.[19] Moreover, early irritability in the more heavily exposed infants at one year of age predicted higher levels of depression at six years of age.[18] These findings emerged even though the mothers in this sample had not been identified as high-risk drinkers, were not currently drinking, and the children in the sample were functioning within the high average range of intelligence.

Expanding this line of inquiry to children with greater levels of cumulative risk, investigators found that in a group of children living in poverty, there was an even greater association between PAE and attachment insecurity.[22] Strikingly, 80% of children in the moderate-heavy alcohol exposed group displayed attachment styles classified as insecure. The rate of insecure attachments found among the more heavily prenatally alcohol-exposed youngsters in the sample

was significantly higher than rates reported in other samples of children of similar ages, socioeconomic status and ethnic backgrounds.[23,24]

Further analyses provided insight beyond documentation of the direct relationship between PAE and quality of attachment. Congruent with findings in the middle-class sample, prenatal exposure in the poverty sample also related to temperamental differences in the child, and these temperamental differences affected the mother's ability to relate to her child on an emotional level. Thus, PAE appeared to predispose the child toward exhibiting more negative affect in the mother's presence. Display of negative affect was related to the mother's inability to provide a "supportive presence" while interacting with her child, which was associated with higher levels of attachment insecurity and depressive symptoms during the preschool years.[20]

Although most studies showing an association between maternal alcohol misuse and psychiatric symptoms in children have generally been interpreted as reflecting the impact of the postnatal environment, and especially the effects of living with an alcoholic mother, these transactional studies show that PAE can also act as a significant risk factor in the emergence of early onset psychopathology. This risk is conveyed through the mother's response to the primary neurological and temperamental deficits resulting from the child's exposure to alcohol in utero.

*Middle childhood*. A few studies are notable for examining psychopathology in children with FASDs in middle childhood. In one clinic-referred sample of alcohol-exposed children between the ages of 5 and 13 years, 87% met criteria for a psychiatric disorder.[25] Another recent study examining the psychiatric conditions of a clinically-referred sample of children with heavy PAE and unexposed control children using structured clinical interviews of their parents, revealed that 97% of the alcohol-exposed children met criteria for at least one Axis I diagnosis on the DSM-IV compared to 40% of the unexposed children.[26,27] The association between PAE and psychiatric diagnoses was further explored in a relatively large non-clinic sample of children (n = 130) with or without PAE who also had social skills deficits using a well-validated standardized clinical interview.[27] After controlling for important covariates, results revealed statistically significant effects of PAE in predicting internalizing disorders of depression, separation anxiety disorder and generalized anxiety disorder and externalizing disorders, including attention deficit hyperactivity disorder, oppositional disorder and conduct disorder. Prenatal exposure to alcohol did not predict symptoms of schizophrenia but was predictive of symptoms of mania and hypomania. These results confirm that children with PAE exhibit significantly more symptoms of psychopathology, including mood, anxiety and disruptive disorders, when compared to children

without exposure. Furthermore, child characteristics and environmental factors appear to add to the prediction of psychopathology. Specifically, having a lower IQ, poorer social skills, and living with a single/divorced or a non-biological caregiver was associated with greater risk.[27]

A final study emphasizes the potential dangers of even small levels of alcohol consumption during pregnancy on developmental outcomes. Sayel and associates[28] sampled the drinking patterns of 12,678 pregnant women during the first 18 weeks of gestation. They then measured the mental health outcomes of the children at four and eight years of age. After controlling for a range of prenatal and postnatal factors, the consumption of less than one drink per week during the first trimester was found to be associated with clinically significant mental health problems in girls at four and eight years of age.

*Adolescents and young adults*. Mental health problems are hallmark secondary disabilities in adolescents and young adults with FASD. In their seminal cross-sectional study of the developmental outcomes of adolescents and adults with PAE, Streissguth and associates found that 94% reported mental health problems.[29] Similarly, in the Seattle Longitudinal Prospective Study on Alcohol and Pregnancy, there were noted associations between greater PAE and elevated rates of behaviour problems and aspects of antisocial behaviour in 14-year-old adolescents.[30] A follow-up of this sample at age 25, using structured clinical interviews, revealed that the odds of the appearance of passive-aggressive and antisocial personality disorders was double in adults exposed to one or more binge episodes in utero compared to those who were exposed to low to moderate levels.[31]

In an investigation of 1,252, 17-year-old adolescents from the Minnesota Twin Family Study, both parents and adolescents completed structured diagnostic interviews to generate lifetime psychiatric diagnoses.[32] Mothers were also retrospectively interviewed about alcohol and nicotine use during pregnancy. Results were that PAE was associated with higher levels of conduct disorder symptoms in offspring, even after controlling for the effects of parental externalizing disorders (illicit substance use disorders, alcohol dependence and antisocial/behavioural disorders), prenatal nicotine exposure, monozygosity, gestational age, and birth weight.

Longitudinal research suggests that individuals with PAE also exhibit problems with the misuse of alcohol and other drugs as they mature. In addition to psychiatric symptoms, early work from the Seattle Longitudinal Prospective Study on Alcohol and Pregnancy revealed a relation between exposure and early experiences with alcohol among young adolescents[33] that developed

into heavy drinking and alcohol-related problems in early adulthood.[34] In a similar prospective study, the association between maternal alcohol use during pregnancy and early drinking was examined in 4,363 adolescents taking part in the Mater University of Queensland Study of Pregnancy and its Outcomes conducted in Brisbane, Australia.[35] After controlling for other factors, adolescents whose mothers consumed three or more drinks per drinking occasion during pregnancy were at increased risk of drinking more alcohol in a binge pattern than those whose mothers consumed less alcohol. A follow-up study of this cohort at age 21 revealed a strong relationship between prenatal binge drinking and alcohol use disorders in the adult offspring.[36]

### Research Gaps

While some research exists documenting the relation between PAE and later mental health outcomes, many questions remain. For example, what is the interaction between psychiatric disorders in this population and alcohol misuse or dependence? Are there indices of resiliency in individuals with PAE who do not appear to have psychiatric conditions? What are the most effective treatments for this population including psychosocial, family, and pharmacological interventions? Finally, there are gaps in the psychiatric literature on predictors of psychiatric risk that do not take into account the variance due to PAE and its potential significant effect on prediction and treatment outcomes.

### Conclusions and Implications for Parents, Services, and Policy

Despite the evidence of a significant association between alcohol exposure in utero and psychiatric risk, experience suggests that exposure, and even FAS, is infrequently identified by mental health practitioners. This omission is unfortunate due to the observations of treatment resistance to medications and psychosocial therapies, as well as the frequent need for specialized educational services in this population.[37,38] Research on the psychiatric disabilities suffered by individuals with PAE throughout the lifespan highlights the need for training of mental health professionals in the identification of people with FASD and the provision of specific treatments to address the unique features of this developmental disability since early identification and treatment have been demonstrated to be protective against more serious psychiatric outcomes.[29] Failure to recognize the broad and unique needs of these individuals and their families can lead to multiple treatment failures, consequent worsening of symptoms, and high personal and societal costs.

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