

Chapter 1: What is FASD?

Fetal Alcohol Spectrum Disorder (FASD) is a term currently used throughout North America to refer to a variety of physical changes, and neurological and/or psychometric patterns of brain damage associated with fetal exposure to alcohol during pregnancy. This brain damage can result in a range of structural, physiological, learning and behaviour disabilities in individuals. FASD is not a diagnostic term, but an effective way to indicate the spectrum of physical, cognitive and behavioural characteristics educators can see in such individuals. The medical diagnostic term Fetal Alcohol Syndrome (FAS) is used to describe a specific identifiable group of children who all share certain characteristics: a specific set of facial features, central nervous system (CNS) dysfunction, and often growth deficiency and a scattering of other birth defects. In 1973, Dr. David W. Smith, a researcher in dysmorphology, and his associate Dr. Kenneth L. Jones found these characteristics in a group of 11 children born to mothers who used substantial amounts of alcohol throughout their pregnancies. Smith first called this pattern Fetal Alcohol Syndrome.¹ This subgroup of individuals with alcohol exposure is important because the features defined in the face predict brain damage and prenatal alcohol exposure. Only a small portion of exposed individuals display the full pattern of FAS. They are among the larger group of individuals with alcohol exposure who will be referred to under the term FASD in this document. The majority of children who have learning, behavioural and functional difficulties as a result of prenatal exposure to alcohol have an “invisible disability” and do not have the characteristic facial features of FAS.

FAS and FASD definitions

FAS is a medical diagnosis involving four key features: alcohol exposure, growth deficiency, facial features and brain damage.

FASD is an educational term that includes the range of individuals from those who have the full syndrome to those who have only a few issues with learning and behaviour, and no facial or growth issues. However it is presumed that all these individuals were exposed in utero to alcohol. This toxic exposure leads to difficulties and deficits that are evident in infancy, childhood and beyond.

Since it became evident that many children with prenatal alcohol exposure showed only some of the features in the FAS medical definition, other terms have been suggested to describe partial expression of the four key features. These terms may appear in medical reports or may be used by parents or professionals at team meetings. A group of leaders in the field first called the range of features Fetal Alcohol Effects (FAE).² Though FAE was never meant to be used as a diagnostic term, it has been adopted by many in the field to describe individuals with alcohol exposure, but without all the FAS features.

Since the 1970s, many other terms have appeared in the literature about this population. Terms frequently used in Alberta are Partial Fetal Alcohol Syndrome, Alcohol-related Neurodevelopmental Disorder and Alcohol-related Birth Defects.³ Typically, these terms are defined as follows.

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1. Jones et al. 1973.
 2. Aase et al. 1995.
 3. Stratton, Howe and Battaglia 1996.

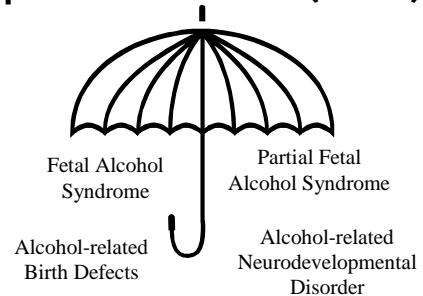
Partial Fetal Alcohol Syndrome (pFAS) indicates confirmed maternal alcohol exposure. A child with pFAS exhibits some, but not all, of the physical signs of FAS, and also has learning and behavioural difficulties which imply central nervous system damage.

Alcohol-related Neurodevelopmental Disorder (ARND):

A child with ARND exhibits central nervous system damage resulting from a confirmed history of prenatal alcohol exposure. This may be demonstrated as learning difficulties, poor impulse control, poor social skills, and problems with memory, attention and judgement.

Alcohol-related Birth Defects (ARBD): A child with ARBD displays specific physical anomalies resulting from confirmed prenatal alcohol exposure. These may include heart, skeletal, vision, hearing, and fine/gross motor problems.⁴

Fetal Alcohol Spectrum Disorder (FASD)



FASD is the general term that has come into use in the past few years. It is like an umbrella—a label that includes all terms, and provides a way to describe the continuum of deficits and challenges. Neurological damage can be seen along the whole spectrum of FASD. In fact, individuals without the FAS medical diagnosis, but with FASD, pFAS or ARND may be at greater risk because they do not show the physical characteristics of FAS and are less likely to be diagnosed or receive appropriate supports. These individuals may have significant brain differences, yet the only identified symptoms of the disability are behavioural difficulties. In this document, the term FASD will be used unless the specific medical group that fits the diagnosis of FAS is being discussed.

Historical context

The negative consequences of drinking alcohol during pregnancy were mentioned as far back as Aristotle’s writings and the Bible. In 1899, British physician H. W. Sullivan linked alcohol use during pregnancy to poor birth outcomes in a study of women in the British prison system and their children.⁵ In 1968, Lemoine, a French physician, reported case studies of children of alcoholic women who had a specific, recognizable pattern of birth defects.⁶ Then, Dr. David W. Smith and Dr. Kenneth L. Jones conducted a study of infants and children with a characteristic set of facial features and neurological changes, and found that their mothers were alcoholics at the time of pregnancy.⁷ Dr. Smith named the pattern Fetal Alcohol Syndrome. By calling the syndrome after its presumed cause (the name implies that alcohol results in problems to the fetus) Dr. Smith understood how the name could provide a tool for prevention of this newly described birth defect pattern. He and his fellow researchers understood that if mothers did not drink, their children were unlikely to show this set of birth defects. Here was a devastating condition that had the potential to be prevented if widely understood and diagnosed, and if the predisposing issues were treated.

4. Stratton, Howe and Battaglia 1996.

5. Sullivan 1899.

6. Lemoine et al. 1968.

7. Jones et al. 1973.

Since 1973, thousands of studies, publications and conferences have helped develop understanding, recognition, prevention and treatment of FASD. Specific groups have made their own contributions. Researchers have studied the harmful effects of alcohol on developing fetuses in a variety of mammals. In particular, these studies have helped explain the ways in which the toxic properties of alcohol influence developing cells and structures in the embryo and fetus. Epidemiologists in many countries have documented the widespread prevalence of FASD. Clinical researchers around the world have conducted studies of learning and behaviour characteristics related to brain damage in FASD, and the lifelong emotional and social difficulties of affected individuals. Educators and parents have developed and shared ways to help their students and children. Public health and government policy officials have developed awareness and prevention programs, and conducted surveys to document the prevalence of the condition. In less than a third of a century, much has been done, but more work remains to prevent this disability, and to serve and support affected individuals and their families.

How prevalent and significant is FAS?

There have been a number of studies in various populations to determine the prevalence of FAS. Abel found one per 1000 infants met the diagnostic criteria for FAS during the newborn period in the United States.⁸ In populations of children and young adults, who are easier to diagnose than newborns, the rates of FAS are usually higher, often three per 1000.⁹ In high-risk groups in Canada and the U.S.A., the rate of FAS may be as high as one per 100.¹⁰ Children who have prenatal exposure to alcohol, but who do not show all the features of FAS have, at times, been described as having Fetal Alcohol Effects (FAE). The rate of FAE is thought to be at least three to four times more prevalent than FAS in the general population.¹¹

Wide-scale studies have also been used to predict the significance of FASD. Studies in the U.S.A. and Sweden that include cognitive data, link lower IQ to in utero alcohol exposure. Approximately half the individuals identified with FAS have IQs below 70. Research in Sweden and the U.S.A. indicates that alcohol exposure is the most common single cause of mental retardation, more common than Down syndrome or any other birth defect syndrome.¹² In addition, when individuals with FAS diagnosis have been studied over their life spans, their significant learning, behavioural, psychiatric, social and legal problems can have significant impact on their families and communities as well as on the individuals themselves.¹³

FASD is a diagnosis of both mother and child

The term FAS is really a prevention term because it reveals a mother's use of alcohol during pregnancy. By diagnosing the child, it may be possible to prevent another pregnancy with a similar outcome if the mother understands the relationship between her child's condition and drinking during pregnancy. FAS is a diagnosis for two individuals: the mother and child. Ideally, the mother can receive appropriate and supportive treatment so her next pregnancy can lead to a healthy baby. However frequently, by the time children are diagnosed, they are living with adoptive or foster families rather than with their biological mothers. To learn more about women who had given birth to children diagnosed with FAS, a Seattle

8. Abel 1998.

9. Stratton, Howe and Battaglia 1996.

10. Robinson et al. 1987, May et al. 1983.

11. Streissguth 1997.

12. Aronson and Olegard 1987, Abel and Sokel 1986.

13. Lemoine and Lemoine 1992, Streissguth 1997, Steinhausen et al. 1993.

research study interviewed their birth mothers to determine maternal characteristics.¹⁴ One startling finding was that when researchers tried to locate these mothers, 25 percent were dead or unreachable. Alcohol use and other factors appeared to be having devastating effects on this group of women. The women who were located and interviewed were found to have long histories of abuse, mental illness and nonsupportive living situations related to drug and alcohol use. Half the women in the study had prenatal alcohol exposure themselves. This profile of maternal disabilities and needs is being used to guide intervention and treatment programs. Programs that use a mentor/advocacy model have been effective in treating such women and helping them create healthier lives for themselves and their children in both Canada and the U.S.A.¹⁵

How an FAS diagnosis is made in a medical clinic

In Alberta and many other areas in North America, a standard way to diagnose FAS is being adopted. The following section will help educators develop a basic understanding of the diagnostic process and terminology used in medical reports.

The guidelines currently used in Alberta are outlined in the *Diagnostic Guide for FAS and Related Conditions* (1999) developed by Astley and Clarren. Specific research-based criteria define four levels of severity in each of the four features of FAS. The magnitude of expression of each feature is ranked independently on a four-point Likert scale, with a score of 1 reflecting complete absence of the FAS feature and a score of 4 reflecting a strong, classic presence of the feature. Two and 3 are less severe or intermediary descriptions of the specific feature. This approach is called the 4-Digit Diagnostic Code.¹⁶ A description of the features and how they are rated follows.

Alcohol exposure

Using the 4-Digit Diagnostic Code, available information about a mother's pattern of alcohol use during pregnancy is rated from a 4 (high risk), to 1 (no risk). The intermediary steps are rated: 3 (some use) or 2 (unknown use). In diagnostic assessments, physicians and other clinicians attempt to obtain alcohol-use histories from mothers or people who saw the mothers drink during their pregnancies. If alcohol exposure histories cannot be obtained because the mothers or observers of their use are not available, children can still receive a diagnosis of FAS if all other classic features are present. For those children who have no physical signs of FAS, but do have learning and behavioural profiles that suggest FASD, a diagnosis cannot be made with certainty without a confirmed history of maternal alcohol use.

An important consequence of children's diagnoses is that it may be possible to treat the mothers. If they are still using alcohol, intervention could prevent the births of other children with FASD. Appropriate support could be initiated to help them quit drinking prior to future pregnancies.

Growth deficiency

The four-digit system for determining growth deficiency includes obtaining weight and/or height measurements. If these measurements are more than two standard deviations below the mean at some point during development, individuals are given a rating of 4. Individuals who have normal size obtain a rating of 1. Those who are smaller than expected, but whose measurements are larger than the third percentile level are rated with intermediate codes of 3 or 2.

14. Astley et al. 2000.

15. Grant et al. 1997.

16. Astley and Clarren 1999.

Growth is a difficult aspect of the pattern to rate. Research studies indicate that if mothers stop using alcohol by the second half of pregnancy, babies may be normal size at birth and throughout their development, although somewhat smaller than genetically predicted.¹⁷ Children's genetic potential, based on the heights of biological parents, should also be considered in evaluating size during the diagnostic process, when possible. Typically, large parents tend to have large children. These children may have significant growth deficiency after alcohol exposure, but because of their genetic predisposition, they may not measure at or below the third percentile on a normal growth chart. Children born to small parents may measure at the first percentile because that is genetically where their growth should be, based on their inherited size potential, even though they had no alcohol exposure. Growth deficiency can be an indication of other health problems as well. Small stature is common to a myriad of medical conditions in addition to those that occur in individuals with alcohol exposure.

Facial features

There are three key features evaluated in the diagnosis: small eye slit openings, flattened vertical columns in the upper lip (philtrum) and a thin upper lip. There is evidence that the development of this area of the face happens in day 19 to 21 of gestation. Prenatal exposure to alcohol during this narrow time frame will affect these features.

One critical facial feature to evaluate is the eye slit openings. The medical term for the eye slit is palpebral fissure. Palpebral fissures that measure in the lowest two percent of population norms or more than two standard deviations below the mean are typically found in individuals with significant alcohol exposure.

Two other critical facial features associated with significant alcohol exposure are found in the philtrum and the shape of the upper lip. To meet the criteria for FAS in the lip region, the philtrum (groove between nose and upper lip) must appear flattened, the curve of the upper lip is straightened in the centre (vermillion border) and there is a general decrease in the red portion of the upper lip (vermillion). These features—the upper lip and philtrum—are rated using a five-point photographic scale. To meet the definition of FAS (a code of 4), the facial features are rated as significantly extreme on the criteria. Individuals who measure in the normal range on these features receive a rating of 1.

Many published descriptions of FAS contain photos or schematic pictures that depict a wide number of characteristic facial features including low ears, a flat mid-face and a small jaw, as well as small eye slits and lip changes. However, based on computer-analysis studies, these other facial features may be present, but are not definitive of the FAS face.¹⁸

Facial features are not always easy to determine at all points across the life span. The small eye slit (that reflects the development of a smaller eye region and the ocular brain tissue) tends to be present from birth into adulthood. The features seen in the upper lip and area under the nose are more variable in their presence. They may not appear until the child is a toddler and be less evident after puberty, when the jaw and face show significant growth and change. Though a clear presentation of classic features of FAS can be diagnostic, evaluation of facial features can be difficult and should be conducted only by trained clinicians.

17. Day, Jasperse and Richardson 1989.

18. Astley and Clarren 2001.

Brain damage

Central nervous system (CNS) dysfunction or brain damage underlies the many learning and behaviour difficulties of individuals with FASD. Alcohol is a toxic agent that can change the number and structure of brain cells, cell organization, the size of the brain and its various structures, neurochemistry and eventually cerebral functioning. This damage can occur at any time within the pregnancy, but unfortunately often occurs in the first trimester before a woman knows she is pregnant.

Using the four-digit code, three sources of information can be used to make a diagnosis of brain damage. The first is to find structural changes in the brain. Such structural abnormalities can be seen on a brain image, such as a CAT scan or a magnetic resonance image (MRI). If the image shows a significantly small brain (microcephaly), or lesions or abnormalities in particular regions of the brain, a rating of 4 is given. Though a few severely affected individuals with FAS have abnormalities on brain images, most do not.

The second way to identify brain damage is through assessing neurological dysfunction. Neurological dysfunction is indicated by conditions such as seizures and tremours, or other soft neurological signs such as extreme muscle weakness or rigidity, and coordination and/or balance deficits. Some, but not all individuals who have FAS, show such neurological dysfunctions. Finding structural or neurological brain damage is the role of physicians with the assistance of other professionals, such as occupational and physical therapists.

Multidisciplinary teams of professionals can use psychometrical assessments to identify levels of brain functioning. Professionals test patient functioning from the vantage point of their particular disciplines. Team members bring the information together and use a collaborative process to summarize the data to aid in making diagnoses. Members of such teams include pediatricians, psychiatrists, nurses, psychologists, speech pathologists, occupational and physical therapists, neuropsychologists and social workers.

Using the four-digit approach, criteria indicating abnormal functioning are patterns of test results in several domains that are two standard deviations below average or in the lowest two percentile of the normed population. Such results indicate significant deficits. The domains typically evaluated include cognition, memory, adaptation, academic achievement, attention, speech and language abilities, communication, and fine and gross motor skills. Individuals who have brain damage as part of the diagnoses of FAS typically have at least three to four areas with test scores that meet the criteria for severe, significant deficits.

Other information assessed in the diagnostic process

Medical factors

Other medical information is also assessed as part of the diagnostic process. Physicians look for birth defects because they occur at a higher rate in this population. These defects most commonly occur in the oral palate, kidneys, spine, heart and sensory systems. Higher rates of physical malformations occur because alcohol can have a harmful effect on all structures as they are developing in utero. Physicians also look for other genetic conditions that are similar to FAS physically and/or behaviourally, e.g., William's syndrome and Fragile X syndrome.

Social and other factors

Diagnostic team members look at many other prenatal factors, including pregnancy histories, genetic factors, and social issues of parents and other biological family members. Postnatal factors are also reviewed, such as placement histories and family life, including both negative and positive factors. These prenatal and postnatal factors help provide an understanding of patients and their experiences, and can lead to recommendations for intervention.

Teacher's role

Assessing behaviour, learning and social functioning is key to understanding individuals. Such information, obtained from teachers, parents and others who know the individuals, is essential to identifying and understanding issues for them and their communities. Teachers can participate through interviews, and sharing school records and selected samples of schoolwork prior to clinic appointments. Parents can participate by completing initial referrals, interviews and structured questionnaires, often with the help and support of family advocates and outreach workers.

Outcome of the diagnostic process

The diagnostic process can lead to a range of diagnoses. Reports given to parents usually explain the findings and provide general recommendations for intervention. These reports may be shared with educators, with parents' permission. Individuals are given a diagnosis of Fetal Alcohol Syndrome if they have many 4 ratings that indicate the classic features of the original medical definition of FAS. Reports may also include terms such as "static encephalopathy," which indicates high ratings on CNS dysfunction; "neurobehavioural disorder," which indicates ratings that are intermediary on brain damage or learning and behaviour; or "sentinel birth defects," which indicates FAS physical findings of facial features and growth.

The value of a diagnosis

Individuals who have gone through the diagnostic process often find it a valuable experience. Diagnostic information can be used in individualized program planning (IPP) in schools and community treatment programs. Understanding and sharing results can lead to empathy for affected individuals.¹⁹ Having a reason for learning challenges and behaviour problems can be a protective factor according to Streissguth and Kanter.²⁰ When negative behaviours and learning disabilities are misinterpreted, children may be punished because they are perceived as oppositional. They may develop severe emotional problems that arise from frustration, inappropriate management and lack of support. Understanding the link between behaviour and learning problems, and the neurological impairments of FASD is one outcome of an effective diagnosis.

19. Gelo 1996.

20. Streissguth and Kanter 1997.

Common behavioural and learning patterns

Although each individual with prenatal alcohol damage is unique, there are certain patterns evident in behaviour and learning across the population of people with FASD at specific times in development. These dysfunctions are the outcome of brain damage that has caused changes in structure, chemistry and functioning of the central nervous system. These basic learning and behavioural difficulties are the primary disabilities of prenatal alcohol exposure. These difficulties can affect all aspects of functioning, from the most basic to the most complex. Many individuals with FASD have a pattern of difficulties across the life span as they struggle to understand and meet social and cultural expectations.²¹ There are some individuals whose difficulties in functioning may not be evident at a young age but become more evident over time as social demands increase.

Sensory and motor deficits

Infants with FASD often show poor adaptation to sensory stimuli, such as light, sound and touch. Continuation of the newborn startle response and demonstrations of exaggerated reflexes for prolonged, atypical periods are indications of brain immaturity. Typical motor system difficulties include problems with increased or decreased muscle tone, and swallowing and sucking. Sleep disturbances are common. Babies and children can have difficulty falling asleep and maintaining sleep throughout the night. Rocking and other repetitive motions, which may reflect brain damage, can begin in the first year of life and persist for many years.

Motor development difficulties, such as poor balance and coordination, tremours and clumsiness, can be seen across the life span. Babies or young children may have visual and fine motor development difficulties resulting in poor eye-hand coordination, and delays and deficits in sensory perceptual integration. Even in adulthood, these visual-spatial motor skill deficits can be seen, especially when individuals are asked to do complicated drawing and writing tasks.

FASD in preschool years

Preschool children with FASD may be slow to acquire and understand language. They often show delays in walking, running and riding a tricycle, and may have problems with fine motor skills, such as writing, drawing, cutting and manipulating small objects. In preschool, they may be slow to learn their colours, to rhyme or hold a pencil. They may have delays in adaptive skills, such as dressing, brushing their teeth or bathing. Many have difficulty regulating emotions and behaviour, and have extreme, lengthy tantrums. These children may be overly active, impulsive and inattentive. They often have trouble focusing on any activity for more than a few moments. Some may be inappropriately affectionate and open with adults because they are unable to recognize social boundaries or learn what behaviours are appropriate with familiar versus unfamiliar people.

FASD in school years

Children and adolescents with FASD often receive special education services because they have difficulty learning and behaving appropriately. These difficulties reflect basic weaknesses in language, memory and other functions essential to age-appropriate academic performance.

21. LaDue 1993, Olson 2002.

Academic learning difficulties

School-age children with FASD show a range of learning difficulties. In primary grades, they may have difficulty learning basic skills, such as recognizing letters and numbers, reading words, learning math facts, spelling, and writing sentences. By junior high and high school, they may have significant and persistent difficulty with complex learning tasks, such as reading comprehension, math reasoning and problem solving, report writing and test taking. Children with FASD often plateau in their academic learning, particularly in math. At the high school level and beyond, arithmetic skills may show limited development beyond basic intermediate grade functioning.

Memory

Memory difficulties vary from weaknesses in short-term rote and working memory to inconsistencies in long-term recall. A typical short-term memory problem often noted is the inability to recall a series of directions. A frequently described long-term retrieval memory problem occurs when children appear to know a fact or procedure one day and forget it the next. Another memory difficulty is source memory deficit. At times, individuals with FASD may confuse what they were specifically asked to recall with random information they heard or thought. Then, when asked to retrieve information, they add the extra information and are unaware it came from another source. This may look like lying or inattention, but actually is related to inefficient or dysfunctional storage and retrieval of information.

Language

Language development weaknesses are common in individuals with FASD. Early articulation and expressive language delays may occur, but are less evident as children reach school age and receive intervention. Individuals with FASD can be chatty or verbally fluent. However, the content and quality of their expressive language is often less complex, and more superficial, nonspecific and literal than other children their age. In language evaluations, children with FAS have comprehension scores that are generally lower than their expressive performance. This discrepancy between receptive and expressive language can be confusing. They tend to express themselves in ways that lead others to assume that they understand what is going on when actually they do not.²² Their ability to discern what others are saying is often poor. These individuals may have difficulty both interpreting figurative language and producing complex sentence structures in speech and written language. Special educator Susan Doctor has appropriately described this pattern as “they talk better than they understand.”²³ This expressive receptive language discrepancy can lead to many social difficulties.

Individuals with FASD often have difficulty understanding and using social communication. They lack the language needed for social awareness and complex expression of feelings. This often leads to difficulties in social and learning situations, such as understanding directions, social cues and fast-paced conversations; and interpreting satire, metaphor, parodies and other aspects of complex social interaction.

22. Coggins et al. 1998.

23. Doctor 1994.

Cognitive functioning

Individuals with FASD have various cognitive levels of functioning. Approximately half the children with FASD score in the below-average range on intelligence measures, while the rest function in the low-average to average range, and occasionally in the high-average range and above. Typically, IQ scores are lower than expected based on inherited genetic potential.²⁴ Individuals with FASD typically have lower intellectual functioning than family members who have not had prenatal alcohol exposure. When individuals with FASD are re-tested on standardized IQ tests, they often have lower scores at older ages. Children who obtain low-average range scores in preschool may score in the below-average range by adulthood.

Cognitive problems include patterns of inefficiencies and deficits in functioning, such as slow mental processing, and poor use of thinking and planning strategies. Individuals with FASD may have difficulty developing complex, abstract thinking and reasoning. In research studies, they have been found to have deficits in executive functioning.²⁵ This includes difficulty linking two or more ideas together, understanding complex concepts, generalizing and understanding cause-and-effect or the consequences of their actions, and having poor judgement. Individuals with FASD are often gullible and can be literal and concrete in their thinking. They may have additional difficulties with planning and organization on physical and conceptual levels. They may have problems keeping materials organized and managing time schedules. Often, older children with FASD cannot meet age-level expectations to effectively use complex cognitive strategies to accomplish multi-step tasks.

Behavioural regulation

Many individuals with FASD have difficulty with behaviour regulation, which often includes mood swings. Individuals may quickly go from excited and happy to morose or angry. Many have neurological systems that become easily overwhelmed by stimulation. They may show irritability, volatile anger, shut downs or other withdrawal behaviours. Other emotional difficulties include obsessive repetitions of certain actions, or perseveration of particular actions or ideas.

Maintaining appropriate attention and focus is often difficult for individuals with FASD. They may be impulsive, distractible, have difficulty shifting attention from one task to the next, or focus intensely and inappropriately on limited topics or objects. Many are diagnosed as having ADD/ADHD at some point in their lives.²⁶ Typical stimulant medication used to treat ADHD can have variable results with these individuals.

Adaptive skills or practical abilities

Adaptive skills and social emotional functioning are areas in which individuals with FASD often show their greatest declines, relative to their chronological age peers, as they grow older. School-age children's adaptive and social skills are often delayed and may be half their chronological age level.²⁷

24. Mattson and Riley 1998.

25. Olson et al. 1998.

26. Nanson and Hiscock 1990.

27. Clarren et al. 1995.

Many young adolescents attend large secondary schools and experience complex social settings of their communities, with fast-paced social interactions and demands for independent organization of daily activities. With such environmental and societal demands, the weaknesses of individuals with FASD related to inefficiencies of brain functioning, become increasingly more apparent. Individuals with FASD may have difficulty interacting with others and performing daily living skills, such as household and personal hygiene tasks, and communicating in ways that are socially appropriate. They often have better interactions with younger children who are at their developmental level. They function more effectively in small, highly structured environments. Difficulties tend to increase when the setting is less structured, such as playgrounds or malls.

Their adaptive and social difficulties are often related to weaknesses in language. They may not understand the social intent of conversation or be able to understand and recall directions. They may have trouble separating fact from fantasy, or understanding others' humour. Cognitive issues, such as reasoning problems, can lead to social difficulties because of errors in judgement or difficulty with age-appropriate tasks, such as managing money and time. They may tell lies for approval because they want to make friends or please adults.

Conceptual and memory problems can result in difficulty understanding the concept of individual ownership. Individuals with FASD may steal, without understanding the meaning of the act or its implications. Usually this is an impulsive act—an individual sees something attractive, wants it and picks it up. Behavioural regulation problems often continue into adulthood, and impulsive behaviour and anger may result in volatile temper tantrums or aggression. Mood swings may also result in risky or dangerous situations.

Secondary disabilities

With understanding, appropriate expectations and supportive environments, individuals with FASD can perform adequately and live fulfilled lives. However, individuals who grow up without this kind of structured support, may encounter frequent situations in which they are frustrated and punished for their inability to meet the expectations of classrooms, social groups, jobs or communities. Individuals with FASD have the invisible disability of CNS dysfunction and are often misunderstood. Their deficits can be misconstrued as laziness, noncompliance or willful misconduct. Streissguth and Kanter²⁸ note that adolescents and adults with FASD often experience secondary disabilities, or emotional and societal problems related to their difficulty managing typical expectations. Lemoine, Steinhausen and their colleagues have documented the array of difficulties individuals with FASD may experience as adults.²⁹ They identify social isolation, depression, anxiety, suicidal thoughts and attempts, delinquency, unplanned pregnancies, homelessness and victimization as difficulties that can occur when there is a discrepancy between expectations and a person's ability to perform.

28. Streissguth and Kanter 1997.

29. Lemoine and Lemoine 1992, Steinhausen 1993.

Talents and strengths

Even though individuals with FASD have many difficulties, they have talents and strengths as well. Malbin, and Kleinfeld and Wescott identify ways that teachers and parents can maximize these capabilities if they look for hidden strengths.³⁰ Individuals with FASD may show positive personality characteristics, including persistence and commitment, in low-stress situations. Malbin notes that these individuals often enjoy repetitive work and succeed in structured situations. They often have a strong sense of fairness and a rigid belief system. These individuals are often gregarious, fun loving, caring and affectionate. They can be sensitive, loyal, kind and trusting in relationships. If they have been raised in a positive atmosphere, they often show a strong sense of self, a good sense of humour, spontaneity, curiosity and a sense of wonder.

Malbin also identifies several learning strengths frequently seen in individuals with FASD, such as strong visual memories, good verbal fluency and a positive use of visual language techniques. They can often learn effectively when tasks involve a hands-on approach. Their high energy level allows them to be involved in many activities. If they have a rich fantasy life, it enhances storytelling. Other strengths include creativity in visual arts and music, and athletic skills in individual sports.

The pattern for each person with FASD is unique, but teachers can become aware of individual strengths and needs, and can tailor programs and supports to build strengths and create hope for students with FASD.

30. Malbin 1999, Kleinfeld and Wescott 1993, Kleinfeld 2000.