

COMPLEX LEARNING DIFFICULTIES AND DISABILITIES RESEARCH PROJECT (CLDD)**EFFECTS OF DRUG USE & SMOKING DURING PREGNANCY**

Background

There is growing evidence to suggest that foetal development can be effected in utero by mother's use of some legal and illegal substances whilst pregnant. Unfortunately, unlike alcohol where the effects of its use during pregnancy on the developing child are widely more recognised, there remains limited evidence of the effects of other substances. Foetal alcohol spectrum disorder (FASD) is currently the leading known cause of learning disability (British Medical Association, 2007); please see the specific briefing pack on FASD for more information and the implications for the classroom.

When researching into the effects of prenatal exposure to specific drugs it is hard to determine the full extent of impact, as separating external contributing factors is complicated. For example, those who use one drug are more likely to use others, smoke cigarettes and drink alcohol than non-users, making the effects hard to assess individually. Also, the fact that a mother has used an illegal drug intertwines with many other factors that can affect an unborn foetus. Socioeconomic status, support systems, role of the father, lack of prenatal care, and the care-giving ability of the mother all play significant roles in child development (Wang, 2010), making it hard to ascertain the effect of the substance alone. Conducting research in the area is also complex and involves a range of issues relating to ethics and recruiting participants. In addition to this, researchers may receive inaccurate responses when attempting to establish the true amounts of substances used during pregnancy due to the stigma attached to drug-abuse and poor recall of times when under the influence.

The main area of research has been around use of cocaine, opiates (heroin and methadone) and cannabis, so these are covered in the sheet below. Unfortunately less is known about the educational implications of use of drugs such as speed, ecstasy, ketamine and 'legal' highs. Research is also available as to the effects of the use of painkillers and prescription drugs and of impact of caffeine on the foetus, however these are not discussed here.

Smoking

It is well established that smoking during pregnancy can cause miscarriage, premature labour and low birth weight babies (Cnattingius, 2004). Cigarettes restrict the essential oxygen supply to the neonate, which can limit growth. However, the long-term effects are less clear on child development.

Shisha is a Middle Eastern tradition where fruit flavoured tobacco is smoked through a water-pipe; its popularity is growing in the UK with many shisha bars open to the public. One pipe of shisha is said to be the equivalent of 7-10 cigarettes, with levels of carbon monoxide up to 5 times higher (BBC, 2009). Research has found that smoking shisha (or sheesha) during pregnancy can cause premature or still birth, pertinent findings as a common assumption is shisha to be a safer alternative to smoking cigarettes.

Long term effects of smoking on the developing child have not have not been clinically confirmed, however some studies have found links between smoking during pregnancy and conduct and hyperactivity-inattention in the children born at an early age (NHS, 2009; Cnattingius, 2004). For a child presenting with hyperactivity or inattention, refer to the ADHD specific briefing packs for some ideas for management of the behaviours in the classroom.

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Cocaine, also known as coke, blow, flake, charlie, crack (a form which can be smoked) is a stimulant of the central nervous system which results in interference of brain messages that control basic needs such as food and drink, giving a false sense of euphoria. Symptoms of use can include mental alertness and increased energy, hyperactivity, raised blood pressure, talkativeness, increased anxiety, decreased appetite and inflated sense of power or strength and confidence. After effects may be increased lethargy and often depression. Health websites and sites aimed at mothers-to-be claim that cocaine drug use during pregnancy limits foetal growth, interferes with nervous system development, and increases risk of premature birth (e.g. March of Dimes, 2008; Baby Centre, 2010). Reports also suggest that cocaine use can cause babies to be born with smaller heads, something which is often linked to learning difficulties in later life (March of Dimes, 2008). Some initial behavioural problems which have been suggested in the early stages of the child's life such as irritability, being easily startled and excessive crying are said to subside after the first year (March of Dimes, 2008).

Whilst the long term effects are unclear, some studies do suggest that cocaine may contribute to subtle learning and behavioural problems, including language delays and inattention (March of Dimes, 2008; Baby Centre, 2010). Other studies suggest that there may be no lasting impact on cognition, but when cocaine is combined with other drugs and home environment is accounted for, behavioural problems did present between the ages of 4 and 6 (Chasnoff et al, 2008). Problems in sleeping has also been reported, something which practitioners may want to be wary of when expecting students to engage in learning.

Heroin

Heroin, also known as smack, skag, brown and horse, is a highly addictive drug which derives from opium. Users experience a dramatic slow down of their body functioning and a substantially reduced sense of physical and psychological pain, feeling sleepy, relaxed and a sense of warmth. They are at risk of overdose (which can cause coma, respiratory problems and even death), gangrene, hepatitis B and C and HIV through needle use. A foetus exposed in the uterus to heroin are at risk of premature birth, being born too small (Baby Centre, 2010) and factors linked to learning difficulties in later life. As heroin used during pregnancy passes through the placenta to the foetus, at the time of birth, levels of the drug can be found in the blood stream of the baby. This can lead to babies presenting withdrawal symptoms, known as neonatal opiate abstinence syndrome (NOAS). Symptoms of NOAS include: irritability, tremulousness, hypertonia, excessive crying, voracious appetite, exaggerated sucking drive, abnormal coordination between sucking and swallowing, regurgitation, pulmonary aspiration, and abstinence associated seizures (Meade, 2007).

As with other drugs, the long-term effects of heroin use during pregnancy is less known, partly due to the difficulty in separating other factors. Mothers who use heroin are more likely to have syphilis, venereal disease and hepatitis occurring from use of unclear needles – all of which could be acting as a teratogen and could lead to long-term effects for the child if untreated (heroinbabies, 2007).

Research comparing adolescents prenatally exposed to heroin and/or cocaine to those unexposed

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found there may be regions and components of working memory processing that may be differentially affected in adolescents prenatally exposed (Riggins et al, 2008). If this is the case, educational practitioners should be aware that these students might need information provided to them in a different way to their peers, e.g. visually, kinaesthetically; or given more time to process.

For children in your class known to be prenatally exposed to heroin, briefing pack on premature birth might be helpful to offer information and strategies to support the child in the classroom.

Cannabis

Cannabis, also known as marijuana, skunk, hash, ganja and pot, is the most widely used drug in the UK. It is usually smoked in the form of dried leaves or resin with tobacco. Symptoms of use include feelings of relaxation, slowed reactions, distorted coordination and paranoia. There have also been links suggested with an increased risk of mental health problems such as schizophrenia with long term use, as well as poor motivation and concentration. Some research suggests mothers smoking cannabis during pregnancy may increase the chances of premature birth and low birth weight (March of Dimes, 2008; Hall and Solowij 1998). However it is unclear the extent to which this is related to the effects of smoking tobacco with cannabis.

There is suggestive evidence that infants exposed in utero to cannabis have behavioural and developmental effects during the first few months after birth. Between the ages of 4 and 9 years, children who were exposed

Implications for teaching and learning

With limited research-based evidence to inform practice regarding the effects of specific drugs on the child's long term development, and such great environmental influences that compound development, at this stage there can be no clear implications for teaching and learning. Even without a pervasive effect of maternal drug use, practitioners should be wary that children are at risk of developing 'secondary' disabilities if mothers are using drugs after pregnancy or if there is a stressful home environment. This could be mental health and attachment problems, learning difficulties, and behavioural issues around appropriateness of social interaction.

Practitioners are recommended to teach to the learning styles of the students and consider the behaviours they present, rather than the aetiology of their difficulties. As raised in the specific sections above, please refer to briefing packs on the conditions or behaviours specifically presented, such as ADHD or mental health, for teaching strategies to manage behaviour and increase learning. Some key points to consider might be:

- Have you considered the emotional needs of the student in the class? Does the classroom provide a secure environment? Are there opportunities for counselling and listening sessions?
- Does the student need more processing time than their peers? Is there opportunity to catch up if they fall behind?
- Using professional judgement, if you feel any issues around the child's developmental progress could be related to possible alcohol use during pregnancy, look at the FASD briefing packs for

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some teaching and learning strategies.

- For those young children entering the school system, early intervention within a holistic system of multi-disciplinary working is imperative. It would be recommended that, wherever possible, the family are very much included within this approach to ensure support is consistent at home and at school, for example issues around behaviour and sleep deprivation.
- The multi-disciplinary team may also need to include agencies that have the power to intervene should any issues within the home become child protection concerns if parents are still drug-using.
- How can you involve the student in contributing towards their learning? What can you learn from them about their interests and preferences? Also consider strategies to self-manage their arousal levels, as this could help to boost their self esteem.

References

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