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The effects of prenatal cocaine exposure on learning

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The effects of prenatal cocaine exposure on learning

Abstract

This study reviews the literature concerning the effects of prenatal exposure to cocaine on learning. The following questions were addressed: (1) What are the characteristics and problems of children prenatally exposed to cocaine? (2) How can schools prepare for and assess cocaine-exposed children? (3) What is a proper learning environment for cocaine-exposed children? (4) How can intervention and prevention be considered in prenatal cocaine-exposed children? There is an increase in cocaine usage and the number of infants born prenatally exposed to cocaine. The literature reviewed examines characteristics of prenatal cocaine-exposed babies and toddlers. These children are in classroom settings and teachers must be prepared to meet the needs of these children. Cocaine-exposed children may require adaptations to their educational environment and physical environment. Intervention and prevention strategies are essential in educating everyone to help decrease the number of infants who are prenatally exposed to cocaine.

THE EFFECTS OF
PRENATAL COCAINE EXPOSURE
ON LEARNING

A Graduate Research Paper
Submitted to the
Division of Early Childhood
Department of Curriculum and Instruction
In Partial Fulfillment
of the Requirements for the Degree
Master of Arts in Education

UNIVERSITY OF NORTHERN IOWA

by
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CHAPTER I

INTRODUCTION

Throughout history, public and private schools have experienced an influx of health problems such as tuberculosis, measles, polio, rubella and other illnesses. These health concerns have impacted the schools. The schools' new high risk/health concerned students are crack babies (Bellissimo, 1990). This is not a future problem. These children are in the schools now and need attention. "Children prenatally exposed to cocaine are entering an education system ill prepared to cope with their special needs" (Bellissimo, 1990, p.23). Little public attention has been given to the problems these children will face once they enter school.

To be effective, schools require greater awareness of children's needs and this recognition requires a modification in instructional strategies. "When crack babies are ready for school (and the first cohort will arrive sooner than you think) will your schools be ready for them?" (Rist, 1990, p.18). Medical professionals warn that the number of babies born with intrauterine exposure to cocaine is increasing at an alarming rate. The time to become aware and knowledgeable about these children is now.

Children prenatally exposed to cocaine are in rural as well as inner city schools. All schools need to acknowledge that these children exist. "The first wave of babies exposed to crack, born in the mid-1980s, has already reached the primary grades" (Black, 1993, p. 23).

Educators face a very serious and immediate question of how to prepare for, or actually provide services to children prenatally exposed to drugs.

Background

Research reveals that drug use is increasing. "Since the escalation in the use of drugs during the 1960's and 1970's, drug abuse has emerged as a major problem in the United States" (MacDonald, 1987, p. 277). With an increase in abuse, there is also an increase in fetal exposure.

The growing population of young children with prenatal drug exposure raises a concern. In the 1980's there was an increase in the use of cocaine for all socioeconomic classes, races, ages and sexes (Gold, 1987). Today the cocaine problem crosses all lines and geographical boundaries. Cocaine is not only in the cities but in the suburbs and rural towns as well (Revkin, 1989).

Cocaine is the only drug that has shown an accelerated use in recent years. "The number of people trying cocaine at least once has increased from 5.4 million in 1974 to almost 23 million in 1985" (Chasnoff, 1988, p.91.). In the late 1980s, *crack*, a pure form of cocaine, emerged on the drug scene. Crack is a relatively pure and inexpensive form of cocaine and is available to all races, ages, and sexes, and because of its accessibility and low cost, crack is in high demand.

The users of cocaine are predominantly male. However, the gap between male and female users appears to be narrowing (Chasnoff, 1988). The escalating cocaine abuse by women has become apparent. The National Center on Child Abuse and Neglect estimates that from 30,000 to 100,000 U.S. children are born exposed to crack annually (Gitler & McPherson, 1993).

Cocaine exposure also involves other problems besides the physical addiction it causes. Ignoring social and economic circumstances would be just as devastating. "Cocaine abusers often live in poverty and violent surroundings which also contribute to life long learning and adjustment problems" (Gitler & McPherson, 1993, p.24).

Because of the increase of *crack* use and the social and economic constituents linked to it, educational systems should be informed of this drug and its implications. An increase in females using this drug during pregnancy affirms the possibility of children being born with problems due to their prenatal crack exposure.

Purpose of the study

The purpose of this study is to review and analyze the literature that describes the effects of prenatal exposure to cocaine and to discuss the influence it has on learning. To achieve this purpose, the following questions will be addressed:

1. What are the characteristics and problems of children prenatally exposed to cocaine?
2. How can schools prepare for and assess cocaine-exposed children?
3. What is a proper learning environment for cocaine-exposed children?
4. How can intervention and prevention be considered in prenatal cocaine-exposed children?

Need for the Study

"Teachers, school administrators and child care providers across the nation are worried about the 'wave of crack babies' they hear is rolling toward preschool and elementary classrooms" (Shores, 1991, p.5). Although many schools are being affected by cocaine-exposed children, school districts on the coasts are feeling more of an impact.

The National Institute on Drug Abuse collected data nationally on cocaine-exposed children. In New York City, the number of babies who are affected almost doubled for three years in a row. In Los Angeles County, the number increased from 543 to 1,300 babies born annually with prenatal cocaine exposure (Poulsen, 1992).

The need for further investigation and research on cocaine-exposed children is evident. Numbers of children prenatally exposed to cocaine are escalating throughout the nation (Van Dyke & Fox,

1990). Educational professionals must prepare themselves to meet this challenge of increasing cocaine usage and its impact on children.

The research studies that are available regarding the effects of cocaine on the developing fetus and newborn are sparse. However, evaluation of the research findings are similar. Patterns and characteristics of prenatally cocaine-exposed children are revealed repeatedly (Chasnoff, 1988).

The research available regarding prenatal cocaine exposure on learning are significant. This study reviews influencing factors from infancy to school age and explores ways professionals in educational settings can prepare for the schools' new high risk student, crack babies.

Limitations

In conducting this review of literature, the writer had access to the University of Nebraska at Omaha library. An ERIC search produced many abstracts from medical journals that were not available from this university library.

The second limitation is limited research available on school-age children. These prenatal cocaine-exposed children have recently been identified and there are no longitudinal studies available. The research reports found discuss cocaine-exposed children ages birth through preschool.

Definitions

The terms listed below are defined by the Western Regional Center for Drug-Free Schools and Communities (Laws, 1991).

Cocaine--A bitter crystalline alkaloid obtained from coca leaves; highly addictive stimulant

Perinatal--The period shortly before and after birth generally considered to begin with completion of 28 weeks of gestation and ending 4 weeks after birth.

Polydrug use--The use of two or more drugs simultaneously or interchangeably in an attempt to augment or modulate the effects of one drug with other.

Prenatal--Existing or occurring before birth.

CHAPTER II

REVIEW OF LITERATURE

An increase in the abuse of cocaine has led to an increasing number of babies born with severe health problems. Cocaine can affect a pregnant woman and her unborn baby in many ways (March of Dimes Birth Defects Foundation, 1989).

Prenatal Cocaine-Exposed Babies

How does cocaine affect an unborn baby? During the early months of pregnancy, it can cause miscarriage. When it is used late in pregnancy cocaine may trigger labor, or cause an unborn baby to die, or it may cause a stroke which can result in irreversible brain damage (March of Dimes Birth Defects Foundation, 1989).

Effects of cocaine on the unborn baby depend on the following: type and amount of drug use, the stages of pregnancy, and the frequency of when it was taken (Lockwood, 1990). It appears that infants prenatally exposed to cocaine suffer from mild withdrawal symptoms, evidenced by jitteriness, irritability, high respiration, heart rates and feeding problems (Schneider, Griffith, Chasnoff, 1989).

Researchers consistently have found that infants prenatally exposed to cocaine perform poorly on neonatal neurological assessments (Chasnoff, 1989). Medical information available immediately after birth shows that infants who are exposed to cocaine have much lower scores on tests given at birth to assess the newborn's physical condition and overall responsiveness, birth weight and other

infant complications. When the cocaine-exposed children were compared to those babies who were not exposed to cocaine a significant difference was observed (Storkamp, 1993).

Some studies have found that babies prenatally exposed to cocaine have low birth weights and smaller head circumferences (Bingol, Fuchs, Diaz, Stone & Grosmisch, 1993). A smaller head circumference can indicate a smaller brain; this, in turn, can lead to Sudden Infant Death Syndrome (SIDS). One study found that the rate of SIDS among cocaine exposed infants was 15%, while the rate among all babies is just 5% (Janke, 1990).

Cocaine cuts the flow of nutrients and oxygen to the baby, so even if the baby is not born prematurely it may be much smaller than it would otherwise be (March of Dimes Birth Defects Foundation, 1989). Babies exposed to cocaine before they are born may start life with serious health problems. The most common adverse outcome is the inability to cope with external stimuli (Shores, 1991).

Prenatal Cocaine-Exposed Toddlers

Many of the easily recognized problems which these children suffer at birth seem to disappear in the first months of life (Shores, 1991); however, researchers warn that cocaine effects on fetuses' brains may cause permanent brain damage (Chasnoff, 1989). Permanent brain damage, behavior problems and learning disabilities are often exhibited in toddlerhood of cocaine-exposed children.

There is a growing body of knowledge to indicate that fetal exposure to cocaine may lead to developmental defects, abnormal neurologic development, and school/learning problems (Van Dyke & Fox, 1990). With the knowledge available to indicate such delays, schools need to be prepared.

Schools Need To Prepare

Many babies exposed to cocaine before birth have chronic health problems and experts expect they will face problems in childhood (March of Dimes, 1989). "These children must be considered to be at high risk for developmental and learning disabilities" (Chasnoff, 1988, p.36). The research results must not be ignored. A significant number of children who were diagnosed with cocaine exposure in the 1970s are having learning problems, behavioral problems, and attention deficits in the 1980s (Van Dyke & Fox, 1990). "Crack has acquired a bad reputation as a drug that damages babies so severely that they will cause severe disruption in classrooms and grow up to be a generation of social deviates" (Shores, 1990, p.6). If in fact prenatal cocaine damages are so severe that their results are seen in school age children, then it follows that schools need to prepare for these children.

"What can schools do to help? First, stop labeling these children *crack babies*. Then recognize that they can succeed in school" (Black, 1993, p.23). A study led by the National Association for Prenatal Addiction and Education (NAPRE) followed 300 cocaine-

affected children from infancy through school age and found nearly all children in the population fell within the normal range of cognitive ability (Black, 1993). Research studies reveal that schools do not have to build new special education wings for drug affected children, or hire new teachers to deal with these cocaine-exposed children (Black, 1993). Attention given to the environment and ways of assessing these children is, however, crucial in providing them with the best educational setting possible.

Assessing Prenatal Cocaine-Exposed Children

"Children exposed to crack cocaine in the womb have difficulty learning in their world. School systems are going to have to learn to deal with a major thrust of this new kind of student" (Viadero, 1991, p.10). Schools learning to deal with this type of student should include help for teachers regarding how to assess the prenatal cocaine-exposed child.

Identifying and assessing the prenatal cocaine-exposed children will help the schools place the children in the developmentally appropriate learning environment. Schools have seen drug affected children for years, often not knowing the cause of the child's behavioral problems (Kaufman, 1990). Although they will require more time and attention, these children should not be treated differently.

"Research reminds us, labeling alters expectations. Calling children 'crack babies' or 'crack kids' invariability lowers educators'

expectations for their social behavior and academic learning" (Black, 1993, p.24,). Labeling prenatally cocaine-exposed children *crack kids* puts the emphasis on the drug instead of the child (Black, 1993).

Putting aside the labeling and dealing with the child's strengths, rather than his/her weaknesses, will be necessary if assessments are to be effective. The Office for Civil Rights (OCR) has developed a policy on educating drug-exposed children. "Children should not be automatically identified as handicapped solely because of their prenatal exposure to drugs or their mother's drug dependency. No evidence exists to justify categorically classifying children who are prenatally exposed to drugs as handicapped" (Wender, 1992, p.54). Children prenatally exposed to crack are often misunderstood. Teachers and principals are not to presume that all children who have been exposed to drugs will be doomed to failure (Barone, 1994).

The question in assessing a child prenatally exposed to drugs as a *qualified handicapped* person must be whether the child has a physical or mental impairment that substantially limits major activity and qualifies the child for participation in a special school. This school should accept children in a service program established through referral procedures within a school system (Wender, 1992). Without careful thought and consideration, children could be headed for a troubled educational future. "It appears that careful, developmentally appropriate assessment will be crucial if children with prenatal drug exposure are to receive the best services" (Shores, 1991, p.22).

"Prenatal cocaine exposure does not create a uniform set of delays" (Shores, 1991, p.22). Stressing the importance of individual assessment is crucial. These children are affected in many different ways. Prenatal cocaine-exposed children should be assessed developmentally and individually to determine the extent to which they need special support and resources.

Educational Environment

There are several schools that have felt the impact of the cocaine problem. Los Angeles Unified School District, with a population of 592,881 kindergarten through 12th graders residing in a cocaine ravaged inner city, has implemented a pilot program for drug-exposed children age three to six (Bellisimo, 1990). A developmentally appropriate learning experience and environmental guideline from the National Association for the Education of Young Children (NAEYC) are used as a model for their project.

Teachers and project pioneers have offered suggestions regarding what works best with cocaine-exposed children from the Los Angeles Unified School District; this is reflected in the following statement by Bellisimo, (1990):

Drug exposed children need predictable environments and predictable routines. They need a flexible environment that allows for self-directed exploration. These children need more time to become attached to caregivers and thus a small ratio of children to adults is

advocated. (p.25) Providing a developmental environment is essential in educating prenatal cocaine-exposed children.

Physical Environment

Special attention must be paid to arranging the physical environment of the classroom for the prenatal cocaine-exposed child. The Hillsborough County Public Schools, Tampa, Florida, identified a few strategies for teaching young children who were prenatally exposed to drugs (Bellissimo, 1990). A setting where classroom materials and equipment can be removed to reduce stimuli, or added to enrich the activity is essential. Workspaces should be clearly defined. Cueing techniques have been used to help children at a center. Among the many tasks that these children must learn is that of how to line-up to go from place to place (Wender, 1992). By organizing an environment, teachers will limit frustrations and ease the mind of a prenatal cocaine-exposed child (Chasnoff, 1989).

CHAPTER III

Intervention

"Although emerging evidence indicates that children who are prenatally drug exposed often can be educated in mainstreamed classes, these children still benefit most from structured, early intervention services" (Barth, 1991, p.3). The first step in helping drug-exposed children is to generate public support, commitment, and funding (Johnson, 1992). Authorities at higher levels can help make a difference.

The media, the public, and policy makers need to be better informed about the nature of drug abuse and the effects on the newborn. Intervention programs are expensive but definitely a worthwhile expense. Spending the money now on early intervention programs actually helps to save money later. If cocaine-exposed children and families are given opportunities for assistance immediately after birth, the probability of further spending on education and special services later in early childhood decreases (Black, 1993).

Many drug-exposed infants do not have outward signs; many effects do not show up for several years after prenatal cocaine exposure (Besharov, 1989). It is important that these children be identified at birth and followed through their preschool years (Greer, 1990). "Programs need to be developed to prevent rather than remedy developmental delay" (Johnson, 1992, p.9).

A successful intervention program is Project DAISY. This project was brought together by a collaboration of agencies, including the school system in the District of Columbia. Fifty six percent of the children tracked from birth to three had been prenatally exposed to drugs (Powell, 1991). "Not all children exposed prenatally to cocaine will be eligible for handicapping conditions. Although, they may have some different behavioral and learning characteristics that must not be overlooked" (Hutchings, 1992, p.285). The DAISY project looked at the children who did not qualify for special education and offered an intervention program for the child and family.

The DAISY project provided parent training and support groups for the primary caregivers of the cocaine-exposed child. They took a close look at classrooms. Class sizes were reduced to 15 and developmental classrooms were implemented. The DAISY project had support from a clinical psychologist, clinical social worker, and a speech pathologist; medical support was also available to assist in screening and caring for these children. It is the network of agencies working together that makes the DAISY project a successful one. Early intervention can help cocaine-exposed children and increase the chances of these children having a successful school experience.

According to Rist (1990), waiting to identify and treat drug-exposed children when they are enrolled in kindergarten is a mistake that could add substantially to the overall cost; early intervention is the

key to success. This early intervention includes the following procedures.

There are suggestions offered on where to begin in preparing schools to meet the needs of drug-exposed children (a) develop a system for early identification; (b) lobby for funds to develop intervention programs beginning from birth; (c) implement drug education and prevention programs in schools to teach students the skills they need to resist drugs; (d) provide appropriated classroom environments which foster stability and security; (e) continue to conduct research on the long term effects of prenatal cocaine exposure. (p.19)

Awareness of the effects of prenatal cocaine exposure is a community problem not just a school district problem. School districts need to establish a committee or task force with community participation in order to become partners in dealing with this problem. This partnership is needed for the following reasons:

No single human service agency, including the schools, has the human and fiscal resources to meet the needs of these children and their families. A full scale coordination effort must begin now to integrate the institutions and agencies providing rule making, legislative leadership at community, state, and national levels (Greer, 1990, p.23)

Early intervention should begin at birth. Something needs to be done to protect these children. "Hospitals should be given the legal power and financial resources to care for drug babies until they are medically and socially ready for discharge" (Besharov, 1989, p.9).

About half the states have laws that allow hospitals to hold endangered children when there is no time to get a court order or obtain police assistance (Besharov, 1989). Hospital and child protective agency decision making should focus on the mother's ability to care for a child before sending a fragile, drug-weakened newborn home (Besharov, 1989).

Children should not be left with drug-addicted parents who cannot or will not care for them (Besharov, 1989). "An estimated 25% of drug-exposed newborns have siblings who were also exposed fetally" (Besharov, 1989, p.10). In communities where the repetitive cases of fetal drug exposure is occurring and a serious crack problem exists, a dramatic increase in foster care placement is evident (Besharov, 1989).

Communities with a serious crack problem have experienced a dramatic increase in foster care placements. In New York City, the foster care population rose almost 50 percent between 1986 and 1989 (Besharov, 1989). In 1988 there were approximately 450 cocaine exposed babies born at Harlem Hospital in New York City. Only about a third of those babies were placed in foster care (Besharov, 1989). Many of these babies not placed in foster care end up being abused and neglected (Besharov, 1989).

Prevention

There are numerous strategies that can be used to reduce the number of drug-exposed children each year. Efforts can be made to decrease drug use before, during, and after pregnancy in women of childbearing age.

Gilchrist and Gilmore (1992) advocated three different levels and types of prevention: (a) Primary prevention is prevention of the initial occurrence of drug use before conception and pregnancy. (b) Secondary prevention is the minimization of problems given the existence of the risk factor-- use of substances by a woman who is pregnant. Programs designed to reduce or eliminate drug use after conception fall into the secondary prevention category. (c) Tertiary prevention covers efforts to reduce the impact or disabling consequences of drug exposure on infants.

Strategies for preventing drug use by expectant mothers is needed to keep this problem from growing. The best way to help a drug baby is to keep its mother from taking drugs (Greer, 1990).

Evidence emerging from the study of public awareness and education campaigns about addictive drugs shows that scare tactics and brutally honest TV commercials are influential (Greer, 1990). Also, support groups, counseling, and treatment programs have made an impact. Immediate attention needs to be given to women using

cocaine. Educating them regarding the effects of cocaine use on an unborn child is crucial.

Some young mothers do not believe that crack is bad for their babies. They see other addicts giving birth to what appear to be healthy babies, and they convince themselves that they will too (Besharov, 1989). Despite what is known about the harmful effects of cocaine, no concerted government effort has been undertaken to educate young women about the dangers of using drugs while pregnant (Besharov, 1989). Public health authorities must make an effort to educate and change attitudes about drug use during pregnancy. According to Besharov (1989),

Continued silence is inexcusable. The Department of Health and Human Services must use every media avenue to get the word out. Whether it is in sex and health education classes or in public affairs television spots, the message must be blunt: Using drugs while pregnant is wrong. It cripples and sometimes kills babies. (p. 9)

Prevention and intervention techniques are costly. However, when looking at expenses early prevention and intervention is much less than caring for newborn infants whose mothers used cocaine (Scott, 1991).

The care required for infants prenatally exposed to cocaine added more than \$500 million a year nationally to the costs of normal labor, delivery, and newborn care in 1990. Crack addition adds about \$3,000 per delivery to an infant's care.

The cost for drug treatment is \$6,000 to \$26,000 but the lifetime of crack exposure could be \$400,000. (Scott, 1991, p.28)

The financial troubles for prenatally cocaine-exposed children do not stop at infancy. It is suggested that the cost in medical care, foster care, and special education for these children could reach \$50 million to \$100 million a year (Griffin & Waltz, 1991). According to Kantrowitz & Wingert (1990),

As cocaine babies grow up and America's crack problem worsens, health and social workers are left with only two options: get mothers into treatment programs in time to protect their babies, or prepare to deal with a steady stream of troubled children. (p. 19)

Chapter IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to review and analyze the literature that describes the effects of prenatal exposure to cocaine and to discuss the influence it has on learning. To achieve this purpose the following questions were addressed.

1. What are the characteristics and problems of children prenatally exposed to cocaine?

Miscarriages are common in the early months of pregnancy. An insufficient blood flow in early embryonic life can be life threatening, therefore, causing a miscarriage.

Children born after being prenatally exposed to cocaine, experience several symptoms. These symptoms include the following: withdrawal behaviors, low birth weights, small head circumferences, overall low scores on neonatal neurological assessments and death by Sudden Infant Death Syndrome (Janke, 1976).

2. How can schools prepare for and assess cocaine-exposed children?

Schools can help by not labeling these children *crack babies* and recognize that they can succeed in school. Attention needs to be given to ways of assessing these children. Identifying and assessing cocaine-

exposed children individually and developmentally is essential.

Schools need to deal with the strengths of the child rather than the weaknesses.

3. What is a proper learning environment for cocaine-exposed children?

Drug-exposed children need predictable, flexible environments that allow self-directed exploration (Bellismo, 1990). Schools need to recognize that a small ratio of children to adults is important. The environment must be organized to limit frustrations. Settings where classroom materials and equipment can be removed to reduce stimuli, or added for enrichment is recommended (Wender, 1992).

4. How can intervention and prevention be considered in prenatal cocaine-exposed children?

Intervention should begin at birth and continue through the preschool years. Spending the money early will decrease the probability of future spending on education and other special services (Black, 1993). Not one single human service agency has the human or fiscal resources to meet the needs of these families alone. A coordinated effort is needed at the community, state, and national levels, so that all agencies become partners in dealing with this problem (Greer, 1990).

Conclusions

Infants prenatally exposed to cocaine present a new and frustrating challenge. The problems of the cocaine-exposed child begin long before a child enters the school house door. Education and prevention are the two best strategies to keep this problem from growing to unmanageable proportions (Greer, 1990).

Mothers who are using cocaine and who are exposing their children have broad needs and will require the coordinated efforts of a number of service systems. To deal with this problem effectively, it will take coordination and cooperation from community, state and national agencies (Department of Health and Human Services, 1992).

"We are in a war. We must make common cause with every ally we can find. But to do battle, all of us must be ready. Preparation is no guarantee of winning; but the lack of it will assure defeat" (Greer, 1990, p.384).

Recommendations

The increasing use of drugs by women of childbearing age, and the greater numbers of children being born to drug-abusing women, and the environment in which these infants are reared add urgency to the notion we must conduct additional research in this area. It will take a concerted effort from services, locally and nationally, to make the

changes necessary to decrease the number of children prenatally exposed to cocaine.

Because of a lack of education, many people are not aware of characteristics and behaviors often exhibited in cocaine-exposed children. Educators are confused about what they should do to teach these students successfully. The first step should be to forego the idea that these children exhibit similar behaviors and should be placed in special education classes. Educators need to use common sense and consider the variables that can affect behavior and learning just as they would for children who have *not* been exposed to drugs. The outlook for children who have been prenatally exposed to cocaine can be positive if intervention and prevention strategies become a priority in our nation.

References

- Barone, D. (1994). Myths about "crack" babies. Educational Leadership, 52(2), 67-68.
- Barth, R. (1991). Educational implications of prenatally drug-exposed children. Social Work in Education, 13(2), 130-37.
- Bellisimo, Y. (1991). Crack babies: the schools, new high-risk students. Thrust, Jan., 23-26.
- Besharov, D.J., (1989). The children of crack. Public Welfare, Fall, 6-15.
- Bingol, N., Fuchs, M., Diaz, V., Stone, R., Gromisch, D. (1987). Teratogenicity of cocaine in humans. Journal of Pediatrics, 110(1), 93-96.
- Black, S. (1993). Drug-exposed children. Executive-Educator, 15(5), 23-25.
- Chasnoff, I.J., (1988). Drugs, Alcohol, Pregnancy, and Parenting. The Netherlands: Klywer Academic Publishers.
- Gillchrist, L.D., & Gillmore, M.R. (1992). Methodological issues in epidemiological, prevention, and treatment research on drug-exposed women and their children. Monograph series of the National Institute on Drug Exposure Research (NIDA). 1-13.
- Gitler, J., & McPherson, M., (1990). Prenatal substance abuse. Children Today, 19, 30-32.

- Gold, S., & Sherry, L. (1984). Hyperactivity, learning disabilities, and alcohol. Journal of Learning Disabilities, 23(3), 160-163.
- Greer, J.V., (1990). The drug babies. Exceptional Children, 56(5), 382-384.
- Hutchings, D.E., (1993). The puzzle of cocaine's effects following maternal use during pregnancy: are there reconcilable differences? Neurotoxicology and Teratology, 15 281-286.
- Janke, J., (1990). Prenatal cocaine use; effects on perinatal outcome. Journal of Nurse-Midwifery, 35(2), 74-77.
- Johnson, E.M., (1992). Identifying the needs of drug-affected children; public policy issues. Monograph series of the Office for Substance Abuse Prevention (OSAP). 1-10
- Kantrow, B., & Wingert, P. (1990). The crack children: their troubles don't end in infancy. News Monitor, 18-19.
- Kaufman, N., (1990). Schools brace for drug babies. Oregonian, 4 B1, cols 2-4, B5, cols 2-5.
- Laws, K., (1991). Fetal effects of maternal/paternal alcohol and other drug use. Western Regional for Drug-Free Schools and Communities, Portland, OR.
- Lockwood, S.E. (1990). What's known- and what's not known about drug exposed infants. Youth Law News, Special Issue, 15-18.

MacDonald, D.I. (1987). Patterns of alcohol and drug use among adolescents. Pediatric Clinics of North America, 34, 275-288.

March of Dimes Birth Defects Foundation, (1989). Public health education information sheet. Cocaine Use During Pregnancy: White Plains, New York.

Poulsen, M.K. (1992). Schools meet the challenge: educational needs of children at risk due to prenatal substance exposure. Sacramento, CA. (ERIC Document Reproduction Service No. ED 348800)

Powell, D. (1991). Drug-exposed kids: a crisis in America's schools. Paper presented at the meeting of the House Select Committee on Narcotics Abuse and Control, Washington, DC.

Revkin, A.C. (1989). Crack in the cradle. Discover, Sept., 62-69.

Rist, M.C. (1990). The shadow children. American School Board Journal, Jan., 177(1), 18-24.

Schneider, J.W., Griffith, D.R., Chasnoff, I.J. (1989). Infants exposed to cocaine in utero: implications for developmental assessment and intervention. Infants and Young Children, 2(1), 25-36.

Scott, G. (1991). High cost of crack babies. Newsday, Oct.

Shores, E.F. (1991). Prenatal cocaine exposure: the south looks for answers. Little Rock, AK: SACUS Special

Report. (ERIC Document Reproduction Service No. ED 330462)

Storkamp, B.J. (1993). The effects of prenatal drug exposure on toddlers' temperament, development and play behavior. New Orleans: Biennial Meeting of the Society for Research in Child Development. (ERIC Document Reproduction Service No. ED 362320)

Van Dyke, D.C., & Fox, A.A. (1990). Fetal drug exposure and its possible implications for learning in preschool and school-age population. *Journal of Learning Disabilities*, 23(3), 160-163.

Viadero, D. (1992). New research finds little lasting harm for 'crack' children. *Education Week XL*, 19(8), 1-10.

Wender, A. (1990). Office for civil rights policy on children prenatally exposed to drugs. Washington, DC: (ERIC Document Reproduction Service No. ED 34880)