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YOUR PREGNANCY

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manage
it now

PAGE 20

**"I HATE MY
BODY"**

When pregnancy
is no joyride



CRIME, stress and your baby

We are faced with real stress on a daily basis, some of it social, some work-related, some of us as victims of violence. But what effect is it having on our future generations and is there anything we can do to lessen its impact? BY BEVERLEY KEMPSTER

While still in your womb, your child is subject to life just as it happens to you. Wherever you go, your baby goes; whatever you taste or smell, your unborn infant tastes and smells too. And when you experience a traumatic event, so does your baby. But does it have any effect? "Absolutely!" is the emphatic answer of Karen van Zyl-Steyn, counselling psychologist and HypnoBirthing childbirth educator. She explains that a baby and its mother are connected on various levels during pregnancy and the baby is very sensitive to any changes in the mother's constitution – if you are in a stressed situation, so is your baby.

Recent research (*Maternal Anxiety: Its Effect On The Foetus And The Child*) suggests that high levels of a stress hormone in the womb may affect the brain of the developing child. It claims that pregnancy is a period during which stresses between partners and domestic violence may be elevated, and these stresses and strains can have longterm effects on the foetus and the child. Stress or anxiety during pregnancy can double the risk of a range of emotional, behavioural and cognitive problems later on in life. What's more, an earlier study in Israel examined the outcome for two cohorts of boys, one group consisting of those born in the year of the Six-Day War and a second group born two years later. The children from the war-exposed pregnancies had significant developmental delays and regressive behaviour. Should South Africa's pregnant victims of crime be worried then? Not only

do many of SA's women (and pregnant women) live in a constant state of fear and panic, but they also run the risk of being hijacked or held up in their homes. Vivette Glover, professor of Perinatal Psychobiology in the UK, thinks that given the nature of crime in our country, we should be aware of the risks that extreme stress can cause on our unborn children, and is "certainly concerned about what is happening in countries like South Africa and Iraq. "It all points to reducing stress in pregnancy. If people are stressed, it matters. It is a big public health issue," she says.

Placenta a magnifier

"The placenta acts as a barrier between the mom and baby for many toxins, but it also acts as a magnifier for some of the stressor hormones," Karen says. "This allows the mom to be more sensitive to stress-related changes in the baby, so that should she need to, she could take action to 'save' the baby's life in case of an emergency. The baby is also extremely sensitive to any changes in the mom's stress levels."

While the association between antenatal stress and preterm delivery is long established – and discussed later in this article – scientists are now shifting their focus to a far more sinister possibility: an association between severe maternal stress and certain malformations in the baby, even the infant's future sexual orientation. The way in which we as humans are programmed to respond to stress has helped us to survive as the human race, but it also has a downside.

Stress during pregnancy can double the risk of a range of emotional, behavioural and cognitive problems later on in life...



In a stressful situation, the central nervous system responds by releasing a hormone called cortisol. While this adrenaline rush is there for a reason, if the stress response does not 'shut off' quickly enough, the exposure to excess cortisol can damage even an adult brain. Recent findings go so far as to suggest that excess amounts of stress could permanently impair certain functions of the developed adult brain. If this is the impact on a fully-formed adult brain, imagine the effect on the delicate, formative brain cells of a developing foetus, characterised by generating, migrating and organising.

Reduced blood flow

Maternal stress may influence your baby's development by reducing the blood flow to the foetus. This is the finding of researchers who evaluated foetal blood flow in pregnant women who were considered "anxious". A definite correlation was found – blood flow to the unborn child was significantly reduced in the pregnant women who experienced extreme stress. Decreased blood supply means a reduced supply of oxygen and nutrition to the brain of the unborn child. The human body does, however, have an answer. The "brain sparing" enzymes which surround and protect the brain can usually ward off harmful invaders... "usually" because these enzymes can't necessarily cope with the overload caused by extreme stress.

Hyperactivity

The first animal-based models to suggest that prenatal events could influence later behaviour and modify the stress system of an unborn child were published in the 1970s. This research came to the conclusion that antenatal stressed mothers were more likely to have hyperactive children (Stott). Later findings of this researcher confirmed an association between prenatal stress and certain child behaviours. Concentrating on 153 children during the first four years of their life, data regarding different aspects of the pregnancies was >

collected via interviews with the mother in the six months after giving birth. Within this sample of 153, Stott identified 14 women, who suffered from "personal tension" during pregnancy mainly due to marital problems. In this group 10 children were described as hyperactive compared to none in the group of "non-tense mothers". And, says Professor Glover, "The human evidence is very strong for an increased risk of ADHD, anxiety and cognitive delay in the child. All the studies so far have been in the developed world. Both ADHD and cognitive delay can increase the risk for later antisocial behaviour, so problems may be perpetuated."

Preterm delivery

While there is much research to do before any firm conclusions are reached, we are quite certain that maternal stress can result in premature labour and delivery. This is the in-built human response that helps the body cope with a stressful situation.

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that prenatal
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Colic

For many new moms, the term "colic" needs no introduction. Infantile colic is an infant behaviour of persistent crying during the first four postnatal months. In a German case-control study 37 infants – let's call them group A – referred to the

hospital for persistent crying were compared with 49 babies (group B) without this problem. In group A, the number of women who reported conflict with their partners while they were pregnant was more than ten times that of group B.

Head circumference

Another study looked at a possible association between maternal stress and small head circumferences at birth. Researchers found a considerable difference in neonatal head circumference between the offspring of 70 moms who experienced maternal stresses and 50 who did not. This difference was larger even than that between non-smokers and smokers.

Same-sex attraction

Based on recent scientific research, there is evidence that prenatal neurohormonal factors could be the main causes of variations in sexual orientation, or "same sex attraction" (Ellis and Ames, 1987). This may sound like the plot of a Steven King novel, but it isn't: an important factor affecting sexual orientation in males is maternal stress experienced while pregnant.

The potential for this to occur is greatest during the second trimester of a pregnancy, and it is caused by "stress hormones" (such as corticosterone and adrenaline) which are released as an instinctive response to extreme stress. These hormones cross the placental barrier and temporarily interfere with foetal production of certain sex hormones, especially testosterone (Heritage, Stumpf, Sar, & Grant, 1980; Ward & Weisz, 1984). If this disruption occurs at the time when crucial brain parts controlling sexual orientation are being sexually differentiated, permanent inversions could occur.

Bear in mind, however, that we're talking here about extreme levels of stress here and that this theory has only been tested on lab rats. "There is evidence from animal studies that prenatal stress increases homosexual behaviour, but the human evidence is not very strong yet," says Professor Glover.

Schizophrenia

Prenatal environmental factors such as maternal stress, birth/pregnancy complications and under-nourishment have also been associated with a higher risk of schizophrenia. A researcher named Huttunen tracked the lives of 167 children who had lost their fathers in the Second World War while they were unborn foetuses. This group was compared with 168 who were aged between one and five years old when they suffered the same loss – call them groups C and group D. The children who lost their father pre-birth had a higher mortality rate – 13 (eight percent) in group C as opposed to eight (five percent) in group D died before the age of 15. Of the children who saw their 15th birthday, six in group C compared to just one in group D had been diagnosed with schizophrenia.

The other side

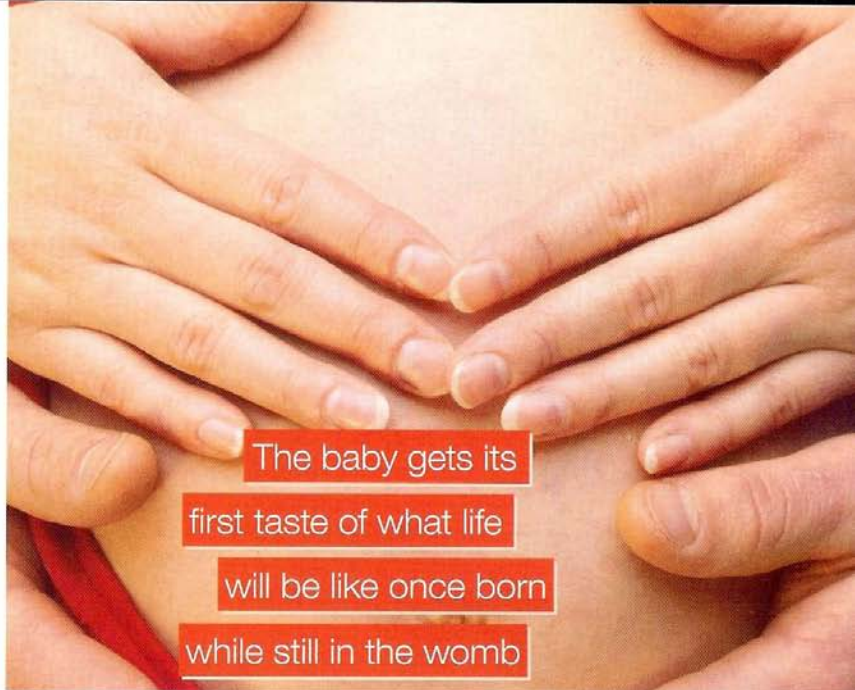
Scientists responsible for this research are quick to point out, however, that there are other possible factors which could influence the observed outcomes. The way in which a victim of crime or trauma responds is influenced by a number of genetic and social factors, including personality, the ability to cope with the stressor, social support and other unreported stressors. Another influential factor is that, unlike animals whose first reaction to a stressful situation is "fight and flight", humans tend to react with lifestyle changes, for example smoking more cigarettes or increasing alcohol intake or coffee consumption. These factors all have the potential to influence the developing baby's brain. Thirdly, the psychological well being of the mother during pregnancy and immediately after giving birth influences the psychological environment of the newborn child. A calm, relaxed postnatal environment can modulate emotional behaviour in a newborn, while early childhood abuse, neglect or maltreatment is thought to increase the risk of major depression later in life. Even exposure to less extreme maternal depression or

anxiety is associated with emotional and conduct disorders. Karen van Zyl-Steyn is not convinced either. She believes that a baby adapts its brain development in accordance with the mother's wellbeing. The baby gets its first taste of what its life will be like once born while still in the womb, and instinctively adapts in a way that will best allow it to thrive/survive in the climate/atmosphere it will most likely experience in the outside world.

"If a mother is very stressed during her pregnancy, the baby will most likely develop better fight/flight instincts (associated with the hind brain functions/instinctive functions) by developing a larger hind brain. Similarly, if the mother is consistently relaxed, the baby might learn that the world it is coming to is safe, and it would not need to arm itself to fight regularly. This baby will tend to develop a larger fore brain associated with higher intellectual functioning and creativity". Research has shown that prolonged upsets that did not directly threaten a woman's emotional security (such as an illness of a close relative) had little or no effect on her unborn child, but longterm personal stress did especially if it was domestic violence, stress at work or problems with an in-law.

Treatment and medication

Get professional help. Immediately. This is the advice of Liz Dooley of the Family Life Centre in Parkview, Johannesburg. Liz was unwavering in her belief that a pregnant woman who experiences extreme stress must get help from the people who know how to deal with it, even if she feels unaffected by the event. "It's important to realise that it's not just about the mom, it's about the life being created inside her," she says. "For your baby's sake, get real help." Karen agrees, adding that it's almost impossible to avoid any and all forms of stress during pregnancy, so the best thing to do is to find out how to cope with it. She advises future mothers to eliminate the stressors they can control, and try to avoid others.



The baby gets its first taste of what life will be like once born while still in the womb

Look after yourself

For pregnant women who do experience extreme stress, Karen has this advice: "I would recommend that you do many of the things we advise non-pregnant individuals who experienced trauma to do – to speak to a professional therapist, and to take care of themselves as best they can – eating well, sleeping enough, using the right multivitamins, doing some exercise, doing meditation and yoga etc." Muscle relaxants and painkillers should be used with extreme caution. Not only do they pass through the placenta, but they can also affect CTG pattern (heart rate) and foetal activity, leading doctors to believe that the baby's health is unaffected when this is not necessarily true. It is important that a pregnant trauma victim tell the doctor treating her of any medication taken prior to the traumatic event.

Finally, "It is important to emphasise that we are talking about risks here," says Professor Glover. "Most children of even very stressed mothers are not affected. So although it is a very serious public health problem, the individual mother should not be caused to worry even more. The risk of neurodevelopmental problems is doubled from about five to ten percent (at least in the UK). So 90 percent of the children of even very stressed mothers should be okay."

All you need is love

Thomas Varny, author of *The Secret Life Of The Unborn Child*, believes that "the intensity of a woman's feelings towards her unborn child can lessen the impact her upsets have on him or her. Her love is what matters most, and when an unborn child senses that love, it forms a kind of protective shield around him and neutralises the impact of outside tensions. This serves to remind us how important prebirth bonding is – allowing a short time every day where a mother-to-be intentionally focuses only on her baby and loves her baby with her thoughts and her touch to her abdomen."

And remember...

"One of the best gifts a mother can give her baby is to be as relaxed as possible. It's a very big problem in our society, and one that I notice a lot. Parents-to-be do not often acknowledge the live presence of the baby in the womb, often using the pregnancy as a time to finish work and 'get the stress out of the way' before the baby comes. But your baby is already there," says Karen van Zyl-Steyn.