**HOW THE LACK OF SLEEP AFFECTS A BABY’S BRAIN AN PERSONALITY**

A leading researcher on temperament in infants and young children once said in despair, “When I raised my first child, I believed behavioral theories claiming that what I do as a parent molds my child’s character. With my second child, I was already a geneticist and believed that a child is born with characteristics that are passed on through heredity and that environmental influence is minimal. I barely knew my third child at all...”

This analysis was, of course, exaggerated, but it demonstrates the ongoing quest of parents and scientists to answer this question: what determines the personality and personal characteristics of the child?

The question of heredity (“She got her shyness from her dad’s family”) versus environment (“If his mother were more strict with him, he would be calmer”) underlies parents’ attempts to understand the range of influence they have in molding their child.

Up-to-date research points to a complex picture: the influence of heredity and environment on the child. Much evidence suggests that the baby is born with genetic baggage that not only determines how he looks, the color of his eyes, and his chances of suffering from various diseases but also significantly influences the character traits that he or she will develop.

Physical activity level, shyness or sociability, openness to new situations, and anxiety are among the traits that are related to the genetic predisposition with which babies enter the world. Many parents discover that their child has traits that are undesirable to them—especially if they remind them of qualities they dislike about their parents, their spouses, or themselves.

Parents frequently try to fight these traits, but they often discover that it is a losing battle.

It seems that the most important variable that influences the quality of the relationship between parents and children is the “goodness of fit” between the child’s traits and the parents’ expectations.

A very active child, for example, may be adored by a father who appreciates and identifies with this trait but merely tolerated by a father who expects a calmer child.

On the other hand, a quiet, calm child may be considered depressive or lifeless by the first father, while the second father sees her as perfect.

Incompatibility between parental expectations and the child’s traits may lead to frustration and stress in the relationship, particularly if the parents try to “correct” the child to conform to their expectations.

* **The Relationship Between Temperament And Sleep**

Every parent is familiar with the situation in which her child demonstrates by his behavior that he “is up past his bedtime.”

When scientists asked parents to describe this situation, some said that the child calms down, seems sleepy, falls asleep on his own, or asks directly or indirectly to go to bed. Other parents said that their child in this situation “climbs the walls,” “is a crybaby,” “is nervous and unhappy with everything,” “doesn’t respond to what he’s told,” or “simply does annoying things.”

Clearly, young children react to tiredness in significantly different ways.

A state of fatigue is not necessarily expressed by decreased activity and obvious sleepiness.

Sometimes the symptoms can be just the opposite.

Some of the typical “negative” behaviors of the tired child are compatible with general patterns that characterize behavior disorders.

Much evidence points to a strong correlation between sleep and the development of the child’s personality traits.

Studies have shown that a baby who suffers from sleep disorders (difficulty falling asleep, for example, or many awakenings during the night) tends to be “more difficult” in other behavioral domains.

In a study conducted in several sleep laboratories, scientists compared a group of nine- to twenty-four-month-old babies whose parents had come for a consultation about their children’s sleep problems with a control group of babies without sleep disorder – not surprisingly, what they found is significant differences in the traits that the mothers attributed to babies.

The mothers completed a temperament questionnaire, which is a sort of “personality” test for young children.

The mothers rated their degree of agreement with such sentences as “The child agrees to be dressed and undressed without protesting,” “The child responds strongly (screams, yells) when frustrated,” and “The child sits quietly when waiting to eat.”

In general, the mothers of babies with sleep problems described them as more demanding, complaining, annoying, negatively sensitive to different stimuli, and difficult to adapt to different situations, as compared with babies without sleep problems.

One of the traits measured in the temperament questionnaire is the degree of sensitivity or responsivity of the baby to different sensory stimuli (noise, temperature, taste, smell).

Some babies are very sensitive to any kind of sensory stimulus, and others are sensitive only to a specific type of sensation—for example, those who recoil from skin contact.

A wide range of babies do not respond in an outstanding way to sensory stimuli.

One of the hypotheses that the researcher William Carey examined in 1974 was that babies who suffer from hypersensitivity to sensory stimuli would tend to develop sleep difficulties.

Carey’s findings supported the hypothesis, and he claimed that the heightened sensitivity to sensory stimuli is hereditary.

In order to fall asleep, the baby has to disassociate himself from the external environment and stop responding to people, noise, light, and temperature, and to disassociate from internal signals as well, such as pain, discomfort, and hunger. This ability to disassociate is most critical for maintaining uninterrupted sleep and for preventing awakenings in response to various stimuli.

A baby who is sensitive from birth to any internal or external stimulus will have trouble disassociating from environmental stimuli, which will interfere with his ability to relax and fall asleep easily and will cause him to awaken easily and frequently over the course of the night.

This correlation between sleep and behavior continues throughout later childhood.

Studies that examined school-aged children found a correlation between sleep disorders and problems with behavior and more general adaptation.

Actually, sleep disorders serve as a sensitive barometer of general adaptation problems among children and adults.

Sleep disorders are a prominent sign of stress and anxiety, depression, and adaptation problems. Sleep problems are so prevalent in some behavior or emotional disorders that they have been included in diagnostic criteria.

One factor that strengthens a diagnosis of anxiety disorders in a child, for example, is the presence of a sleep disorder.

The close correlation between sleep disorders and behavior problems in children can be explained in a number of ways.

Perhaps a child born with a tendency toward problematic behavior develops sleep problems as well, as a result. At the same time, it is reasonable to believe that significant sleep problems will lead to insufficient sleep or sleep deprivation, which may cause the child to be nervous, impatient, and harder to manage.

In addition, a third cause, such as incompatible parenting patterns, may provoke or aggravate both behavior problems and sleep difficulties.

In treatment centers, scientists frequently come across babies or young children who are described by their parents as hyperactive.

The parents use this term casually, but professionals use it to diagnose a condition—the professional term is attention deficit hyperactivity disorder— that occurs only in older children.

These babies are described as especially active and restless and are said to demand attention and seek stimuli constantly.

Often parents associate their child’s sleep difficulties with his wakeful restlessness. Occasionally a parent says something like, “This boy has a turbo engine and he cannot shut it down at bedtime,” or “He is like the Energizer bunny; he keeps going and going and going.”

Although hyperactivity is diagnosed at a later age, there is evidence that most hyperactive children were overactive, restless babies, with difficult temperaments.

Again, we face a chicken-or-egg question: are these babies unable to sleep like “normal” babies because they are unusually active, or does their sleep problem underlie their “hyperactivity”?

In many cases sleep disruption appears to lead to “hyperactive” behavior patterns, even though no research has directly confirmed this fact.

More and more evidence demonstrates that lack of sleep may bring on behavior that resembles that of a hyperactive child.

From an intuitive perspective we can all recall methods we use to keep ourselves awake when we are tired.

These methods include increasing our activity, fidgeting, fiddling with our hands or our facial muscles, and similar strategies.

This pattern contradicts the expectation that the tired child will relax and slow down.

The clinical literature has documented certain cases in which significant sleep problems have been found to lead to “hyperactive” behavior patterns and later to a wrong diagnosis and treatment.

It is of utmost importance to examine the possibility that the sleep disorder is the source and not the outcome of the “hyperactivity.”

In the event that a sleep disorder exists, it should be treated before treating the disorders that result from it.

In some cases treating the sleep disorder may spare the child from receiving unnecessary medication like Ritalin, which is the most prescribed chemical response to children’s behavioral problems.

An erroneous interpretation of a child’s behavior can also result when she responds to a sleep disorder with heightened tiredness, indifference, and lack of interest in the environment. This pattern may be interpreted as depression, and sleep difficulties can be seen as the result of that condition.

As the professional literature reveals, such an erroneous diagnosis can result in a failure to detect and treat a primary sleep disorder, as well as mistaken treatment for depression.

Case studies have shown that when the problem is diagnosed correctly as a primary sleep disorder and treated accordingly, there is a parallel improvement in sleep and disappearance of the “depressive” symptoms.

* **Intellectual Development**

Assessing intelligence in infancy is a very complex task.

Tests used on infants to assess early mental abilities that could be considered components of intelligence have generally failed to predict intelligence or cognitive abilities and achievements in later ages.

The research on the relation between sleep and intellectual development has been hampered by our limited capacity to assess intelligence in infants.

Efforts to study this issue have failed to provide a clear picture of the situation, and we need to call upon additional studies on older children and adults to help us consider the issue more systematically.

Scientists from the University of Connecticut in Evelyn Thoman’s group, which has contributed significantly to the field of the study of infant sleep, examined this question. They followed sleep of newborns over the course of their first two days of life and examined their development at the age of six months.

Special recording devices documented the babies’ sleep in hospital bassinets after birth.

The scientists then tested the mental, motor, and perceptual abilities of the babies at the age of six months, using the Bayley Test.

They found a correlation between sleep measures of the newborns on their first day of life and their development six months later.

Some scientists found a correlation between sleep disorders in infancy, especially those that are caused by respiratory problems, and possible shortfalls in intellectual development and academic achievements at a later age.

Other studies, however, found no comprehensible correlation between sleep and later mental function.

Studies on older children and adults have shown that sleep disorders or insufficient sleep primarily interfere with cognitive abilities associated with attention and concentration.

That is to say that the ability to focus on certain stimuli for extended time deteriorates.

People who don’t get enough sleep react more slowly and make more mistakes on tasks that demand attention and continuous concentration. Although the question of sleep and attention has not been directly studied in infants, some support for their correlation comes from indirect approaches.

For example, mothers described their babies (aged nine to twenty-four months) who suffered from sleep problems as having trouble concentrating on play or a particular activity for an extended length of time, and as easily distracted by other stimuli.

In another recent study, sleep scientists examined the relationship between sleep patterns and learning skills, concentration, and attention among school-aged children.

The sleep patterns of the children were examined objectively by using sleep watches, and their learning functions were examined by computerized tests.

Similar to the results in studies of adults, they found that children whose quality of sleep deteriorated (as manifested by many or lengthy awakenings from sleep during the night) also had decreased attention abilities.

These findings support the assumption that these critical functions for learning and academic achievement are adversely affected by sleep disorders among children.

Furthermore, recent studies have shown that if “normal” children are requested to shorten their sleep for experimental purposes, they suffer negative consequences, and their learning and attention abilities are significantly compromised.

On the basis of what we have learned about older children and adults and from the limited information on infants, it is fair to conclude that the intellectual abilities of infants are challenged by disrupted or insufficient sleep.