

The Impact of Premature Birth on Development

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### **Introduction**

Premature birth of an infant (also known as preterm birth) is a problem that many new parents must face, and for a multitude of reasons. Prematurity is closely related to the problem of neonatal (newborn) mortality and morbidity. (Temple et al., 2017). This can be a time of extreme stress and anxiety for those parents, especially when they are unable to hold their newborn after he/she is born, when they see their baby connected to numerous machines & being poked and prodded by doctors, or when the mother is discharged from the hospital and cannot take her baby with her right away. Despite all of this, the prognosis for most premature infants is very good, due to remarkable advances in medical technology that significantly improve premature infant survival rates. There are many reasons why premature birth occurs, and some of them are out of the mother's control. Through research, this paper will illustrate what prematurity is, what causes it, and will exemplify some actions or measures that could be taken to ensure that each baby has a chance to be carried to term.

### **What is Prematurity?**

Premature or preterm birth is medically defined as a birth that occurs before the 36<sup>th</sup> week of prenatal development (Kail & Cavanaugh, 2016). At birth, these babies are tiny, incredibly fragile, and must be provided with the highest quality of medical care possible. Between 22-28 weeks of gestation, the baby's chances of survival if born premature increase greatly. This is known as the *age of viability* (Kail & Cavanaugh, 2016). The infant cannot survive outside the womb before this time. Depending on how premature the baby is, he/she will be connected to a series of tubes, wires, and IVs immediately after birth to regulate their body processes and facilitate development outside the womb. They are placed in a carefully regulated environment and are monitored very closely in the newborn intensive care unit (NICU) of the

hospital. As stated previously, this can be a time of extreme stress and anxiety for new parents. One reason for this is because expectant parents know they have a lot of time to prepare for the arrival of their child, and may take advantage of that. However, parents of premature babies are forced into parenthood early, often in a state of emergency (Taubman & Spielman, 2014). In addition, parents of premature babies often lack the preparation time needed to become successful parents, and often report feeling inadequate regarding their parenting skill. It could take weeks or months for the baby to be strong enough to go home with mom and dad. Some premature infants are born weighing in at less than a pound, and the survival rate for babies born that early is not high. Unfortunately, this issue is becoming more and more prominent as all countries are experiencing a continuous linear increase in the rate of preterm births. However, not all babies born small and with medical complications were born early.

Low birth weight and prematurity are independent concepts, but the two are related in some cases. Babies who are premature have low birth weights, but not all babies who have low birth weights are premature. When carried to term, low birth weight babies are also referred to as “small for date”, and fall into one of three distinct categories: *low birth weight* (5.5 pounds or less), *very low birth weight* (3.3 pounds or less), and *extremely low birth weight* (2.2 pounds or less). Babies who are born at full gestation and fall into one of these categories typically have mothers who lacked nutritious diets, smoked, or drank alcohol while pregnant (Kail & Cavanaugh, 2016). These same factors can also cause premature birth, but mothers who choose these lifestyle habits may deliver a full-term baby who weighs the same (or less) than if he/she were born early. Both premature and low birth weight babies will face developmental consequences, and will inevitably rely on some degree of medical care to sustain them until they are strong enough to go home from the hospital.

### **What Causes Premature Birth?**

Approximately one in eight pregnancies results in premature birth. Of these, about 75% are spontaneous, and the rest are due to medical complications. Even the most diligent prenatal care can still result in premature birth, since around 25% of premature deliveries happen without a known cause. (Team, 2012). The causes are categorized as either a medical cause or a lifestyle cause. The main medical causes of premature birth are conditions such as premature contractions (starting labor early), premature rupturing of the amniotic sac, cervical incompetence (weak cervix), multiple gestation (carrying more than one baby), and poor fetal growth. (Reed, 2017). In addition, obesity and diabetes may cause problems as well. (Spiegler et al., 2013). Obesity trends have been on the rise for many years, and there is no sign of slowing down as we are continuing to consume more and more unhealthy food, and are becoming increasingly more inactive. Interestingly, premature birth rates are rising at the same time. There is evidence that the two trends are connected, as obesity can negatively impact pregnancy in terms of gestational diabetes, hypertension, and heart problems. Morbidly obese mothers are much more likely to deliver early as the result of a medical decision for the sake of the mother and the child. (Spiegler et al., 2013). Additionally, obese mothers are more likely to give birth to babies who will struggle with obesity themselves. (Leddy et al., 2008).

As for the lifestyle causes of prematurity, they can be choices such as drinking alcohol, smoking, doing drugs, or not eating enough nutritious foods while pregnant (Reed, 2017). One of the more complicated causes of premature birth is hypertension in the mother. Hypertension is the medical term for chronically high blood pressure, and in pregnant women, this can lead to a whole host of problems and has the potential to be fatal to both the mother and the unborn baby. (Spiegler et al., 2013). Although hypertension itself is not necessarily harmful, it can lead to

preeclampsia. This is a condition that causes seizures in the mother. Therefore, it is easy to see that the health and well-being of the mother impacts whether the baby will be born early (Ulker, 2014). The causes discussed in this paper lead to developmental challenges after the baby is born.

### **How is the Development of a Premature Infant Impacted?**

There are many ways that premature babies' development is impacted. All the developmental setbacks that premature babies experience stem from the fact that because they were born early, their bodies did not have enough time to fully mature and develop. This makes them very vulnerable and susceptible to a multitude of problems down the road. (Reed, 2017). Children born very preterm are more likely to suffer from significant and persistent motor impairment than their peers who were born on time. They also experience higher rates of developmental coordination disorder along with lower motor proficiency and balance skill. (Temple et al., 2017).

First, the child who was born premature will be smaller than peers of his/her age. This is because the date of the child's birth was different from the time at which they were considered fully developed. Body size at birth is important for future development (Ulker, 2014). Therefore, premature babies' growth lags behind those in their age group. However, most children catch up to the size of their peers. (Rochman, 2011). Secondly, the baby's lungs are the last to mature during prenatal development. Consequently, the main problem associated with premature birth is respiratory issues. Depending on the time of birth, babies may have to undergo anything from lung-maturing medicines to full intubation to help them survive until their lungs are developed enough to support them. In addition, these babies are very vulnerable to infections and disease because they are so underdeveloped. As mentioned previously, the new parents are often unable

to hold their premature newborn for some time after he/she is born. This can cause developmental problems later because babies need physical human touch in order to establish emotional attachment which will eventually lead to a reciprocal relationship. (Kail & Cavanaugh, 2016). These interactions are crucial for proper development. Lastly, Some studies have indicated that mothers reported their premature children as having a more difficult temperament and being less adaptive than mothers of full-term babies have reported. (Taubman & Spielman, 2014). This means that there is some correlation between full term birth and the baby's temperament. Studies also showed that higher parental sensitivity and responsiveness to preterm infants could improve their temperaments. Overall, depending on how early the baby was born, the outlook is quite good. Most babies born preterm grow up to be strong and healthy, and have few developmental setbacks past infancy.

### **Summary of Research Findings**

Through extensive research, it was found that premature birth is something that affects both the infant and the parents. It is associated with a higher risk of neonatal morbidity and mortality, and can have developmental consequences. Certain factors such as obesity, diabetes, hypertension, cervical incompetence, multiple gestation, and others increase the likelihood that babies will be born early. Therefore, the mother's well-being before and during the pregnancy is crucial in the eventual delivery of a full-term baby. Preterm and low birth weight babies differ in the sense that every premature baby has a low birth weight, but not every low birth weight baby is born premature. Parents of preterm infants are often more stressed out and are more likely to feel inadequate as parents, because they are forced into parenthood earlier than expected. This often happens with little or no warning. It is difficult to watch a newborn baby be poked and prodded by doctors, and the hospital stay itself is expensive and emotionally/physically draining

for parents. There are many developmental challenges that preterm newborns face as they grow up, including delays in cognitive and motor performance, small size, and vulnerability to infections and diseases. Overall, premature birth has a huge impact on development.

### **Conclusion**

In order to improve a child's life prospects, there should be an increase in prenatal intervention. This is especially important for mothers who are particularly vulnerable. Intervention should take place before the pregnancy occurs. If the policies are successfully implemented, the baby is more likely to have a healthy start (Ulker 2014). Pediatricians have long been combating the negative consequences of prematurity with ever-increasing sophistication of clinical care. As a result, a vast majority of premature infants have survived and complications of their early birth have been reduced substantially. (Howse & Katz, 2013). if non-medically indicated elective inductions or cesarean sections before 39 weeks of completed gestation were stopped, this could lead to some reduction in late preterm births.

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