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**NUTRITION AND MATERNAL HEAELTH**

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**ASSIGNEMENT 4**

**QUESTION ONE**

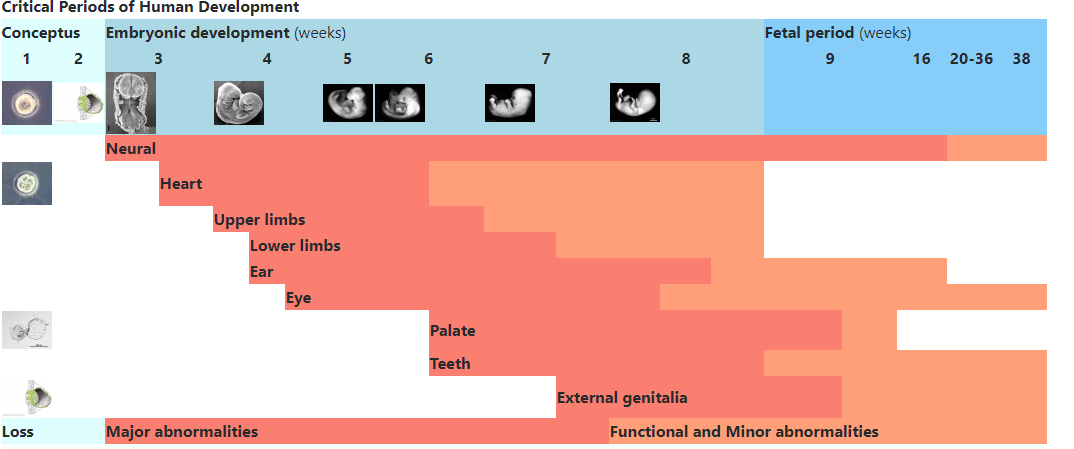
**Define critical period of growth and development, give an example of why this is important to the development of the fetus.**

In [developmental psychology](https://en.wikipedia.org/wiki/Developmental_psychology) and [developmental biology](https://en.wikipedia.org/wiki/Developmental_biology), a critical period is a maturational stage in the lifespan of an organism during which the nervous system is especially sensitive to certain environmental stimuli. If, for some reason, the organism does not receive the appropriate stimulus during this "critical period" to learn a given skill or trait, it may be difficult, ultimately less successful, or even impossible, to develop some functions later in life. Functions that are indispensable to an organism's survival, such as vision, are particularly likely to develop during critical periods. "Critical period" also relates to the ability to acquire one's first language. Researchers found that people who passed the "critical period" would not acquire their first language fluently (Robson AL, 2002).

A critical period is a time for intense development and rapid cell division of the fetus. The embryo is very sensitive to damage due to excesses or deficiencies of nutrients, exposure to toxins, mutations, and other unidentified factors. Maternal nutrition status is very important at each stage of fetal development. Nutrition status of the mother prior to, during and even after is very critical to successful development and growth of the fetus and infant.

If something interferes with development during this period, the effects are irreversible. The events scheduled to happen or occur at this stage of development cannot be postponed for later. Each organ and tissue in the developing fetus is vulnerable to nutrient deficiency and to toxins which can interfere with their development. For example, the heart is fully developed by 16 weeks but lungs by 26 weeks. Therefore early malnutrition of the pregnant could severely affect the heart; whereas later malnutrition could damage the lungs. Continuous good care is therefore vital for a pregnant woman.

The table below identifies approximate windows of time, "critical periods", that following exposure to teratogens can lead to developmental abnormalities (anomalies, congenital). In general, the effects for each system are more severe (major anomalies) in the embryonic period during organogenesis in the first trimester. Later teratogen exposure are less severe (minor anomalies) in the fetal period during continued growth and differentiation in the second and third trimester. (Hill, M.A. 2019).



**QUESTION TWO**

**What is meant by growth and development and what are the factors affecting normal growth and development of infants and toddlers?**

The term development is frequently used along with growth and even considered synonymous by some people. But growth and development are not the identical. Therefore it requires a careful examination and proper understanding.

According to **Watson and Lowery (1960 “**growth means an increase in the physical size of the whole or any of its parts and organs of the body by multiplication of cells and intercellular components during the period commencing from fertilization to physical maturity”. It can be measured in terms of centimeters and kilograms or metabolic balance i. e. retention of hydrogen and calcium in the body. Juan Comas defines it “as the objective manifestation of hypertrophy and hyperplasia of the organism constituent tissues and is determined by post-natal body size.” This increase in body size is limited by predetermined constitutional and hereditary factors. It is however influenced by exogenous factors like diet, climate, race, environment etc. growth is a fundamental characteristic of all living organisms. Growth is a form of motion.

Development refers to the increase of functional capacity in perfect form resulting from production of specialized tissues from unspecialized ones. The term development has been variously defined by scientists. **Comas (1960)** regards development as a quality peculiar to living matter that carries it through the process of progressive evolution to a state of perfect function. **Hurlock (1941)** considers development as changes in its progressive series which are orderly and coherent and which lead to maturity. It is, in fact, the consequence of cellular differentiation that the character and its specificity results into perfect function. An individual may grow in size but some organs though fully grown in size may fail to develop to perform the specific functions. In both growth and development interactions of several processes with each other are involved. **Watson and Lowery (1960)** have tried to distinguish between the two processes. They say that growth may mean increase in physical size of the whole or any of its part which may be measured. On the other hand, development indicates an increase in skill and complexity of function. In any case the processes of development and growth are not the same but are interrelated and interdependent.

**FACTORS AFFECTING GROWTH AND DEVELOPMENT**

The integrated nature of growth and maturation is largely maintained by a constant interaction of genes, hormones, nutrients and other factors. These factors also influence physical performance. Some are hereditary in origin. Others, such as season, dietary restriction, severe psychological stress, originate in the environment and simply affect the rate of growth at the time they are acting. Others again, such as socio-economic class, reflect a complicated mixture of hereditary and environmental influences and probably act throughout the whole period of growth.

**Heredity:** Heredity and genes certainly play an important role in the transmission of physical and social characteristics from parents to off-springs. Different characteristics of growth and development like intelligence, aptitudes, body structure, height, weight, color of hair and eyes are highly influenced by heredity.

**Sex:** Sex is a very important factor which influences human growth and development. There is lot of difference in growth and development between girls and boys. Physical growth of girls in teens is faster than boys. Overall the body structure and growth of girls are different from boys.

**Socioeconomic:** Socioeconomic factors definitely have some affect. It has been seen that the children from different socioeconomic levels vary in average body size at all ages. The upper level families being always more advanced. The most important reasons behind this are better nutrition, better facilities, regular meals, sleep, and exercise. Family size also influences growth rate as in big families with limited income sometimes have children that do not get the proper nutrition and hence the growth is affected.

**Nutritional:** Growth is directly related with nutrition. The human body requires an adequate supply of calories for its normal growth and this need of requirements vary with the phase of development. As per studies, malnutrition is referred as a large-scale problem in many developing countries. They are more likely to be underweight, much shorter than average, and of low height for age, known as stunting.  
If the children are malnourished, this slows their growth process. There are nine different amino acids which are necessary for growth and absence of any one will give rise to stunted growth. Other factors like zinc, Iodine, calcium, phosphorus and vitamins are also essential for proper growth and deficiency of anyone can affect the normal growth and development of the body.

**Hormones:** There are a large number of endocrine glands present inside our body. These glands secrete one or more hormones directly into the bloodstream. These hormones are capable of raising or lowering the activity level of the body or some organs of the body. Hormones are considered to be a growth supporting substance. These hormones play an important role in regulating the process of growth and development.

**Pollution:** According to studies, air pollution not only affects the respiratory organs but also have harmful effects on human growth. Indoor pollution or the pollution from housing conditions can result in ill health which can negatively impact human growth and development. For example, lead exposure from deteriorated lead-based paint in older housing can be very harmful. Lead is very harmful for children as it simply gets immersed into the growing bodies of children and obstructs with the normal development of brain and other organs and systems.

**Race:** Racial factors also influence height, weight, color, features, and body constitution of a human being. The body growth and development differences show a relationship with varied cultural groups. For example a child of black race will be black, their height, their hair and eye color, facial structure are all governed by the same race.

**Geographical Influences.** Where you live also has a great influence on how your children turn out to be. The schools they attend, the neighbourhood they live in, the opportunities offered by the community and their peer circles are some of the social factors affecting a child’s development. Living in an enriching community that has parks, libraries and community centres for group activities and sports all play a role in developing the child’s skills, talents, and behaviour. Uninteresting communities can push some children to not go outside often but play video games at home instead. Even the weather of a place influences children in the form of bodily rhythms, allergies and other health conditions.

**Familial Influence.** Families have the most profound impact in nurturing a child and determining the ways in which they develop psychologically and socially. Whether they are raised by their parents, grandparents or foster care, they need basic love, care and courtesy to develop as healthy functional individuals. The most positive growth is seen when families invest time, energy and love in the development of the child through activities, such as reading to them, playing with them and having deep meaningful conversations. Families that abuse or neglect children would affect their positive development. These children may end up as individuals who have poor social skills and difficulty bonding with other people as adults. [Helicopter parenting](https://parenting.firstcry.com/articles/helicopter-parenting-signs-effects-and-more/?ref=interlink) also has negative effects as they render children dependent on the parents even as young adults and unable to deal with difficulties in life on their own.

**Learning and Reinforcement.** Learning involves much more than schooling. It is also concerned with building the child up mentally, intellectually, [emotionally, and socially](https://parenting.firstcry.com/articles/social-and-emotional-development-in-children/?ref=interlink) so they operate as healthy functional individuals in the society. This is where the development of the mind takes place and the child can gain some maturity. Reinforcement is a component of learning where an activity or exercise is repeated and refined to solidify the lessons learned. An example is playing a musical instrument; they get better at playing it as they practice playing the instrument. Therefore, any lesson that is taught has to be repeated until the right results are obtained.

**QUESTION THREE**

1. **What are the three classifications of under nutrition in preschool children and how is this determined?**

Undernutrition denotes insufficient intake of energy and nutrients to meet an individual's needs to maintain good health. In other words it is a condition where an individual is not getting enough calories, protein, or [micronutrients](https://en.wikipedia.org/wiki/Micronutrients) (Young, E.M. 2012). In most literature, undernutrition is used synonymously with malnutrition. In the strictest sense, malnutrition denotes both undernutrition and over nutrition. To overcome this, terms such as protein energy malnutrition, specific micronutrient deficiencies as well as other descriptive names such as kwashiorkor and marasmus have been used. However, since protein energy malnutrition does not exist in isolation of specific micronutrient deficiencies, neutral terms such as undernutrition are encouraged because they encompass both protein energy undernutrition as well as micronutrient deficiencies. Similarly over nutrition is used when there is excess intake of macronutrients and micronutrients (Maleta K. 2006).

There are 4 broad sub-forms of undernutrition: wasting, stunting, underweight, and deficiencies in vitamins and minerals. Undernutrition makes children in particular much more vulnerable to disease and death.

**Wasting:** Wasting is low weight for height <-2SD NCHC/WHO and severe wasting is <-3SD. The prevalence is usually limited to 2-3% beyond which it becomes an emergency situation. Also known as **acute malnutrition**, this carries an immediate increased risk of morbidity and mortality. Wasted children have a 5-20 times higher risk of dying from common diseases like diarrhoea or pneumonia than normally nourished children. It usually indicates recent and severe weight loss, because a person has not had enough food to eat and/or they have had an infectious disease, such as diarrhoea, which has caused them to lose weight. A young child who is moderately or severely wasted has an increased risk of death, but treatment is possible. Anthropometrics index for wasting is weight for height

**Stunting:** Stunting is defined as low height for age at <-2 standard deviations of median value for the National Center for Health Statistic (NCHS) and World Health Organization (WHO) international growth reference. Severe stunting is <-3 SD. This is when a child is short for his/her age but not necessarily thin. Also known as **chronic malnutrition**, this carries long-term developmental risks. It is the result of chronic or recurrent undernutrition, usually associated with poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, and/or inappropriate infant and young child feeding and care in early life. In general, this is caused by cumulative effects of inadequate nutrition (poor diet) and/or health (disease). Stunting holds children back from reaching their physical and cognitive potential. **Stunting** is assessed or determined by the anthropometrics measures of height for age. It is an indicator for linear growth which is associated with long term deficiency hence chronic malnutrition

**Underweight:** Underweight is defined as low weight for age at <-2SD of median NCHS/WHO. A child can be either thin or short for his/her age. In other words a child is stunted, wasted or both. This reflects a combination of chronic and acute malnutrition.Stunted and Under-weight children are most likely to suffer from impaired development and are more vulnerable to disease and illness. Underweightis assessed by anthropometrics measures of weight for age. This represents body mass relative to age. Weight for age is influenced by height for weight. These two together cause both stunting and wasting. Both indicate long-term nutrition and health experience of an individual or population.

Mothers should monitor their babies' growth from birth by taking them monthly to the local clinic where they will be weighed and have their growth plotted on a chart. This should ensure that correct information and advice are provided to mothers support the appropriate growth of their babies.

Undernutrition is sometimes used as a synonym of [protein–energy malnutrition](https://en.wikipedia.org/wiki/Protein%E2%80%93energy_malnutrition) (PEM). Young, E.M. (2012). While other include both [micronutrient deficiencies](https://en.wikipedia.org/wiki/Micronutrient_deficiencies) and protein energy malnutrition in its definition (Jones & Bartlett. 2011). It differs from [calorie restriction](https://en.wikipedia.org/wiki/Calorie_restriction) in that calorie restriction may not result in negative health effects.

Two forms of PEM are [kwashiorkor](https://en.wikipedia.org/wiki/Kwashiorkor) and [marasmus](https://en.wikipedia.org/wiki/Marasmus), and they commonly coexist.

**Kwashiorkor:** [Kwashiorkor](https://en.wikipedia.org/wiki/Kwashiorkor) is mainly caused by inadequate protein intake the main symptoms are [edema](https://en.wikipedia.org/wiki/Edema), wasting, liver enlargement, hypoalbuminaemia, steatosis, and possibly depigmentation of skin and hair.Kwashiorkor is further identified by swelling of the belly, which is deceiving of actual nutritional status. The term means ‘displaced child’ and is derived from a Ghana language of West Africa, means "the sickness the older one gets when the next baby is born," as this is when the older child is deprived of breast feeding and weaned to a diet composed largely of carbohydrates. Kwashiorkor children are most likely to lose their appetite and an interest in their surroundings.

**Marasmus:** [Marasmus](https://en.wikipedia.org/wiki/Marasmus) (‘to waste away’) is caused by an inadequate intake of protein and energy. The main symptoms are severe wasting, leaving little or no edema, minimal subcutaneous fat, severe muscle wasting, and non-normal serum albumin levels. Children with marasmus look old and wrinkled. Their skin is dry and their faces are thin, with sunken cheeks and large eyes. Their abdomen looks swollen. They present sagging skin on legs and buttocks. Children with marasmus cry a lot, are very irritable and have increased greedy appetite. They are liable to all kind of disease

Marasmus can result from a sustained diet of inadequate energy and protein, and the metabolism adapts to prolong survival.  It is traditionally seen in famine, significant food restriction, or more severe cases of [anorexia](https://en.wikipedia.org/wiki/Anorexia_(symptom)). Conditions are characterized by extreme wasting of the muscles and a gaunt expression. (Chowdhury, M.S.I.; Akhter, N.; Haque, M.; Aziz, R.; Nahar, N. 2009)

1. **What precautions should one take when preparing infant formula?**

Infant formula or baby formula  is a [manufactured food](https://en.wikipedia.org/wiki/Processed_food) designed and [marketed](https://en.wikipedia.org/wiki/Marketing) for feeding to babies and [infants](https://en.wikipedia.org/wiki/Infants) under 12 months of age, usually prepared for [bottle](https://en.wikipedia.org/wiki/Baby_bottle)-feeding or cup-feeding from powder (mixed with water) or liquid (with or without additional water). The U.S. [Federal Food, Drug, and Cosmetic Act](https://en.wikipedia.org/wiki/Federal_Food,_Drug,_and_Cosmetic_Act) (FFDCA) defines **infant formula** as "a food which purports to be or is represented for special dietary use solely as a food for infants by reason of its simulation of human milk or its suitability as a complete or partial substitute for human milk. Therefore the following are some of the precaution that one should take when preparing infant formula.

**1. Wash your equipment well.** Scrubbing with a bottle or nipple brush and warm, soapy water, then rinsing well, kills most germs. Some experts suggest sterilizing all bottles, nipples, measuring cups, spoons, and rings. Others say there's no need unless water safety in your area is questionable. Still others advise sterilizing feeding supplies if your baby is younger than 3 months old.

It's a good idea to wash bottle supplies right after each feeding so that the formula doesn't have a chance to dry out and stick to the inside. Disassemble all bottle parts so that the surface areas get cleaned well.

If you choose to sterilize, simply place the supplies in boiling water for about five minutes. You can also use a commercial sterilizer. Alternatively, rinsing nipples with a mixture of half water, half vinegar can help prevent fungal growth.

Let the bottles and supplies air-dry on a drying rack, or use a paper towel if you need them dry right away. (Don't use dishtowels because they can harbor bacteria.)

The sample nipples that you may have received at the hospital or doctor's office come in sterilized packages and can be used directly out of the package. But since they're meant for single use, throw them away after using them once.

**2. Wash and dry the top of the formula can before opening it.** This removes dust and liquid that may have spilled on it. Use a clean can opener, and wash it well before every use.

**3. Wash your hands.** Before preparing formula, wash your hands with soap and warm water for at least 20 seconds. Dry your hands with a paper towel.

**4. Follow the preparation directions on the container exactly.** Mixing instructions vary by manufacturer, and the ratio of water to formula depends on whether the formula is powder or liquid, so read the label carefully.

Adding too little water can tax your baby's kidneys and cause [dehydration](https://www.babycenter.com/0_dehydration-in-babies_11527.bc). Adding too much water dilutes the calories and nutrients in the formula, and can cause stunted growth and [failure to thrive](https://www.babycenter.com/0_failure-to-gain-weight-in-babies_1621.bc) if it happens regularly.

For better accuracy, use a standard measuring cup instead of the lines on your baby's bottle.

**5. Use clean, safe water.** If you're using powdered or liquid concentrate formula, be sure to mix it with water that's clean and safe. The AAP says it's fine to use tap water as long as your local health department says it's safe to drink. Run tap water for a minute or two until it's cold to reduce lead or other contaminants. If you have a private well, get the water tested before using it for your baby's formula.

To sterilize water, bring water to a rolling boil for just one minute. (Boiling water for an extended time can concentrate minerals and impurities.)

The Centers for Disease Control recommends using hot water to make formula in order to avoid the risk of infection by a rare but deadly bacteria called Cronobacter that has been found in powdered formula. To kill this bacteria (if it's present in the powder) you must mix the formula soon after the water is boiled, before it cools below 158 degrees F.

If you prepare a batch of formula with boiled water, don't let it sit outside the refrigerator to cool down. Instead, put it straight into the refrigerator, or cool it down for immediate use by holding the bottle under cold, running tap water until the formula is lukewarm (barely warm). Another option is to put the bottle in a bowl of cold or iced water (make sure the water level in the bowl is below the top of the bottle).

Note that bottled water isn't necessarily sterile, and neither is water that's been run through a filter. Filters (in pitchers or on faucets) that aren't changed often enough can harbor bacteria. You can buy sterilized bottled water, but make sure the label specifies that. If the label doesn't say "sterile," boil the water for one minute.

**QUESTION FOUR**

**What are the key causes/determinants of malnutrition in children?**

Malnutrition is an abnormal physiological condition caused by deficiencies, excesses or imbalances in energy, protein and/or other nutrients. Child malnutrition is a serious public health problem which is prevalent mostly in developing countries. Malnutrition has significant health effects on childhood and adulthood development (Takele, 2013; Tathiah et al., 2013; Walker et al., 2007). The following are some of causes of malnutrition in children

**Inadequate food intake:** A child suffering from Kwashiorkor caused by inadequate dietary protein intake, show signs of thinning hair or “Flag Sign”, edema, inadequate growth, and weight loss. Inadequate food intake such as a lack of proteins can lead to [Kwashiorkor](https://en.wikipedia.org/wiki/Kwashiorkor), [Marasmus](https://en.wikipedia.org/wiki/Marasmus) and other forms of [Protein–energy malnutrition](https://en.wikipedia.org/wiki/Protein%E2%80%93energy_malnutrition).

**Mental health problems:** Conditions such as depression, [dementia](https://www.medicalnewstoday.com/articles/142214.php), [schizophrenia](https://www.medicalnewstoday.com/articles/36942.php), [anorexia nervosa](https://www.medicalnewstoday.com/articles/267432.php), and [bulimia](https://www.medicalnewstoday.com/articles/105102.php) can lead to malnutrition.

**Household food insecurity**, or the lack of food, is a major factor in many humanitarian emergencies. Displaced populations are often separated from their normal source of food. Although some agencies, such as the World Food Programme, have standardized methodologies specifically to assess food insecurity, there are no consensus recommendations regarding assessment methods. One simple way to crudely estimate the contribution of household food insecurity in a malnourished population is to compare the prevalence of acute protein-energy malnutrition in children less than 2 years of age to the prevalence in children 2-4 years of age. Older children normally have a lower prevalence rate of acute malnutrition, but if food insecurity is an important factor, they too will become significantly malnourished.

**Sanitation:** Poor sanitary conditions in environment that can contribute to malnutrition and disease in children. For example in Kibera, Kenya. The [World Health Organization](https://en.wikipedia.org/wiki/World_Health_Organization) estimated in 2008 that globally, half of all cases of undernutrition in children under five were caused by unsafe water, inadequate [sanitation](https://en.wikipedia.org/wiki/Sanitation) or insufficient hygiene (Prüss-Üstün, A., Bos, R., Gore, F., Bartram, J. (2008). his link is often due to repeated diarrhoea and [intestinal worm infections](https://en.wikipedia.org/wiki/Helminthiasis) as a result of inadequate sanitation (World Bank (2008).  However, the relative contribution of diarrhea to undernutrition and in turn stunting remains controversial (Ngure, Francis M.; Reid, Brianna M.; Humphrey, Jean H.; Mbuya, Mduduzi N.; Pelto, Gretel; Stoltzfus, Rebecca J. (January 2014).

**Social and mobility problems:** Some people cannot leave the house to buy food or find it physically difficult to prepare meals. Those who live alone and are isolated are more at risk. Some people do not have enough money to spend on food, and others have limited cooking skills.

**Digestive disorders and stomach conditions:** If the body does not absorb nutrients efficiently, even a healthful diet may not prevent malnutrition. People with [Crohn's disease](https://www.medicalnewstoday.com/articles/151620.php) or ulcerative colitis may need to have part of the small intestine removed to enable them to absorb nutrients.

**Diseases:** [Diarrhea](https://en.wikipedia.org/wiki/Diarrhea) and other infections can cause malnutrition through decreased nutrient absorption, decreased intake of food, increased metabolic requirements, and direct nutrient loss. Parasite infections, in particular [intestinal worm infections](https://en.wikipedia.org/wiki/Helminthiasis) (helminthiasis), can also lead to malnutrition (Musaiger, Abdulrahman O.; Hassan, Abdelmonem S., Obeid, Omar, 2011). Leading cause of [diarrhea](https://en.wikipedia.org/wiki/Diarrhea) and intestinal worm infections in children in [developing countries](https://en.wikipedia.org/wiki/Developing_countries) is lack of [sanitation](https://en.wikipedia.org/wiki/Sanitation) and [hygiene](https://en.wikipedia.org/wiki/Hygiene). Other diseases that cause chronic intestinal inflammation may lead to malnutrition, such as some cases of untreated [celiac disease](https://en.wikipedia.org/wiki/Celiac_disease) and [inflammatory bowel disease](https://en.wikipedia.org/wiki/Inflammatory_bowel_disease) (Newnham ED 2017). Children with chronic diseases like HIV have a higher risk of malnutrition, since their bodies cannot absorb nutrients as well. Diseases such as measles are a major cause of malnutrition in children; thus immunizations present a way to relieve the burden.

**Lack of breastfeeding:** Not breastfeeding, especially in the developing world, can lead to malnutrition in infants and children. In some parts of the world mothers still believe that bottle feeding is better for the child.

**Social inequality:** In almost all countries, the poorest quintile of children has the highest rate of malnutrition. However, inequalities in malnutrition between children of poor and rich families vary from country to country, with studies finding large gaps in Peru and very small gaps in Egypt. In 2000, rates of child malnutrition were much higher in low income countries (36 percent) compared to middle income countries (12 percent) and the United States (1 percent) (Adam Wagstaff; Naoke Watanabe, 1999)

Studies in Bangladesh in 2009 found that the mother’s literacy, low household income, higher number of siblings, less access to mass media, less supplementation of diets, unhygienic water and [sanitation](https://en.wikipedia.org/wiki/Sanitation) are associated with chronic and severe malnutrition in children (Khan, MM; Kraemer, A, 2009).

**Maternal factors:** The nutrition of children 5 years and younger depends strongly on the nutrition level of their mothers during pregnancy and [breastfeeding](https://en.wikipedia.org/wiki/Breastfeeding) (Sue Horton; Harold Alderman, Juan A. Rivera, 2008).

Infants born to young mothers who are not fully developed are found to have low birth weights (Dewan, Manju (2008). The level of maternal nutrition during pregnancy can affect newborn baby body size and composition (Victora, CG; Adair, L, Fall, C, Hallal, PC, Martorell, R, Richter, L, Sachdev, HS, Maternal and Child Undernutrition Study Group, 2008) Iodine-deficiency in mothers usually causes brain damage in their offspring, and some cases cause extreme physical and mental retardation. This affects the children’s ability to achieve their full potential. In UNICEF 2011, reported that thirty percent of households in the developing world were not consuming iodized salt, which accounted for 41 million infants and newborns in whom iodine deficiency could still be prevented (UNICEF 2014).  Maternal body size is strongly associated with the size of newborn children. Short stature of the mother and poor maternal nutrition stores increase the risk of [intrauterine growth retardation](https://en.wikipedia.org/wiki/Intrauterine_growth_restriction) (IUGR). However, environmental factors can weaken the effect of IUGR on cognitive performance

**QUESTION FIVE**

**What are some of the risks associated with introducing complementary foods too early?**

Complementary foods are foods other than breast milk or infant formula (liquids, semisolids, and solids) introduced to an infant to provide nutrients (WHO. *et al*. 2001; Koletzko B. *et at.* 2015). Meanwhile, Complementary feeding (CF) is the process of giving young children foods other than the mother’s milk. Young children are provided with other food items at the stage when mother’s milk is not able to meet the nutritional needs of the baby. So, infants require some other food items with breast milk (Agostoni, C. 2016). Complementary feeding can also be defined as the gradual addition of foods and beverages to the diet of the infant and young child (Pelto GH, Levitt E, Thairu L. 2003). The process of adding complementary foods should reflect the physical, intellectual, and behavioral stages as well as the nutrient needs of the infant or child. Inappropriate complementary feeding practices are common and well documented in the literature. Caregivers often do not recognize signs of developmental readiness and, therefore, offer foods and beverages that may be inappropriate in type, amount, consistency, or texture. Furthermore, a lack of nationally accepted feeding guidelines for children under the age of two might lead caregivers to assume that all foods are suitable for this age range. Some of risks associated with introducing complementary foods to early may include the following:

**Increase a baby's risk of obesity:** Some observational examinations proposed that an early presentation of complementary nourishment may expand the danger of overweight, with a lower chance for bosom bolstered instead of equation sustained newborn children yet there is no proof that presentation of integral nourishment affects the danger of creating chubbiness, type 2 diabetes, coronary disease, hypertension and so on.

**Imbalance in calories or nutrients:** Cause a baby to get too many or not enough calories or nutrients. Fruit juices (100% natural product), organic product drinks, vegetable juices and other sweetened refreshments (soda pops, sweetened water with or without fragrances, sweetened moment tea) are characterized as EPL (Energy Providing Liquids). There is no nutritious advantage in managing EPLs to babies in their first long stretches of life: an over the top utilization of sweetened refreshments and the resulting increment in caloric admission is related with youth stoutness. AAP proposes that newborn children < a half year of age ought not drink natural product juices and for babies starting weaning, until one year of age, entire, pureed or homogenized organic product is suggested. The early presentation (in the initial 4 months) of dairy animals products, products of the soil squeeze likewise appears to show an expanded danger of creating T1DM

* Introduction of other foods decreases the intensity and frequency of suckling and as a consequence, breast milk production is reduced.
* Introduction of cereals can interfere with the absorption of breast milk iron, which is normally low in concentration
* Diarrhea because in developing countries population have restricted diets and live in unsanitary environments.
* Enter pathogenic microorganisms may enter the child’s tract during feeding. In other words it poses a risk of food being sucked into the airway (aspiration)

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