ASSIGNMENT 4

**Registration number: Aipms 274/2019**

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

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.

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(Robson AL (2002)). 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 there 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.

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

Undernutrition is a condition resulting from lack of sufficient energy/protein to meet the body’s metabolic demands, as a result of either an inadequate intake of protein, intake of poor quality protein, increased demands due to disease or increased nutrient losses. It is a major health and nutrition problem. It occurs particularly in children and leads to various degrees of growth retardation. It is not only an important cause of childhood morbidity and mortality, but also leads to permanent impairment of physical and mental growth of those who survive (Vijaykumar P. Mane, 2018).

**Underweight -** Weight-for-age (W/A) is used to describe a situation where a child weighs less than expected, given his or her age. W/A reflects body mass relative to age. In addition, therefore, reflects current and acute as well as chronic malnutrition. W/A is commonly used for monitoring growth and to assess changes in the magnitude of malnutrition over time. Moderate and severe - below minus two standard deviations (SDs) from median W/A of reference population; severe-below minus three SDs from median W/A of the reference population (Caulfield Le, de Onis M, Blossener M, 2004).

**Wasting -** Weight-for-height (W/H) refers to a situation where a child has failed to achieve sufficient W/H. W/H normally used as an indicator of current nutritional status. Wasting may be the consequence of starvation or severe disease. It can also be due to chronic conditions or a combination of both. Moderate and severe - below minus two SDs from median W/H of reference population (Janevic T, Petrovic O, 2010).

**Stunting -** Height-for-age (H/A) is used to describe a condition in which children fail to gain sufficient height, given their age. Stunting is an extremely low H/A score. Stunting is often associated with long-term factors such as chronic malnutrition, especially protein-energy malnutrition, and frequent illness. It is, therefore, an indicator of the past growth failure and is often used for a long-term planning of policies and intervention programs in nonemergency situations. Stunting is very sensitive to socioeconomic status. Moderate and severe - below minus two SDs from median H/A of reference population (World hunger education service, 2015).

b. What precautions should one take when preparing infant formula?

**Wash your hands well before preparing bottles or feeding your baby.** Clean and sanitize the workspace where you will be preparing the infant formula.

**Bottles need to be clean and sanitized.** To learn more about how to properly clean the baby’s bottles and other feeding supplies.

**Baby’s milk or infant formula does not need to be warmed before feeding, but some people like to warm their baby’s bottle.** If one do decide to warm the bottle, never use a microwave. Microwaves heat milk and food unevenly, resulting in “hot spots” that can burn baby’s mouth and throat.

To warm a bottle: Place the bottle under running warm water, taking care to keep the water from getting into the bottle or on the nipple. Put a couple drops of infant formula on the back of your hand to see if it is too hot.

If powdered infant formula is used;

**Use water from a safe source to mix your infant formula.** If one is not sure if the tap water is safe to use for preparing infant formula, one need to buy bottle water.

**Use the amount of water listed on the instructions of the infant formula container**. Always measure the water first and then add the powder. Too much water may not meet the nutritional needs of your baby and too little water may cause your baby’s kidneys and digestive system to work too hard and may cause your baby to become dehydrated.

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

Poor hygiene and sanitation

Sickness

Ignorance

Few kinds of crop

Gender/status

Malnutrition

Social practices

Low production

Absent parents

Poverty

One of the underlying causes of malnutrition is poverty and poverty is far from being eradicated. During the last two decades, the number of people effected by extreme poverty in sub-Saharan Africa has nearly doubled, from 164 million in 1982 to some 313 million as of 2002. Poverty alone does not lead to malnutrition, but it seriously affects the availability of adequate amounts of nutritious food for the most vulnerable populations. Over 90 percent of malnourished people live in developing countries (Action Against Hunger).

Most major food and nutrition crises do occur because of a lack of food, because people cannot obtain enough food. Non-availability of food in markets, difficult access to markets due to lack of transportation, and insufficient financial resources are all factors contributing to the food insecurity of the most vulnerable populations. People are increasingly dependent on international markets for all or part of their food supply, particularly between harvest periods. Many people are increasingly vulnerable due to fluctuations in the prices, as was recently illustrated during the global food crisis (Action Against Hunger).

Certain illnesses and infections, such as tuberculosis, measles, and diarrhea are directly linked to and one of the underlying causes of acute malnutrition. A combination of disease and malnutrition weakens the metabolism creating a vicious cycle of infection and undernourishment, leading to vulnerability to illness. HIV and AIDS have become a leading cause of acute malnutrition in developing countries. A child infected with HIV is more vulnerable to acute malnutrition than a healthy child. Anti-retroviral drugs are more effective when combined with adequate, regular food intake. So ensuring a healthy diet is an important aspect of HIV control and treatment. If the HIV-infected child becomes acutely malnourished, her/his diminished nutritional state will increase the likelihood of infections, and may lower the effectiveness of medications — either anti-retroviral treatment or for other illnesses and infections. When severely malnourished, an individual may not be able to tolerate medications at all. The combination of acute malnutrition and HIV and AIDS thus considerably increases the chances of morbidity, placing the child at a higher risk of death (Action Against Hunger).

In 30 years, the number of natural disasters — droughts, cyclones, floods, etc. — linked to climate change has increased substantially. The effects of climate change are often dramatic, devastating areas, which are already vulnerable. Infrastructure is damaged or destroyed; diseases spread quickly; people can no longer grow crops or raise livestock. According to UN studies in over 40 developing countries, either the decline in agricultural production caused directly or indirectly by climate change could dramatically increase the number of people suffering from hunger in the coming years (Action Against Hunger).

Water is synonymous with life. Lack of potable water, poor sanitation, and dangerous hygiene practices increase vulnerability to infectious and water-borne diseases, which are direct causes of acute malnutrition (Action Against Hunger).

Conflicts have a direct impact on food security, drastically compromising access to food. Often forced to flee as violence escalates, people uprooted by conflict lose access to their farms and businesses, or other means of local food production and markets. Abandoned fields and farms no longer provide food to broader distribution circuits. As a result, food supplies to distributors may be cut off, and the many populations dependent on them may be unable to obtain sufficient food (Action Against Hunger).

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

Expand the danger of overweight, with a lower chance for bosom bolstered instead of equation-sustained newborn (. Kulwa K., et al. (2017).

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 (la Cruz-Góngora D., et al. 2016). 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.

Evidence proposes that newborn children who eat strong or fluid nourishments (other than maternal resource) before a half year of age demonstrate a higher danger of irresistible infections, higher death rates contrasted, and babies who proceed with elite breastfeeding13. Early CF has additionally been related with the improvement of a few pathologies, for example, celiac ailment and hypersensitivities (Monterrosa EC., et al.2015).

A youthful child’s immune system isn’t appropriately created during childbirth and this implies it will probably get contaminations which can be presented through nourishments and drink. Correlative strong nourishment and even water contain loads of nasties like microscopic organisms and parasites which breastmilk does not. Despite the fact that youngsters and grown-ups can generally eat and drink these things without stressing over contaminations, babies can’t (Pantoja-Mendoza IY., et al. 2018). They have not built up the antibodies and insusceptible capacities important to keep the microorganisms expended in sustenance causing a genuine infection. Introducing solids early likewise implies acquainting you infant with irresistible living beings which cause diarrhea.

When integral nourishments are presented, breastmilk is Supplanted, early presentation of integral nourishments neither improves development nor the nutritious status of babies (Pardío-López J. 2015). Since breastfed newborn children self-control their admissions to meet their vitality needs, there might be no favorable position to presenting different nourishment previously a half year. Most correlative nourishments, particularly commercial nourishments, don’t have the nutritious thickness nor the bioavailability that human drain has.

**Reference;**

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*Vijaykumar P. Mane (2018); International Journal of Community Medicine and Public Health.*

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