

# Influence of Maternal Health on Child & Antenatal Aspects of Preventive Pediatrics

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## ABSTRACT

Maternal health may be defined as health of women during pregnancy, child birth & postpartum period. It encompasses the health care dimensions of family planning, preconception, prenatal, & postnatal care in order to reduce maternal morbidity & mortality.

## I. INTRODUCTION

Maternal health may be affected by variety of factors like poverty / access to health care, unhealthy behaviours like cigarette smoking, drug use and various disease conditions like HIV/AIDS, tuberculosis & malaria & maternal weight, illiteracy ignorance etc

## II. EFFECTS ON CHILD HEALTH

### 1. Prenatal health:

Poverty, malnutrition & substance abuse may contribute to impaired cognitive, motor & behavioural problems across childhood. In other words if the mother is not in an optimal health during the prenatal period (the time while she is pregnant) & or the foetus is exposed to teratogen(s), the child is more likely to experience health or developmental difficulties or death. A teratogen is any agent that can potentially cause a birth defect or negatively alter cognitive & behavioural outcomes. Dose, genetic susceptibility & time of exposure are all factors for the extent of the effect of teratogen on an embryo or foetus.

Prescription drugs taken during pregnancy such as streptomycin, tetracycline, some antidepressants,

progestin, synthetic estrogens, accutane, as well as over-the-counter drugs such as diet pills, can result in teratogenic outcomes for the developing embryo or foetus. Additionally, high dosages of aspirin are known to lead to maternal and foetal bleeding, although low dose aspirin is usually not harmful.

Newborns whose mothers use heroin during the gestational period often exhibit withdrawal symptoms at birth and are more likely to have attention problems and health issues as they grow up. Use of stimulants like methamphetamine & cocaine during pregnancy are linked to a number of problems for the child such as low birth weight & small head circumference & motor & cognitive developmental delays, as well as behavioural problems across childhood. The American Academy of Child & Adolescent Psychiatry found that 6 year olds whose mothers had smoked during pregnancy scored lower on an intelligence test than children whose mothers had not.

Cigarette smoking during pregnancy can have a multitude of detrimental effects on the health & development of the offspring. Common results of smoking during pregnancy include preterm births, low birth weights, foetal & neonatal deaths, respiratory problems & sudden infant death

syndrome(SIDS) as well as increased risk for cognitive impairment, attention deficit hyperactivity disorder(ADHD) & other behavioural problems. Also, in a study published in the International Journal of Cancer, children whose mothers smoked during pregnancy experienced a 22% risk increase for Non Hodgkin Lymphoma.

Excessive alcohol use during pregnancy can cause fetal alcohol spectrum disorder (FASD) which commonly consist of physical & cognitive abnormalities in the child such as facial deformities, defective limbs, face, & heart, learning problems, below average intelligence & intellectual disability.

Gestational diabetes is directly linked with obesity in offspring through adolescence. Additionally, children whose mothers had diabetes are more likely to develop Type 2 diabetes. Mother who has gestational diabetes has a high chance of giving birth to very large infants. Additionally, maternal stress can affect the foetus both directly & indirectly. When mother is under stress, physiological changes occur in the body that could harm the developing foetus.

## 2. Child birth:

Genital Herpes is passed to the offspring through the birth canal during delivery. In pregnancies where the mother is infected with the virus, 25% of babies delivered through an infected birth canal become brain damaged, & 1/3 die. HIV/AIDS can also be transmitted during child birth through contact with the mother's body fluids. Mothers in developed countries may often elect to undergo a caesarean section to reduce the risk of transmitting the virus through the birth canal, but this option is not available in developing countries.

## 3. Post partum period:

During the post partum period, many mother's breast feed their infants. Transmission of HIV/AIDS through breast feeding is a huge issue in developing countries, mainly in African countries. The majority of infants

who contract HIV through breast milk do so within first 6 weeks of life. However, in healthy mothers, there are many benefits for infants who are breast fed. The WHO recommends that mothers breast feed their children for first two years of life, where as the American Academy of Paediatrics & the American Academy of Family Physicians recommend that mothers do so for at least the first 6 months & continue as long as mutually desired.

Infants who are breast fed by healthy mothers (not infected with HIV/ AIDS) are less prone to infections such as Haemophilus Influenza, E.Coli, Streptococcus Pneumonia, Vibrio Cholera, Rotavirus, Herpes simplex virus-1, as well as gastrointestinal & lower respiratory infections. Lower rates of IMR are observed in breast fed babies in addition to lower rates of sudden infant death syndrome (SIDS). Decreases in obesity & diseases such as childhood metabolic diseases, asthma, Type 1 Diabetes, & also childhood cancers are also seen in children who are breast fed.

## III. ANTENATAL ASPECTS OF PREVENTIVE PAEDIATRICS IN NURSING

### Antenatal period:

antenatal care also prenatal care refers to the regular medical & nursing care recommended for women during pregnancy. Prenatal care is a type of preventive care with the goal of providing regular checkups that allow doctors or midwives to treat and prevent potential health problems throughout the course of pregnancy while promoting healthy lifestyles that benefit both mother and child. During checkups women will receive medical information over maternal physiological changes in pregnancy, biological changes, and prenatal nutrition including prenatal vitamins. Recommendations on management and healthy lifestyle changes are also made during regular check ups. The availability of routine prenatal care has played a part in reducing maternal death rates and miscarriages as well as birth defects, low birth weight, and other preventable health problems.

**Prenatal care generally consists of :**

- a) Monthly visits during the first two trimesters (from week 1-28)
- b) Fortnightly visits from 28<sup>th</sup> week to 36<sup>th</sup> week of pregnancy
- c) Weekly visits after 36<sup>th</sup> week until delivery (delivery at week 38-42)
- d) Assessment of parental needs and family dynamic.
- e) Collection of (mother's) medical history
- f) Checking mother's blood pressure
- g) Mother's height & weight
- h) Pelvic examination
- i) Mother's blood & urine tests

**Preventive paediatrics:**

It is defined as prevention of disease & promotion of physical, mental & social well being of the children with the aim of attaining positive health. It mainly includes

- ✓ Antenatal preventive paediatrics
- ✓ Postnatal preventive paediatrics
- ✓ Social preventive paediatrics

Antenatal aspects of preventive paediatrics:-it includes 4 components

1. Adequate nutrition
2. Prevention of infectious diseases
3. Preparation for delivery & breast feeding
4. Mother craft training

Adequate nutrition: a balanced & adequate diet is of utmost importance during pregnancy & lactation to meet the increased needs of the mother & to prevent nutritional deficiencies. A pregnancy in total duration consumes about 60,000 kcal, over & above normal metabolic requirements. Lactation demands about 550 kcal a day. Further child survival is correlated with birth weight. And birth weight is correlated to the weight gain of mother during pregnancy. On an average, a normal healthy woman gains about 12kg of weight during pregnancy. Several studies have indicated that weight gain of poor Indian woman

averaged 6.5kg during pregnancy. Thus pregnancy imposes the need for extra calorie & nutrient requirements. If material stores of iron are poor (as may happen after repeated pregnancies) & if enough iron is not available to the mother during pregnancy, it is possible that foetus may lay down insufficient iron stores. Such a baby may show normal haemoglobin at birth but will lack the stores of iron necessary for rapid growth & increase in blood volume & muscle mass in the first year of life.

Pregnant women should be informed that dietary supplementation with folic acid, before conception & throughout the first 12 weeks reduces the risk of having a baby with a neural tube defect(e.g. anencephaly, spine bifida). The recommended dose is 400 micrograms/day

Pregnant women should be informed that vitamin A supplementation (intake above 700 micrograms) might be teratogenic & should therefore be avoided. Pregnant women should be informed that liver & liver products may also contain high levels of vitamin A, & therefore consumption of these products should also be avoided.

Pregnant women should be advised to take 10 micrograms of vitamin D/day, particularly the women who have limited exposure to sunlight& the women who eat a diet particularly low in vitamin D, such as oily fish, eggs, meat.

**Prevention of infectious diseases**

**Hepatitis B virus :** Serological screening for hepatitis B virus should be offered to pregnant women so that effective postnatal interventions can be offered to infected women to decrease the risk of mother-to-child transmission

**HIV:** Pregnant women should be offered screening for HIV infection early in antenatal care because appropriate antenatal interventions can reduce mother-to-child transmission of HIV infection.

**Rubella:** Rubella susceptibility screening should be offered early in antenatal care to identify women at risk of contracting rubella infection and to enable vaccination in the postnatal period for the protection of future pregnancies.

**Syphilis:** Screening for syphilis should be offered to all pregnant women at an early stage in antenatal care because treatment of syphilis is beneficial to the mother and baby.

**Toxoplasmosis:** Routine antenatal serological screening for toxoplasmosis should Not be offered because the risks of screening may outweigh the potential benefits. Pregnant women should be informed of primary prevention measures to avoid toxoplasmosis infection, such as:

- ✓ washing hands before handling food
- ✓ Thoroughly washing all fruit and vegetables, including ready-prepared salads, before eating
- ✓ Thoroughly cooking raw meats and ready-prepared chilled meals
- ✓ Wearing gloves and thoroughly washing hands after handling soil and gardening ,avoiding cat faeces in cat litter or in soil

#### **Preparation for delivery & breast feeding:**

- Mother's preparation & motivation for breastfeeding should begin from the second trimester of the antenatal period. The nipples should be examined to see whether they are normal & protractile.
- The care of the nipples is necessary to prevent mechanical problems of breast feeding.
- If nipples are retracted, they should be pulled out at least once a day. Daily practicing, during the last trimester, can help to prepare protractile nipples.
- The mother should be convinced that the ability to produce milk does not depend on the size of the breast.
- The mother should be told that the adequate milk is secreted from the third day of the post partum.

- If mother is primi remove all her fears related to pregnancy, delivery, child birth by proper explanation & provide education regarding the proper handling of baby & importance of breast feeding soon after the delivery (within 1 hour after caesarean and immediately after normal delivery)
- The mother should be also informed to completely/ exclusively breast fed their babies up to 6 months afterwards weaning is started.

**Mothercraft training:** it is a type of training in which great emphasis is on the mother & her baby .Mother is taught how to breast fed their babies & is prepared for delivery. She is taught about the handling of baby, care of baby, taking note of various developmental milestones. It also offers a wide range of services to families of young children including child care programs, parenting workshops, support groups & coordinated access to support children with special needs. It also includes early intervention programs for child with special needs.

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