



POLICY BRIEF

CONSUMPTION OF SOIL MATERIALS BY PREGNANT WOMEN: A THREAT TO THEIR FOOD SAFETY AND NUTRITION

Key messages

- Purposeful consumption of soil materials is done mostly by pregnant women in Kenya to meet their nutritional needs and these materials contain high levels of harmful metals such as silica, lead and cadmium.
- Consumption of soil materials by pregnant women exposes the unborn children to health risks
- There is limited information and lack of public awareness on the dangers of consuming soil materials

Policy recommendations

- Increase awareness and understanding of the harmful effects of consumption of soil materials.
- Draft adequate legislation and enforcement of food safety rules.
- Encourage proper diet for pregnant mothers to reduce the cravings of soil materials and strengthening and expansion of existing food supplementation programmes particularly flour fortification to enhance the supply of nutrients to pregnant mothers



Composition of soil materials

The purposeful consumption of soil in particular clay has been found in many different communities in the world^[1].

This consumption also includes the deliberate craving and ingestion of non-food or non-nutritive substances (including charcoal, ash, ice, chalk, soil and ground shell)^[2].

The people who consume soil materials are defined by gender (women), age (children), physical status (e.g. pregnancy, lactation, postpartum), social status (people exposed to significant nutritional deficiencies)^[3].

There are three major groups of hypotheses concerning the consumption of soil materials; hunger, micronutrients deficiency and protection from toxins and pathogens^[4].

In Kenya, soil materials are usually consumed by children and pregnant women and they are sourced locally e.g. termite mounds or sold in markets^[5, 6].

A high prevalence of consumption of soil materials in pregnancy has been observed in sub-Saharan Africa with pregnant women citing nausea, vomiting, heart burn, and the need for relief from stress, as reasons for engaging in consumption of soil materials.

The practice remains common in many cultures with a significant proportion of women (65.3%) engaging in consumption of soil materials before pregnancy and 46.7% during the second gestational trimester^[7].



Figure 1: A pregnant woman consuming soil materials.



Figure 2: People selling soil materials in the local markets.



Figure 3: Women buying some soil materials at the local market.

Compounds present in the soil materials

The soil material consumed by pregnant women was found to contain high levels of silica between 48.6 to 60.3 %.

In addition, the soil material also contained cobalt, zinc, magnesium, copper, lead and cadmium. The levels of lead at 0.96 ppm were above the WHO/FAO limits of 0.01 ppm. The other compounds were found to be within acceptable limits.

Table 1: Levels of lead and cadmium in soil materials collected from three counties

Elements	Pb Mean	Cd Mean
Chuka	0.14	0.01
Embu	0.66	0.001
Meru	0.42	0.001



Negatives of consuming soil materials by pregnant women

Pregnant women in Kenya are exposed to serious risk of diseases by consumption of soil materials. The soil materials may introduce metals like iron, zinc, copper, nickel and titanium to the gastrointestinal system of consumers causing adverse effects like increase in gastrointestinal pH and pathogens.

The ingestion soil particles may cause negative impacts such as electrolyte disturbance, intestinal obstruction, passing hard stools, high blood pressure, inflammation of the tissue that lines the inner walls of the abdomen.

In addition, it can lead to convulsions occurring in a pregnant woman suffering from high blood pressure, deficiency in the number or quality of red blood cells in your body, microbiological infection, worm infection.

Furthermore, can also cause heavy metal poisoning while coarse sand quartz particles in the clays could affect dental enamel and also lead to the possible rupturing of the sigmoid colon due to the abrasive nature of the particles.

The ingestion of soil has also been associated with inducing deficiencies of iron, potassium and zinc in humans. It also introduces some toxic elements such as arsenic, cadmium, mercury and lead. Heavy metals are not filtered by placenta from mother to child and are directly deposited in growing fetal

tissue.

Heavy metals contribute to low birth weight and preterm delivery. In addition, there is the risk of mental retardation and developmental disability in new born babies.

Policy recommendations and the way forward

This brief suggests several approaches to manage and reduce the consumption of soil materials by pregnant women that can be applied by the County Governments, Ministry of Interior and Coordination of National Government, Ministry of Agriculture and Irrigation, Ministry of Industry, Trade and Co-operatives and the Ministry of Health.

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