



Geophagy during pregnancy and its possible health impact, case study: Onangama village, northern Namibia

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Geophagy, which is the practice of consumption of earth materials such as clay is one of the Medical Geology concerns. Historically, geophagy has been observed among humans and animals across the world since ancient times. High prevalence is reported in Africa where clay ingestion is wide spread among women and children. Physiological and psychological factors are the main motivations. However, factors influencing Geophagy in Pregnancy (GiP) have also cultural and socioeconomic motivations. Geophagy has both beneficial and detrimental implication in human health. It has a risk of concomitant detrimental maternal and foetal health effects. Despite the negative connotations that have been ascribed to it, the practice still remains widespread and have no boundaries with regards to race, socio-economic status, age, religious orientation, or ethnic origin.

Though geophagy is known and reported to be a common practice among Namibian population, there is no documented evidence on its prevalence or health effects. Therefore, the present study aims to: (a) establish the prevalence of this practice; (b) characterize the mineralogical and chemical compositions of the materials consumed; and (c) identify the possible health effects on pregnant women, in the small rural village of Onangama located in the Northern part of Namibia. This will be achieved through geochemical and mineralogical studies of geophagic soils and a health surveillance on pregnant women from the study area. Finally, a correlation between these studies will be performed in order to assess the possible health impacts.

The results of the preliminary mineralogical analysis revealed quartz, gypsum, calcite, magnetite, talnakhite, ferroselite, nagashimalite, anglesite, kaolinite, and pararammelsbergite as the main minerals phases of the geophagic soils. The geochemistry preliminary results revealed high concentrations of aluminium (Al), arsenic (As), calcium (Ca), chromium (Cr), iron (Fe), magnesium (Mg), manganese (Mn), nickel (Ni), silica (Si), sulphate (SO₄²⁻), and vanadium (V), according to the Recommended Daily Intake/Allowance for pregnant women suggested by the World Health Organisation (WHO), International Agency for Research on Cancer (IARC), Environmental Protection Agency (EPA), and National Research Council (NRC) guidelines.

Keywords: Geophagy in Pregnancy; Pregnant women; Termite mound soils