

## The Impact of Geophagia on the Iron Status of Black South African Women

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**Abstract :** Objectives: To determine the nutritional status and risk factors associated with women practicing geophagia in QwaQwa, South Africa. Materials and Methods: An observational epidemiological study design was adopted which included an exposed (geophagia) and non-exposed (control) group. A food frequency questionnaire, anthropometric measurements and blood sampling were applied to determine nutritional status of participants. Logistic regression analysis was performed in order to identify factors that were likely to be associated with the practice of geophagia. Results: The mean total energy intake for the geophagia group (G) and control group(C) were  $10324.31 \pm 2755.00$  kJ and  $10763.94 \pm 2556.30$  kJ respectively. Both groups fell within the overweight category according to the mean body mass index (BMI) of each group (G= 25.59 kg/m<sup>2</sup>; C= 25.14 kg/m<sup>2</sup>). The mean serum iron levels of the geophagia group (6.929  $\mu$ mol/l) were significantly lower than that of the control group (13.75  $\mu$ mol/l) (p = 0.000). Serum transferrin (G=3.23g/l; C=2.7054g/l) and serum transferrin saturation (G=8.05%; C=18.74%) levels also differed significantly between groups (p=0.00). Factors that were associated with the practice of geophagia included haemoglobin (Odds ratio (OR):14.50), serum-iron (OR: 9.80), serum-ferritin (OR: 3.75), serum-transferrin (OR: 6.92) and transferrin saturation (OR: 14.50). A significant negative association (p=0.014) was found between women who were wage-earners and those who were not wage-earners and the practice of geophagia (OR: 0.143; CI: 0.027; 0.755). These findings seem to indicate that a permanent income may decrease the likelihood of practising geophagia. Key findings: Geophagia was confirmed to be a risk factor for iron deficiency in this community. The significantly strong association between geophagia and iron deficiency emphasizes the importance of identifying the practice of geophagia in women, especially during their child bearing years. Further research to establish whether the practice of geophagia is a cause of iron-deficiency, or whether it is the consequence thereof, would give a clearer view on how to recognise and treat the condition.

**Keywords :** geophagia, iron deficiency anaemia, dietary intake, anthropometry

**Conference Title :** ICNFS 2015 : International Conference on Nutrition and Food Sciences

**Conference Location :** Zurich, Switzerland

**Conference Dates :** July 29-30, 2015