

# Unearthing a hidden dietary behavior

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Though it was identified as a disorder as early as the 14th century, pica, or the eating of non-food items, has for years believed to be all but non-existent in a few corners of the globe – a 2006 study that reviewed research on pica found just four regions – the South of South America, Japan, Korea and Madagascar –where the behavior had never been observed.

A new Harvard study, however, is showing that pica – and particularly [geophagy](#), or the eating of soil or clay, is far more prevalent in Madagascar, and may be more prevalent worldwide, than researchers previously thought.

As described in an October 17 paper published in [PLoS ONE](#), Christopher Golden '05, a postdoctoral fellow at the Harvard University Center for the Environment, and colleagues from Madagascar Health and Environmental Research, Université d'Antananarivo and Cornell University surveyed 760 people living in 16 villages in the northeastern corner of the island nation, and found that more than half had engaged in geophagy.

"We found the practice, though somewhat concealed, is incredibly widespread in Madagascar," Golden said. "Perhaps even more interesting, our findings suggest that the population that is engaging in this [behavior](#) doesn't fit with the traditional characterization of pica."

In earlier studies of pica, researchers found nearly all cases occurred in [adolescents](#) or pregnant women- periods of increased nutritional

demands. As expected, Golden and colleagues found high rates of both pica and geophagy among women in Madagascar, but they were surprised to uncover equally high rates among men, and even observed cases of young children as young as five years old engaging in the behavior.

Among the men surveyed by the researchers, 63 percent admitted to geophagy, while 44 percent of children and a quarter of adolescent males also engaged in the practice. Though most often associated with pregnancy, the researchers also found that just over a quarter of non-pregnant women engaged in the behavior.

"We found no significant difference between men and women," Golden said. "That suggests that sex is unimportant to the behavior, and that's never been shown before. To be fair, it may simply be that the behavior hasn't been studied in men because earlier studies had focused on [pregnant women](#), but it also suggests that we should be asking question about both sexes and across all ages to fully understand the motivations for this behavior."

One explanation for the seemingly high rate of the behavior, Golden explained, is that soil is a key component of a natural medicine called aody andro, used by many Malagasy people as a "good luck" medicine to avoid becoming sick.

"It doesn't fit into the strict definition of pica, because it's not a craving, they're using it to self-medicate," Golden said. "But that could account for part of the reason the practice seems to be so widespread."

While the study doesn't speculate as to why people in Madagascar engage in pica or geophagy – the two most popular theories suggest that people are absorbing nutrients like iron, zinc and magnesium from the soil, or that the soil acts as a natural de-worming treatment – Golden said

he hopes to answer those questions with additional research.

"These questions fall under the larger umbrella of what I'm interested in exploring, which is environmental resource use and human health," he said. "It would be interesting to see if the soils are imparting any nutritional benefits.

"But additionally, this research is interesting because it begs for further analysis of other areas of the world," he added. "It could be that [Madagascar](#) is a very unique case because men engage in this behavior as widely as women, but it could also be that the earlier methods we used to research this slanted the results in a particular way because of the way researchers approached the subject."

Provided by Harvard University

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