

*Newer Development***Pica as a Culture Bound Syndrome****M.S. Bhatia, Jaswinder Kaur***Department of Psychiatry, U.C.M.S. & Guru Teg Bahadur Hospital, Dilshad Garden, Delhi-110095**Contact: M.S. Bhatia, E-mail: manbhatia1@rediffmail.com***Introduction**

Pica is defined as the persistent eating of non-nutritive, non-food items over a period of at least 1 month. This eating is inappropriate to the developmental level of the individual and is not a part of culturally sanctioned practice.¹ It is not a disease or disorder but a behavior that results from the interaction of biological, environmental and psychological factors.² The term pica comes from the Latin for "magpie" a bird known for its indiscriminate and unusual eating habits.^{2,3} Some of the most commonly described types of pica are eating earth, soil or clay (geophagia), ice (pagophagia) and starch (amylphagia) etc. Infants and toddlers are typically excluded from this diagnosis since mouthing objects is a normal developmental behavior at that age. The persons with habit of pica typically eat plaster, paper, paint, cloth, hair, insects, animal droppings, sand, pebbles, and dirt. Some even eat ashes/burnt matches, cigarette butts, soap etc.² Ice-eating (Pagophagia) has also been reported as a variant of Pica.⁴ Among all the varieties, geophagia (mudeating) is the most common pattern of pica practiced across the world.⁵

Epidemiology

The exact prevalence of Pica is often under reported as many people may be embarrassed to admit to these unusual eating habits, and may hide it from their physicians. Although Pica is seen in all age groups and both genders but more prevalent among the children and females. In children age group of infants is vulnerable. Pica is considered to be non pathological up to 2 years of age because they are in habit of exploring things while mouthing and teething. Pica is also commonly observed among children with the developmental disabilities (mental retardation, autism etc).⁶⁻⁸

A prospective study done on African American

women reported 38 percent prevalence rate of pica.⁹ Often females who are pregnant have pica. It is particularly found in those living in poverty, tropical areas and the tribal areas. In India pica is more prevalent among rural population than urban settings. A recent survey by Obstetrics-Gynecology Clinic at Duke Medical Center in North Carolina shows that about one quarter of patients were clay-eaters.

Etiology

Though exact etiology of pica is not known but there are certain proposed hypothesis. Organic, psychodynamic, socioeconomic, and cultural factors have been implicated in the etiology of pica. Most widely accepted theory points towards the nutritional deficiency to be the cause of Pica. Research has reported high prevalence of pica in individuals with documented iron deficiency.^{2,7,10} Studies have shown that pica cravings in individuals with iron deficiency stop once iron supplements are given to them. Deficiency of calcium, zinc and many of B Complex vitamins is usual among persons with Pica.^{2,11} The geophagia also has medicinal value in being used as an antidiarrhoeal agent due to its proposed tendency to absorb dietary toxins.⁷

The traumatic events are associated with pica. Common events that could signal pica include parental separation, broken families, parental neglect, lack of parent-child interaction, and child abuse. In certain people, pica may be a form of compulsive behavior in OCD.^{8,9,12-16} The persons with developmental disabilities have pica due to their inability to discriminate food and non-food items.^{6,8} Even the persons with Psychosis sometimes eat non edible material.

Ingestion of paint is most commonly seen among children belonging to low socioeconomic status and is associated with lack of supervision. In the southern United States in the 1800s, geophagia was a common

practice among the slave population.¹⁷ People who diet may attempt to ease hunger by eating nonfood substances to get a feeling of fullness. Many patients with pica say that they just enjoy the taste, texture, or smell of the item they are eating. Pica is a cultural feature of certain religious rituals, folk medicine, and magical beliefs.¹⁷ Starch eating in pregnancy particularly treats morning sickness. Pica is followed as a cultural practice across the African population to maintain fertility.¹⁸ In some myths many men believed that eating clay increased sexual power.

The association of pica, iron deficiency and a number of pathophysiologic states with the decreased Dopamine levels has raised the possibility of a correlation between diminished dopaminergic neurotransmission and expression and maintenance of pica.¹⁹

Culture bound issues

Although pica is related to certain nutritional deficiencies but it is a part of cultural practice in certain parts of the world. Cultural pica is a common practice followed in various communities and cultures across the world. Cultural pica differs from pica in children and mentally retarded people in being restricted to certain items only like mud, chalk etc.

Some historical aspects pointing towards the causative explanations of pica include (a) retention of impure blood due to cessation of menses during pregnancy, (b) delayed development of sexual organs (chlorosis), (c) digestive disorders, (d) iron deficiency, (e) cosmetic reasons, such as to achieve pale skin, (f) sexual frustration, and (g) tight-corseting.²⁰

In many rural parts of India, pregnant females consume mud, clay, ash, lime, charcoal and brick in response to cravings. Nonfood substances are believed to have positive health or spiritual effects. In North India, cravings for pica substances are used as a means to predict the sex of an unborn child. If a woman craves ash, people believe she will have a girl, whereas dust cravings indicate that she is pregnant with a boy.²¹ Children practice geophagy because of the proximity to the soil play. In India, Pica for mud eating is culturally accepted in families in western Uttar Pradesh. The whole of the family members follow Pica in form of mud eating.

It is also prevalent among the African females specially "Chagga" women where they relate soil

eating to the fertility and reproduction. The Chagga is one of the African ethnic groups in Tanzania. The women's identity is closely related to the productivity of land. It is a form of learned behavior. The women revealed that they had experience "Tamaa" (desire) in some pregnancies and not in others. They also express specific preferences for different forms of soil, obtained from specific places and preferred to be eaten either "dry" or "wet". The practice of geophagy is culturally controlled in this part of the world. Women who break the cultural norms related to this practice are negatively regarded. The Chagga community believes in the magical artefacts related to male and female sexual organs. After the child birth, the husband and wife are not allowed to have sexual intercourse for three months to ensure that semen does not pollute the mother's milk. And during that period the practice of geophagy helps to perpetuate life and maintain productivity. The experience and satisfaction from eating soil is compared to the satisfaction from the sexual intercourse. The mother figure is highly regarded and worshipped in the Chagga society for carrying on act of reproduction. When interviewed, some of Chagga women also replied that eating mud increases the blood which is needed during pregnancy.²²

Kaolin (white clay or chalk eating) ingestion has been found out to be a form of pica in central Georgia Piedmont area. In Georgia it appears to have culturally transmitted and not associated with other psychopathology.²³ Those who began eating chalk during pregnancy were introduced to this behavior by their mothers. In the 1950s and 1960s, the practice was so popular that clay-filled lunch bags were sold at Alabama bus stops as snacks for travelers. Magnesium carbonate blocks are sold and advertised as edible products within certain regions of the United States and Mexico. Simpson found that magnesium carbonate was one of the most popular non-food items to ingest, and that some women even believed that consuming chalk would be beneficial for the fetus.²⁴ Nelson et al found that magnesium carbonate was the main component of the antacids most frequently taken by pregnant women.²⁴ In Africa Kaolin is eaten for suppressing hunger or for feelings of pleasure. It is also used as an antidiarrhoeal agent. Kaolin is naturally occurring clay used in manufacture of ceramics, as a coating

or filler for paper or textiles.

Some tribes in Peru and Bolivia eat clay to overcome the health risks associated with toxins found in their staple diet, potatoes.²⁶ In certain parts of Haiti clay mud is turned into pancakes and cookies and sold as eatable items in poorer population. One recent study analyzed samples of African soil that was sold for geophagic purposes in various parts of Africa, Europe, and the U.S. of particular concern to the researchers were the microbe and lead levels. Small levels of mercury and cadmium were also present.²⁷

Differential diagnosis

Ingestion of nonnutritive, nonfood substances may also be observed in individuals with autism, schizophrenia, or certain physical disorders (e.g. Kleine-Levin syndrome). Anorexia nervosa (AN) is an eating disorder characterized by a weight loss of at least 15% of expected body weight, with dreaded fear of weight gain, relentless dietary habits that prevent weight gain, and a disturbance in the way in which body weight and shape are experienced.²⁸ Bulimia is characterized by recurrent episodes of binge eating with a sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating) with self induced vomiting as a compensatory behaviour. Avoiding/restrictive behaviour is manifested by persistent failure to meet appropriate nutritional needs associated with significant loss of weight.¹

Health hazards

Pica may have many adverse consequences on body. These patients are susceptible to electrolyte and metabolic disorders, lead and mercury poisoning, parasitic infections, intestinal obstruction/perforation and ultimately may land up with medical or surgical emergency². The mud or clay is often contaminated by animal or human faeces and may contain parasite eggs like *Ascaris*. Lead toxicity is the most dangerous complication that can be faced with Pica.^{2,29} In certain cases dental abnormalities like tooth abrasion and surface tooth loss may be evident.³⁰ Pica foods do not generally possess any calorie values. The babies born to mothers who practice pica during pregnancy may be low birth weight, premature, born with physical abnormalities, and even death is reported among such newborns.³¹

Treatment

Pica remits spontaneously in majority of the cases. Treatment plan must focus on the factors contributing towards pica and address the underlying psychological issues.² There is no specific treatment for pica. Any nutritional deficiencies also need to be addressed and corrected. The medical emergencies like lead poisoning or surgical emergency like intestinal obstruction has to be treated accordingly.¹⁷ However recent research suggests that the drugs enhancing Dopaminergic activity may prove to be beneficial. SSRIs have been shown to be effective.^{4,14,16} One of the case reports has shown the benefit after using Olanzapine in a patient of Pica.³² The comorbid psychiatric illness and underlying psychological issues need to be addressed and managed. It is also recommended to expand the supplementation programs like mandatory flour fortification to enhance population-wide iron supply and safer pregnancies. The use of brief physical restraints and aversive conditioning can be helpful in infants and toddlers.^{2,28} As Pica is acquired in cultural settings, affected people may be given cognitive behavioral therapy.

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