

# **Pica: Consideration of a Historical and Current Problem with Racial/Ethnic/Cultural Overtones**

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## **Introduction**

Pica is an eating disorder that affects an individual who experiences a craving that is satisfied by ingestion of either unusually large amounts of selected food items (e.g., baking soda) or repeated ingestion of nonfood items (e.g., clay, laundry starch). Pica is more than an anomaly of human behavior; it is an eating disorder that carries all the risks that are inherent to impaired nutrition, including death. Pica can be dated to antiquity, yet there is little question that it continues as a current practice. As an eating disorder, pica has implications for persons who are in positions to influence human behavior, those in education and social service as well as those in clinical settings.

Pica poses specific challenges for those professionals whose work encompasses the development and enhancement of problem-solving models related to nutritional deficiencies. The literature, collectively, provides a wealth of information on pica; however, these sources are so fragmented that it is difficult to gain a stable perspective of the knowns and unknowns. There is lack of consistency in defining the behavior, charting the implications, and in identifying both causes and practitioners. This interdisciplinary review presents a framework that suggests that pica is inadequately defined in our standard references, which is in contradiction to the fact that it is a generalizable condition with a substantial body of literature. It is suggested that since pica has most frequently been documented as a problem of those who are culturally, racially, and/or ethnically different from the majority group and from medical care researchers and practitioners, it has received inadequate attention. Understanding pica will require vigorous research and sensitive researchers who consider culture, race, and/or ethnicity as

intervening variables rather than as end-stage ones.

### **Background, Definitions and Labeling of Pica**

In the interest of health and well-being our society has, from time to time, focused on dietary guidelines and attainment of proper dietary patterns, with occasional attention given to eating attitudes, eating environment, and cultural meaning of food. Recent studies have emphasized the effect of food on human behavior.<sup>1</sup> There has been miniscule attention given to cause and effect related to ingestion of nonfood substances. Mainly, this topic has been treated as aberrant behavior.<sup>2</sup> Concurrent with the attention given to food and nonfood substances has been a concern about children's ingestion of paint chips and/or peelings and their subsequent lead poisoning. However, although often labeled as pica, it has not generally been associated with other forms of pica and considered broadly. Instead, the focus of lead poison prevention has been on environmental manipulation related to children's developmental stages, the age of the housing, or the nature of the paint.<sup>3</sup> Concern has been sparse for considering pica as a spectrum of behaviors.

Pica definitions as presented in standard references are indicative of a bias that limits broad understanding. Such definitions describe pica mainly as a "perversion of appetite" and/or as "the ingestion of nonfood substances" by "pregnant women." Classic examples of definitions given in medical dictionaries are:

A perversion of appetite with craving for substance not fit for food, as the practice by some women in pregnancy of ingesting starch, clay, ashes, or plaster. Condition seen in pregnancy, chlorosis, hysteria, helminthiasis, and in certain psychoses.<sup>4</sup>

A depraved or perverted appetite. A hunger for substances not fit for food.<sup>5</sup>

The impact of having the behavior of pica defined as a perversion, the substances as nonedible, and the affected population as pregnant women has probably limited the type of consideration given to the problem. With such limited definitions, researchers may reasonably be expected to be unconcerned about prevalence of the behavior among normal populations; educators may understandably find it unnecessary to educate the public to "not eat the inedible"; nutritionists conceivably may not be concerned with the impact of such substances on the dietary patterns of women and children; clinicians, in this schema, may not be likely to incorporate data from findings on perversions and nonedibles into their interactions with "normal" clients and patients. Using any one of the dictionary definitions as a point of reference, a given professional might reasonably conclude that no action is necessary. However, if these same professionals were to view data from a range of sources they would find that individuals ingest various substances on a regular basis over varying periods of time and that all practitioners are not pregnant women. A more objective explanation is suggested by a hematologist who has

stated that pica “. . . is the compulsive eating of something, usually a single item of food, or ice, or dirt, something within easy reach of the victim.”<sup>6</sup>

The literature contains six terms that have been commonly used in describing various types of pica: amylophagia, cautoyreiophagia, geophagia, lithophagia, pagophagia and tricophagia. Plumbophagia, a seventh type of pica that can be equated with a particular substance, although frequently reported, is not consistently labeled. An eighth form of labeled pica, although not commonly so, coprophagia, is limited in research focus to practitioners who are institutionalized with mental impairments. Pagophagia (ice eating) should be accorded special attention because it presents a paradox; it is perhaps the most frequently experienced, yet it is the most “normal” of the labeled substances of pica. Further, its very nature as a socially accepted item of ingestion makes it the most difficult for data gathering. Interestingly, plumbophagia (the eating of lead-based paint peelings or chips) has had the least consistent labeling; it is sometimes not named; at other times, it is labeled pingophagia. Plumbophagia, along with geophagia (clay or earth eating) and amylophagia (laundry starch eating) comprise the most frequently cited topics concerning pica. Each is at various times used as a synonym for pica. Cautopyreiophagia (burnt match eating), tricophagia (hair eating), and lithophagia (stone or gravel eating) are sporadically acknowledged in the literature. Other nonfood types of pica have been reported, but have not been labeled. Several food and food-related items which are ingested in disproportionate quantities have also been reported; however, they are also not labeled as specific types of pica.

### **Substances and Findings in Related Literature**

In addition to the labeling of various types of pica, the related literature provide data that leads one to surmise that it is meaningless to continue to refer to the substances as inedible. Further, as these data indicate that reasonably large percentages of persons engage in the activity, it seems necessary to consider the behavior other than a perversion. Such data are available only from a review of a wide variety of sources over a long period of time. Substances identified as objects of pica in the broad range of thirty-five nonfood items range alphabetically from ashes and balloons to toilet tissue and twigs. The sixteen food-related items range alphabetically from baking soda and carrots to potato chips and tomato seeds.

The review for this article is limited to the cultural, racial and ethnic implications found in a variety of sources including journals with clinical focus in gastroenterology, hematology, internal medicine, nursing, nutrition, obstetrics-gynecology, and radiology, as well as journals in public health and science.<sup>7</sup> While some of these fields have presented periodic summaries of the literature on pica, most have concentrated on selected substances or findings from a selected

discipline. Few<sup>8</sup> have challenged the standard established definitions of pica or called for more systematic consideration of pica as an eating disorder.

The literature generally offers a collection of suggestions of causation for pica. Lackey, a nutritionist, has labeled six of the predominant suggestions as theories of causation. The causes and rationale compiled by Lackey are:

*Psychological Phenomena* - Response to a need with no physiological basis. Oral fixation and attention seeking are behaviors of note as causative; *Cultural Basis* - Women pass the habit on to their children; roles as gardeners and potters caused them to sample clay. A related or subset of this theory—West Africans began to eat clay to avoid slave trade—passed on to their descendants; *Sensory Drive* - Substitutes are used for relief of hunger pangs and nauseous sensations; *Nutritional Needs* - Cravings caused by instinctive searching for deficient essential nutrients; *Microbiological Medium* - Substance produces pH unfavorable for growth of disease producing microorganisms or absorbs gastric juices and quiets spasms of worm infestation; *Physiological Reasons* - Dry substances offset increased salivation of pregnancy. Satisfies altered tastes.<sup>9</sup>

A problem with the “theories of causation” suggested by Lackey is that each “theory” attempts to be all-encompassing, with little consideration of multiple or interactive causes. While neither race nor ethnic background is explicitly stated as a theory, both are implicit to several of the theories. For example, the cause attributed to cultural basis suggests that West Africans, a racial, ethnic and cultural sub-group, willfully ate clay to make themselves “sick” and, thus, unfit for slave trade. According to this theory, they willfully passed the habit to their descendants. This rationale would imply that this group of people were in control of their actions and were relying on nonmedical motivation for maintenance of the behavior. Whenever this rationale was posited, medical practitioners saw no need to intervene; the attributed cause suggested that either the victim or “significant others” in the environment (both usually perceived as belonging to nonmutually exclusive groups of women, children and black persons) were blamed for the behavior, as in psychological phenomena as cause, or, as in the remaining cases, the cause is presented as a solution to a bigger problem. One can only speculate about the influences that have allowed such rationales to persist. However, the related literature provides several examples to illustrate references to racial, ethnic, and cultural considerations.<sup>10</sup> Another manner of indirect reference to race, ethnicity or culture can be drawn from findings and conclusions such as those of Chatterjee and Gettman<sup>11</sup> who attributed paint chip eating to the “permissive socialization of oral behavior” among low income children. Further, as these researchers studied 136 children who were diagnosed by Cleveland hospitals as lead poisoned, they, without discussion of proportionality among groups, concluded that the problem of pica was more pronounced among black children (117) than among white ones (19).

Vermeer and Frate<sup>12</sup> conducted a survey of 500 households in a rural Mississippi county of black persons. They found 28 percent prevalence of geophagia among 142 pregnant and postpartum women. The researchers concluded that such practices were common customs stemming from tradition and attitudes. They found no discernable nutritional need to account for the practice. Keith, Evenhouse and Webster<sup>13</sup> studied starch eating among 987 women of lower socio-economic level at Cook County Hospital. They found statistical significance related to higher incidence of geophagia among black women than among white ones.

Key, Horger, and Miller, in 1982,<sup>14</sup> reported what they considered to be the first case of maternal death from a complication of geophagia; a 31-year-old black woman who was transferred from a rural hospital to the obstetric service at Medical University of South Carolina. The patient was experiencing weakness, pain, nausea, vomiting, fever and rigors; she died within ten minutes of admission. The clinicians involved in this case offered an assessment that has opposite implications to those of Vermeer and Frate;<sup>15</sup> Key, Horger, and Miller concluded that geophagia is not an innocuous symptom or habit and must be handled aggressively. Their opinions also included: geophagia is worldwide, although more common in tropical areas; geophagia is predominant in the rural South and among blacks; and although geophagia is a widespread habit in the United States, it is decreasing due to education, nutrition, and “cultural alteration,” which this researcher assumes to mean the assimilation of black and rural southern people into “white and northern cultural styles.”

In an overview article, Lackey<sup>16</sup> reports that a Georgia study found 55 percent prevalence of clay eating among pregnant women; that a Harlem study found 18 percent prevalence for starch eating among pregnant black women; and that a California study of migrant workers found 35 percent prevalence of reported pica among Mexican women and a 19 percent knowledge rate among the white migrant workers. These reports are of small nonrandom samples with racial/ethnic/cultural differences inferred but not studied. Unrelated, but in fairly close sequence to Lackey’s report, the *New England Journal of Medicine* carried, first, a case report and then a full article that presented pica as a health problem, the latter of which had ethnic/racial connotations related to the practitioners.<sup>17</sup>

Most of the studies cited above tended to treat pica as a problem of contemporary origin. This is in spite of many previous studies, especially as summarized in definitive ethnographic works of Laufer in 1930 and Anell and Lagercrantz in 1958.<sup>18</sup> These authors reported many instances of sickness and death; of compulsive eating that was so pervasive that others found it necessary to contain it, even to the extent of shackles; and of laws having been enacted to contain the behavior, especially in the case of geophagia. Retrospectively, it is quite likely that emphasis on

specific substances in the literature may have made the data obscure for contemporary researchers. Racial/ethnic/cultural overtones are clear in these historical references; however, the contemporary works are more subtle in their inferences and bias can only be inferred from the presence of limited studies and subsequent disregard of pica as a serious health threat or as a significant eating disorder.

Conclusions from the present study are:

- (1) Standard references are not objective in their presentation of definitions of pica: these sources contain terms such as “perverted” and “bizarre” which are among those likely to bias the reader about the practitioner of the behavior as well as the cause of the behavior.
- (2) Pica is a current problem with a rich historical context in a variety of disciplines.
- (3) The likelihood of forms of pica having been labeled bear no resemblance to frequency of the problem. For example, there is no evidence in the literature to suggest that lithophagia, a labeled form of pica, occurs any more frequently than does baking soda pica, an unlabeled form of pica.
- (4) Causation mechanisms for pica have been classified as theories; supportive data are lacking for such a classification. The cultural basis “theory” projects cultural bias.
- (5) Articles published, even in professional studies, lack historical perspective on deleterious effects of pica and, at the same time, authors of these articles do not demonstrate racial, ethnic, or cultural sensitivity.
- (6) Research studies of pica knowledge, attitudes, and behavior in normal populations are lacking, but needed.
- (7) There are many indications that pica as a health problem is and has been the object of errant and incomplete information. Vigorous effort should be made to integrate appropriate information about pica at various educational levels and to develop strategies for incorporating the study of pica into a variety of disciplines and fields of study, including, but not limited to ethnic/racial and women’s studies at the college and university level.

It is clear that rigorous research and definitive education are needed on this health problem; however, researchers and educators should be willing to recognize that neither race, ethnicity, nor culture are generally suitable as mechanisms of causation, but may be more effectively used to generate hypotheses. More specifically, race nor ethnicity nor culture can be considered more than an association or an intervening variable related to pica; neither has been substantiated as an independent causative mechanism for pica.

## Notes

- <sup>1</sup>G. Kolata. "Food Affects Human Behavior." *Science*. Vol. 218, No. 4578 (December, 1982) 1209-1210.
- <sup>2</sup>During a relatively brief period, direct or indirect references were made to pica in such diverse sources as: Ann Landers. "Pica May be Your Problem." *Southern Illinoisan* (October 17, 1985) 21; A. Huffman. "It's Hard to Quit the Habit, Mississippi Dirt Eaters Say." *Jackson (MS) Clarion-Ledger* (December 13, 1983) 7; "Meet the Folks who Love to Eat Dirt." *Weekly World News* (March 13, 1984) 1; T. Tiede. "To Some Food is an Earthly Delight: Where's the Beef?" *Marion (IL) Daily Republican* (April 18, 1984) 3.
- <sup>3</sup>B. de la Burde and B. Reames. "Prevention of Pica, the Major Cause of Lead Poisoning in Children." *American Journal of Public Health*. Vol. 63, No. 8 (August, 1973) 737-743.
- <sup>4</sup>*Taber's Cyclopedic Medical Dictionary*. (Philadelphia: F.A. Davis, 1985).
- <sup>5</sup>*Stedman's Medical Dictionary*. (Baltimore: Williams and Wilkins, 1982).
- <sup>6</sup>W. H. Crosby. "Pica: A Compulsion Caused by Iron Deficiency." *British Journal of Hematology*. Vol. 34, No. 2 (October, 1976) 341-2.
- <sup>7</sup>A more extensive literature review has been conducted by the author of this paper and is under publication review by *Public Health Reports*.
- <sup>8</sup>Crosby, 341-2.
- <sup>9</sup>C. J. Lackey. "Pica: Pregnancy's Etiological Mystery." In *Alternative Dietary Practices and Nutritional Abuses in Pregnancy*. (Washington, DC: National Academy Press, 1982) 84-96.
- <sup>10</sup>D. E. Vermeer and D. A. Frate. "Geophagia in Rural Mississippi: Environmental and Cultural Contexts and Nutrition Implications." *American Journal of Clinical Nutrition*. Vol. 32 (October, 1979) 2129-2135; T. C. Key, Jr., E. D. Horger III, and J. M. Miller, Jr. "Geophagia as a Cause of Maternal Death." *Obstetrics and Gynecology*. Vol. 60, No. 4 (August, 1981) 525-526; B. Laufer. "Geophagy." *Field Museum of Natural History*. Vol. 18, No. 2 (1930) 101-198; B. Anell and S. Lagercrantz. "Geophagical Customs." *Studia Ethnographia Upsaliensa*. Vol. 17 (1958) 1-84.
- <sup>11</sup>P. Chatterjee and J. H. Gettman. "Lead Poisoning: Subculture as a Facilitating Agent." *American Journal of Clinical Nutrition*. Vol. 25 (March, 1972) 324-330.
- <sup>12</sup>Vermeer and Frate, 2129-2135.
- <sup>13</sup>L. Keith, H. Evenhouse, and A. Webster. "Amylophagia During Pregnancy." *Obstetrics & Gynecology*. Vol. 32, No. 3 (September, 1968) 415-418.
- <sup>14</sup>Key, Horger, and Miller, 525-526.
- <sup>15</sup>Vermeer and Frate, 2129-2135.
- <sup>16</sup>C. J. Lackey. "Pica During Pregnancy." *Contemporary Nutrition*. Vol.

8, No. 11 (November, 1983).

<sup>17</sup>D. L. Coleman, C. S. Greenberg, and C. A. Ries. "Iron-deficiency Anemia and Pica for Tomato Seeds." Letter to the Editor, *New England Journal of Medicine*. Vol. 204 (April, 1981) 848; E. Charney, B. Kessler, M. Farfel, and D. Jackson. "A Controlled Trial of the Effect of Dust-Control Measures on Blood Lead Levels." *New England Journal of Medicine*. Vol. 309, No. 18 (November, 1983) 1089-1093.

<sup>18</sup>Laufer, Anell and Lagercrantz.