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Research Article

FREQUENCY AND ASSOCIATED FACTORS OF PICA AMONG PEDIATRIC POPULATION; AN ANALYTICAL CROSS-SECTIONAL STUDY

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Abstract:

Background: "Pica-the persistent craving for non food items", is known to exist among both humans and animals since ancient times. Its importance especially among children cannot be undermined due to various adverse effects associated with prolonged intake of non-food articles; most important being lead poisoning among cement consumers, anemia among earth consumers and constipation, intestinal obstruction and parasitic infections among the others. The exact prevalence of pica still remains to be the submerged portion of the iceberg.

Objectives: To determine the frequency and associations of the pica among the pediatric population aged 8 months to 144 months (12 years) of age attending out-patient pediatric department of Ghurki Trust Teaching Hospital Lahore.

Materials and Methods: An analytical cross-sectional study conducted from 1st October to 1st of December 2018 in the outpatient department of Pediatric medicine in Ghurki Trust Teaching hospital Lahore. A sample of 180 Paediatric patients was randomly selected and data was collected by a structured questionnaire.

Results: Out of 180 children (n=180), 59% were male and 41% were female with the mean age of 55.02 + 35.605 SD months. 55 (30.55%) children consumed non-food items while 125 (69.44%) did not. Out of those 55 children who consumed non-food items, 61.8% children consumed earth / mud. 98.81% were eating non-food items for more than one month. 25.4% of the total children who consumed non-food items, started the consumption at the age of 8 to 12 months, 54.5% at the age of 1 to 2 years. Mothers of only 34.5% of the total non-food item consuming - children consulted a medical practitioner regarding this issue while the rest of the 65.4% of children were never taken for any consultation. 72.72% children among those consuming non-food items suffered physical abuse by their mothers in order to get rid of this behavior. On examination, 78 (43.33%) children had conjunctival pallor.

Conclusion: A considerable number of our pediatric patient population is indulged in pica, the most common substance being consumed is earth and mud. The usual age of onset is 1-2 years and the duration prolonging over more than a month often found associated with the presence of conjunctival pallor viz anemia. A vast majority is not taken for any consultation with a doctor while an even larger majority suffered physical abuse by the mothers to get rid of this behavior.

Keywords: pica, pediatric patients, pattern, associated factors

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INTRODUCTION:

Pica is defined as “the persistent craving and compulsive eating of nonfood substances”. In Latin, pica means "magpie" which is an opportunistic omnivore that characteristically eats just about anything it encounters. The mental health professional handbook, classifies pica under the heading of "Feeding and Eating Disorders of Infancy or Early Childhood."The children suffering from pica eat various non-food items including earth, mud, clay, cement, paint, paper, toilet papers, cigarette buds, soap, cloth, hair, talcum powder etc. The exact prevalence of pica is unknown because of the denial of patients for this abnormal craving 1 and that's why most of the people neither consult medical practitioner regarding this issue nor do they consider it as an abnormal behavior, hence-forth are reluctant to get any kind of medication or psychological treatment and most of them try physical abuse or punishment to get rid of this problem. In school going children aged 7 -13 years its prevalence is 10% 2 .However, according to the Handbook of Clinical Child Psychology it is estimated that in institutionalized population the current prevalence is 4-26% but in non-institutionalized population it is difficult to estimate.The prevalence of pica for children under 6 in the general population is between 10% and 32%with the highest rates among children aged 12–24 months. 3

Pica has been recognized and described sinceancient times. It has been observed in both sexes, and in all age groups, however decreases with advancing age 4.The exact cause of pica is unknown. Prominent theories related to pica etiology include gastrointestinal distress, micronutrient deficiency, neurological disorders and obsessive compulsive disorders. Pica appears to be a self-soothing behavior in case of gastrointestinal distress and obsessive compulsive disorder theory whereas psychological dysfunction of brain in case of neurological theory. Micro-nutrient theory suggests that a prolonged practice related to food can affect the choice of food in later life. However all of these theories still are inconclusive 5. Many factors can be considered as the risk factors for pica viz: malnutrition, iron deficiency anemia, cultural influences, low socioeconomic status, lack of parental supervision, hunger, mental retardation or developmental delay, psychiatric disease and autism 6.

There are various adverse outcomes of pica including interference with eating healthy food, nutritional deficiency, toxicity of various harmful substances especially lead poisoning 7 in cement eaters leading to learning disabilities and organ damage, constipation, intestinal obstruction and infections 8. Currently, there are no existing clinical

guidelines in place for addressing pica assessment or treatment 9. Assessment procedures that rely on observation of pica events are more authentic. Recommended treatment procedures include creation of an environment that prevents the individual to indulge in pica 8. The more commonly recommended treatment procedures involve behavioral treatments in order to counteract a condition that is of behavioral nature. The recommended pica prevention measures include proper nutritional education and observation in order to prevent pica from becoming a fixed behavior. The aim of the study is to find the frequency of pica and its associated factors among the pediatric population. It will provide the recommendations and suggestions regarding the pattern of pica, the most vulnerable pediatric age group, its associated factors and the behavior of parents regarding its treatment and control. Hence when diagnosed early in childhood, would prevent long term adverse outcomes in children, being fruitful in reducing the morbidity and hence forth the pressing burden on the healthcare system.

OBJECTIVES:

To determine the frequency and associated factors of pica among the pediatric population aged 8 months to 144 months (12 years) of age attending out-patient pediatric department of Ghurki Trust Teaching Hospital Lahore.

MATERIAL AND METHODS:

An analytical cross sectional study was conducted from 1st of October to 1st of December 2018 in the outpatient department of pediatric medicine in Ghurki Trust Teaching hospital in Lahore. It is a 600 bedded tertiary care hospital located in the peri-urban area of Lahore. After getting informed consent, data was collected from the 180 randomly selected participants using a structured questionnaire. It consisted of 2 portions one related to the socio-demographic profile and the other related to the pica. After meticulous cleaning data, it was entered in and analyzed using SPSS version 20 applying simple descriptive statistics Age and weight being continuous variables were presented as mean + S.D ,whereas other variables were presented in the form of frequencies and percentages. Chi square test was applied to find the associations between different variables.

A single physician was employed to collect data and check pallor in order to reduce interview and observer bias. Inclusion criteria included all the pediatric patients more than 8 months of age attending the out- patient department of Ghurki trust teaching hospital. Those who were not accompanying by mothers or less than 8 months of age or having only mouthing activity not actual ingestion/craving of non-food substance 10 or

showing any general danger signs, dehydration or respiratory distress or those who did not give consent were excluded from the study.

RESULTS:

Out of 180 children (n=180), 107 were male (59%) and 73 were female (41%) with the

mean age of 55.02 + 35.605 SD months and mean weight of 16.33 + 6.886 SD kg. 52.2% of the total sample had monthly income less than rupees 30,000 while 47.7% had more than that. 10% mothers were working (had a job) while 90% were house wives. Only 3.3% children had history of mental illness (organic brain disease or developmental delay).

Table 1. Frequency and types of non-food items consumed

Type of non-food item consumed	Frequency	Percent
Earth/clay/mud	34	61.8
Cement/paint	13	23.6
Both	5	9
Other	3	5
Total consumers	55	100

55 (30.55%) children consumed non-food items while 125 (69.44%) did not. Out of those 55 children who consumed non-food items, 61.8% children consumed earth / mud or clay, 23.63% of children ate cement or paint, only 9.1 % children ate both and 5.45% children ate other things like cigarette buds, toilet papers, notebook paper, eraser shavings, finger nails etc as in figure 1. Out of those who consumed non-food items, only 1.8% child had this attitude for less than one month while 98.1% were eating non-food items for more than one month.

Table 2 Frequencies and Percentages of Various Ages of Onset of Pica

Age of onset of pica	Frequency	Percentages
8 months to 12 months	14	25.4
1 to 2 years	30	54.5
3 to 4 years	6	10.9
Later	5	9.09
Total pica patients	55	55

25.4% of the total children who consumed non-food items, started the consumption at the age of 8 to 12 months, 54.5% at the age of 1 to 2 years, 10.9% at the age of 3 to 4 years and 9.09% started later as in figure 2. Mothers of only 34.5% of the total non-food item consuming - children consulted a medical practitioner regarding this issue while the rest of the 65.4% of children were never taken for any consultation. 72.72% children among those consuming nonfood items suffered physical abuse by their mothers in order to get rid of this behavior and mothers of the rest of 27.27% children never tried any sort of physical abuse.

Table 3 Duration of Consumption of Non-food items and Presence of Conjunctival Pallor

Duration of consumption	presence of conjunctival pallor		Total
	Yes	No	
less than 1 month	1	0	1
more than 1 month	34	20	54
not applicable	43	82	125
Total	78	102	180

On examination, 78 (43.33%) children had conjunctival pallor and 102 (56.66%) did not. The association between consumption of nonfood items and presence of conjunctival pallor is significant at a p-value of 0.000. The association between duration and consumption of conjunctival pallor is found to be significant at p value: 0.001. Moreover, the association between duration of consumption and consultation to a doctor regarding pica is also found to be significant at a p-value of 0.000. There is no association between pica and mother's job or pica and socioeconomic status was found.

DISCUSSION:

Nutritional disorders have long been an unwinding enigma for the researchers and physicians. Intertwined with these disorders, is pica or consumption of non-food articles, particularly in pediatric population known in history since 400 BC. The prevalence of pica has always been under reported due to varied reasons; mainly because parents do not consider it a worth mentioning malady or due to embarrassment in such indulgences. The frequency of pica in our sample population came out to be 30.55% much higher as compared to the prevalence of pica which is 18.5% among children in the United States.

Past studies have suggested that pica is related to psychosocial stress¹¹. In our study mother job/working status was taken as an indicator to child psychosocial stress where high frequency being expected among children of working women due to less supervision on part of the mother and feeling of deprivation on part of the child however no such association was found in our study.

Pica is one of the leading causes of lead poisoning¹². However the ignorance regarding detrimental effects of pica has led to decreased presentation of the patients to the health care facilities. History has to be extracted from the mothers. In this study surprisingly none of the patients presented with the primary complaint of pica similar to the previous studies while more than 65 percent has never consulted any doctor. Those who have never consulted, ultimately ended up with prolonged pica.¹³

The ever high prevalence of pica among children with iron deficiency anemia can never be undermined, locally found to be as high as 74% among anemic children. Pooled analysis of the relationship between pica and anemia showed that individuals reporting with pica were 2.34 times more likely to be anemic (D-L pooled OR=2.34, 95% CI

1.94–2.85, $p < 0.001$). (5) ¹³ In our study, conjunctival pallor was taken as a harbinger-a rough clinical method for anemia suspicion and according to our results 44.87% of those with conjunctival pallor were found to have pica. Moreover, the significant positive association between the duration of consumption and conjunctival pallor is consistent with previous studies longer the duration of consumption more common is conjunctival pallor Pica has a direly strong relationship with micronutrient deficiency however the direction of the relationship is not very clear ¹. According to some previous studies pica leads to micronutrient deficiencies where the non food substances adhere to the gut lining thus inhabiting the adequate absorption of micronutrients ¹⁴. Yet some studies

state that micronutrient deficiency leads to the unbending craving for non food articles ^{14, 15, 16}. The low socioeconomic status is thought to have stronger association with pica; micro-nutrient deficiency being more common among poor strata^{17,18}. Thus deficiency of iron leading to enhanced craving for non-food items. However no such association was found in our study. Pica has been reportedly associated with organic brain diseases viz autism or long standing schizophrenia ¹⁹. However no such association was found in our study.

COCLUSION:

According to this study, a considerable number of our pediatric patient population is indulged in pica, the most common substance being consumed is earth and mud. The usual age of onset is 1-2 years and the duration prolonging over more than a month often found associated with the presence of conjunctival pallor viz anemia. The behavior of parents regarding the problem is worrisome, where a vast majority is not taken for any consultation with a doctor while an even larger majority suffered physical abuse by the mothers to get rid of this behavior. Hence clinicians should always consider pica in pediatric population and history of pica should always be dug out especially in children aged 1 – 2 years and more so there is a dire need of health education of mothers regarding this problem at community level.

LIMITATIONS OF THE STUDY:

Results cannot be generalized as the sample did not include all the pediatric population. Conjunctival pallor only gave a rough estimate of anemia. Complete blood count and iron studies must be done to confirm the diagnosis of anemia. Pica is also found to be associated with psychosocial stress (3). In this study no psychosocial stress scale was used to access stress.

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