

Original Research Article

Rising Trend in the Use of Pica by Pregnant Women in Urban Centres in South-South Nigeria

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Abstract: The rising trend in the use of pica among pregnant women in urban centres is a significant public health concern, especially in developing countries like Nigeria and is on the increase. Pica is the compulsive and persistent craving and consumption of non-food substances such as clay (geophagia), ice (pagophagia), chalk, ash, soil, or starch during pregnancy. It is widely reported across cultures and socio-economic groups. Despite urbanization, the practice remains high among pregnant women, and this has shown an interaction between socio-economic, nutrition and culture. However, Pica may have both indirect and direct effects on maternal and fetal health. Pica sits at the intersection of biology, behavior, and culture, and its effects can ripple through both maternal health and fetal development. This study aimed to Assess Rising Trend in the Use of Pica by Pregnant Women in Urban Centres in South-South Nigeria. This was a cross-sectional study involving 250 women. Participants' age is between 15 to 49 years and above. A well-structured questionnaire was administered to participants. The study lasted for a period of 3 months. Statistical analysis was done using SPSS version 25.0 and $p < 0.05$ was significant. The study revealed that 40% of the participants had tertiary, 28% had secondary, 24% had primary and 4% had no formal education, 80% are aware of pica, 80% used pica during pregnancy, 76% said pica is common, 80% derived joy from consuming pica, 68% agreed that culture influence, 76% said is due to stress, and 80% is due to loneliness. Pica usage among pregnant women is on the increase.

Keyword: Rising, Trend, Pica, Pregnant, Women, Urban Centres.

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INTRODUCTION

Pica is defined as the persistent craving and deliberate consumption of non-nutritive substances such as clay, ice, chalk, or starch during pregnancy. It is recognized as a behavioral and nutritional disorder that commonly affects pregnant women globally (Ezemenahi *et al.*, 2023). Historically, pica has been documented across cultures and is particularly prevalent in low- and

middle-income countries, where socio-cultural and nutritional factors intersect (Young *et al.*, 2016). The prevalence of pica among pregnant women varies widely across regions, reflecting differences in socio-economic status, cultural beliefs, and nutritional conditions. A global meta-analysis estimated an overall prevalence of 27.8%, with significantly higher rates reported in African populations (Young *et al.*, 2016). Similarly, in Ghana,

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pica prevalence among pregnant women reached 47%, with little difference between rural and urban populations (Addo & Nti, 2008). These findings suggest that pica is not only persistent but may be increasing or becoming more visible in urban settings, contradicting earlier assumptions that it is primarily a rural phenomenon. Urbanization was traditionally expected to reduce harmful traditional practices; however, recent studies indicate that pica persists and may even be rising in urban populations. Research conducted in urban antenatal clinics demonstrates high prevalence rates and frequent consumption patterns, with many women reporting daily intake of non-food substances (Adeyeye *et al.*, 2024). Earlier urban-based research in the United States also found that pica exists within urban populations, particularly in association with nutritional deficiencies such as low iron levels (Edwards *et al.*, 1994). Iron deficiency anemia is one of the most consistently reported predictors of pica. Studies show that pregnant women who engage in pica often have significantly lower iron stores compared to non-pica counterparts (Edwards *et al.*, 1994). The meta-analysis by Young *et al.*, (2016) also identified anemia as a major moderating factor influencing prevalence. Cultural beliefs remain a strong driver of pica practices, even in urban environments. In Nigeria, practices such as geophagia (clay consumption) are often socially normalized and transmitted across generations (Aminu *et al.*, 2020). Additionally, the presence of pica behavior among family members or peers significantly increases the likelihood of adoption during pregnancy (Sule & Madugu, 2001). Lower educational attainment has been associated with higher prevalence of pica (Young *et al.*, 2016). However, some studies report that pica occurs across all educational levels, indicating that knowledge alone may not eliminate the practice (Addo & Nti, 2008).

Despite these risks, awareness of the negative effects of pica remains low among pregnant women, particularly in urban antenatal populations (Adeyeye *et al.*, 2024). Psychological trauma can increase the likelihood of pica during pregnancy by influencing stress, behavior, and brain chemistry, but it usually works together with nutritional deficiencies and cultural factors, rather than acting alone. Urban living is associated with stress, anxiety, and lifestyle changes, which may contribute to abnormal cravings. Hormonal changes during pregnancy may further intensify these cravings, leading to pica behavior.

MATERIAL AND METHOD

This is a cross-sectional study involving 250 women who are within the age of 15 to 40 years and above and reside in the six (6) South-South States, in Nigeria. The study lasted for a period of 3 months. Consent was sorted from the participants before giving them the questionnaires. Questionnaires were given to the participants. Each participant had one questionnaire to fill appropriately and independently after instructions were given to them by the research Assistants. Data was obtained and analyzed using SPSS version 23 and P value < 0.05 was said to be significant.

RESULTS

The study revealed that 40% of the participants had tertiary, 28% had secondary, 24% had primary and 4% had no formal education, 80% are aware of pica, 80% used pica during pregnancy, 76% said pica is common, 80% derived joy from consuming pica, 68% agreed that culture influence, 76% said is due to stress, and 80% is due to loneliness. See tables below.

Table 1: Educational Level

Educational Level	Frequency	Percentage
No formal education	10	4.00
Primary education	60	24.00
Secondary education	70	28.00
Tertiary education	100	40.00
Total	250	100.00

Table 2: Participants who are aware of the use of pica during pregnancy

Educational Level	Frequency	Percentage
Participants who are aware of the use of pica during pregnancy	200	80.00
Participants who are not are not aware of the use of pica during pregnancy	50	20.00
Total	250	100.00

Table 3: Participants who use pica during pregnancy

Response	Frequency	Percentage
Participants who use pica during pregnancy	200	80.00
Participants who do not use pica during pregnancy	50	20.00
Total	250	100.00

Table 4: Participants who derived joy from consuming pica

Response	Frequency	Percentage
Participants who derived joy from consuming pica	200	80.00
Participants who do not derive joy from consuming pica	50	20.00
Total	250	100.00

Table 5: Participants whose consumption of pica is due to loneliness

Response	Frequency	Percentage
Participants whose consumption of pica is due to loneliness	200	80.00
Participants whose consumption of pica is not due to loneliness	50	20.00
Total	250	100.00

Table 6: Participants whose cultural beliefs influence the practice of pica during pregnancy

Variable	Frequency	Percentage
Participants whose cultural beliefs influence the practice of pica during pregnancy	170	68.00
Participants whose cultural beliefs influence the practice of pica during pregnancy	80	32.00
Total	250	100.00

DISCUSSION

The rising trend in the use of pica among pregnant women in urban centres is a significant public health concern, especially in developing countries like Nigeria and is on the increase. Pica is the compulsive and persistent craving and consumption of non-food substances such as clay (geophagia), ice (pagophagia), chalk, ash, soil, or starch during pregnancy. It is widely reported across cultures and socio-economic groups. Despite urbanization, the practice remains high among pregnant women, and this has shown an interaction between socio-economic, nutrition and culture. However, Pica may have both indirect and direct effects on maternal and fetal health. Pica sits at the intersection of biology, behavior, and culture, and its effects can ripple through both maternal health and fetal development.

The study shows that 40% of the participants had tertiary, 28% had secondary, 24% had primary and 4% had no formal education. Despite the high level of education among pregnant women, pica consumption still on the increase and this increase could be due to an underlying deficiency, socio-cultural and psychosocial factors experienced by the participants. However, 80% of the participants are aware of pica but do not know much knowledge about pica and because they are aware, majority (80%) of them now engage in pica consumption. Again, majority (80%) of the participants derived joy from consuming pica, and this is because pica may give a sense of pleasure or relief to some pregnant women. Also, pica often involves strong, specific cravings. When the craving is fulfilled, it can produce relief, temporary satisfaction and a sense of comfort and consuming the craved substance may activate dopamine (reward) pathways in the brain. This reinforcement can make the behavior feel good and encourage repetition. It was also, revealed that some women report that pica substances reduce nausea, ease stomach upset and decrease excessive salivation and this relief may be experienced as joy or comfort.

Again, the research revealed that certain socio-economic, cultural and psychosocial factors influence the participants to consumed pica during pregnancy. These factors revealed that 68% of the participants agreed that consumption is due to culture influence, 76% said it is due to stress, and 80% agreed that it is due to loneliness.

Psychological trauma can increase the likelihood of pica during pregnancy by influencing stress, behavior, and brain chemistry, but it usually works together with nutritional deficiencies and cultural factors, rather than acting alone. Also, Psychological trauma (past or current) can increase emotional distress—such as anxiety, depression, or tension. Some pregnant women may turn to pica as a self-soothing behavior, like how others might overeat or develop repetitive habits. Psychological trauma is associated with conditions like anxiety disorders, depression and obsessive-compulsive tendencies. Neurobiological effects of trauma revealed that trauma can alter brain systems involved in reward (dopamine pathways), stress regulation (cortisol levels) and these changes may increase unusual cravings and thus reinforce repetitive consumption of non-food items. In situations of stress or emotional strain, pica may act as self-soothing behavior, providing temporary emotional relief. However, Pica can feel rewarding or comforting in the moment due to craving relief and brain chemistry. However, this temporary pleasure doesn't outweigh the medical risks, especially when non-food substances are harmful.

CONCLUSION

The use of pica among pregnant women in urban centres is not declining with modernization. Instead, it remains widespread due to a mix of nutritional deficiencies, cultural beliefs, and social influences. Addressing this trend requires integrated healthcare, education, and community-based interventions.

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