

Food cravings, aversions and pica among pregnant women in Dar es Salaam, Tanzania

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Abstract: Food cravings, aversions and pica are common during pregnancy and may have a significant input on pregnancy progress and outcome. A study was carried out to determine the frequency and duration of pronounced dietary cravings, aversions and pica during pregnancy among 204 pregnant and lactating women attending two health facilities in Dar es Salaam City, Tanzania. Nausea and vomiting were reported by 82.8% of all women of which 43.2% experienced severe nausea alone, 9.5% severe vomiting alone and 35.5% experienced severe vomiting and nausea. Mild cases of each of the symptoms either occurring alone or both of them occurring together were also reported. Both behaviours were observed more in <3 months of pregnancy. The proportions of women with dietary cravings, aversions, and pica were 73.5%, 70.1% and 63.7% of all women respectively. More women (70.1%) experienced both food cravings and aversions than either symptom alone. Foods craved most were meat (23.3%), mangoes (22.7%), yoghurt (20.0%) oranges (20.0%), plantain (15.3%) and soft drinks (13.3%). Foods avoided most were rice (36.4%), meat (36.4%) and fish (30.8%). Eggs, beans, tea and stiff porridge were also avoided. Reasons given for avoiding foods were unpleasant smell/taste (10.3%), to reduce nausea (11.8%), no particular reason (58.3%) and dislike by foetus (belief) (3.9%). Pica was experienced by 63.7% of the women and soil, ice and ash were the most commonly non-food substances eaten. The frequency of nausea and vomiting was highest in the early months of pregnancy and most women experienced the symptoms during morning hours. Craving in most women was more intense in the first trimesters. Most women craved for meat and sour and savoury foods, and avoided rice, meat and fish. Soil consumption was the pica observed in most women. Since aversions and cravings are closely linked to dietary intake of pregnant woman understanding these behaviours is important in addressing maternal nutrition.

Key words: food, craving, aversion, pica, pregnancy, women, Tanzania

Introduction

Pregnancy is often accompanied by a variety of nutritionally linked problems with symptoms that are sometimes very unpleasant and difficult to tolerate (Doerr, 2001). Cravings and aversions, which refer to a strong desire and strong dislike respectively for certain food, are common during pregnancy such as nausea and vomiting (Walker *et al.*, 1985; Caplan, 2001). These complications may cause not only discomfort during pregnancy but also interfere with the dietary intake of the pregnant woman and sometimes causing serious problems (Caplan, 2001). One of the most prevalent examples of the absence of comfort during pregnancy is the occurrence of morning sickness; which occurs often in women in their early stages of pregnancy. Morning sickness is commonly linked with the food aversions, cravings, nausea, and vomiting that are often associated with pregnancy. Up to two-thirds of all pregnant women may suffer from any combination of these symptoms (Walker *et al.*, 1985.)

Some theories of the reasons for morning sickness have been developed, yet no specific cause has been identified (Caplan, 2001). There is similar dearth of information on

the consumption of non-nutritive substances (pica) during pregnancy (Coronios-vargas *et al.*, 1991). Human pica refers to the compulsion for persistent ingestion of unsuitable substances (e.g. soil, clay, chalk, ice, etc.) having little or no nutritional value (Darkish *et al.*, 1982). Such non-food substances include soil, clay, ice, burnt matches, soot, charcoal, cigarette ashes, and baking soda (Walker *et al.*, 1985). The etiology of pica is poorly understood although several proposals have been made. One theory suggests that the ingestion of non-food substances relieves nausea and vomiting. Another theory suggests that the deficiency of essential nutrient such as calcium or iron results in the eating of non-food substances that contain these nutrients (Tierson, 1997). Displacement effect of non-food substances could result in reduced intake of nutritious foods leading to inadequate dietary intakes of essential nutrients. Some pica substances may contain toxic compounds or quantities of nutrients not tolerated in disease states, while some pica substances interfere with the absorption of certain mineral elements such as iron (Crosby, 1982).

There is lack of information on patterns, duration, frequency and causes of cravings and aversions, pica, nausea and vomiting in

pregnant women in Tanzania. This study was therefore carried out to generate information on abnormal food habits during pregnancy in Tanzania by using Dar es Salaam City as a case study. The objective of this study was to assess the frequency of pronounced dietary cravings and aversions and to identify most common foods that pregnant women crave or dislike during pregnancy. Such information would assist nutrition/health workers to help pregnant women make a better choice of food during pregnancy.

Materials and Methods

Study area and subjects

The study was conducted in Dar es Salaam City in Tanzania. The study enrolled all apparently healthy pregnant women and lactating mothers (who had children ≤ 4 months) attending Reproductive and Child Health clinics between June 2005 and February 2006. Two RCH clinics at Mwananyamala Hospital and Magomeni Health Centre were selected for the study.

Data collection

Questionnaires were designed to gather information on women's experiences on dietary modifications (aversion and craving during pregnancy), vomiting and nausea. On food craving and aversion, subjects were asked to write (in order of preference) foods, which were craved for and/or avoided. They were also asked if they did feel urge to eat any substance not normally eaten including, ash, sand, chalk, starch. With regard to nausea and vomiting subjects were asked if during their last pregnancy they felt mild or severe nauseous during the first 3 months, or throughout pregnancy. Mild nausea or vomiting implies that such occurred either only mildly or only occasionally, and was not particularly distressing; severe nausea or vomiting implies that it occurred severely almost every day and occasionally throughout

the day. Women who had more than one child were asked about their previous experiences of nausea and vomiting.

Data analysis

Data were processed and analyzed using Statistical Package for Social Scientist (SPSS) software version 9.0 for windows (Norusis and SPSS, 1995). Descriptive statistics were used to get the percentages and frequencies of variables used in this study.

Results

Subjects' characteristics

A total of 204 women participated in the study, of which 121 (59.3%) were ≤ 25 years of age, 30% were between 26-30 years of age and only 19% were over 30 years of age. Of the subjects, 156 (76.5%) were lactating while the rest were pregnant. Ages of pregnancies ranged from first to third trimesters and the number of pregnancy experiences ranged from one to four.

Cravings and aversions

The proportion of women who reported pronounced cravings and aversions was 75.5%. Out of these, 70.1% experienced both cravings and aversions of certain foods, 3.4% experienced cravings alone and 2.0% aversions alone. Most (72.1%) women experienced food cravings and aversions rather than craving alone (3.4%) or aversion (2.0%) alone. Food cravings were reported in 73.5%; out of these, 34.3% craved one food while 39.2% craved more than one food. Intensity of cravings was reported to be highest (43.6%) in the first trimester than in the second (21.6%) and third trimesters (5.4%). Only a small proportion (2.9%) of women reported to maintain their cravings throughout pregnancy period although with less intensity. Food aversion was reported in 70.1%; out of these 30.9% disliked one food while 39.2% disliked more than one food.

Table 1: Proportion of pregnant women with craving for specific foods or food categories

Group of food	Food	No. of respondents	Percent
<i>Specific food</i>	Meat	35	14.0
	Mangoes	34	13.6
	Yoghurt	30	12.0
	Oranges	30	12.0
	Plantain	23	9.2
	Soft drinks	20	8.0
	Amaranths	17	6.8
	Sweet potato leaves	15	6.0
	Lady's finger	11	4.4
	Fried potatoes	11	4.4
	Sweets	9	3.6
	Eggs	5	2.0
	Cowpeas	4	1.6
	Stiff porridge	4	1.6
	Milk	2	0.8
<i>Food categories</i>	Fruits	87	34.8
	Vegetables	58	23.2
	Meat and fish	35	14.0
	Dairy	32	12.8
	Soft drinks	20	8.0
	Sweets	9	3.6
	Meat alternatives	5	2.0
	Grain products	4	1.6

The most widely craved foods were meat, mangoes, yoghurt, oranges, plantain and soft drinks (Table 1). When craved foods were aggregated, fruits were craved by the largest proportion of women (34.8%) followed by vegetables (23.2%).

The most commonly avoided foods were rice, meat and fish, which were avoided by 36.4%, 36.4% and 30.8% of the women, respectively. When the foods were divided into categories, meat and fish were disliked by the largest proportion of women (67.0%) followed by grains and grain products (47.7%). Other categories were avoided by a smaller proportion of women (Table 2).

The majority of the women (58.3%) did not have reasons for their food aversions. However, 10.3% of the women insisted that aversions were caused by changes in the taste and/or smell of the food during pregnancy, 11.8% believed that aversions of certain foods help to overcome the symptoms of nausea and vomiting. Some women (58.3% had no particular reason for avoiding foods while a few (3.9%) believed that aversions were caused by "a dislike" of the food by the foetus.

Pica

A total of 12 women reported to have experience pica during pregnancy. Pica was reported by

Table 2: The number (%) of respondents and aversion for specific foods or food categories

Group of food	Food	No. respondent	Percent
<i>Specific food</i>	Rice	52	36.4
	Meat	52	36.4
	Fish	44	30.8
	Eggs	15	10.5
	Beans	14	9.8
	Tea	13	9.1
	Stiff porridge	12	8.4
	Sweet potato leaves	7	4.9
<i>Food categories</i>	Meat and fish	96	67.0
	Grain/grain products	64	47.7
	Meat alternatives	15	10.4
	Legumes	14	9.8
	Vegetables	13	9.1
	Beverages	13	9.1
	Dairy	5	3.5

63.7% of the women. The consumption of soil commonly called *Udongo wa Pemba* (soil from Pemba Islands) was reported among 60.0% of affected women followed by consumption of ice (16.1%), ash (15.4%) and other substances such as charcoal, clay, bar soaps and dust (< 3%).

Nausea and vomiting

A total of 169 (82.8%) women had experienced nausea and vomiting for different durations during their pregnancy. Out of the women affected 43.2% experienced severe nausea alone, 9.5% had severe vomiting without nausea and 35.5% experienced severe nausea and vomiting. Mild cases of each of the symptoms either occurring alone or occurring together were also reported (Table 3). Among the affected women, 59.3% stated that the symptoms were most frequent between 12th and 16th week of pregnancy.

Table 3: Number and percent of respondents who experienced nausea and vomiting during pregnancy

Type of experience	Duration of experience (months)	No. respondents	%
Severe nausea	0-3	63	37.3
	0-9	10	5.9
Mild nausea	0-3	10	5.9
	0-9	2	1.2
Severe vomiting without nausea	0-3	13	7.7
	0-9	3	1.8
Mild vomiting without nausea	0-3	3	1.8
	0-9	1	0.6
Severe vomiting and nausea	0-3	45	26.6
	0-9	15	8.9
Mild vomiting and nausea	0-3	4	1.1
	0-9	0	0

Twenty-eight percent of the women reported that there was no difference in terms of frequency and severity of nausea and vomiting between pregnancies. However, 12.3% insisted that the first pregnancy was associated with greater severity of sickness and 6.4% reported to have experienced greater severity of the symptoms during the second or later pregnancy. Of the women affected, 40.2% reported to experience nausea/vomiting most often in the morning, 16.7% in the afternoon, 8.8% throughout the day, 5.4% at night and 1.5% during the evening hours. Of the women who experienced the nausea during the afternoon, it was most often after a meal. However, this also depended on the kind of food taken. Women avoided certain foods just to overcome the occurrence of nausea/vomiting and craved for certain foods that seemed not to trigger their stomach upsets.

Discussion

The relatively high prevalence of cravings observed in the present study was similar to that reported by other researchers, which ranged from 67 to 84% (Crosby, 1982; Walker *et al.*, 1985; Demissie *et al.*, 1995). Women who experience food aversions also crave for at least one or more foods not only to compensate but also to diversify their diets and to consume higher-quality foods. Milk and milk products are an important part of the diet because of the excellent balance of nutrients, and particularly because of the calcium and riboflavin content. In addition, they provide some of practically all other essential nutrients in well-balanced amounts and in easily assimilated forms. The avoidance of such foods would therefore reduce the quality of foods eaten by pregnant women.

This would therefore necessitate eating of other high protein quality foods to meet their nutrient requirements. In study, this was compensated for by high cravings for meat and fish, other foods with high protein quality. The avoidance of cereals observed in this study supports the observation that pregnant women tend to avoid foods commonly eaten to avoid monotony and to diversify the foods they consume (Demissie *et al.* 1995).

The reasons for the changes in eating habit were not clear. Some of the reasons given included the beliefs that cravings or aversions is caused by "a dislike" of food by the foetus, unpleasant smell, vomiting and heart burn. In this study, women also reported drastic changes in their response to smell and taste foods to be associated with food cravings and

aversions. These changes, however, are likely to be associated with hormonal hyperactivity during the first trimester. It has been observed that there is an increase in saliva, which causes pregnant woman's mouth to water more than usual (Demissie *et al.*, 1995). The saliva that reflects the hormonal changes occurring in the body may also produce a slight metallic taste in the mouth (Coronios-vargas *et al.*, 1991). According to some observations, cravings and aversions are likely to be due to a dulling of taste sense during pregnancy (Hyttén & Letch, 1971).

The proportion of pica consumption is high among women in Dar es Salaam. The eating of soil (geophagia) was reported by most women and others even insisted that soil consumption during pregnancy is normal and essential thing. In case of soil consumption, while the practice may contribute significant amounts of calcium and trace elements, under certain conditions it may exacerbate existing iron deficiency anaemia (Tierson, 1997). The extent to which iron deficiency causes geophagia or geophagia promotes iron deficiency is not clear but some evidences from South Africa strongly favour the former view (Coltman, 1969; Crosby, 1982). In contrary, Sayers *et al.* (1974) reported that 'the eating of local earth does not have a deleterious effect on iron nutrition in the vast majority of cases. Some women in this study commented that eating of soil/clay is a custom stemming from deeply imbedded cultural traditions and attitudes.

Nausea and vomiting were common among pregnant women in Dar es Salaam. The frequency of nausea and vomiting is highest in the early months of pregnancy and most women experience the symptoms during morning hours. Craving in most women was more intense in the first trimesters. Most women craved for meat and sour and savoury foods, and would avoid rice, meat and fish. Soil consumption was the most common pica observed in most women and its consumption was considered a common culture among pregnant women. Similar observations have been by other researchers in Africa (Walker *et al.*, 1985). However, the severity of sickness differs from one pregnancy to another (Soules *et al.*, 1980). A woman could be very sick in one pregnancy and yet much less affected or even not affected at all in a previous or in a subsequent pregnancy. In this study only a few women reported to experience the severity of symptoms with the

second or later pregnancy. Most women in this study experienced nausea/vomiting during the morning hours, a phenomenon referred to as "morning sickness". Unlike in our study, Caplan (2001) noted nausea and vomiting among pregnant women is experienced not only during the morning hours but also during all hours of the day equally. Maternal dietary cravings and aversions during pregnancy tend to be closely related to vomiting and nausea (Tierson, 2003).

In conclusion, since aversions and cravings are closely linked to dietary intake of pregnant woman understanding these behaviours is important in addressing the issue of maternal nutrition in a pregnant woman. Unhealthy cravings for non-food items should be discouraged as there is no known nutritional benefit of such habit and can lead to intestinal problems like abdominal pain and infection or any other health concerns. Excessive vomiting may lead to an inadequate intake of protein and energy and the loss of essential vitamins, minerals and electrolytes; it is important that a pregnant woman eats well when she is not feeling nauseous. Given the importance of nutritional value and composition of foods consumed during pregnancy health workers/nutritionists may use these findings to provide appropriate nutrition counselling and education to guide women make a wise choice of foods in order to improve their health and nutritional status during pregnancy.

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