

## Research Article

# Food Taboos among Pregnant Women in Health Centers, Khartoum State- Sudan, 2016

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## Abstract

**Background:** Food taboos are known in different human societies in respect to harmful, beneficial and optimal food requirements, which is necessary for pregnant women to get successful reproductive outcome. These beliefs may or may not conform to the modern biomedical notion for the standard types and amount of foods needed for pregnant women to safeguard maternal nutrition, adequate for the fetus and safe delivery. This is a descriptive cross-sectional health centers based study. The aim was to study food taboos among pregnant women attending antenatal clinic in health centers in Khartoum State.

**Methods:** The study population covered pregnant women of (n = 331) attending the selected health centers over a period of two months (March – April-2016). Data were collected using questionnaire and analyzed using SPSS version 16. The associations between different variables were checked using Chi-Square, and P. value < 0.05 was considered significant.

**Results:** The study revealed that 43.8% of the pregnant women refused to eat some types of food during pregnancy, 65.5% avoided eating red meat, 29% avoided eating eggs, 23.4% avoided eating white meat and 36.5% avoided drinking milk. 64.1% of the pregnant women refrained to eat some types of food during pregnancy for personal reasons as 46.2% due to morning sickness, 17.2% for nausea, 3.2% for allergy and 3.2% for vomiting. 35.9% of the pregnant women refrained from eating some types of food for community reasons. 67.3% avoided eating certain foods during pregnancy because they cause difficulties during labor, 15.4% believe that it may cause disease to the pregnant women. 41.1% of the pregnant women have heard that availability of certain foods is preferred not to be eaten during pregnancy as a social norm. 36% of the pregnant women preferred to take specific types of foods during pregnancy as 51.3% preferred to take milk and 42% preferred eating fruits. The study showed a statistical association between refraining from eating certain foods during pregnancy among pregnant women and the residential area (P=0.000), also the study showed a statistical association between refraining from eating certain foods during pregnancy among pregnant women and their educational level (P=0.000). Conclusion: The study concluded that a large group of the pregnant women refrained to eat certain foods during pregnancy due to food taboos, personal and community reasons. The study recommends nutritional education to correct wrong beliefs among pregnant women.

## Introduction

Taboo definition a descriptive term for words, objects, actions, or people that are forbidden by a group or culture. The expression comes from the religion of islanders of the South Pacific [1].

Also taboos are technically defined as a practice “proscribed by society as improper or unacceptable.” But what makes something taboo isn’t as concrete. Whether social, religious or cultural, culinary customs are commonly associated with a multitude of nationally accepted, food taboos can be defined as rules, codified or otherwise, about which foods, or combinations of foods, may not be eaten and how animals are to be slaughtered. The origins of these prohibitions and commandments are varied [2]. Food taboos and harmful dietary: Practices undermining mother and child health are known in all cultures and societies. These dietary rules are associated with special periods in a woman’s life such as the menstrual period, pregnancy,

childbirth and lactation. Although these dietary customs and taboos have been practiced since ancestral time, there is no single justification or theory that may explain why people embrace special food taboos, Pointed out that two existing principal explanations to taboos, namely functional and symbolic, cannot explain all aspects of taboos. Functionalist explanations generally underline the health promoting aspects or environmental benefits of taboos, whereas symbolic explanations implement magical thinking [3].

Taboos, forbidden deeds, are prohibitions present in every culture. These prohibitions often regulate our dietary habits. Foods that one culture perceives as consumable might be considered unclean by another. Each religion poses its own views on certain foods that are deemed taboo. For Hindus, the consumption of a sacred cow is looked down upon, for Muslims the same rules apply when met with the eating of pork by others. Similarly other religions

**Table 1:** The socio demographic characteristic of pregnant women, Health Center, Khartoum State, 2016 (n=331).

Characteristics	No	%
<b>Age group/ years</b>		
<18	6	1.8
18-31	227	68.6
32 -45	93	28.1
>45	5	1.5
<b>Region</b>		
North Sudan	127	38.4
Central Sudan	130	39.3
Eastern Sudan	26	7.9
Western Sudan	44	13.3
Southern Sudan	4	1.2
<b>Religion</b>		
Muslim	326	98.5
Non Muslim	5	1.5
<b>Educational</b>		
Illiterate	18	5.4
Khalwa	3	0.9
Primary/ Basic level	66	19.9
Intermediate level	1	0.3
Secondary level	107	32.3
University and above	136	41.1
<b>Occupation</b>		
Working	97	29.3
Not working	234	70.7
<b>Family Income/SDG</b>		
<450	16	4.8
450-2000	189	57.1
>2000	126	38.1
<b>Area</b>		
Rural	120	36.3
Urban	211	63.7
<b>Total</b>	<b>331</b>	<b>100</b>

Table 1 shows the socio-demographic characteristic among pregnant women who participated in the study.

**Table 2:** Months of pregnancy during the monthly visits to the Health Centers, Khartoum State, 2016 (n=331).

Months	No	%
1-3	35	10.6
4-6	217	65.6
7-9	79	23.8
<b>Total</b>	<b>331</b>	<b>100.0</b>

Table 2 shows that (65.6%) of the pregnant women months of pregnancy ranged between 4-6 months during the visit.

portray different eating habits by excluding certain items from their diet. Each religion defines the exclusion of a food item for a variety

**Table 3:** Regular follow up among pregnant women attending the Health Centers - Khartoum State 2016 (n=331).

Regular follow up	No	%
Yes	262	79.2
No	69	20.8
<b>Total</b>	<b>331</b>	<b>100.0</b>

Table 3 revealed that (79.2%) of the pregnant women were on regular follow up in the health centers.

**Table 4:** Number of the visits to Health Centers among pregnant women - Health Center, Khartoum State, 2016 (n=331).

Number	No	%
First	45	13.6
Second	41	12.4
Third	33	10.0
Fourth	62	18.7
Fifth	64	19.3
Sixth	51	15.4
Seventh	18	5.4
Eighth	7	2.1
Ninth	10	3.3
<b>Total</b>	<b>331</b>	<b>100.0</b>

It is obvious from table 4 that (19.3%) of the pregnant women visited the Health Centers for the fifth times, and (13.6%) of them visited the health centers for the first time.

**Table 5:** Exposure to nutritional counseling during the visits among pregnant women - Health Center, Khartoum State, 2016 (n=331).

Exposed	No	%
Yes	131	39.6
No	200	60.4
<b>Total</b>	<b>331</b>	<b>100.0</b>

Table 5 shows that (39.6%) of the pregnant women were exposed to nutritional counseling during their visits to the health centers.

**Table 6:** Refusing to eat certain foods during pregnancy among pregnant women- Health Center, Khartoum State, 2016 (n=331).

Refusing	No	%
Yes	145	43.8
No	186	56.2
<b>Total</b>	<b>331</b>	<b>100.0</b>

Table 6 displays that (43.8%) of pregnant women refused to eat certain foods during pregnancy and (56.2%) of them did not refuse.

of reasons pertaining to their beliefs and thus one is presented with food taboos in relation to ones' religion daily [4]. Food taboos are as universal as food. It stands to reason then that they have helped us through the years in our efforts to avoid killing ourselves. As it turns out, some of the most fascinating food taboos dovetail with another basic human desire–reproduction [5]. All around the world, there are all kinds of rules about what pregnant woman can and cannot eat. (As if it weren't hard enough being pregnant without everyone offering their well-intended advice). "Declaring certain foods taboo because they are thought to make a person sick is also the basis for the many food taboos affecting pregnant women," according to ethno biologist Victor Benno Meyer-Rochow of Finland, who studies folk wisdom [6].

**Table 7:** Types of foods refused to be eaten by pregnant women - Health Center, Khartoum State, 2016 (n=331).

Types of foods	No	%
<b>Red meat</b>		
Yes	95	65.5
No	50	34.5
<b>White meat</b>		
Yes	34	23.4
No	111	76.6
<b>Eggs</b>		
Yes	42	29.0
No	103	71.0
<b>Vegetables</b>		
Yes	8	5.5
No	137	94.5
<b>Fruits</b>		
Yes	10	7.0
No	135	93.0
<b>Milk and dairy products</b>		
Yes	53	36.5
No	92	63.5
<b>Starch</b>		
Yes	5	3.4
No	140	96.6
<b>Spices</b>		
Yes	25	17.2
No	120	82.8
<b>Sweets</b>		
Yes	8	5.5
No	137	94.5

As it can be seen from table 7, there were varieties of foods refused to be eaten during pregnancy among pregnant women.

**Table 8:** Types of red meat refused to be eaten by pregnant women during pregnancy - Health Center, Khartoum State, 2016 (n=95).

Type	No	%
Cattle	7	7.4
Sheep	7	7.4
Camel	60	63.2
All the above	21	22.0
Total	95	100.0

As table 8 shows, (63.2%) of the pregnant women who refused to eat red meat refused to eat camel meat during pregnancy.

Maternal nutrition in pregnancy is an important reproductive health issue. It affects the growing baby indirectly *via* maternal-fetal transfer, and directly post-partum, *via* lactation. Calories, proteins, vitamins and other important food elements needed by the developing fetus and the growing child are thus provided by the mother. Maternal nutrition is also a modifiable factor by which pregnancy and birth outcome indices can be improved [7]. Adequate intake of certain

food elements during pregnancy improves birth weight and labor spontaneity. Children who experienced iodine deficiency during fetal developmental stage and early childhood suffer cognitive impairment [8].

## Materials and Methods

### Study design

This study is a descriptive cross-sectional hospital based study.

### Study area

**Location:** Khartoum is the capital of Sudan; it is the political and commercial center of Sudan. It lies between latitudes 15° to 16° degrees North and longitudes 31° to 34° degrees east. It is about 28000 km<sup>2</sup> and it has boarder line with 6 States (River Nile, Northern, Kassala, Gedaref, Algezira, and White Nile) Khartoum State is divided into 7 localities (Khartoum, Omdurman, JablAwlia, ShargElneil, Bahry, Ombada and Karary) [9].

**Building:** Buildings were built from stable materials, such as cement, bricks and local materials, as mud, wood, green bricks ....etc [10].

**Climate:** Khartoum climatic feature is a hot arid climate, with only the month of July and August seeing significant precipitation, temperatures during the year ranged between (15 – 45), the average annual relative humidity is 28.8% and the annual rainfall is 162.2 mm (6.4 in) [11].

**Health services:** Health services are available in private and governmental forms. In the area there are 27 governmental hospitals, 102 private hospitals, 229 governmental health centers, 33 private health centers, and 149 dispensaries [12].

**Educational services:** There are educational services including; basic, higher secondary schools and universities, in Khartoum State there are 1651 governmental basic school; 915 private basic school, 398 governmental secondary school and 552 private secondary schools, 7 governmental universities and 33 private universities [13].

**Water supply:** The main water sources in Khartoum State are River Nile; ground water through; dug wells and borehole wells. Water is supplied to the houses by Khartoum State Water Cooperation [14].

**Solid Wastes management:** Solid wastes management depends on House to House Collection System, and then finally disposed using sanitary land filling.

**Liquid Waste management:** There are different ways used for disposal of liquid waste as sewerage system, septic tank, Ventilated Improved Pit latrine (VIP), and conventional pit latrines [15].

### Study population

Pregnant women who attend to Health Centers in Khartoum State

### Sampling techniques

Using lottery methods, two governmental health centers were selected randomly to obtain:

Rural Health Center (Alkhoglap Health Center).

Urban Health Center (Samir Health Center).

**Table 9:** Types of white meat refused to be eaten by pregnant women during pregnancy - Health Center, Khartoum State, 2016 (n=34).

Type	No	%
Fish	14	41.2
Chicken	16	47.0
Both	4	11.8
Total	34	100.0

Table 9 shows that (47%) of the pregnant women who refused to eat white meat refused to eat chicken meat during pregnancy and (41.2%) of them refused to eat fish meat during pregnancy.

**Table 10:** Types of vegetables refused to be eaten by pregnant women during pregnancy period - Health Center, Khartoum State, 2016 (n=8).

Type	No	%
Green vegetables	2	25
Non green vegetables	2	25
Both	4	50
Total	8	100

Table 10 revealed that (50%) of the pregnant women refused to eat green vegetables and non-green vegetables during pregnancy.

**Table 11:** Types of fruits refused to be eaten among pregnant women who refused to eat fruits during pregnancy - Health Center, Khartoum State, 2016 (n=10).

Type	No	%
Acidic fruits	10	100
Non-acidic fruits	0	0
Total	10	100

It is obvious from table 11 that all the pregnant women who refused to eat fruits (100%) refused to eat acidic fruits during pregnancy.

**Table 12:** Types of milk products refused to be eaten during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=53).

Type	No	%
Milk	22	41.5
Yogurt	1	1.9
Cream	4	7.5
Cheese	1	1.9
Two types of the mention	17	32.0
All above	8	15.1
Total	53	100.0

Table 12 shows that (41.5%) of the pregnant women who refused to drink milk or eat milk products refused to drink milk during pregnancy.

### Sample size

The study covered all pregnant women attended to the selected health centers over a period of two months; March & April, to obtain 331 pregnant women.

**Methods of data collection:** Data was collected using a prepared and pretested questionnaire to collect data regarding types of food taboos, factors affecting food taboos.... etc.

**Data analysis:** Data analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 16, and the association between different variables was checked using X test at significant level of 0.05%.

**Table 13:** Types of starchy foods refused to be eaten during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=5).

Type	No	%
Potato	1	20
Others	4	80
Total	5	100

Table 13 shows that (20%) of the pregnant women who refused to eat starchy refused to eat potatoes and 80% other starchy foods during pregnancy.

**Table 14:** Types of spices refused to be eaten among pregnant women who refused to eat spices - Health Center, Khartoum State, 2016 (n=25).

Type	No	%
Chili	13	52
Pepper	4	16
Cinnamon	1	4
Fennel	1	4
Others	6	24
Total	25	100

It can be seen from table 14 that (52%) of the pregnant women who refused to eat spices refused to eat chili during pregnancy.

**Table 15:** Duration of pregnancy in which pregnant women refused to eat certain foods during pregnancy- Health Center, Khartoum State, 2016 (n=145).

Duration	No	%
Through out	82	56.6
specific period	63	43.4
Total	145	100.0

Table 15 shows that (56.6%) of the pregnant women refused to eat certain foods throughout pregnancy period, but 43.4 % of pregnant women refused to eat certain foods in a specific period of pregnancy.

**Table 16:** The specific period of pregnancy in which certain foods are not eaten during pregnancy - Health Center, Khartoum State, 2016 (n=63).

Period/month	No	%
The first period 1-3	63	100
The second period 4-6	0	0
The third period 7-9	0	0
Total	63	100

It is obvious from table 16 that all pregnant women refusal to eat specific types of food was in the first period of pregnancy 1-3 months.

## Results

This descriptive cross – sectional hospital based study was conducted in Health Centers in Khartoum State with an objective to study food taboos among pregnant women, Khartoum State. The study showed the following finding as explained in the tables below.

## Discussion

This descriptive cross-sectional hospital based study was conducted in Health Centers- Khartoum State with an objective to study food taboos among pregnant women, and it revealed the following findings as explained in the discussion below.

The study showed that a large group of pregnant women (43.8%) refrained to eating some foods during pregnancy. This may deprive pregnant women from essential nutrients. This result is similar to

**Table 17:** Types of reasons behind refusing to eat certain types of food during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=145).

Types	No	%
Personal reasons	93	64.1
Community reasons	52	35.9
Total	145	100.0

Table 17 shows that (64.1%) of the pregnant women refused to eat certain foods during pregnancy for personal reasons and (35.9%) of them for community reasons.

**Table 18:** Personal reasons behind refusing to eat certain types of food during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=93).

Reasons	No	%
Allergy	3	3.2
Craving	43	46.2
Vomiting	3	3.2
Nausea	16	17.2
More than one of the mentioned	26	27.9
Others	2	2.3
Total	93	100.0

Table 18 shows that (46.2%) of the pregnant women's personal reasons for not eating certain types of foods during pregnancy were due to craving.

**Table 19:** Sources of origin for refusing to eat certain types of food due to social reason by pregnant women - Health Center, Khartoum State, 2016 (n=52).

Source	No	%
Mothers	26	50.0
Grandmothers	11	21.2
Another pregnant woman	11	21.2
Doctor or nutrition counselor	4	7.7
Total	52	100.0

It can be seen from table 19 that (50%) of the pregnant women source of refusing to eat certain types of food were mothers.

**Table 20:** Community reasons that render refusing to eat certain types of food during pregnancy - Health Center, Khartoum State, 2016 (n=52).

Reasons	No	%
Cause a difficult birth	35	67.3
Cause mother disease	8	15.4
Cause deformation of the Child	4	7.7
Abortion	3	5.8
Others	2	3.8
Total	52	100.0

Table 20 showed that (67.3%) of the pregnant women that rendered them for community reasons not to eat certain foods during pregnancy because it causes a difficult birth.

what was found by [16] in Tanzania who revealed that (69%) of the pregnant women refrained from eating some kinds of food during pregnancy. The study also showed the types of food desisted from by pregnant women as: The majority of the pregnant women (65.5%) avoided eating red meat, while (29%) of them avoided eating eggs, (23.4%) avoided eating white meat and (41.5%) avoided drinking milk. The mentioned food types are so essential for pregnant women

**Table 21:** Hearing about certain foods not preferred to be eaten during pregnancy as a social norm - Health Center, Khartoum State, 2016 (n=331).

Hearing	No	%
Yes	136	41.1
No	195	58.9
Total	331	100.0

Table 21 shows that (41.1%) of the pregnant women heard about the existence of certain foods not preferred to be eaten during pregnancy as a social norm.

**Table 22:** Types of food not preferred to be eaten by pregnant women as a social norm - Health Center, Khartoum State, 2016 (n=136).

Types	No	%
Red meat	50	36.8
White meat	2	1.5
Eggs	8	5.9
Milk and dairy products	2	1.5
Spices	7	5.1
Two types and more	67	49.3
Total	136	100.0

Table 22 shows that (36.8%) of the pregnant women refused to eat red meat during pregnancy due to social norm.

**Table 23:** Reasons of not preferring to eat certain food during pregnancy according to social norms among pregnant women - Health Center, Khartoum State, 2016 (n=136).

Reasons	No	%
Caused a difficult birth	47	34.6
Cause mother disease	10	7.4
Child deformation	5	3.7
Cause abortion	3	2.2
Cause of premature birth	4	2.9
More than one reason	67	49.2
Total	136	100.0

Table 23 shows that (34.6%) of the pregnant women refused to eat certain foods during pregnancy because of social norms that based on the perception that it causes a difficult birth.

**Table 24:** Preferring certain types of foods during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=331).

Preferring	No	%
Yes	119	36
No	212	64
Total	331	100

A number of the pregnant women (36%) preferred to eat certain types of food during pregnancy as seen in Table 24.

who will be deprived from the benefits found in these types. These results accord with those of a study carried by [17] in Indonesia. They concluded that (44.6%) of the pregnant women avoided eating red and white meat while (15.2%) avoided to eat eggs, and (25.9%) avoided drinking milk. The study also showed the majority (64.1%) of pregnant women refused to eat certain foods during pregnancy for personal reasons. This result is similar to what [18] in Tanzania revealed. They found that, (75.8%) of the pregnant women refused to eat certain foods during pregnancy for personal reasons. A large group of pregnant women refused to eat certain foods during pregnancy



**Table 25:** Types of food preferred to be eaten during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=119).

Types of food	No	%
<b>Red meat</b>		
Yes	14	11.8
No	105	88.2
<b>White meat</b>		
Yes	9	7.6
No	110	92.4
<b>Eggs</b>		
Yes	17	14.3
No	102	85.7
<b>Vegetables</b>		
Yes	26	21.8
No	93	78.2
<b>Fruits</b>		
Yes	50	42.0
No	69	58.0
<b>Milk</b>		
Yes	61	51.3
No	58	48.7
<b>Sweets</b>		
Yes	0	0.0
No	119	100.0
<b>Spices</b>		
Yes	0	0.0
No	119	100.0
<b>Starches</b>		
Yes	13	10.9
No	106	89.1

It is obvious from table 25 that various types of food were preferred to be eaten during pregnancy by pregnant women.

**Table 26:** Reasons for preferring to eat certain foods during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=119).

Reasons	No	%
Preventing diseases	26	21.8
Promoting child growth	17	14.3
Strengthening mother's immune system	30	25.2
More than one reason	36	30.2
Others	10	8.4
Total	119	100.0

Table 26 shows that (25.2%) of the pregnant women preferred to eat certain foods during pregnancy, because they strengthen the mothers' immune system and (21.8%) of them preferred other types because they protect them from the diseases.

for personal reasons such as (46.2%) from whom because craving, (17.2%) from whom because nausea, this result is similar to what [19] in Tanzania revealed. They found that, (32.2%) from whom because craving and (20%) from whom because nausea. A considerable group

**Table 27:** The relationship between areas of residence and refusing to eat certain foods during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=331).

Area	Refusing				Total	
	Yes		No		No	%
	No	%	No	%		
Rural	82	57	38	20	120	36.3
Urban	63	43	148	80	211	63.7
Total	145	100	186	100	331	100.0

$X^2 = 46.002$ ,  $DF = 1$ ,  $P$  value = 0.000, Highly significant

Table 27 above displays a significant relationship between residential area and refusing to eat certain foods during pregnancy  $P$  value = 0.000.

**Table 28:** The relationship between educational level and refusing to eat certain foods during pregnancy among pregnant women - Health Center, Khartoum State, 2016 (n=331).

Education level	Refusing				Total	
	Yes		No		No	%
	No	%	No	%		
Below secondary	90	62	33	18	88	26.6
Secondary and above	55	38	153	82	243	73.4
Total	145	100	186	100	331	100.0

$X^2 = 17.016$ ,  $DF = 1$   $P$  value = 0.000 Highly significant

Table 28 above shows a significant relationship between educational level for pregnant women and refusing to eat certain food during pregnancy  $P$ . value = 0.000.

of pregnant women (35.9%) stated that the reason for not eating certain types of food during pregnancy was due to social norms which prohibit the consumption of such types of food during pregnancy and these are related to social taboos in the community. This result is in line with a study carried by [20] who concluded that (41.1%) of the pregnant women related the reason for food refraining to the reason that they were socially prohibited. Also due to community reasons, the majority of the pregnant women (67.3%) avoided eating red meat such as camel meat during pregnancy because it causes difficulties during delivery and (15.4%) of them avoided eating eggs during pregnancy because they cause disease to mothers. These results were similar to what was found by a study carried by [21] in Indonesia. They revealed that food taboos in the community (80%) of the pregnant women desisted from eating certain foods like red meat, fishes and other food from rivers because they lead to difficulties during delivery and they cause the fetus to be upside down in the womb, while (22%) for them did not eat eggs during pregnancy because they cause diseases to mothers. The study also showed that (36%) of the pregnant women preferred to eat certain types of food such as milk and fruits during pregnancy because they strengthen the mother's immune system and protect mothers from diseases. This result agree with that of [22] who concluded that (55.3%) of the pregnant women preferred to eat certain types of food such as milk, milk products and fruits during pregnancy because they strengthen the mothers' and fetus's immune system and protecting mothers from the disease. The study showed that there was a significant association between refraining from eating certain foods during pregnancy among pregnant women and their residential area,  $P$ . Value = (0.000). This result is in line with that of [23] who found a significant association between refraining from eating certain foods during pregnancy among pregnant women and

their residential area, P. Value = (0.000), it seems that the practice of food taboos is more dominant in rural areas than in urban areas. This may be attributed to the strong traditional cultural/religious beliefs and practices relating to pregnancy and the post-partum period. The study showed that there was a significant association between refraining from eating certain foods during pregnancy among pregnant women and their level of education P. Value = (0.000). This result accords to that of a study carried by [24] who revealed that there was a significant association between refraining from eating certain foods during pregnancy among pregnant women and their educational level P. Value = (0.000). They examined food beliefs and eating habits among 40 first-generation Bangladeshi migrants living in Great Britain. The authors concluded that individual food taboos were in large part determined by level of education and by culture [25-105] (Tables 1-28).

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