

Food Taboos among Pregnant Women in the Community of Mayork, the Gambia

Roseline Yah Trokpao Chesson¹, Uyamadu, Evelyn. A.,², Mynepali. K. C Sridhar³

¹TA for HIV, Maternal Newborn & Child Health, Family Planning at USAID GHSC-
Procurement and Supply Management Project, Liberia

roselineyahchesson@gmail.com

²Department of Public and Environmental Health,
School of Medicine and Allied Health
Science, The University of the Gambia

euyamadu@utg.edu.gm

³Department of Environmental Health Sciences,
Faculty of Public Health, University of
Ibadan, Ibadan, Nigeria

mkcsridhar@gmail.com

Corresponding Author: euyamadu@utg.edu.gm

DOI: 10.56201/rjfsqc.v9.no1.2023.pg56.72

Abstract

Pregnant women globally are confronted with culturally practiced taboos that prevent them from acquiring enough necessary amount of nutritive components to achieve their maternal health outcomes. Cultural taboos are mostly practiced in traditional communities, such as Mayork, West Coast, The Gambia. The research intends to enhance an understanding of Mayork women's nutritional taboo practice during pregnancy, as well as food restrictions during childhood feeding.

Interviews with 168 pregnant women all originally from Mayork, West Cost, The Gambia were conducted. A semi-structured questionnaire was developed to interview women of childbearing age. The 24-item questionnaire was divided into sections to capture the demographic and socioeconomic data of these women of childbearing age and to assess the motivations for not using certain foods during pregnancy and early childhood feeding.

The study revealed that 53.6% of the participants were between the ages of 18 and 27 years. The prevalence of food taboos among participants was 54.2% and the majority (92.9%) gave

colostrum to their babies. Also, there was a strong association between tribal, educational, marital status, and food taboos practiced.

The study revealed that a high prevalence of food taboos is being practiced among pregnant women in the village of Mayork and that Mothers-in-law in this village play the role of the enforcement of cultural taboos practiced during pregnancy and child feeding. Also that the participants of the study knew the public health-recommended foods to be eaten and avoided during pregnancy. Finally, Antenatal clinics remain a vital source of maternal nutrition education.

Keywords: *Food taboo, pregnant women, Community, Mayork, The Gambia*

Introduction

Food taboos among rural women have been identified as one of the factors contributing to maternal undernutrition in pregnancy as a result of the depletion of vital nutrition (Parmar, Khanpara, & Kartha, 2013).

The World Health Organization (WHO) and the United Nations Children Fund (UNICEF) also identified maternal undernutrition as one of the leading causes of neonatal death and impaired growth (WHO, 2013; UNICEF, 2015).

The feeding taboos are more likely intended to be used by ethnic groups and tribes who perceive greater health benefits from certain foods both during pregnancy and early childhood (Haque, 2017).

In furtherance to the above-mentioned, foods that may be considered taboos in some tribes are the most common motivation to discourage the use of said food; this may also be based upon the extent to which mothers understand the adverse magnitude of the associated health risks of the taboo practiced for the newborn babies and the mothers (Holmes et al., 2007).

At present, most mothers who consume food with the required nutritional composition for maternal health concede that food taboos are a major public health risk (Haidar, Abate, Kogi-Makau, & Sorensen, 2005). However, important gaps remain in the knowledge and understanding of these risks because many mothers are unable to recall specific health effects and mostly tend to underestimate the scope of these effects (UNICEF, 2015). Correspondingly, the same concern is for high-income countries with sophisticated nutrition programs and policies; a significant proportion of mothers continue to underestimate the most serious risks of food taboos (R.A., C., Ramalho, & Saunders, 2000).

Mayork is a community in the eastern region of the Gambia with a population of approximately 10,065 inhabitants (GBoS, 2013). The current health of the women in this community is challenged by maternal health issues which are a result of the taboos practiced during their maternal period in this community. The majority of the inhabitants are Muslims (GBoS, 2013).

Feeding practices during pregnancy and the early stage of childhood have great influences on birth outcomes and the overall growth and development of children (Leffelaar, Vrijkotte, & Van Eijdsen, 2010). Globally, 20 million births turn out to be lower than the required WHO-recommended birth weight every year (Biza Zepro, 2015); this amount accounts for about 15 to 20% of all births worldwide. The Food and Agriculture Organization in 2013 named Africa to be the region identified with the highest cases of undernourishment (Colding, 1998). Among other factors contributing to a high prevalence of neonatal undernutrition in low-income countries like The Gambia was the cultural belief (food taboos) among certain ethnic groups (Pérez & García, 2013). Consistent undernutrition amongst newborns in this region has become a public health concern despite continuous efforts from government ministries, nongovernmental organizations, and the United Nations Systems like the World Health Organization (WHO) and United Nations Children Funds (UNICEF, 2013). The maternal feeding taboo has also been identified as responsible for 2.6 million childhood deaths each year and about 170 million children that become malnourished during the neonatal stage of life (Azzoni et al., 2011). Due to all of the above mentioned amongst others, the WHO has set to reduce neonatal underweight to be greater than 30% by the year 2025. Poor maternal nutrition, especially in rural settings, affects pregnancy and birth outcomes which is a consequence of food taboos (Ali & Azim, 2016).

In most low-income countries, cultural beliefs and food taboos still seem to be intrinsic and passed down from generation to generation and effects are imminent Therefore, requires time and application of knowledgeable approaches deriving from policies that are institutionalized to achieve a behavior change for the best maternal and child health outcome.

In The Gambia for instance, culture was one of the determinants for under-nutrition which has a direct relationship to low birth weight (J Health Popul Nutr. 2010).

Presentations of some intrinsic cultural practices in the Gambia for instance hold strong beliefs that if catfish is eaten during pregnancy, the mother would give birth to a flaccid, sloppy, dribbling child (Fessler & Navarrete, 2003). The culture also places taboos on eating eggs during pregnancy as believed that this causes the child to be mute, dumb, or stuttering. Similarly, taboos are also held for bread, banana, millet, or groundnut with the belief that these foods lead to problems in labor and childbirth. Also, pepper or bitter tomato consumption cause the newborn baby to have skin conditions such as skin rashes or pimples. Relative to other beliefs of taboo practice is that babies may be very irritable. The cultural beliefs also have diet avoidances for sorrel, partridge, mango, baobab, beef, goat, salt, lime, crocodile, and guinea fowl during pregnancy for similar reasons. Contrary to these cultural beliefs, these foods are proven to be rich in iron, protein, and minerals contents that are very essential for pregnant mothers, neonates, and infants (FAO 2010; Pak. J. Nutri 2009).

Alluding to the above discussion coupled with Africa being the poorest region of the world,

such cultural practice has become a public health concern; most families practice cultural avoidance of foods with sufficient nutritional components required for the period of pregnancy and childhood. Hence, expose the mothers and embryos to protein energy malnutrition. The cultural practice also leads to the underdevelopment and growth of the maternal generation, because during this period the mother's body has upon it nutritional demands for both the mother and child (Pieters, Guariso, and Vandeplas 2013).

The literature reviewed also provides information that cultural beliefs and practices remain a robust determinant that is still not researched and as such has been inadequately understood as a determinant of nutrition insecurity in pregnancy and child feeding up to two years in Sub-Saharan Africa. In addition, studies have also revealed that micronutrient malnutrition contributes to growth retardation, impaired intellectual functioning, reduced work capacity, morbidity, and mortality (Elena Briones Alonso 2015) and as such has become a public health concern.

In The Gambia for instance, mothers are with the cultural belief of discarding the colostrum; this cultural restriction is due to the belief that the colostrum is impure and therefore, not good for the child's consumption. While as scientific literature has evident that discarding the colostrum dispossesses the infant of the micronutrients, immunity, and growth components, responsible for the physical and cognitive development of the child. (Martínez Pérez and Pascual García 2013).

Henceforward, counseling the pregnant woman, husband, and mother in laws on nutritional education would help to clear cultural-based misconceptions and improve their general nutrition knowledge. A recent study in Ethiopia revealed that women do not have adequate nutrition information as part of Antenatal Care (Vasilevski & Carolan-Olah, 2016). Correspondingly, a study conducted in Rural Gambia showed that improved knowledge and awareness always yield appropriate choices for caregivers on proper feeding practices (Mwangome, Prentice, Plugge, & Nweneka, 2010).

Unfortunately, healthcare workers at the primary health delivery level who are equipped with specialized skills may not be sufficient for pre and postnatal counseling in many developing countries; this places the burden of awareness or maternal feeding counseling upon the few available general healthcare workers who may not have the adequate or practical knowledge to counsel women on the proper nutritional requirements during pregnancy and until their children are up to two years of age.

In addition, inadequate nutrition from the maternal period subjects the maternal generation to a vicious cycle of poverty and as well exposes the coming generation to several health effects (UNICEF, 2013). Similarly, the nutritional status of the mother determines her ability to meet the rigorous demands of her maternal period (White, 2013).

Henceforth, actions may be solicited through a multi-sectorial approach from the level of the Ministry of Health and donor partners towards efforts for policy to ensure the availability of qualified health care providers to give timely and enough nutritional counseling to maternal mothers visiting the health care facility for Antenatal Care, delivery and postnatal care.

Materials and Methods

Study Design

A descriptive cross-sectional study was conducted to obtain information on the extent of food taboos in Mayork, and motivations for their use in the community.

Setting and Study Population

Mayork is a heterogeneous community consisting of all the major tribes in The Gambia. It has a population of 2,783 (GBoS, 2013). The community has a basic health facility that provides routine health care needs and promotion of healthy living. It is 16km from a major referral district hospital, Sulayman Junkung General Hospital. It has facilities for basic education (grades 1 through 12). The community has 53 compounds, and 300 households were selected for the study. In each household, a woman of reproductive age who consented to participate in the study was recruited. In the case no woman of reproductive age was available in a household; it was dropped and replaced with another household till the required sample size was met.

Sampling Procedure

In Mayork, people still live in compounds with multiple households. Each of the 53 compounds eligible participated in the study, a total of 168 participants were enrolled in the study. A list of compounds and households was obtained from the Village Alkali's tax files; this list was loaded in MS Excel®. In each compound, a household was randomly selected from the MS excel® using a random number generator.

Data Collection

A semi-structured questionnaire was developed and used to interview childbearing-age mothers. The 24-item questionnaire was divided into sections to capture the demographic and socioeconomic data of the childbearing age mothers. In-depth interviews using open-ended questions were conducted to assess the motivations for not using certain foods during pregnancy and early childhood.

The Village Head, Alkali, was consulted before the study for permission. A consultative meeting was held to allow the researcher to explain the study, and also received questions

from the Alkali and village elders. This way, doubts were cleared where necessary.

At household levels, the researcher explained and read to participants the study goals and statement of the consent document. The opportunity for participants to consent or decline was provided; once the participant consented, a survey administration was given immediately to participants to consider taking part in the study. Time was also given to her and a return visit was scheduled, preferably the next day. Participants who declined were thanked for their time and their responses were noted.

Data Management

Data were collected during the study and kept in a data file. A data management system was created as a backup and backups were updated as data preparation and analysis proceeded. A system was created for labeling and storing interviews; this was included in a unique code or participant identifier for each file that communicated crucial information about the file to the researcher, and documents were cataloged. A safe data storage system was developed to allow checking for missing data and a process for reading and reviewing text was developed.

Data Analysis

Data were collected and entered into a statistical software program for analysis using SPSS version 22.0. Data analyzed using descriptive statistics were applied to find out if there is a significant association between food taboos and demographic and socioeconomic factors including family size, level of education, family income, and tribe/ethnicity. Thematic analysis was used to analyze transcripts from the qualitative study.

Ethical Considerations

The request to conduct the study was obtained from the Village Alkali. All eligible mothers were informed that participation is voluntary. Data collection was conducted in households. Before the start of data collection, a request for ethical approval from The University of The Gambia, School of Medicine and Allied Health Sciences Research and Publication Committee (RePubliC) and The Gambia Government and Medical Research Council (MRC) Joint Ethics Committee was sought.

Potential risks

There were no risks in this study; the researcher herself generated a standardized data collection tool and provided oversight for all the data collection processes. Participants were informed that they were free to decline the interview they can skip any question (s) that made them uncomfortable or end the interview at any point of the interview. No information related

to an individual's culture was reported or disclosed. The researcher ensured the participants that no personal information was communicated in all reports from this interview.

Data were compiled in person by the researcher. The researcher transferred responses into the study database. Hard copies were stored in locked file cabinets until the conclusion of the study after which they were destroyed. Computer files were password protected and only the researcher had access to identified data.

Results

The socio-demographic characteristics of the study participants are shown in Table 1. A total of 168 participants were recruited for the study with the majority of the study participants within the age bracket 12-27 years and followed by those within 28-37 years (90; 53.6% and 51; 30.4% respectively). The mean age of the participants was 28.61 years.

Regarding participants' educational status, the study revealed that 63 (38.2%) had no formal education, 54 (32.7%) had primary education while a little more than a quarter (42; 25.5%) had secondary education and the rest had tertiary education.

The also study revealed that 73 (43.5%) households had 9 or more members, 50 (29.8%) households had between 5 and 8 members, and a little more than a quarter (45; 26.8%) had 1 to 4 members.

Analyzing the number of children in each household, it was observed that three out of five households (102; 60.7%) had 1 to 4 Children, 51 (30.4%) had between 5 and 8 children and the rest of the households had 9 and a greater number of children.

Considering participants' occupations, it was revealed that about four out of every five participants were farmers (135; 80.4%), 15 (8.9%) were in business and another 15 (8.9%) were engaged in other works of life such as civil service.

Table 1: Socio-demographic characteristics of respondents

Socio-demographic variables	Frequency	
	Frequency	Percentage (%)
Age of respondents in years		
18-27	90	53.6
28-37	51	30.4
38-47	24	14.3
48+	3	1.8

	Mean	28.61	
Participants' educational level			
No formal education	63	38.2	38.2
Primary	54	32.7	32.7
Secondary	42	25.5	25.5
Tertiary	6	3.6	3.6
Religion			
Islam		264(69.7)	104(27.4)
Christianity		10(2.6)	1(0.3)
Number of children in the household			
1-4		102	60.7
5-8		51	30.4
9+		15	8.9
Household size			
1-4		45	26.8
5-8		50	29.8
9+		73	43.5
Participants' Occupation			
Housewife		3	1.8
Farming		135	80.4
Business		15	8.9
Others		15	8.9

Table 2 Revealed Harmful feeding practices for pregnant women and children.

The study established that there are combinations of food items that pregnant women and children are prohibited from eating.

It was further observed that more than two-thirds (11; 67.9%) ate certain food items based on health professional advice, 39 (23.2%) ate certain food not based on health professional advice and 15 (8.9%) ate certain foods based on other reasons such as availability of the foods or personal believes, etc.

Concerning other foods eaten based on cultural beliefs, the study showed that 96 (57.1%) ate foods as a result of cultural beliefs while the others proffered no or other reasons.

It was also revealed that about one-third (57; 33.9%) consented to that foods are proscribed by their culture for pregnant women and children; also, there was the agreement of more than half (91; 54.2%) of the participants that there were food taboos practice during pregnancy.

The study further revealed that about two out of every five (67; 39.9%) participants reported that their mothers-in-law were responsible persons for the enforcement of the food taboos.

Considering whether mothers had given colostrum to their babies, the study revealed that 12 (7.1%) did not give colostrum to their babies due to the belief that the colostrum would cause dumbness (3; 25%), cultural health problems (3; 25%), emotional problems (3; 25%) and the risk of the child growing oversized 3; 25%).

Table 2: Harmful feeding practices for pregnant women and children

HARMFUL FEEDING HABITS	FREQUENCY	PERCENTAGE
Food eaten based on health professionals' advise		
Yes	114	67.9
No	39	23.2
Others	15	8.9
Foods eaten based on culture		
Yes	96	57.1
No	60	35.7
Others	12	7.1
Mother-in-law enforce prohibition		
Yes	67	39.9
No	101	60.1
Foods prohibited?		
Yes	91	54.2
No	77	45.8
Colostrum is given to a child		
Yes	156	92.9
No	12	7.1
Reasons for not giving colostrum		
Causes dumbness	3	25
Causes cultural problems	3	25
Emotional problems	3	25
To avoid the child being big	3	25

Table 3 Depicting mothers’ knowledge and attitude about recommended diet practices during pregnancy. The study revealed that 108 (64.3%) knew what type of foods should be eaten during pregnancy and what they should avoid (105; 62.5%). The foods identified to be eaten during pregnancy were cereals, eggs, red meat, green leaves, and vegetables.

More than four of the study participants agreed that eggs, red meat, green leaves, and vegetables are good to be eaten during pregnancy.

It was observed that 141 (83.9%) of the participants were counseled during ANC visits on what foods a pregnant woman should eat but 23 (13.7%) said that the foods they were advised to eat were not readily available to them.

Table 3: Mothers’ knowledge and attitude about recommended diet practices during pregnancy

Mother’s knowledge and attitude towards health advise	Frequency (No)	Percentage (%)
Known foods to be eaten during pregnancy		
yes	108	64.3
No	60	35.7
Certain foods are avoided during pregnancy		
Yes	105	62.5
No	63	37.5
Eggs, red meat, green leaves, and vegetables good during pregnancy		
Strongly agree	30	17.9
Agree	105	62.5
Don't Know	33	19.6
Counseled during ANC visits by midwives and nurses on foods to eat		
Yes	141	83.9
No	27	16.1
Availability of foods advised to eat during pregnancy		
Available	145	86.3
Not Available	23	13.7

Table 4 shows the factors influencing the prevalence of food taboos. The study revealed that those between the age bracket of 38 and 47 years were the highest observers of food taboos (12; 50.0%), followed by those between the ages of 28 and 37 (18; 35.3%). Age was statistically not found to be associated with food taboo observance ($\chi^2=0.197$).

It was further observed that food taboos were most practiced by the Mandinka and Fula tribes (18; 50.0% and 27; 40.9% respectively). This difference was found to be statistically significant

(†=0.002).

The study showed that both single and married observe food taboos (3; 100.0% and 54; 33.3% respectively). This difference was found to be statistically associated with food taboo practice (†=0.040).

The study revealed that those that attained secondary school level education observed food taboos most (21; 50.0%), followed by those with no school (24; 38.1%). The study showed a statistical association between participants' educational status and observance of food taboos (†=0.009).

The study showed that those that earned D4500.00 and more (3; 42.9%) practiced food taboos most, followed by that earning between D1500.00 – D2999.00 and less than D1500.00 (20; 42.6% and 25; 37.3% respectively). Average family income was not found to be statistically associated with food taboo practice (†=0.919).

Table 4: Factors influencing the prevalence of food taboos

Variable	Taboo Practiced (%)	No Taboo Practiced (%)	P Value
Age (yrs)			
18 - 27	27 (30)	63 (70.0)	†=0.197
28 - 37	18 (35.3)	33 (64.7)	
38 - 47	12 (50.0)	12 (50.0)	
48+	0 (0.0)	3 (100.0)	
Tribe			
Jola	9 (15.8)	40 (84.2)	†=0.002*
Mandinka	18 (50.0)	18 (50.0)	
Fula	27 (40.9)	39 (59.1)	
Others	3 (33.3)	6 (66.6)	
Marital Status			
Married	54 (33.3)	108 (66.7)	†=0.040*
Single	3 (100.0)	0 (0.0)	
Divorced	0 (0.0)	3 (100.0)	
Educational Status			
No School	24 (38.1)	39 (61.9)	†=0.009*
Primary	12 (22.2)	42 (77.8)	
Secondary	21 (50.0)	21 (50.0)	
Tertiary	0 (0.0)	6 (100.0)	
Others	0 (0.0)	3 (100.0)	
Participant's Occupation			
Business	9 (60.0)	6 (40.0)	†=0.117
Farming	39 (32.5)	81 (67.5)	

Fishing	6 (40.0)	9 (60.0)	
Housewife	0 (0.0)	3 (100.0)	
Others	3 (20.0)	12 (80.0)	
Family Income			
Less than D1500.00	25 (37.3)	42 (62.7)	†=0.919
D1500.00 - D2999.00	20 (42.6)	27 (57.4)	
D3000.00 - D4499.00	5 (33.3)	10 (66.7)	
D4500.00+	3 (42.9)	4 (57.1)	

*Statistical significance

† Fisher's exact test

Discussion

This study was conducted to evaluate the feeding habits and taboos affecting maternal health in Mayork, West Coast Region, The Gambia. The ages of the participants varied with the majority between 18 and 37 years. Also considering the study location, Mayork is in rural Gambia; as in many rural communities, early marriage is very prominent, thus most participants being within the youthful age in the study.

Female education in many West African countries has not been given the prominence required. The finding of the current study showed that secondary and tertiary education was not a priority for women as it is considered that the position of the woman in the family is to bear children. This finding collaborated with the results of a study on closing the gender education gap in The Gambia (Gajigo, 2016). Both studies showed an interesting pattern of female education; as women progress higher in their educational pursuit the fewer the numbers.

The majority of the families had more than five members (Large family size), which is a classical characteristic of the typical African family. Many rural families are large in size due to the manpower needed for farming. The study findings were similar to that of a study conducted in Benue State, Nigeria where it was observed that large families were required for the cultivation of larger parcels of land (James, 2014). Similarly, it was observed that the number of children per household was also many. This is very true, especially in The Gambia where 65% of the population comprises youths.

Agriculture was the main occupation of the participants. This finding depicts the fact that the agricultural sector is the main employer in The Gambia since about 80% of the population is involved in agriculture (Sillah, Bank, & Banking, 2016).

Food taboos negatively affect peoples' nutritional status most especially children and pregnant women. In Mayork, more than half of the participants have one form of food taboo or the other. The taboos are expressed at different stages of pregnancy and for children. Most of the participants were mentioning cereals, rodents, and bitter tomatoes as food women were restricted from eating. It is very common among Gambian cultures that a pregnant woman should not eat rodents to prevent their children from becoming thieves. This finding supported a similar study Nutritional Taboos among Fullas in Upper River Region, The Gambia (Pérez & García, 2013).

Furthermore, it is widely believed that women who eat bitter tomatoes are more likely to suffer from skin rashes. The taboos could negatively affect the nutritional status of pregnant women and children leading to conditions such as anemia.

The majority of the women in the study were at a crossroads where cultural beliefs and health advice conflicted with each other. In their situation, it was very difficult to know which of the two factors they should adhere to as they would want to satisfy the two. This finding corroborated the impact of culture, religion, and traditional knowledge on food and nutrition security in developing countries (Alonso, 2014). To dispel these misconceptions, there is a need for aggressive nutritional health education for the community especially when women are pregnant and come to antenatal care clinics. In addition to nutritional health education, female education should be given prominence as the higher a woman's educational status the more likely she would adopt positive nutritional habits as revealed in the current study.

Like in many other traditional settings, mothers-in-law and grandmothers are the custodians of the culture and tradition to which Mayork is not an exception. Most of the enforcement of food taboos was made by the mothers-in-law. It is expected for daughters-in-law to obey their mothers-in-law no matter what among the two major tribes practicing food taboos in the study area.

Breastfeeding babies with colostrum was a common norm among the study participants except that 7.1% of the participants did not give colostrum to their babies based on misconceptions. Among the misconceptions was if one gives colostrum to a baby, it could cause dumbness, cultural health problems, and emotional problems and the child may grow bigger than the mother can carry. These findings were similar to a study on knowledge, attitude, and practice on colostrum feeding in Pakistan (Aisha, Batool, & Sultana, 2016). There is a need for health education and promotion on exclusive breastfeeding and infant feeding.

Two out of three participants knew what kinds of food they should eat during pregnancy and almost the same proportion were aware that certain foods should be avoided. This result supports a study carried out in Ethiopia (Fekadu Beyene, 2013). The reasons for this high knowledge of the types of foods to be eaten or avoided could be attributed to the nutrition education received during antenatal clinic visits and experience. Knowing what to eat is one thing but the availability of local foods would go a long way in augments with the mother and baby's nutritional status, therefore, during nutrition education exercises discussions should be based on locally available food items.

It has been observed that the antenatal clinics were a very powerful setting for maternal nutrition education as revealed in the study. The finding corroborated a study conducted in Austria which revealed that the healthcare setting is one of the most ideal places to have up-to-date information on maternal nutrition (Newby, Brodribb, Ware, & Davies, 2015). The finding also emphasized the realities in The Gambia as the country has had significant gains in antenatal care clinic attendance and high immunization coverage (Anya, Hydera, & Jaiteh, 2008).

During antenatal care clinics, pregnant women had the opportunity to be counseled by nurses and midwives on the kinds of foods to be eaten. Unfortunately, small pockets of women lamented that the recommended foods were not readily available to them. Healthcare workers should make

emphasis on locally available food such as eggs, red meat, green leaves, and vegetables as most rural communities are engaged in farming/gardening.

Recommendations

The ministry of health and social welfare in collaboration with partners like UNICEF should develop a maternal nutrition health information manual in local languages for health workers to use.

Healthcare workers; nurses and midwives should train caregivers and pregnant women on maternal nutrition.

The antenatal clinics should involve the husbands/partners and Mothers- in- laws during maternal nutrition counseling so that couples and Mothers- in- Laws can take informed decisions on maternal and child nutrition.

Conclusion

The following conclusions could be made from the study. There is a high restriction on the kinds of foods pregnant women and their children should eat. Mothers-in-law were instrumental in the enforcement of avoidance of prohibited foods.

Most of the participants knew what foods they should eat and avoid during pregnancy. Antenatal clinics remain to be a vital source of maternal nutrition. Tribe, marital and educational statuses influence the prevalence of food taboos

Ethical approval and consent to participate

The request to conduct the study was obtained from the Village Alkali. All eligible mothers were informed that participation is voluntary. Data collection was conducted in households. Before the start of data collection, a request for ethical approval from The University of The Gambia, School of Medicine and Allied Health Sciences Research and Publication Committee (RePubliC) and The Gambia Government and Medical Research Council (MRC) Joint Ethics Committee was sought. In addition, written informed consent was obtained from all the study participants. All information provided by the participants was treated with confidentiality and there were no names to identify the participant and study identification numbers were assigned to each participant.

Consent for publication

All the authors consented for this manuscript to be published

Availability of supporting data

All the data are presented in tables in the article and further inquiries can be directed to the corresponding authors

Competing interests

The authors declare that they have no competing interests

Funding

We have not received any funding for this study

Authors' contributions

The authors have made substantive intellectual contributions to this study in data collection, preparation of the manuscript, and proofreading. Roseline was involved in data collection and write-up, and Evelyn and Sridhar critically revised and proofread the manuscript.

Acknowledgments

The authors are grateful to the participants for sharing their knowledge on the feeding habits and taboos affecting maternal health in Mayork, West Coast Region, and The Gambia. We would also like to thank the village head for permitting us to carry out the study

Authors' information

1. TA for HIV, Maternal Newborn & Child Health, Family Planning at USAID GHSC-Procurement and Supply Management Project, Liberia.
Roseline Yah Trokpao Chesson
2. Department of Public and Environmental Health, School of Medicine and Allied Health Science, The University of the Gambia
Evelyn. Anuli Uyamadu
3. Professor, Department of Environmental Health Sciences, Faculty of Public Health, University of Ibadan, Ibadan, Nigeria
Mynepali K C Sridhar

References:

- Aisha, R., Batool, F., & Sultana, S. (2016). Knowledge, Attitude, and Practices about Colostrum Feeding among Pregnant Women in Military Hospital Rawalpindi of Pakistan. *Open Journal of Nursing*, 6(4), 309–313. <http://doi.org/10.4236/ojn.2016.64032>
- Ali, U., & Azim, D. H. (2016). Taboos and Beliefs among Pregnant & Lactating Women. *Haya: The Saudi Journal of Life Sciences*, 1(2), 70–71. <http://doi.org/10.21276/haya.2016.1.2.2>
- Alonso, E. B. (2014). The impact of culture, religion and traditional knowledge on food and nutrition security in developing countries, (30), 79.
- Anya, S. E., Hydera, A., & Jaiteh, L. E. (2008). Antenatal care in The Gambia: A missed opportunity for information, education and communication. *BMC Pregnancy and Childbirth*, 8(1), 9. <http://doi.org/10.1186/1471-2393-8-9>
- Azzoni, L., Foulkes, A. S., Firnhaber, C., Yin, X., Crowther, N. J., Glencross, D., ... Montaner, L. J. (2011). *Metabolic and anthropometric parameters contribute to ART-mediated CD4+T cell recovery in HIV-1-infected individuals: An observational study. Journal of the International AIDS Society* (Vol. 14). <http://doi.org/10.1186/1758-2652-14-37>
- Biza Zepro, N. (2015). Food Taboos and Misconceptions Among Pregnant Women of

- Shashemene District, Ethiopia, 2012. *Science Journal of Public Health*.
<http://doi.org/10.11648/j.sjph.20150303.27>
- Colding, J. (1998). Analysis of hunting options by the use of general food taboos. *Ecological Modelling*. [http://doi.org/10.1016/S0304-3800\(98\)00038-6](http://doi.org/10.1016/S0304-3800(98)00038-6)
- Elena, B. A., Gabriela, B., Andreea, V., Tatar, R., Daniela, S., Tilea, I., & Gabos-Grecu, I. (2015). Association between increased waist circumference and depression and anxiety trend. *Acta Marisiensis-Seria Medica*, 61(2), 87-90.
- Fekadu Beyene, G. D. (2013). Assessment of Knowledge of Pregnant Mothers on Maternal Nutrition and Associated Factors in Guto Gida Woreda, East Wollega Zone, Ethiopia. *Journal of Nutritional Disorders & Therapy*, 4(1), 1–7. <http://doi.org/10.4172/2161-0509.1000130>
- Fessler, D. M. T., & Navarrete, C. D. (2003). Meat is good to taboo: Dietary proscriptions as a product of the interaction of psychological mechanisms and social processes. *Journal of Cognition and Culture*. <http://doi.org/10.1163/156853703321598563>
- Gajigo, O. (2016). Closing the education gender gap: estimating the impact of girls' scholarship program in The Gambia. *Education Economics*, 24(2), 167–188. <http://doi.org/10.1080/09645292.2014.985287>
- GBoS. (2013). The Gambia 2013 Population and Housing Census Preliminary Results. *The Gambia Bureau of Statistics*, 23. Retrieved from www.gbos.gov.gm
- Government, G. (2015). *The Republic of The Gambia Agriculture and Natural Resources Policy - July 2009*.
- Haidar, J., Abate, G., Kogi-Makau, W., & Sorensen, P. (2005). Risk factors for child under-nutrition with a human rights edge in rural villages of North Wollo, Ethiopia. *East African Medical Journal*, 82(12), 625–630. <http://doi.org/10.4314/eamj.v82i12.9367>
- Haque, M. M. (2017). Ethnicity and Nutrition Demand Empirical Research. *J Nutri Health*, 3(1), 2017. <http://doi.org/10.13188/2469-4185.1000025>
- Holmes, W., Hoy, D., Lockley, A., Thammavongxay, K., Bounnaphol, S., Xeuatvongsa, A., & 16. Toole, M. (2007). Influences on maternal and child nutrition in the highlands of the northern Lao PDR. *Asia Pacific Journal of Clinical Nutrition*, 16(3), 537–545.
- James, O. A. (2014). Household size and agricultural land-use pattern in Obagaji area of the Guinea Savanna region, Nigeria. *Journal of Agricultural Extension and Rural Development*, 6(1), 48–54. <http://doi.org/10.5897/JAERD12.123>
- Leffelaar, E. R., Vrijkotte, T. G. M., & Van Eijnsden, M. (2010). Maternal early pregnancy vitamin D status in relation to fetal and neonatal growth: Results of the multi-ethnic Amsterdam Born Children and their Development cohort. *British Journal of Nutrition*, 104(1), 108–117. <http://doi.org/10.1017/S000711451000022X>
- Mwangome, M., Prentice, A., Plugge, E., & Nweneka, C. (2010). Determinants of appropriate child health and nutrition practices among women in rural Gambia. *Journal of Health, Population and Nutrition*, 28(2), 167–172. <http://doi.org/10.3329/jhpn.v28i2.4887>
- Newby, R., Brodribb, W., Ware, R. S., & Davies, P. S. W. (2015). Antenatal information sources for maternal and infant diet. *Breastfeeding Review : Professional Publication of the Nursing Mothers' Association of Australia*, 23(2), 13–21.
- Nicole T. C & Robert .M.L (2017). Innate Immunity and Breast Milk . *Front. Immunol.*, 29 May 2017 Sec. Microbial Immunology .<https://doi.org/10.3389/fimmu.2017.00584>

- Parmar, A., Khanpara, H., & Kartha, G. (2013). A study on taboos and misconceptions associated with pregnancy among rural women of Surendranagar district. *Healthline pISSN*.
- Pérez, G. M., & García, A. P. (2013). Nutritional Taboos among the Fullas in Upper River Region , The Gambia. *Journal of Anthropology*, 2013, 1–9. <http://doi.org/10.1155/2013/873612>
- R.A., R., C., S., Ramalho, R. A., & Saunders, C. (2000). The nutrition education role in the combat against micronutrient deficiencies. *Revista de Nutricao*, 13(1), 11–16. Retrieved from <http://www.scopus.com/inward/record.url?eid=2-s2.0-0034047212&partnerID=40&md5=c5357bfb4934e79a9a2db8a5c85cab2a%5Cnhttp://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed5&NEWS=N&AN=2000226927>
- Sillah, B. M. S., Bank, I. D., & Banking, I. (2016). An econometric analysis of agriculture-growth nexus in the Gambia : 1966 to 2009 , it is more people per acre and fewer yields per acre , and the reverse should have been the case, (December 2013). <http://doi.org/10.5897/AJAR11.610>
- UNICEF. (2015). Child nutrition interactive dashboard. Retrieved from: <http://data.unicef.org/resources/2013/webapps/nutrition#>.
- Vasilevski, V., & Carolan-Olah, M. (2016). Food taboos and nutrition-related pregnancy concerns among Ethiopian women. *Journal of Clinical Nursing*. <http://doi.org/10.1111/jocn.13319>
- White, L. R. (2013). The Function of Ethnicity, Income Level, and Menstrual Taboos in Postmenarcheal Adolescents' Understanding of Menarche and Menstruation. *Sex Roles*, 68(1–2), 65–76. <http://doi.org/10.1007/s11199-012-0166-y>
- World Health Organization (WHO). (2013). Essential nutrition actions 2013. Retrieved from:http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/