***Original Research Article***

**Myths and customs related to the feeding of young children and pregnant women in the rural island commune of Sinder, Tillabéri region, Niger: A descriptive study**

**Abstract:**

Access to safe, adequate and nutritious food is a basic human right that is essential for good health (1). Unfortunately, this basic right is denied in many low- and middle-income countries, partly due to food insecurity, poverty and inappropriate food distribution (2). This study aims to identify myths and customs related to the feeding of young children and pregnant women by mothers and wet nurses in the rural commune of Sinder. This is a descriptive cross-sectional study on a representative sample of mothers of children under five years old. A questionnaire was completed using a structured interview. Data were collected using ODK software and analyzed using SPSS and Epi Info version 7.2 software. A total of 166 mothers were surveyed. A total of 166 mother-child pairs were enrolled in this study. This study shows a male predominance of 54.22%. Mothers who do not attend school represent the majority of the sample 61.44%. The majority of children, approximately 43%, are between 24 and 59 months old with 23±6.12 months. Approximately 38% are undernourished. The foods prohibited for pregnant women were goat's milk, cassava couscous and spicy foods. Goat's milk would cause skin diseases in pregnant women according to 13.86% of the mothers surveyed. The majority of mothers, or 63.86%, observe food taboos and prohibitions in their children's diet. Among these "forbidden" foods, moringa leaves are the most cited followed by eggs. The mothers' justifications focus more on the abdominal pain and diarrhea that these foods could cause.

**Keywords:** Myths, Food taboos, Food, Young children.

**I. Introduction**

Access to safe, adequate and nutritious food is a fundamental human right that is essential for good health (1). Unfortunately, this fundamental right is denied in many low- and middle-income countries, partly due to food insecurity, poverty and inappropriate food distribution (2). Low dietary intake, inequitable food distribution within households, recurrent infections and poor care in general are among the main causes of under nutrition, but taboos and misconceptions about nutrition can also contribute significantly to high levels of undernutrition (3; 4). Pregnancy and early childhood are periods during which mothers and their children are subject to several dietary prohibitions. These are often a set of beliefs, myths transmitted from generation to generation. They predetermine behaviors and respond to multiple social and cultural logics aimed at preserving the health of the mother and child (5). Food taboos refer to the prohibition of specific foods due to social or religious customs. In many traditional societies, cultural norms and customs govern behaviors, including during critical life stages such as pregnancy (6). Pregnancy is a crucial period in the lives of mothers when physiological nutrient requirements are significantly increased. To meet these increased nutrient requirements for the woman and the fetus, a pregnant woman is expected to increase the quantity and quality of the foods she consumes (7; 8). However, when misconceptions or food taboos exist, the pregnant woman’s ability to meet such increased demands may be further compromised, thereby exposing the woman to an increased risk of adverse pregnancy outcomes (9). The objective of this study is to identify myths and customs related to the nutrition of pregnant women and young children in the rural island commune of Sinder Tillabéry Niger.

**II. Methodology**

**II.1. Study area**

The study took place in the rural commune of Sinder (Coordinates 14° 14’ 46″ N, 1° 19’ 04″ E) located in the far west of Niger in the Tillabéry region. Sinder is an island commune of the Niger River sandwiched between the rural communes of Dargol and Méhanna on the right bank (South) and the rural commune of Sakoira on the left bank (North). It is bordered upstream (West) by the rural commune of Dessa and downstream (East) by the urban commune of Tillabéri (10).

**II.2. Type and population of study**

This was a cross-sectional study by two-stage cluster sampling, the data collection of which took place in the rural commune of Sinder in two stages: during the lean season and during the post-winter period.

**II.3. Data collection tools**

Questionnaires on dietary practices and taboos were completed by all mothers and pregnant women.

**II.4. Sampling**

The sample size was calculated using the Shwartz formula (1960) with a 95% confidence interval and a 5% margin of error.

n= za²p(1-p) deff/i²

n= 1.96²×0.09(1-0.09)×1.5/ 0.05²

n= 188.77 so the minimum size n of our sample is 189.

Where :

* Za is the confidence level according to the reduced centered normal distribution, for a 95% confidence level, it is equal to 1.96.
* p is the prevalence of global acute malnutrition from June-July 2020 in the Tillabéry region it is equal to 9% or 0.09 (INS 2020);
* deff is the cluster effect. It is generally set between 1.5 and 2;

In our study deff is set to 1.5;

* i is the tolerated margin of error, it is equal to 5%

For this work we collected a sample of 250 children aged 0 to 59 months, including 166 children aged 06 to 59 months.

**II.5. Ethical considerations**

The study included all mothers with children aged 0 to 59 months and their children present in their households at the time of the survey and whose informed consent was obtained. No biological samples of any kind were taken.

**II.6. Statistical analyses**

The ODK Open Data Kit software (https://opendatakit.org) was used for data collection. The data were transferred to Excel and processed using SPSS software (version 28.0) IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 10. Armonk, NY: IBM Corp and Epi info software version 7.2. Atlanta Center for Disease Control and Prevention (CDC), United States in collaboration with the World Health Organization (WHO) free software tools for public health practitioners and researchers worldwide. The analysis of anthropometric data was performed using the ENA for SMART WHO/2008 software which has the NCHS-CDC-WHO anthropometric standards of 1977 and the new WHO international anthropometric standards of December 2006. The significance level chosen was 0.05 for all analyses.

**III. Result**

**Socio-demographic and economic characteristics of children and their mothers and guardians.**

A total of 166 mother-child couples were enrolled in this study. This study shows a male predominance of 54.22%. Mothers who did not attend school represented the majority of the sample 61.44%. The majority of children, approximately 43%, were between 24 and 59 months old with 23±6.12 months. Approximately 38% were undernourished. Married women represented 97% of the sample. Among the mothers, approximately 74% of them received information on optimal AME practices and more than half 50.6% of them were unemployed at the time of the survey.

**Table I. Socio-demographic and economic characteristics of children and mothers and guardians.**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Percent** | **Number** |
| **Sex of child** |  |  |
| Male | 54.22 | 90 |
| Female | 45.78 | 76 |
| **Niveau de scolarisation** |  |  |
| Not educated | 61.44 | 102 |
| Primary | 25.9 | 43 |
| Secondary and higher | 12.65 | 21 |
| **Age of children in months** |  |  |
| 6 - 11 | 21.69 | 36 |
| 12 - 23 | 35.54 | 59 |
| 24 - 59 | 42.77 | 71 |
| Averrage age of children in months | 23±6.12 |  |
| **Children food status** |  |  |
| Children on complementary food | 37.95 | 63 |
| Children permanently weaned | 62.05 | 103 |
| **Marital status** |  |  |
| Maried | 97 | 161 |
| Divorced and widwed | 3 | 5 |
| **awareness raising of mothers on optimal AME practices** |  |  |
| Yes | 73.49 | 122 |
| No | 26.51 | 44 |
| **Maternal profession** |  |  |
| Unemployed | 50.6 | 84 |
| Agriculture/ livestock | 7.83 | 13 |
| Work OJF | 11.45 | 19 |
| Commerce/ craft | 30.12 | 50 |

Table II presents the myths and food taboos as well as the frequencies of observation mainly among pregnant women and young children. About 31% of pregnant mothers observe food taboos and prohibitions. The foods prohibited for pregnant women are goat's milk, cassava couscous and spicy foods. Goat's milk would cause skin diseases in pregnant women according to 13.86% of the mothers surveyed. The majority of mothers, or 63.86%, observe food taboos and prohibitions in their children's diet. Among these "forbidden" foods, moringa leaves are the most cited followed by eggs. The mothers' justifications focus more on the abdominal pain and diarrhea that these foods could cause.

**Table II. Food taboos and myths: mothers' beliefs and perceptions of the diet of pregnant women and young children.**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Percents** | **Number** |
| **Observation of food taboos for pregnant women** | | |
| Yes | 30.72 | 51 |
| No | 69.28 | 115 |
| **Children’s food taboos** |  |  |
| Yes | 63.86 | 106 |
| No | 36.14 | 60 |
| **Foods prohibited for pregnant women** |  |  |
| Goat’s milk | 15.06 | 25 |
| Cassava couscous (gari) | 7.83 | 13 |
| Spicy food | 7.83 | 13 |
| **Food prohibited for children** |  |  |
| Moringa leaf | 22.89 | 38 |
| egg | 22.28 | 37 |
| mango | 14.46 | 24 |
| Cassava couscous (gari) | 4.22 | 7 |
| **Reasons given by mothers for the prohibitions** |  |  |
| Abdominal pain | 21.08 | 35 |
| Dermatosis | 13.86 | 23 |
| Diarrhea | 19.28 | 32 |
| Constipation | 9.64 | 16 |

Table III provides information on the food taboos of pregnant women. According to the data from this study, it is observed that pregnant women, regardless of their age, had goat's milk as a food taboo, however the difference is not significant (p = 0.11).

According to the level of education, mothers at secondary and higher levels avoid goat's milk and spicy foods more during their pregnancies, while those at primary level and those who have not attended school mentioned cassava couscous or gari. But the difference is not significant (p = 0.16).

Mothers who had not been made aware by health workers had more cited goat's milk as a food taboo and those who had been made aware had more mentioned spicy foods and gari couscous as forbidden during pregnancy (p = 0.034).

**Table III. Distribution of the population of food taboos of pregnant women according to their ages, levels of education and their awareness of optimal EBF practices.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameters** | **Taboos of pregnante women** | | | **without taboos** | **Total** | **Probability** |
|  | **Goat’s milk** | **Couscous of cassava (gari)** | **Spicy food** |  |  |  |
| **Ages** |  |  |  |  |  |  |
| 15-24 | 15.87(10) | 12.7(8) | 12.7(8) | 58.73(37) | 100(63) | **.11** |
| 25-34 | 13.79(8) | 6.9(4) | 3.45(2) | 75.86(44) | 100(58) |
| 35-53 | 15.56(7) | 4.44(2) | 6.67(3) | 73.33(33) | 100(45) |
| **Scholarisation level** | | | | | | |
| No scholarised | 14.71(15) | 8.82(9) | 5.88(6) | 70.59(72) | 100(102) | **.16** |
| Primary | 13.95(6) | 9.30(4) | 6.98(3) | 69.77(30) | 100(43) |
| Secondary and higher | 19.05(4) | 4.76(1) | 19.05(4) | 57.14(12) | 100(21) |
| **Sensibilisation to EBF** | | | | | | |
| Yes | 13.11(16) | 9.84(12) | 10.66(13) | 66.39(81) | 100(122) | **.034\*** |
| No | 20.45(9) | 4.55(2) | 00.00 | 75(33) | 100(44) |

**IV. Discussion**

This study aimed to identify food myths and taboos of pregnant women and young children (6 to 59 months) in the rural commune of Sinder.

Beliefs and myths related to the nutritional and health disadvantages of available foods negatively influence consumers' choices and habits (11). In this study, 36.11% of mothers observed food taboos among young children. These forbidden foods are moringa leaves, mango, cassava couscous (Gari) and eggs. However, eggs are a good source of animal protein and micronutrients of high nutritional value. The belief that they lead the child to steal is widespread (11; 12). A study conducted in South-Eastern Nigeria also reports the case of a mother who said: “I do not allow my children to eat or drink Garri (cassava couscous) because it causes eye problems” (11). These foods are good sources of macronutrients (protein, carbohydrates) and micronutrients such as iron, magnesium, zinc and vitamins (A, B, C, D and E). These nutrients contribute to optimal growth and prevent young children from various pathologies while increasing their dietary diversity scores. Banning these foods from children could have dangerous consequences on their health by weakening their immune systems.

**Food taboos of pregnant women**

This study revealed that some foods are considered taboo by pregnant women for several reasons and that these restrictions are higher during the last trimester of pregnancy. In the rural commune of Sinder, the most forbidden foods for pregnant women include goat milk, cassava couscous (Gari) and spicy foods. The main reasons cited by mothers for these practices were skin diseases, hemorrhoids, and beliefs that if the mother drinks goat milk the child once born would be very talkative and will tend not to stay still and if the mother consumes spicy foods during pregnancy, the child would be nervous and cry a lot. A study in Nigeria also showed that 67.9% avoided starchy foods such as gari (cassava flakes) and nodules during pregnancy because they would cause their baby to be overweight and difficult to deliver except by caesarean section, predisposing pregnant women to starvation and its associated consequences (13). In Ethiopia, foods considered taboo by pregnant women include vegetables, solid cereal foods, dairy products, meat and oil seeds such as flaxseed. The main perceived reasons for these practices were the effect of these foods on increasing fetal size, which could later lead to complications during labour and negative birth outcomes, as well as the cosmetic effect of some foods on the newborn. Similarly, a study in Egypt reported that cereal (carbohydrate) food groups were avoided by pregnant women for reasons perceived as causing bloating and excessive maternal weight gain (13). Banning these foods may negatively affect the dietary intake of these women, as dietary diversity recommendations for pregnant women emphasize the need for pregnant women to eat a variety of foods with adequate energy, protein, fat, fiber, and micronutrients (14). Another study showed that pregnant women should avoid eating foods high in fat (lipids), such as meat and milk, to avoid having a large fetus that could later lead to difficult labor (15; 16). Taboos related to the consumption of animal-based foods among pregnant women may lead to poor weight gain during pregnancy and increase the risk of giving birth to a low birth weight baby (16). Studies conducted in South Africa and Kenya indicated that nutritious foods prohibited for pregnant women include meat products, fish, potatoes, fruits, beans, eggs, and pumpkin which are foods rich in essential micronutrients, proteins and carbohydrates because of perceived myths and beliefs about the mother and the fetus (17; 18). A study conducted in Sudan revealed that pregnant women observed taboos on certain types of foods during pregnancy. These foods were red meat, eggs, white meat and milk (19).

**Food taboos of pregnant women according to their social characteristics.**

**Food taboos of mothers according to their ages**

According to their ages, we note that mothers in the age group of 15 to 24 years and those over 35 years have more prohibitions on goat's milk than other mothers, but cassava couscous (gari) and spicy foods are more prohibited among younger mothers (15 to 24 years), however the difference is not significant (p = 0.11). Several studies agree by stating that there is no significant association between maternal age and taboos of pregnant women (20; 21; 22).

**Food taboos of mothers according to maternal education**

In this study, mothers with secondary and higher education had more prohibitions regarding the intake of goat's milk and spicy foods during their pregnancies and those with primary education and those who were not educated observed more prohibitions regarding the intake of cassava couscous (gari) however, the difference is not significant (p = 0.16). According to several studies conducted in Central Africa, pregnant women with a primary education level and those who had not been educated were 3.57 times more likely to observe food taboos during their pregnancies than those with a secondary and higher education level (23; 24).

**Food taboos and awareness raising of mothers on optimal AME practices**

According to the data from this study, mothers who had not been sensitized by health workers observed more taboos regarding goat's milk. Among those who were sensitized, taboos were more related to cassava couscous (gari) and spicy foods. The difference was statistically significant (p=0.034). Mothers who had not received advice from health workers were 4.35 times more likely to practice food taboos compared to those who had received ANC. This suggests that pregnant women who did not receive ANC have significantly higher odds of engaging in taboo food practices compared to those who received ANC during pregnancy (25; 26; 27).

**V. Conclusion**

Food taboos are more prevalent among young children than among pregnant women. These contribute more to the reduction of dietary diversity of children and pregnant women, thus dangerously affecting their nutritional and health status. The results of this study can be used by health professionals, managers and policy makers to improve nutrition programs by developing plans and deploying active efforts to fill gaps in dietary practices during pregnancy and early childhood.

Disclaimer (Artificial intelligence)

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Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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Details of the AI usage are given below:

1.

2.

3.

**References**

1. WHO. (2008) World Health Organization Indicators for Assessing Infant and Young Child Feeding Practices: Part 1 Definitions Geneva. WHO: Genava.

2. Torheim LE., Arimond M. (2013). Diet quality, micronutrient intakes, and women’s economic vulnerability. In: Diet quality. edn. New York, NY: Springer New York. pp. 105–115.

3. Ahmed T., Hossain M., Sanin KI. (2013). Global burden of maternal and child undernutrition and micronutrient deficiencies. Annal of Nutrition and Metabolism. 61(1):8–17.

4. de Sa J., Bouttasing N., Sampson L., Perks C., Osrin D., Prost A. (2013). Identifying Priorities for Improving Maternal and Child Nutrition in the Khmu Ethnic Group, Laos: A Formative Study. Maternal and Child Nutrition. 9(4): 452–66.

5. Yoro BM. Ehui PJ., Amani AF. 2015, “Sociocultural Logics of Dietary and Behavioral Prohibitions Among Pregnant Women Agni N’dénian (Côte d’Ivoire),” European Scientific Journal, vol 11 n°32, p134–147.

6. Villa KM., Barrett CB., Just DR. (2011). Who Fasts and Who Feasts? Intra-Household Symmetries in the Response to Dietary Diversity Among Pastoralists in East Africa. American Journal of Agriculture and Economic. 93(4):1062–81.

7. Bianchi CM., Mariotti F., Verger EO., Huneau J-F. (2016). Pregnancy requires major changes in diet quality for nutritional adequacy: simulations in French and American populations. PLoS One. 11(3):e0149858.

8. Nnam N. (2015). Improving maternal nutrition for better pregnancy outcomes. Proceeding of the Nutrition Society. 74(4):454–9.

9. Ramakrishnan U., Grant F., Goldenberg T., Zongrone A., Martorell R. (2012). Effect of women’s nutrition before and during early pregnancy on maternal and infant outcomes: a systematic review. Perinatology and Epidemiology. 26(1):285–301.

10. Mossi BA. (2009). Basic Education in the Rural Commune of Sinder, Republic of Niger. Cheikh Anta DIOP University of Dakar. National Higher Institute of Popular Education and Sport (INSEPS). Ministry of Education. Republic of Senegal. 44p.

11. Ekwochi U., Chidiebere DI., Ikenna KN., Ifediora C., Nwabueze AI., Eke CB. (2016). Food taboos and myths in South Eastern Nigeria: The belief and practice of mothers in the region. Journal of Ethnobiology and Ethnomedicine .12:7.

12. Maduforo AN. (2010). Superstitions and nutrition among pregnant women in Nwangele Local Government Area of ​​Imo state, Nigeria. Journal of Research in national development. 8(2):1–15.

13. Kavle J., Mehanna S., Khan G., Hassan M., Sale G., Galloway R. (2014). Cultural beliefs and perceptions of maternal diet and weight gain during pregnancy and postpartum family planning in Egypt. From www.popline.org/node/5816382014. Accessed 21 Dec 2017.

14. FAO. Food and Agriculture Organization. (2016). Minimum dietary diversity for women a guide to measurement. Rome 134P.

15. Riang RM., Broerse J., Nangulu AK. (2017). Food beliefs and practices among the Kalenjin pregnant women in rural Uasin Gishu County, Kenya. Journal of Ethnobiology and Ethnomedicine. 13(29):2–16.

16. Gebregziabher H., Kahsay A., Gebrearegay F., Kidanemaryam B., Gebremariam A., Gebretsadik GG., (2023). Food taboos and their perceived reasons among pregnant women in Ethiopia: a systematic review, 2022. BMC Pregnancy and Childbirth. 23(116): 2-10.

17. Chakona G., Shackleton C. (2019). Food taboos and cultural beliefs influence food choice and dietary preferences among pregnant women in the Eastern Cape, South Africa. Nutrients. 11(11):26-68.

18. Kariuki LW., Lambert C., Purwestri RC., Maundu P., Biesalski HK. (2017). Role of food taboos in energy, macro and micronutrient intake of pregnant women in western Kenya. Nutrition and Food Science. 47(6): 343-354.

19. Mohammed NAA. (2016). Food Taboos among Pregnant Women in Health Centers, Khartoum State Sudan.

20. Wondimu R., Tesfahun E., Kaba Z. (2021). Food taboo and its associated factors among pregnant women in Sendafa Beke Town, Oromia Regional State, Ethiopia. International Journal of Sciences, Technology and Sociology. 9(75):378-389.

21. Getnet W., Aycheh W., Tessema T. (2018). Determinants of food taboos in the pregnant women of the Awabel District, East Gojjam Zone, Amhara Regional State in Ethiopia. Advances in Public Health. 20(18): 455-465.

22. Tela FGG., Weldegerima Beyene L., Asfaw S. (2020). Food taboos and related misperceptions during pregnancy in Mekelle city, Tigray, Northern Ethiopia. PLoS ONE 15: e0239451.

23. Teshome A., Zinab B., Wakjira T., Tamiru D. (2020). Factors associated with food taboos among pregnant women in the Dimma district, Gambella, Ethiopia. African Journal of Midwifery Women’s Health 14:1–9.

24. Ebabu A., Muhammed M. (2021). Traditional practice affecting maternal health in pastoralist community of Afar Region, Ethiopia: A facility-based cross-sectional study. Journal of Midwifery Reproductive Health. 9:2817–2827.

25. Hidru HD., Mengesha MB., Hailesilassie Y., Welay F.T. (2020). Burden and determinant of inadequate dietary diversity among pregnant women in Ethiopia: a systematic review and meta-analysis. Hindawi Journal Nutrition and Metabolism. (2020):1272393

26. Sholeye OO., Badejo CA., Jeminusi OA. (2014). Dietary habits of pregnant women in Ogun-East Senatorial Zone, Ogun State, Nigeria: A comparative study. International Journal of Nutrition and Metabolism. 4:42–49.

27. Tahir HM., Dr. Abd Elbasit EMA., Mohammed NAA. (2018). Food taboos among pregnant women in health centers, Khartoum State-Sudan. International Journal of Sciences and Healthcare. 3:13–25.