*Original Research Article*

The Nutritional Knowledge of Pregnant Women Attending Wamy Health Center of the Health District of Tillabéri

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ABSTRACT

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| **Aims:** to assess the nutritional knowledge of pregnant women attending antenatal consultation at Wamy health center of the health district of Tillabéri.  **Study design:** This is a cross-sectional study.  **Place and Duration of Study:** Wamy Health Center, Health District of Tillabéri, Niger republic, from August to September 2022.  **Methodology:** We randomly selected 60 pregnant women admitted for antenatal consultation. Semi-structured questionnaire that was developed for the purpose have permitted to collect information concerning the sociodemographic characteristics and nutrition knowledge of admitted pregnant women.  **Results:** The results showed that majority of the mothers (96.7%) were unaware of the nutritional requirements during pregnancy which include knowledge about food sources of macronutrients and micronutrients. Most of them were recorded to be aware of the benefits of maternal diets during pregnancy (85%) and on the growth and development of fetus (80%).  **Conclusion:** Findings highlight the knowledge gap on nutrition that exists in antenatal mothers attending Wamy health center of the health district of Tillabéri. Therefore, nutrition advice as an integral part of the antenatal nutritional counseling should be reinforced and intensified within the maternity unit of the health center in order to effectively address this issue. |

*Keywords: Diet; knowledge; nutrition; pregnancy; Tillabéri*

1. INTRODUCTION

The nutritional status of pregnant women is an important determinant of various health problems of the mother and the fetus [1, 2]. Good maternal and child nutrition is a crucial development factor. In addition, the nutritional status of women is one of the major determinants of maternal mortality, the duration and smooth running of pregnancies as well as their outcome [3]. Then, during pregnancy and at each stage of the growth and development of the fetus, the needs of the mother-child couple change as well as the range of nutrients of maternal origin that it is necessary to provide [4]. Malnutrition occurs throughout the life cycle, beyond the first one thousand days, and its effects can even persist from one generation to the next. This is particularly true in the case of pregnant women, whose nutritional status has an influence on the outcome of their pregnancy as well as on the health and nutritional status of their children during the first years of their life, even until adulthood. All women have higher micronutrient needs during pregnancy and lactation. If they are unable to eat more to cover these needs, they can draw on their body reserves, but this situation is far from ideal [5]. Over the past two decades, a pregnant woman's starting weight and total weight gain during pregnancy have risen sharply. Unfortunately, excessive nutrition intake during pregnancy can lead to complications such as preeclampsia, gestational diabetes, macrosomia, dystocia, and higher prevalence of cesarean section [6]. Indeed, in Niger republic, the results of the Multiple Indicator Demographic and Health Survey in 2012 showed that the energy and calorie deficit (Body Mass Index or BMI below 18.5) remained high (16%), while 14% of women had a high BMI (BMI of 25 or more), putting them at risk of chronic non-communicable diseases. The report on the nutritional profile of women according to socio-economic and socio-demographic characteristics in Niger highlighted the fact that underweight, which is declining, is a rural burden, while overweight and obesity, which are on the increase, are more prevalent problems in urban areas [7]. However, to ensure positive pregnancy outcome, knowledge on nutrition through achievement of health dietary behaviors is unconditionally a vital element [8, 9]. Thus, to understand this phenomenon in our context, we proposed to carry out a study aimed to assess the level and associated factors of nutritional knowledge during pregnancy among women met at the Wamy health center of the health district of Tillabéri.

2. material and methods

* 1. **Study Area**

The study was conducted at the Wamy health center of the health district of Tillabéri. As a regional state, Tillabéri is located in the extreme West of the country Niger republic between 11°50 and 15°45 north latitudes and 0°10 and 4°20 East longitude. The Wamy health center is limited to the east by the Mari health center, to the north by Sakoira health center, to the south by Urban health center and to the West by Sawani health center. It covers up of fourteen (14) villages: those on dry land within the radius of 0-5km and the others as island villages within the radius of 6-15km.

* 1. **Type of Study**

This was a cross-sectional and descriptive study of the nutritional knowledge of pregnant women attending the Refocused Prenatal Consultation (CPNR) at the Wamy health center of the health district of Tillabéri.

* 1. **Study Period**

The study took place from August to September 2022

* 1. **Study Population**

The population is mainly composed of pregnant women who came for the Refocused Prenatal Consultation at the Wamy health center and who are willing to participate in the study and met the inclusion criteria.

* 1. **Inclusion criteria**

All pregnant women who came for the Refocused Prenatal Consultation at the Wamy health center during the study period.

* 1. **Exclusion Criteria**

Any non-biological mother and those who had a medical condition preventing data collection.

* 1. **Sampling method**

Simple random sampling method was applied to recruit eligible respondents. The one that consisted of interviewing eligible pregnant woman who came for the Refocused Prenatal Consultation, taken at random from the group of women during the field study. Our sample is thus composed of 60 participants.

* 1. **Data collection procedures**

A semi-structured questionnaire made of two sections (section One covers sociodemographic characteristics; section Two asses nutritional knowledge) was used for the collection of respective data during the interview with the participant. Firstly, the questionnaires were pre-tested at the health center of Sakoira on 6% of the total sample size for validity and reliability. Then questionnaire was assessed for its completeness on the total sample size at the Wamy health center.

* 1. **Study approval**

Formal approvals by the participating health centers and by the host university were obtained prior to the commencement of the study. Participants who met the study inclusion criteria were given information about the study, and participation was voluntary.

* 1. **Data analysis**

The sociodemographic data and nutritional knowledge were summarized using simple descriptive statistics. Data were analyzed through quantitative analysis where the frequency and the percentage of the respective variables.

3. results and discussion

3.1. Description of socio-demographic characteristics

Table 1 summarizes the socio-demographic characteristics of 60 study participants. The mean age of the participants was 27.56 ±5.70 years with a minimum and maximum of 19 and 41 years respectively. More than half of the participants 31 (51.7%) fall within 18 to 30 years age group. This could be justified by the persistence of early marriages in the Tillabéri region where girls are married most often at a younger age (15 to 16 years old). Our results are different from those of Maï-Ary (2011) [10] who found 40% of mothers were between 26 and 30 years old in his study conducted at the Health District of Diffa. Sossa et al. (2023) [11] reported 88.5% of mothers with age falling within 15 to 34 years old in their study involving 96 pregnant women and aimed to assess knowledge, attitudes, and practices in food and nutrition among pregnant women in antenatal consultation at Menontin Hospital of Benin republic. Lim et al. (2018) [9] in their study conducted in a tertiary teaching hospital in northeast Malaysia reported that the majority of the antenatal mothers as respondents were aged 30 and above (65.9%).

Most of the study participants 51 (85%) were from the rural areas. Regarding the marital status of mother 56 (93.3%) of them were married. This situation is explained not only by the weight of religion in Niger republic which encourages Muslims to get married, but also by the will of the population to comply with it. As for the respondents’ level of education, most mothers (83.3%) have no formal education. This can be justified by the fact that the indicators of the Nigerien education system remain among the lowest in the West African sub-region [12]. In rural areas, parents do not bring their daughters to school. These results are different from those of Aboubacar (2016) [13] who found a predominance of mothers (68.3%) who had attended Koranic school and Gambo (2020) [14] who found 63.3% of women who did not have any level of education during his investigation in the urban Health Center of Mayahi in Maradi state. As for the mothers’ employment status about 53.3% of them rely on farming as an income-generating activity. This state of affairs is explained by the observation that in the locality of Tillabéri agriculture occupies a very important place as it is considered as an activity of subsistence. In terms of number of siblings, the study revealed that about 60% of mothers have 4 to 7 children. This could be due to closely spaced pregnancies. Also, it is well known in Niger traditional culture, having many children is a source of wealth and powerful. However, the risk of malnutrition is two times higher in children born in families with more than 4 children than in those with one to three.

**Table 1. Socio-demographic characteristics of pregnant women (n = 60)**

|  |  |  |
| --- | --- | --- |
| **Variables** | **n (%)** | **Mean (SD)** |
| **Age (Years)** | - | 27.56 ±5.70 |
| 18 - 30 | 31 (51.7) |  |
| 30 - 35 | 27 (45) |  |
| 35 - 45 | 2 (3.3) |  |
| **Residence** |  |  |
| Rural | 51 (85) |  |
| Urban | 9 (15) |  |
| **Marital status** |  |  |
| Maried | 56 (93.3) |  |
| Divorced | 3 (5) |  |
| Single | 1 (1.7) |  |
| **Maternal level of education** |  |  |
| No formal education | 53 (88.3) |  |
| Primary | 4 (6.7) |  |
| Secondary | 3 (5) |  |
| **Maternal occupation** |  |  |
| Retailer | 7 (11.6) |  |
| Farmer | 40 (66.6) |  |
| Housewife | 11 (18.3) |  |
| Civil servant | 2 (3.3) |  |
| **Husband occupation, *n = 56*** |  |  |
| Retailer | 35 (58.3) |  |
| Farmer | 19 (31.7) |  |
| Student | 1 (1.7) |  |
| Civil servant | 5 (8.3) |  |
| **Number of siblings** |  |  |
| One | 6 (10) |  |
| Two | 8 (13.3) |  |
| Three | 10 (16.7) |  |
| 4 to 7 | 36 (60) |  |

3.2. Knowledge of mothers on the benefits of diet during pregnancy

Knowledge of mothers was measured using few questions about the importance of diet during pregnancy. The answers to all questions were a dichotomous answer of 'Yes' or 'No'. Globally, the majority of respondents (96.7%) were unaware of their nutritional requirements during pregnancy which include knowledge about food sources of macronutrients and micronutrients. This finding was found closely similar to that from the study of Sossa et al. (2023) [11] where about 88% of the pregnant women were recorded to be unaware of their nutrient requirements during pregnancy. In another similar study, Augustin and Fisha (2021) [15] reported that 193 (49.7%) and 295 (76.0%) of the pregnant women attending woldia general hospital in Ethiopia hadn’t Knowledge about food sources of protein and Knowledge about food source of iron respectively. These low scores of knowledge regarding the nutritional requirements during pregnancy among the respondents demonstrate the limitations of healthcare professionals in ensuring proper nutritional education to visiting pregnant women. Food choices and food intake in terms of meal frequency per day during pregnancy are indispensable indicators to be well communicated and taught to pregnant women that are admitted for antenatal nutritional counseling [16]. Thus, having good nutritional information related to nutritional requirements during pregnancy is therefore of great importance.

Majority of the respondents were recorded to have great awareness of the benefits of maternal diets during pregnancy (85%) and on the growth and development of fetus (80%), which is in line with studies by Lim et al. (2018) [9], Sossa et al. (2023) [11], and Diane and Nicholas (2020) [17]. Pregnancy, a period of dynamic physiological changes requires a healthy diet that includes essential nutrients to meet the needs of the mother and the fetus for their well-being [18, 19]. Table 2 presents details on the Knowledge of mothers on maternal nutrition during pregnancy.

Table **2. Knowledge of mothers on nutritional needs and consequences of malnutrition during pregnancy**

|  |  |  |
| --- | --- | --- |
| **Knowledge indicators (n = 60)** | **Answer [n (%)]** | |
| **YES** | **NO** |
| **Knowledge of the nutritional requirements during pregnancy** | **2 (3.3)** | **58 (96.7)** |
| *Food sources of macronutrients (carbohydrates, proteins, and fats)* |  |  |
| *Food sources of micronutrients (vitamins and minerals)* |  |  |
| *Number of meals per day during pregnancy* |  |  |
| *Type of foods consumed during pregnancy* |  |  |
| **Knowledge about the benefits of a good diet in pregnant women** | **51 (85)** | **9 (15)** |
| *Help mother to have normal pregnancy* |  |  |
| *Help mother to have sufficient milk* |  |  |
| *Improvement of mothers’ health* |  |  |
| **Knowledge about the benefits of a good diet for growth and development of fetus** | **48 (80)** | **12 (20)** |
| *Healthy newborn* |  |  |
| *Normal weight at delivery* |  |  |
| *Birth without complications* |  |  |
| **Consequences of malnutrition on the mother's health** | **55 (91.7)** | **5 (8.3)** |
| *Premature abortion* |  |  |
| *Anemia* |  |  |
| *Underweight* |  |  |
| *Overweight* |  |  |
| **Consequences of malnutrition on fetus's health** | **50 (83.3)** | **10 (16.7)** |
| *Abnormal weight at delivery* |  |  |
| *Difficulty to self-breastfeed* |  |  |
| *Fetal suffering during delivery* |  |  |

4. Conclusion

In conclusion, even though a relatively good level of knowledge on the advantages and consequences of good and poor diets during pregnancy was recorded among the respondents; yet majority of them was unaware of the nutritional requirements during pregnancy. Therefore, nutrition advice as an integral part of the antenatal nutritional counseling should be reinforced within the maternity unit of the health center and more importantly, new channels with the mandate to contribute for the dissemination of nutrition information to the community through media and social networks should be envisaged.

LIMITATIONS OF THE STUDY

The study was conducted in a single health center around Tillabéri and implicating small sample size, therefore, the findings cannot be generalize to different Public Health centers or Hospitals of Tillabéri region, Niger.

This study used a cross-sectional design that could not establish cause and effect relationships and thus, the findings should be interpreted cautiously.

Ethical approval

The protocol of this study was approved by the Review Board of the Boubakar Ba University of Tillabéri. To ensure data confidentiality of participants, anonymous typing and codification were applied throughout the processes of data collection, entry and analysis.

(ARTIFICIAL INTELLIGENCE)

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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