Journal of Scientific Research & Reports

16(5): 1-10, 2017; Article no.JSRR.37485
ISSN: 2320-0227

Nutritional Status of Women of Reproductive Age (20-50 Years Old) in Wamakko Area of Sokoto State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author RAU designed and supervised the study. Author AD participated in distributing questionnaires to respondents and performed the statistical data analysis. Author SGI managed the literature searching and wrote the manuscript. All authors read and approved the manuscript.

Article Information

DOI: 10.9734/JSRR/2017/37485
Editor(s):
(1) Surapong Pinitglang, Department of Food Science and Technology, School of Science and Technology, University of the Thai Chamber of Commerce, Thailand.
Reviewers:
(1) Edmar Atik, Heart Institute from Sao Paulo University Medical School, Brazil.
(2) Paul Schoenhagen, USA.
(3) Nagahito Saito, Takagi Hospital, Japan.
Complete Peer review History: http://www.sciencedomain.org/review-history/21771

Original Research Article

Received 19th October 2017
Accepted 31st October 2017
Published 6th November 2017

ABSTRACT

Aims: This cross-sectional study was conducted to assess the nutritional status of women of reproductive age in nine villages of Wamakko Local Government, Sokoto State, Nigeria.
Study Design: Community based cross sectional survey design.
Place and Duration of Study: Department of Biochemistry, Usmanu Danfodiyo University, Sokoto, Nigeria, between November 2015 and July 2016.
Methodology: Four hundred women were selected for the study and a structured questionnaire was used to collect information on demographic, socio-economic, reproductive health, ante-natal care, delivery practices, exclusive breast feeding and educational status. Height and weight of mothers were measured by standard methods. Body mass index (BMI) was used to assess mothers' nutritional status.
Results: Results from the nine villages revealed that predominant women had no formal education (55.0 to 100.0%). There was very low level of ante-natal care attendance (18.0%) and ingestion of micronutrient supplementation during pregnancies (12.0%). Most deliveries (86.0%) from Gunfar

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Dangara and (92.0%) from Sabon Garin Dole were performed at home and mainly assisted by untrained traditional birth attendants. The dietary habit of the women indicated that carbohydrates base diet is the major food consumed by the women (55.6 – 76%) except Bakassi with only 7.5% of women who consumed carbohydrate base diet and with 60% of women who consumed protein rich food. Most women from the study areas were under weight <18.5 kg/m^2 and very few women were obesed >30 kg/m^2.

Conclusion: Poor health status during child bearing period, high deliveries at home along with high prevalence of under nutrition of mothers, are mainly due to low socio-economic condition, high illiteracy and lack of awareness among the villages.

Keywords: Delivery practice; nutritional status; socio economic; Wamakko; women of reproductive age.

1. INTRODUCTION

The nutritional status of women and children is a good indicator of the overall well-being of a society. It is of great concern in the contemporary world, because the multiple roles played by women give rise to serious health and nutritional problems [1]. Under nutrition and poor health affect the well-being of millions of people in developing world. Factors at individual, household and community level, or a combination of these factors, may contribute to poor nutrition and health status [2]. In particular, malnutrition among women does not only impact the mothers' health but also their children. More than 3.5 million women and children under age five in developing countries die each year due to the underlying cause of under nutrition [2]. Women are more likely to suffer from nutritional deficiency than men for several reasons, including their reproductive biology, low social status, poverty and lack of education. In addition, socio-cultural traditions and disparities in household work patterns can also increase women's chance of being malnourished [3]. Many African women display low weight-for-height as measured by a body mass index of less than 18.5 [4].

Women in low-income settings often consume inadequate amount of micronutrients because of resource limitation. They have a limited intake of food sourced from animals, fruits and vegetables. Intake of micronutrients less than the recommended values increase women's risk of micronutrient deficiencies [5]. Adequate nutritional status of women is important for their good health and the health of their offspring [6].

Maternal mortality in Nigeria accounts for an estimated 14% of global maternal deaths [7]. Furthermore, Nigeria accounts for an estimated 9% of global first–day deaths, with less than 5% of the world's birth [8]. Women are thus, vulnerable to malnutrition for social and biological reasons. Recently, efforts have been made to improve women's economic independence in Nigeria by introducing Better Life for Rural Women and Family Support Programmed (FSP) to ensure a more equitable role for women in the community. Good maternal nutrition is important for the health and reproductive performance of women and their health, survival, and development of their fetus. Malnutrition in women, including pregnant women, remains, to a large extent, uncounted and unreported; thus, insufficient attention has been given to the extent, causes, and consequences of malnutrition in women [9]. As a result, inadequate resources and efforts have been allocated toward improving women's nutrition compared with other nutritional and public health actions [10]. The limited available data and the few experiences with programs that do exist come mostly from small-scale efforts to improve women and children nutrition [11].

Research based information regarding maternal nutrition from the study communities is lacking. A number of studies had indicated that data on nutritional status of women in northern Nigeria are inadequate; hence this assessment of their nutrition and health status is required timely for government and non-governmental organization to have data for planning interventions. This study, therefore, aims at identifying the underlying factors affecting the health and nutrition of women residing at Wamakko area of Sokoto State. The information gathered is expected to help plan and implement a comprehensive package for improving their health and nutritional status.

2. MATERIALS AND METHODS

2.1 Study Area and Population

The study was conducted in nine villages of Wamakko Local Government Area in Sokoto

State, Nigeria. It's headquarter is in the town of Wamakko on the Sokoto River. It has an area of 697 km² and a population of 179,619 at the 2006 census. The area is mainly populated by Hausa people who are mostly farmers and animal rarer. The concentration of wealth, prestige, the political power and religious learning centers in Wamakko attracted large numbers of rural-urban migrants from neighbouring state and distance regions. As of 2010 the research conducted by National Bureau of Statistics estimated that rural –urban migrants in the area is about 4,536 and it's increasing at the rate of 10% annually. The study areas were Kwalkwalawa with latitude of N 13°6' 17'', longitude E 5 °12' 24'', altitude 270.3m, Bakin Gulbi has latitude of N 13° 6' 27'', longitude of E 5° 12' 47''and altitude of 282.1 m, Sabon Gari has latitude N 13° 6' 7'', longitude E 5° 12' 11'', altitude 258.6 m, Gwafar Dan Gara village is located on latitude N130°64` and on longitude E5°11`21", Altitude 293.9 m, Sabon Garin Dole village is located on latitude N13° 6` 44° and longitude E5° 13` 7", and altitude 298.7 m, Gidan Yunha has latitude N 13° 6' 35'', longitude E 5° 12' 43'', altitude 279.8 m, Gidan Hamidu has latitude N 13° 8' 42'', longitude E 5° 12' 13'', altitude 321.9 m, Sayya Gidan Gada has latitude N 13° 6' 29'', longitude E 5° 12' 14'', altitude 272.4 m, Bakassi UDUs is located on latitude N 13° 7' 41'', longitude E 5° 13' 32'', altitude 305.8 m.

2.2 Ethical Approval

The consent and approval from community leaders was granted to carry out the study in the areas. Likewise, permission from the women's husband was sought for before the distribution of the questionnaires to reproductive age group women in the study areas.

2.3 Study Design and Sampling

The study was a community based cross sectional survey design and data were collected from women of the rural households of the reproductive age group between 20 – 50 years of age. Purposive sampling technique was used in this study. A total of 400 women of reproductive age were interviewed and the questionnaires were distributed accordingly. Data was collected on socio economic and demographic information of the household, the structured question was personally administered by the research team on the respondent because most of them had no formal education.

2.3.1 Data collection

Trained research team fluent in Hausa language administered the pre tested questionnaire to selected women of reproductive age in their respective houses. The questionnaire was used to assess the socio demographic characteristics, health seeking behaviour, dietary habit and breast feeding practice of women of child bearing age.

2.3.1.1 Anthropometric measurements

Weights of the women were measured to the nearest 0.1 kg on a weighing scale and heights were measured to the nearest 0.1 cm using a wooden height measuring board.

2.3.1.2 Data analysis

The data gathered through the structured questionnaire were presented as percentage.

3. RESULTS AND DISCUSSION

3.1 Results

The age range of the women of reproductive age in the study area was divided into three (20-25, 26-35, 36-50) (Fig. 1). The investigation made on the 20-25 age group revealed that Gunfar Yunha and Gunfar Hamidu have the highest percent of 54 and 52 respectively, while Bakassi has the lowest with 15%. Others include; Bakin Gulbi, Sabon Gari, Kwalkwalawa, Gunfar Dangara, Sabon Garin Dole and Sabon Gidan Gada with 45, 46.8, 33.3,48, 46 and 35% respectively. In similar pattern, age group of 26-35 years was also compared among the villages covered in the study. The result shows that Kwalkwalawa and Bakassi were of highest percent, 55.6 and 50% respectively, followed by Gunfar Dangara (46%), Sabon Gidan Gada (40%), Sabon Gari (38.3%), Bakin Gulbi (37.5%), Gidan Hamidu and Gunfar Yunha (32% each) and lastly Sabon Garin Dole (30%). In the case of age group of 36-50 years, Bakassi has the highest percent (35%), others are of low percent ranging from 6-24%.

The educational status of women of reproductive age in the study area was presented in Fig. 2. The result shows that all the villages have high and similar level of non educated women of 94.5%. However, Bakassi shows considerable level of education which decrease with increase level of education, as none educated (55%) primary level (25%) secondary level (12.5%) and tertiary level (7.5%).

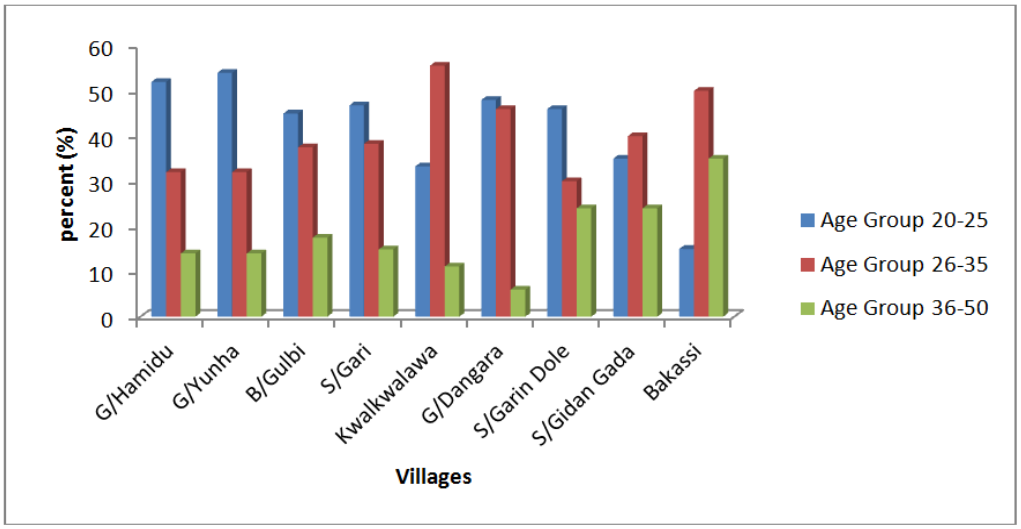

Fig. 1. Age group of women of reproductive age from the villages of wamakko
Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

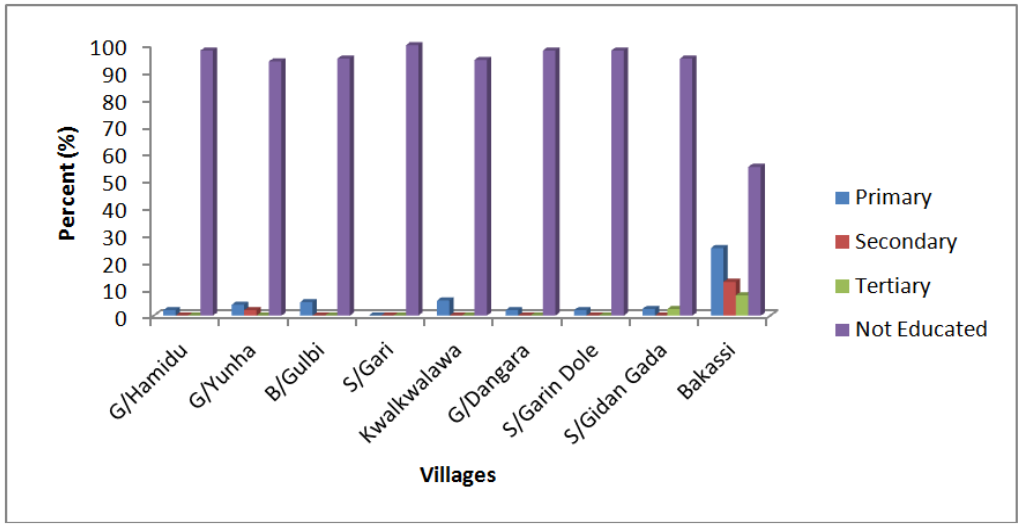

Fig. 2. Educational status of women of reproductive age from the villages of wammako
Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

The economic activities of women of reproductive age from the nine villages were presented in Fig. 3. The result revealed that all the villages covered were involved in trading activities, where Bakin Gulbi appeared to be the highest with 72.5% and Gunfar Hamidu the lowest with 28%. Significant number of the people in the study area involved in tailoring work, in this case, Gunfar Hamidu and Gunfar Dangara Show the Highest activities of tailoring (18 and 16% respectively) while Bakin Gulbi is the lowest (2.5%). Other economic activities include Hair Plating and Grinding. Our result indicates that only Bakassi shows significant number of women (15%) involved Government work (Gov't work), Bakin Gulbi (2.5%). On the other hand, all the villages covered show significant number of women who have not engage themselves in any of the economic activities, in this case, Gidan Hamidu, Gunfar

Yunha, and Sabon Garin Dole appeared to be the highest with 54% each while the lowest is Bakin Gulbi (20%).

The result of the number of children for women of reproductive age from the nine villages was presented in Fig. 4, it was revealed that considerable number of women have 0-2 children, with Bakin Gulbi Having the Highest (42.5%) whereas, Bakassi is the lowest (7.5%). In the case of 3-5 years old, Kwalkwalawa has the highest percent (66.7) Gidan Hamidu and Gidan Yunha were the lowest with 20.8% and 22% respectively. Significant numbers of women have 6-8 children. In this group, Gidan Hamidu and Gidan Yunha were the Highest with 50% each while Sabon Gidan is the lowest with 7.5%.

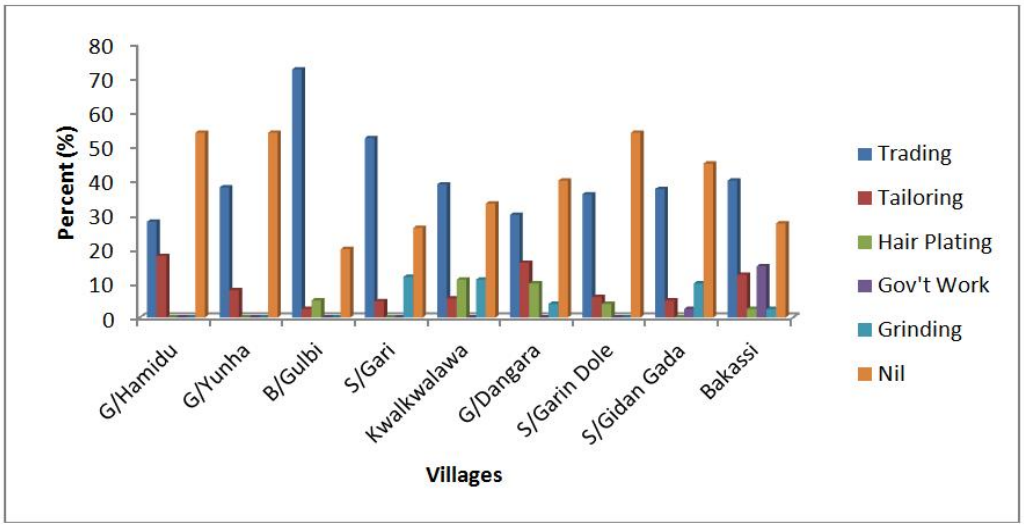

Fig. 3. Economic activities of women of reproductive age from the villages of wamakko
Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

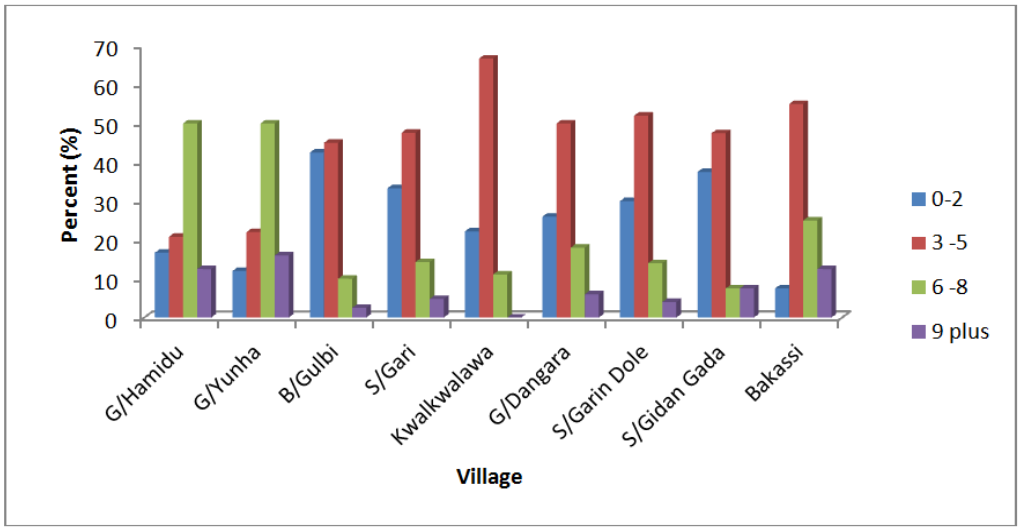

Fig. 4. Number of children of women of reproductive age from the villages of wamakko
Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

Percentage dietary habit of women of reproductive ages in the study area was presented in Fig. 5. The result shows that carbohydrate base diet (CHO B.D) is the major food consumed by the people in the villages covered in this study. However, the information obtained from Bakassi is different; protein base diet is their major source of food (60%) while carbohydrate is 7.5%, vegetable (2.7) and others (30%).

The results of micronutrient (MN) supplementation of women of reproductive ages in the study area were presented in Fig. 6. The result indicates that the extent of MN supplementation varies from one village to the other; Bakassi has the highest percent of MN supplementation (92.5%), while Sabon Garin Dole is the lowest (12%).

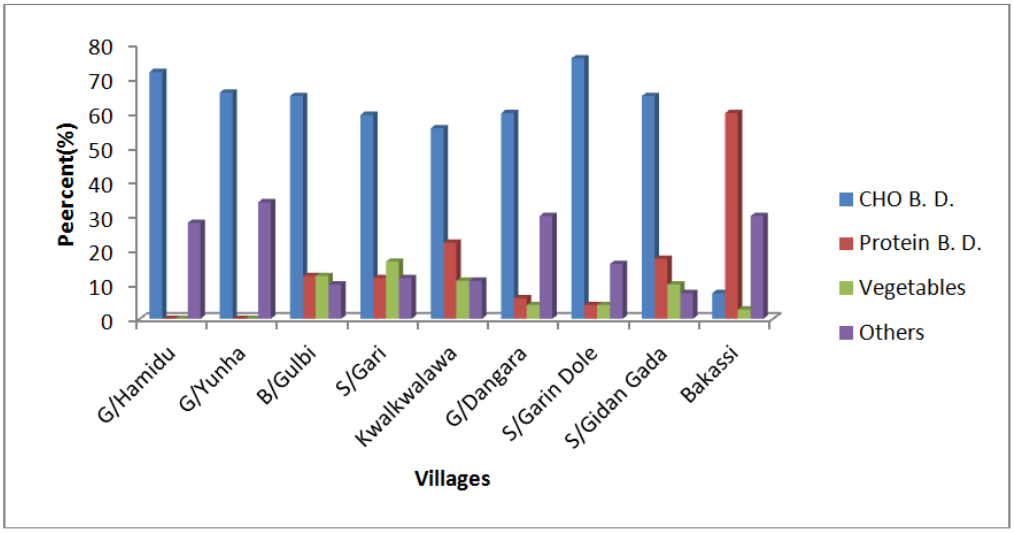

Fig. 5. Food type of women of reproductive ages in the study area

Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada, CHO = Carbohydrates, B. D. = Base diet

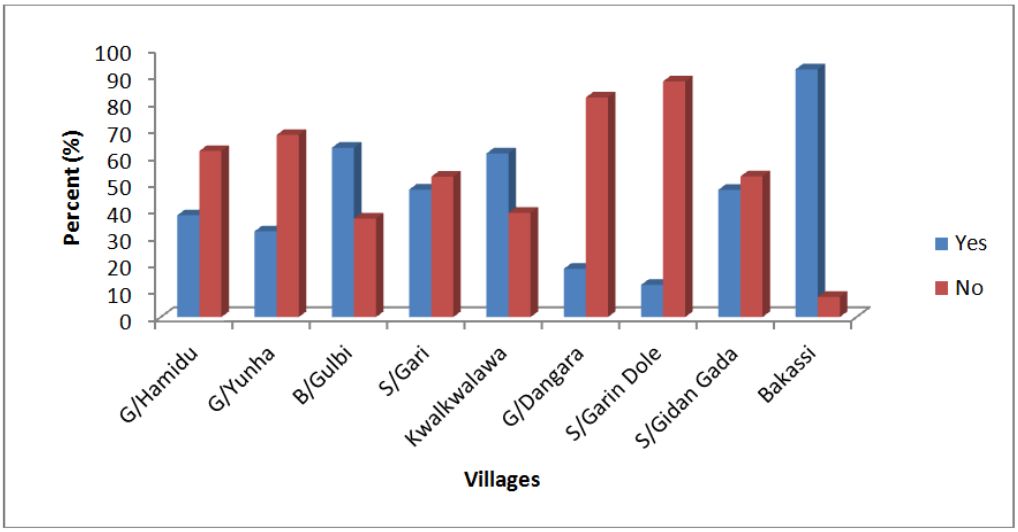

Fig. 6. Micronutrient (MN) supplementation of women of reproductive ages in the study area

Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

The result on Knowledge of Exclusive Breast Feeding (EBF) and its practice amongst Women of Reproductive Ages in the Study Area was presented in Figs. 7 and 8 respectively, most women of reproductive age in the study area were informed about EBF but they are not practicing it. However, both women of Bakin Gulbi, Sabon Gari and Kwalkwalawa have very low percent (<12%) of women with knowledge and practicing of EBF. The percentage of women with knowledge of EBF in Bakin Gulbi is similar to percentage number of those practicing it (48% and 46%) respectively. Sabon Garin Dole, Sayya Gidan Gada and Bakassi women show high level of knowledge on Exclusive Breast Feeding (EBF) (82, 80 and 87.5%) respectively; but only few of them adopted the method in which Sabon Garin Dole has (6%), Sayya Gidan Gada (5%) and Bakassi (15%) (Fig. 8). The women of Sabon Gari have the lowest level of knowledge on EBF (2.4%) and none involved in the practice.

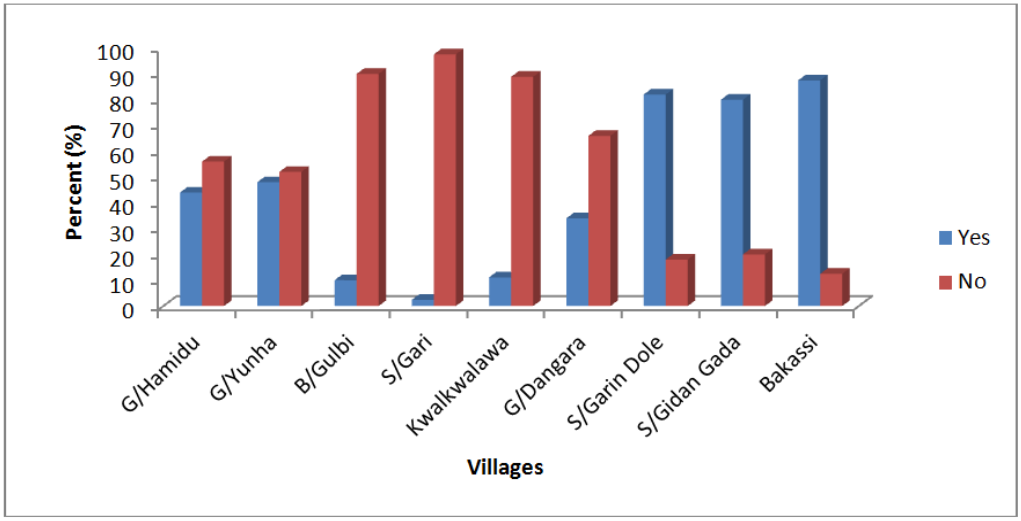

Fig. 7. Knowledge of exclusive breast feeding (EBF) of women of reproductive ages in the study area

Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

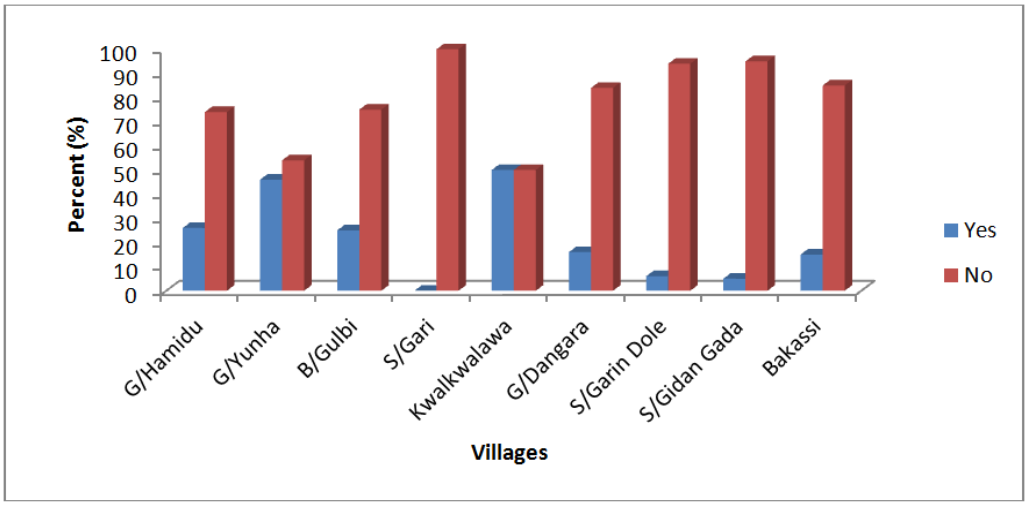

Fig. 8. Practice of exclusive breast feeding (EBF) of women of reproductive ages in the study area

Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

The result of the Anti-natal care (ANC) attendance of women of reproductive age was presented in Fig. 9. It was observed that at least 52% of Bakassi, Kwalkwalawa and Bakin Gulbi women attend ANC. On the other hand, women of G/Hamidu, G/Yunfa, G/Dangar, S/Garin Dole and S/Gidan Gada have poor ANC attendance with G/Yunha having the lowest percentage value of 20%.

The result of the nutritional status of women of reproductive age in the study area was presented in the Fig. 11, the result shows Gidan Hamidu, Gidan Yunha, Gunfar Dangara, Sabon Garin Dole and Sayya Gidan Gada have high number of women who are underweight (<18.5 kg/m^2). Bakassi, Sabon Gari, Bakin Gulbi and Kwalkwalawa have high number of women

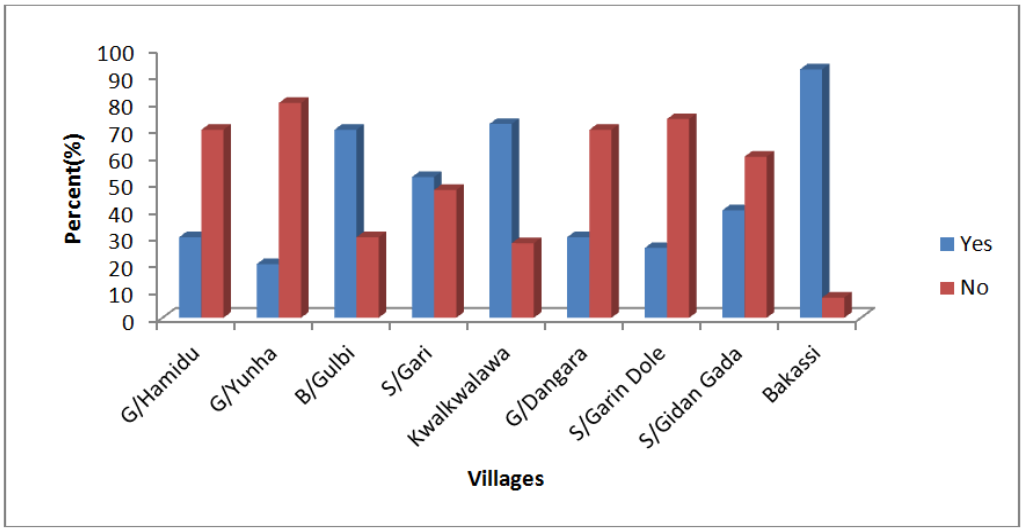

Fig. 9. Anti-natal care (ANC) attendance of women of reproductive ages in the study area
Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

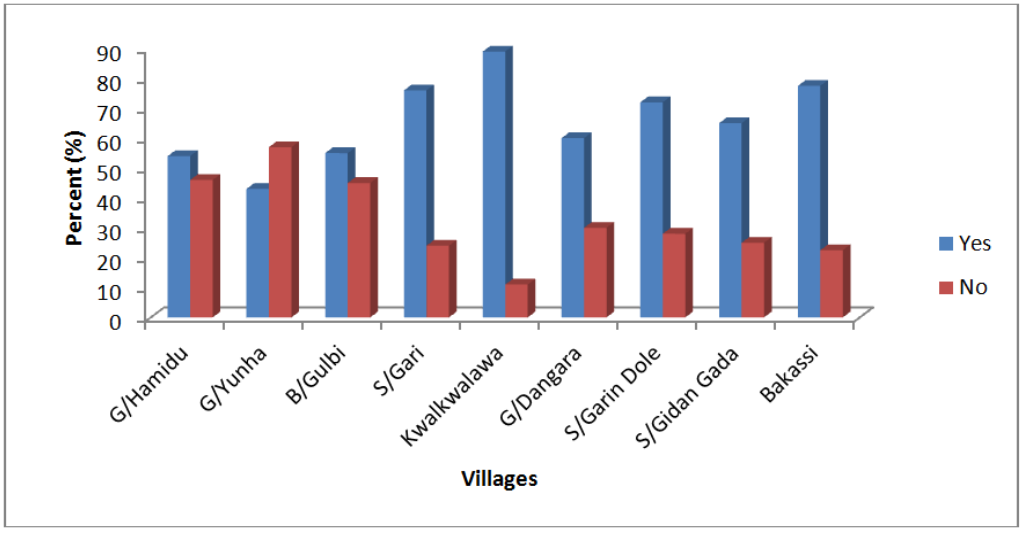

Fig. 10. Insecticide treated net (ITN) of women of reproductive ages in the study area
Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada

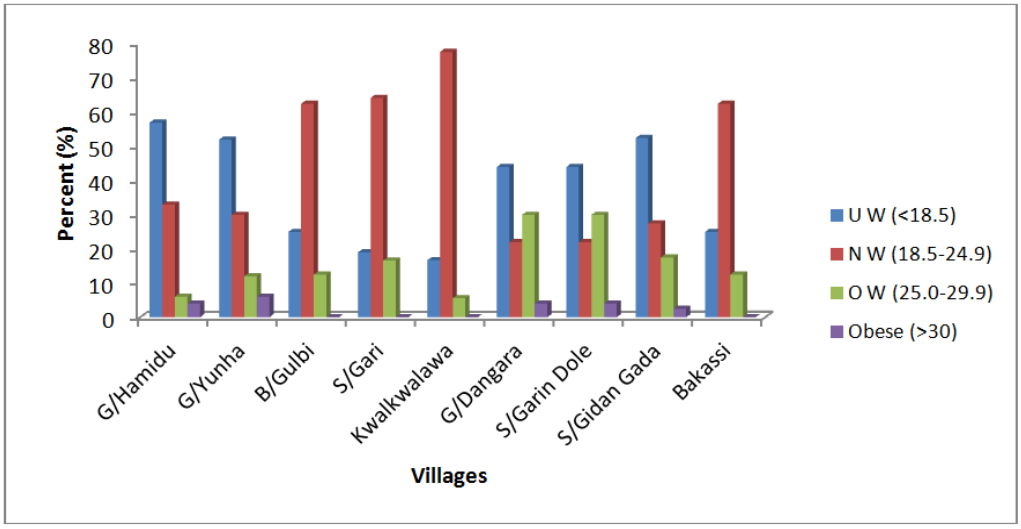

Fig. 11. Nutritional status of women of reproductive ages in the study area

Key: G/Hamidu = Gidan Hamidu, G/Yunha = Gunfar Yunha, B/Gulbi = Bakin Gulbi, S/Gari = Sabon Gari, G/Dangara = Gunfar Dangara, S/Garin Dole = Sabon Garin Dole, S/Gidan Gada = Sabon Gidan Gada, UW = Under weight , NW = Normal weight, OW = Over weight

who have normal weight for height. Across the study area, very few women are obesed (>30 kg/m^2).

3.2 Discussion

The present study reports on the impact of some socio-economic and demographic characteristics on the nutritional status of women of reproductive age in 9 villages of Wamakko L.G.A. of Sokoto State. Four hundred women of reproductive age participated in the study. A woman health's affects the household economic well being and when properly nourished her status in the society improves [12]. The health of northern Nigerian women is linked to the family economic status. This study revealed that considerable numbers of the participant have normal weight for height where as average number of them are underweight. Most women from Bakassi, Kwalkwalawa, Sabon Gari and Bakin Gulbi have normal weight for height. These might be due to their averagely socio-economic status which plays a positive impact in the type of food they eat. Although most of them consumed high proportion of carbohydrates with other low major class of food, except those from Bakassi who consumed high proportion of protein. Likewise, the high percentage of women who supplement their diet with micronutrient might have also accounted for their normal nutritional status. This finding similar to what was early reported by Sucharita and Renu, [13] that the nutritional status of women were related to their income categories as majority of the population came from middle income group. Also, similar to the finding of Sindhu [14] where 50.2% of women were normal and 4.5% of women were underweight. Reddy et al. [15] reveals that underweight is a significant problem in rural population.

The women from Bakassi, Kwalkwalawa, Sabon Gari and Bakin Gulbi have reasonable number of children (3-5), this in conjunction with their average economic status contributed to their normal nutritional status. Furthermore, women from the four villages with normal nutritional status do attend anti-natal care during pregnancy and this might have gave them the opportunity to gain useful knowledge on how to improve and maintain their health status.

Moreover, women from Bakassi, Sabon Gidan Gada and Gunfar Dan Gara have knowledge on exclusive breast feeding but, very few women from the villages practiced exclusive breast feeding compared with women from the other villages.

According to the finding of Anwar [16] that the poor desire large family size than the non poor. That large family is desired by those in the lowest economic status group. This is so because children are regarded as economic assets and security in old age, even though it will mean

more mouths to be fed. Few women from the study area have 9-plus children this might be due to their low socio economic status as determined by family income, education and occupation.

4. CONCLUSION

Low educational status and poor economic activities among the women of reproductive age of many villages of wamakko Local Government Area were established in this study, this might be the leading factors for their poor nutritional status and negligence to the health services during pregnancy and delivery.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/21771