RESEARCH ARTICLE

NUTRITIONAL KNOWLEDGE AND ATTITUDE AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE OF BAHRI HOSPITAL, SUDAN

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ABSTRACT

Well-balanced nutrition is one of the best ways to ensure maternal and fetal wellbeing in developed and developing countries. The aim of the present study was to investigate the nutritional awareness of women represented in their knowledge, attitude, and the dietary practice in order to understand meaning of the importance and constituents of a well-balanced diet during pregnancy. An observational cross sectional study was conducted at the threshold of 2015 at outpatient clinic of obstetrics and gynecology at Bahri Hospital, Sudan. A total of 100 pregnant women responded to the interviewing questionnaire schedule sheet. Result revealed that in spite of the majority of participants (74%) were regularly attending antenatal care, there are 58% of them have a poor level of knowledge about complication of malnutrition during pregnancy. Antenatal care centers are responsible for elevating nutritional awareness and providing advice regarding pregnant women dietary needs.

INTRODUCTION

Malnutrition is an acute or chronic condition where a deficiency or imbalance of energy, protein and other nutrients cause measurable and adverse effects on body composition, function and clinical outcomes (Soeters et al., 2008). Option of a particular type of food item that has little or no nutritional value (Opara et al., 2011; Udoh 1998). Malnutrition according to Sweet (2006) and Harrison (2007) is a condition where nutrition is defective in quantity or quality. An undernourished mother is likely to give birth to a low-weight baby susceptible to disease and premature death, which only further undermines the economic development of the family and society, and continues the cycle of poverty and malnutrition (Blossner and de Onis, 2005). The availability and supply of nutrients to the developing fetus depends on maternal nutritional status which in turn depends on her nutrient stores, dietary intake and obligatory requirements (Ramakrishnan et al., 2012).

It has been summarized by Morley (1997) that the causes of malnutrition can be based in physical, psychological, medical and social factors. Physical factors include impaired taste, smell, mobility, anorexia, diminished feelings of hunger or satiety, malabsorption, pain and fatigue. Psychological factors include anxiety, depression, isolation, distress and changes in life circumstances. Medical factors include health problems such as infection and/or inflammation, problems involving chewing and swallowing, dementia, adverse effects of medication and addiction. Social factors include impaired ability to shop for and prepare food, isolation, bereavement and poverty. It has been shown, in many studies, that malnutrition leads to reduced functional recovery as well as severe consequences during illness. Stechmiller (2010) stated that malnutrition reduces functioning of the immune system, wound healing, increases the chance of developing pressure sores, impairs the quality of life and increases mortality. As well, Elia (2009) demonstrated that these complications of malnutrition lead to increased length of stay in hospital with increased use of medication, leading to increased healthcare costs. Additionally, Corbett et al. (2007) stated that inactivity, due to malnutrition, causes loss of muscle mass leading to decreased heart and lung capacity.

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Furthermore, Joosten et al. (2010) demonstrated that, in children, malnutrition causes long-term effects such as lower IQ and stunted growth. As general, nutrients requirement in pregnancy should contain carbohydrate, protein, fats, micronutrients and vitamins, which essential for both maternal and foetal development. Pasupathy (2016) stated that carbohydrate form the main substrate for foetal growth, fueling maternal and foetal organ function, structural components of cells, coenzyme and DNA. Fibrous diet supports maternal digestive health. Protein forms the building blocks for both structural and components of cells. Fat required for structural and metabolic functions and neurological development including foetal brain. Iron is required for foetal development, placental growth and expansion of maternal red blood cells mass. Vitamin C aids iron absorption and competes for placental receptors with glucose. Folate binding receptors maintain a high foetal-maternal concentration gradient for DNA synthesis while vitamin B12 is transported via placental receptor and both associated with reduction of anemia.

It was well-documented that maternal nutrition is crucial in reducing maternal and infant morbidity and mortality, but no study has been conducted to assess nutritional knowledge, attitude and practices of pregnant women in the study area. Therefore, the aim of this study was to assess nutritional knowledge, attitude, and practices among pregnant women resident in Bahri communities and attend antenatal care at Bahri hospital, Sudan.

MATERIALS AND METHODS

The design of the study was a descriptive survey design. The population of the study consisted of 100 pregnant women that periodically attend Bahri Hospital, Sudan. They were made up of all those who has registered for the antenatal care in Primary Health Care Centers. The instrument that used was a structured questionnaire prepared for collecting data. The questionnaire has been divided into two sections namely: Section A and Section B. Section A was on the consequences of undernourished during pregnancy and section B was on the causes of undernourished during pregnancy.

Data collection: For the purpose of data collection in this research, the participants’ responses has been elicited using a questionnaire methods in form of closed question (YES/NO question), that covered all the basic questions needed to give the full information about the awareness of the complication itself and the environmental status and awareness of the population in the targeted areas.

The study area and study design: The study was carried out in the outpatient clinic of obstetrics and gynecology at Bahri Hospital, Sudan. Most of the participants are reside Bahri Town and its northern suburbs. The participants were residents of the same neighborhood, based on household surveys.

Sampling technique, sampling size and data analysis: Simple random sampling technique is used after interviewing a number of pregnant women that periodically attending the outpatient clinic of obstetrics and gynecology at Bahri Hospital, Sudan. A total number of 100 pregnant women were randomly sampled. The questionnaire composed of 16 closed questions (YES/NO), and then pregnant women were interviewed using the predesigned questionnaire.

The sample size was calculated based on the available data that documented on the hospital records using the formula \[ Z^2 \times P \times q/d^2 \]. The findings of the study are represented in accordance with the research questions that guided the study. A statistical package for social sciences (SPSS) Version 20 was used to analyze the obtained data and categorical variables were then summarized as numbers and percentages.

RESULTS AND DISCUSSION

Distribution of respondents according to age, educational level and occupational status: Investigation and questionnaire (Table 1) indicates that there were 10 out the 100 pregnant women (10%) that attended Bahri Hospital during this study have their ages found younger than 20 year- old, while only 6 out of 100 pregnant women (6%) found to be above 50 year-old, the majority of pregnant women (46%) were found their ages ranged between 20 and 30 year-old, seconded by pregnant women their ages ranged between 30 and 40 year-old (38%). Previous study reported that the pregnant women under 20 year-old in rural areas of Belagavi, India, were found to be 8.6%, and the majority of pregnant women (82.9%) were found to be ranged between 20 and 30 year-old, and only 8.6% of them were found to be above 30 year-old (Bernard and Baliga, 2019). It has been reported that being under 20 year-old pregnant women may result in additional consequences and high risks to the pregnancy, not only pertaining to the newborn, but also to the mother’s health (Usta et al., 2014). Younger pregnant women under 20 year- old are at greater high-risk pregnancy due to not being care about getting adequate prenatal care. Prenatal care is critical, especially in the first months of pregnancy. Prenatal care screens for medical problems in both mother and baby, monitors the baby's growth, and deals quickly with any complications that arise. As younger women, old pregnant women, above 50 year-old, also may undergo antepartum hemorrhage at 29 weeks of gestation (Verma et al., 2016). A study on complications in pregnancy in women aged 35 and above stated that the pregnant women age cannot be considered an isolated factor for maternal and obstetrical complications (Alves et al., 2017).

According to the research, the questionnaire revealed that 20% of pregnant women were found to be illiterate and 32% of them have completed basic schools while the rest (48%) were having the secondary school. The study of Kolanowski (2019) showed results similar to the data obtained in this study, which found that the majority (56%) of pregnant women in Poland were attended higher school while the rest (44%) were attended basic schools. It has been reported by the Registrar General of India during 2006 that the main causes for a majority of deaths of pregnant women was found to be the lack of education and awareness (Saprodè, 2010). Regarding to the occupational status of pregnant women under the study, it is clearly from table (1) that the majority of pregnant women under the study (76%) were found to be housewives, and only 18% were employees. Socio-economic factors such as education and occupational status affect greatly the health of women during pregnancy, since it has been reported by Saprodè (2010) that the utilization of antenatal care services increases with improvement in the position of women with respect to education and standard of living.

Distribution of respondents according to residence and Parity and Knowledge about definition of undernourished:
According to the research (Table 2), it was found that there were 68 out the 100 pregnant women (68%) that attended Bahri Hospital during this study were found to be urban citizens, while the rest (32%) found to be rural. Similar findings had been reported by a previous study conducted by Kolanowski (2019), which found the majority of pregnant women (64%) reside in cities and (36%) reside in villages. Pregnant women living in rural areas are more likely to be at high risk pregnancy comparing to those living in urban areas. Results of a previous study investigated risk status of pregnant women in rural areas of Belagavi, India, found the prevalence of high-risk pregnancy was 31.4%, and attributed this high-risk mainly to undernutrition, which affects 42.1% of the participants (Bernard and Baliga, 2019). According to the research, the questionnaire revealed that 50% of pregnant women were found to be having parity of 1-4, and 36% of them were having above 4, and the rest (14%) were to be nulliparous. Previous study found that women with high parity pregnancies had a higher risk of anemia-in-pregnancy compared to those who had had fewer pregnancies (Al-Farsi et al., 2011).

Multiparity was associated with higher fetal growth rates from third trimester onward and with lower risks of delivering preterm and small-size-for-gestational-age infants but a higher risk of delivering large-size-for-gestational-age infants. Maternal nulliparity is a risk factor for suboptimal maternal hemodynamic adaptations during pregnancy, which may adversely affect fetal nutrient supply. Children of nulliparous mothers have slower fetal growth from third trimester onward and accelerated infant growth. Maternal nulliparity is also associated with increased risks of adverse birth outcome, childhood adiposity, and adverse childhood metabolic profile (Gaillard, et al., 2014). In regard to Knowledge about definition of undernourished, as declared in table (2), 58% of the pregnant women under the study said not to have known about definition of undernourished, and 22% said that the definition of undernourished is the decrease of quality and quantity while 20% of them defined undernourished as weight loss. Tenaw et al. (2018) found 27% of pregnant mother that were attending antenatal care at public hospitals of Addis Ababa, Ethiopia, had good knowledge about maternal nutrition during pregnancy, and stated that each of knowledge, family income, husband education and occupational status had a positive association with good practices of nutrition during pregnancy.

Distribution of respondents according to Knowledge about content of healthy diet, complication of malnutrition, having any complication of malnutrition and having regular antenatal care: According to the research, 56% of pregnant women under the study said that they have known about content of the healthy diet, while the rest (44%) said that they have known nothing about the content of healthy diet (Table 3). 44% of pregnant women under the study said yes they have known about complication of malnutrition, while the majority of them (56%) said that they have known nothing about this complication. A study reported by Nguyen (2019) that pregnant women should be aware of nutrition requirement because of the major changes that associated with metabolism and physiology to support embryo development. Referring to table (3), when the participated pregnant women were asked if they have any complication of malnutrition, 72% of them found to be not having any complication of malnutrition, while 28% of them said that they have complication of malnutrition. It is stated that malnutrition in the mother has direct effects on the body size of the offspring, and may contribute to the health risks in childhood, persisting throughout life and in presence of maternal under nutrition fetal growth reduces in part by impairing placental development and function and this condition can also affect organ development through effects on the endocrine system or imprinted gene expression (Triunfo and Lanzone, 2014). The majority of pregnant women under the study (74%) found to be regularly attending antenatal care, whereas the (26%) were not attending regularly antenatal care.

It is stated by Cumber et al. (2016) that antenatal care services can help women prepared for delivery and understand warning signs during pregnancy and childhood carbohydrates form the main substrate for foetal growth, fueling maternal and foetal organ function, biosynthesis and are additionally used in structural components of cells, co enzymes and DNA. Maternal and foetal brain function use glucose from carbohydrate as their preferred source of energy with glucose providing at least 75% of foetal energy requirements carbohydrates form the main substrate for foetal growth, fueling maternal and foetal organ function, biosynthesis and are additionally used in structural components of cells, co enzymes and DNA. 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36% of pregnant women under the study said that they have well known that anemia in pregnancy is a complication sign resulted of malnutrition (Table 4) and 14% of them have known that weight loss is a mothers' complication due to malnutrition. Only 4% realized that both lethargy and fatigue are signs of mothers' complication due to malnutrition, while 10% said that infection is mothers' complication causing by malnutrition. The rest of the studied pregnant women (36%) were missing. According to Knowledge about the complication for child, the questionnaire, showed that 12% of pregnant women under the study said that they have well known that low birth weight baby is a complication sign of child resulted of malnutrition (Table 4), and 10% of them have known that retard fetus growth organs is a child's complication due to mother's malnutrition during pregnancy. 6% of the studied pregnant women known that preterm baby is a complication sign of child resulted of malnutrition of mother during pregnancy. Only 4% of them said yes both low birth weight baby and preterm baby are resulted of malnutrition. As well 4% of them realized that each of low birth weight baby, retard fetus growth organs and preterm baby are all signs of mothers' complication due to malnutrition, while the rest (58%) of the studied pregnant women were missing. The questionnaire showed that 14%, 10% and 12% of pregnant women under the study suffering of Diabetes mellitus (DH), Hypertension (HTN) and Asthma diseases, respectively, and 4%, 2% and 2% of them suffering of both DM and HTN, both DM and Asthma, and both HTN and Asthma, respectively (Table 4).

Anemia was defined by Getahun et al. (2017) as a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, and it occurs more prevalent in pregnant women and young children. A significant association was found between pregnant women anemia and their residential areas, history of excess menstrual bleeding, antenatal care follow up, and inter-pregnancy interval. A previous study stated that women who were malnourished evidenced by underweight Body Mass Index (BMI) and have a strong predictor of low infant birth weight and increased infant mortality. A woman's prepregnant BMI and her total weight gain during pregnancy are important determinants of newborn weight (ACOG technical bulletin, 1993). Atinmo and Akinuleye (1998) observed that inadequate diets during pregnancy are associated with a higher incidence of compilation and difficulty deliveries, still birth premature and infant with unusual conditions, and when there is poor feeding or nutrition on pregnant mother, there is general weakness, tiredness during some activities like walking long distance, weight loss, loss of appetite, anemia and reduced immunity, mental and physical weakness.

In addition, study conducted by Alves et al. (2017) stated that there were more than 70% of pregnant women aged over 35 had some sort of complication, especially preeclampsia, gestational diabetes, gestational hypertension, and premature rupture of membranes. As general, Bernard and Baliga (2019) suggested that maternal undernutrition appeared to be an important factor in high risk pregnancy among participants in the study of rural areas of India.

Conclusion and recommendations: It can be concluded that in spite of the majority of pregnant women that were regularly attending antenatal care in Bahri Hospital, there are most of them have a poor level of knowledge about complication of malnutrition during pregnancy, and prenatal care centers are recommended to care much for nutrition education and counselling towards pregnant women during early pregnancy. New nearby antenatal care centers should be established in rural areas to facilitate accessing of pregnant women.

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REFERENCES


