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## 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.

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## 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, Sudn. 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 (Saprode, 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 Saprode (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:**



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, shown 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 Akinyele (1998) observed that inadequate diets during pregnancy are associated with a higher incidence of complication 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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