

Review of Nutritional Status and Factors Affecting Dietary Practices among Pregnant Women

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Abstract

In every woman's life, pregnancy is the greatest period where nutrition is the main significance for ideal pregnancy result. During this period, there is high demand of nutrients from the mother to the growing foetus. This paper focused on review of nutritional status and factors affecting dietary practices among pregnant women. Based on review, findings revealed that adequate dietary practices is crucial during pregnancy in order to ensure that correct energy and nutrient is provided to the developing foetus. Similarly, steady diet during pregnancy is essential for the well-being of both mother and the foetus. Pregnant women's nutritional status and health influence the foetus health and survival due to the biological relationship between mother and child. Poor dietary practices result to insufficient maternal nutrition which leads to problems such as low birth weight, pre-term birth, Intra Uterine Growth Restriction (IUGR) and infant mortality. Furthermore, socioeconomic status, household food security status, maternal and cultural factors affect dietary practices among pregnant women. During pregnancy, consumption of suitable nutritional food diet is important for women in order to supply the energy and nutrients required to the foetus. Moreover, pregnant women need to be enlightened on significance of dietary practices to their health and

unborn child. Likewise, awareness needs to be created on importance of consumption of adequate food diet and sustaining healthy life during pregnancy.

Keywords: Nutritional status, dietary practices, pregnant women, foetus

Introduction

Pregnancy is the time from conception to delivery during which essential diet is required to supply the necessary nutrients needed to ensure that the mother is healthy in order to avoid issues attached to pregnancy and give room for the foetus to grow in a favourable environment (Shah, Sharma, Shris, Shah, Sharma & Sapoka, 2017). Pregnancy is a period when women require more nutrient and energy in order to supply the adequate nutrient required to the growing foetus. Appropriate dietary balance is vital to ensure that right energy intake is available for proper foetus's development without consuming on the mother's tissues to sustain her pregnancy (Tenaw, Arega & Tachbele, 2018). This period is a delightful and dangerous time in a woman's life because the health of the mother has direct impact on her baby's health.

Nutrition is an essential support of human life, health and growth throughout the whole lifecycle (Daba, Beyene, Fekadu & Garoma, 2013). The nutrition of the pregnant women contributes to the survival and health of the foetus. Under-nutrition during pregnancy has negative effect on the growth of the foetus such as level of intelligence, brain development and productivity (Abdella, 2010). Adequate nutrition knowledge and stable diet during pregnancy is vital for the welfare of both foetus and the mother and easy delivery. Due to high demand of nutrient during pregnancy, women within the reproductive age, especially in developing countries, are at risk because they consume low-quality food, monotonous diet and hence these women have deficiency in varieties of micro-nutrient. Pregnant women need various diet to meet their dietary necessities and consequently increase their nutritional status (Arimond, Wiesmann,

Becquey, Carriquiry, Daniels, Deitchler & Fanou-Fogny, 2010; Marita, 2013).

Pregnant women must have all important nutrients and gain adequate weight in order to meet the foetus demand, supply her body needs and make her body ready for lactation (Nana & Zema, 2018). According to Tenaw et al. (2018), pregnant women's diet should contain significant increase in protein, calcium, iodine, calories and iron. Studies revealed that some pregnant women such as obese women, underweight women, adolescents, women with chronic issues such as anaemia and diabetes are at specific risk for nutritional deficiencies (Edris, Tekle, Fitaw, Gelaw, Engedaw & Alemu, 2005). According to Black, Allen, Bhutta, Caulfield, de Onis, Ezzati & Mathers, (2008), it is vital for woman's nutritional status to be good before and during pregnancy in order to have hale and hearty pregnancy result. It has been observed that adequate diets during pregnancy have a positive result on the general nutrition status of the woman due to improved nutritional supplies. Thus, this study reviewed past works on nutritional status and factors affecting the dietary practices among pregnant women.

Nutritional Status of Pregnant Women

The nutritional status of pregnant woman has significant consequences for her children's health as well as her health. Before or during pregnancy, adequate nutrition has been recognized to have great prospective for the advancement of a long term health of the child and the mother (Deniran, Leshi & Sanusi, 2014). During pregnancy, nutrients and energy are required in the diet for the mother as well as developing foetus (Marita, 2013). According to Muthayya (2009), the weight of the infant is reliant on the mother's nutritional status and health during pregnancy.

Furthermore, it was revealed that inadequate nutrition during pregnancy can result to maternal anaemia which can lead to foetal growth obstruction and low foetal birth weight (Alemayehu & Tesema, 2015). Olajide, Awoniyi, Aina, Ojo & Ope-Babadele (2018) opine that due to poor dietary practice among pregnant women;

reasoning ability in children, reduced physical and low birth weight has been tenacious. According to Olajide et al. (2018), factors that contribute to inadequate dietary practices among pregnant women include level of income, dietary practices knowledge, educational level, cultural and religious beliefs. Furthermore, approach towards particular dietary habits, exposure to nutrition knowledge and information, maternal level of education and income were identified as factors that determine maternal dietary practices (Deniran et al., 2014; Nejimu, 2015). Studies have revealed that pregnant women have reasonable knowledge regarding dietary practice due to information and education received at the antenatal clinic health on keeping healthy life during and before pregnancy. It was also discovered that pregnant women's nutritional status is influenced by religious and cultural beliefs of pregnant women (Deniran et al., 2014; Kuche, Singh & Moges, 2015).

During pregnancy, some religion beliefs consider certain useful diet a taboo which makes pregnant women to withdraw from it. This is in line with the submission of Nana & Zema, (2018) that religious and cultural beliefs impact dietary practice. Furthermore, Balogun, Fadupin & Deniran, (2019) opine that knowledge and attitude influence consumption level of pregnant women. However, income influences pregnant women's dietary practices and intake due to resources availability to purchase nutritional diets.

Effect of Poor Dietary Practices on Pregnant Women

Nutrition is a vital support of human life, health and growth all through the whole life span. Adequate nutritional food is crucial for mental development, survival, health and wellbeing. Nutrition has a major effect on pregnant women's health. In order to ensure adequate foetal growth, maternal nutrition plays a significant role. Therefore, suitable nourishing diet during pregnancy results in good health of infant (Gemeda, Fekadu, Wondu, & Habtamu, 2013).

One of the major challenges causing poor dietary practice is dearth of access to suitable diet due to limited resources (Ekesa, Blomme & Garming, 2011). It has been discovered that insufficient

energy intake, lack of energy and micronutrients are the major concern of nutritional problems that have adverse effect on women within the reproductive age. Likewise, deficiency of protein and energy during pregnancy is related with intrauterine development retardation (Marita, 2018). In most developing countries, micronutrient malnutrition has remained public health issue as a result of consumption of cereal-based diets.

Moreover, researchers revealed that adequate nutrition intake is a main factor for well-being and health of pregnant women and also organize her body system for lactation (Taleb, Kaibi & Deghboudj, 2011; Nana & Zema, 2018). In developing countries, various scholars revealed that pregnant women limit their food consumption level due to various reasons such as having smaller infants reduce the risk of complications, cultural reason and perceived idea that big babies leads to difficulties during child birth (Brems & Berg, 1988; Kuche et al., 2015). Therefore, low consumption of vital nutrients such as energy, vitamin A, protein, vitamin C and iron by the pregnant women result to low birth weight, preterm birth, Intra Uterine Growth Restriction (IUGR) and infant mortality (Tena & Bacalo, 2002; Madhavi & Singh, 2011). Also, long run outcomes of deficiency of nutrient intake include disorders of child development and growth which leads to chronic disease in the future (Gemedda et al., 2013). During pregnancy, the mother must consume nutritional food diet in order to supply the necessary nutrients required for the foetal development in accurate proportion. If foetal did not receive adequate nutrients, it can lead to under nutrition which will affect foetal growth.

Factors Affecting Dietary Practices of Pregnant Women

Effect of Socioeconomic Status on Dietary Practices

Socioeconomic status of household is related to their dietary practices (Marita, 2013). According to Ponce, Ramirez & Delisle (2006) studies, advanced socioeconomic status is related with developed dietary practices and improved micronutrient suitability. Furthermore, Murakami, Miyake, Sasaki, Tanaka, Ohya & Hirota (2009) discovered

that pregnant women with higher socioeconomic status consumed high quality diets compared to lower socioeconomic status. Similarly, other researchers have revealed that households with high resources and incomes have tendency to have different food diets which is determined by food prices and income (Ramirez & Delisle, 2006; Brinkman, de Pee, Sanogo, Subran & Bloem, 2009). As a result of high prices of food, pregnant women find it difficult to buy different food diets which result to malnutrition. Households with minimal source of income reduce their consumption level or deny themselves of adequate food in order to ensure that their children have something to feed on. However, availability of resources determines the dietary consumption and food deficiency of a household (Balogun et al., 2019).

Effect of Maternal Factors on Dietary Practices

Over the years, maternal factors such as level of education, age, gestation age and marital status have been discovered to have an effect on dietary practices. Low level of education and lack of job are related to unhealthier food diet. According to Mejean, Deschamps, Bellin-Lestienne, Oleko, Darmon, Serge & Katia, (2010), dietary patterns have been discovered to differ according to demographic factors such as marital status and gender. Lack of adequate knowledge as a result of low level of education among pregnant women contributes to low dietary practices. Murakami et al. (2009) revealed that higher level of education among women give them the opportunity to consume diverse diet to improve their health.

Effect of Cultural Factors on Dietary Practices

Culture is different across the globe and it is the standard approach of life of individuals in a community (Lopez, 2008). According to Mazur, Marquis & Jensen (2003), long term variations exist based on norms, values, individual behaviour, diet and lifestyle. Due to traditions and culture, pregnant women in different parts of the world are required to desist from nourishing foods even if the diets are accessible in great quantity. Studies have discovered that some pregnant women avoid

consumption of some foods, fruits and vegetables despite the knowledge and importance of such foods due to food taboo (Keding & Krawinkel, 2008; Patil, Mittal, Vedapriya, Khan and Raghavia, 2010). Furthermore, research revealed that in spite of the importance of vegetables during pregnancy, larger percentages of pregnant women were not healthy because they did not consume varieties of vegetables (Keding & Krawinkel, 2008; Patil et al., 2010).

Based on different culture, food taboos exist and differ from one place to another. Women that practice food taboos during pregnancy usually have low level of nutritional status and are at high danger of maternal death (Wollelaw, Wubie & Taddele, 2018). Similarly, pregnant women who practised food taboos tend to have reduced body weight and unhealthier infants (Lakshmi, 2013; Parmar & Khanpara, 2013).

Effect of Household Food Security on Dietary Practices

Another major factor affecting nutritional status of pregnant women is household food insecurity. Food insecurity in a household occurs when nutritional food is unavailable or limited or there is no ability to purchase desired foods in an acceptable way (Gonzalez, Jiménez, Madrigal, Muñoz & Frongillo, 2008). In a situation where availability of food is limited, reduced different diets are consumed by an individual; reduce vegetables, fruits and milk products. Food insecurity has been related with low income and poverty, and has vital effects on individual's health and nutrition. In order to ensure food security, pregnant women need to consume nutritional food and lack of this result to malnourishment. Similarly, individual status of food security reflects vulnerability level to dietary intake (Ivers & Cullen, 2011). Food insecurity makes individual to be at greater risk to derive coping strategies due to lack of consistent food accessibility. Food security status is determined by the socio-economic status of the household and it reflects the ability of an individual to purchase adequate food diets (Marita, 2013).

Conceptual Framework

The conceptual framework used for this review was embraced and revised from United Nations International Children's Emergency Fund (UNICEF) conceptual framework on the determinants of malnutrition (UNICEF, 1998). Health status of the mother is significantly influenced by the dietary diversity. Poor dietary diversity has an adverse effect on the woman's morbidity status because the level of immunity reduced and likelihoods of developing infections increases. There are factors such as demographic factors (age, parity, educational level), socio-economic factors which is measured by income and assets occupation, cultural factors and household food security that influence women's nutrition status (Marita, 2013).

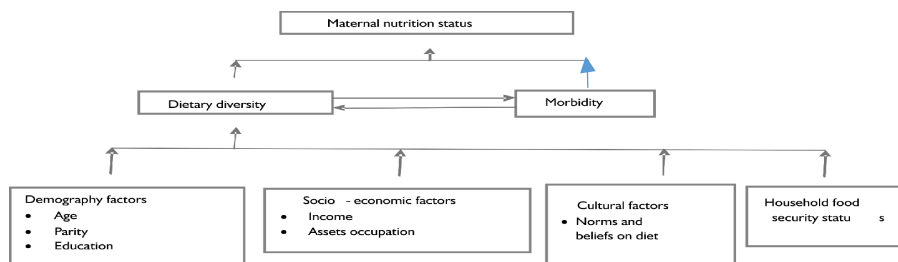


Figure 1.1: Conceptual framework on factors affecting dietary practices
Source: UNICEF, 1998.

Conclusion

Based on the literatures reviewed, adequate nutritional food diet is essential for women during pregnancy in order to be able to supply sufficient nutrients in right proportion to the developing foetus. Also, consumption of suitable nutritional food is crucial because they will not be at risk of nutrient deficiency such as folate, vitamin C and vitamin B6. In addition, pregnant women should be educated on importance of dietary practices to their health and unborn child. Similarly, it is vital to emphasize on the significant of sustaining healthy and satisfactory food diet during pregnancy.

Recommendations

1. Intervention efforts to improve nutritional status of pregnant women through nutrition and educational inputs to emphasise optimal nutrition especially during the first trimester which is the critical period when poor nutrition can result in birth defects
2. Programs should target women of child bearing age with lower education level on consumption of folic acid and other vitamins during preparatory period and pregnancy period.
3. More nutrition education/counselling on good hygiene should be done in Antenatal clinics.
4. Folic acid and other vitamins can be given freely at antenatal clinic in order to promote adequate supplementation.

References

- Abdella A. (2010). Maternal mortality trend in Ethiopia. *Ethiopian Journal of Health Development* 24(1).
- Arimond, M., Wiesmann, D., Becquey, E., Carriquiry, A., Daniels, M. C., Deitchler, M. and Fanou-Fogny, N. (2010). Simple food group diversity indicators predict micronutrient adequacy of women's diets in 5 diverse, resource-poor settings. *Journal of Nutrition*, 140(11), 2059S-2069S. doi:10.3945/jn.110.123414.
- Balogun, O.O., Fadupin, G.T. and Deniran, I.A. (2019). Assessment of knowledge and attitude towards adequate diet practices of pregnant women attending ante-natal clinic at University College and Adeoyo Maternity Hospitals, Oyo State, Nigeria. *American Journal of Food and Nutrition*, 7(1): 13-18.
- Black, R.E., Allen, L.H., Bhutta, Z.A., Caulfield, L.E., de Onis, M., Ezzati, M. and Mathers, C. (2008). Maternal and child under nutrition: global and regional exposures and health consequences. *The Lancet*, 371, 243-260. doi: 10.1016/S0140-6736(07)61690-0
- Brems, S. and Berg, A. (1988). Eating down during pregnancy: Nutrition, obstetric and cultural considerations in the third world. Discussion paper prepared for the ACC/ACN. Washington, DC: World Bank.

- Brinkman, H.J., de Pee, S., Sanogo, I., Subran, L., and Bloem, M.W. (2009). High food prices and the global financial crisis have reduced access to nutritious food and worsened nutritional status and health. *Journal of Nutrition*, 140(1), 153S-161S. doi:10.3945/jn.109.110767
- Daba G, Beyene F, Fekadu H, Garoma W (2013). Assessment of Knowledge of Pregnant Mothers on Maternal Nutrition and Associated Factors in GutoGidaWoreda, East Wollega Zone, Ethiopia. *Journal of Nutrition and Food Sciences* 3(235).
- Deniran, I.A., Leshi, R.A. and Sanusi, O.O. (2014). Dietary intake and weight gain of pregnant women attending ante-natal clinic at Adeoyo Maternity Hospital, Ibadan, Oyo State, Nigeria. *Nigerian Journal of Nutritional Sciences*, 35(1):
- Edris, M., Tekle, H., Fitaw, Y., Gelaw, B., Engedaw, D. and Alemu, T. (2005). Maternal nutrition for the Ethiopian health center team. Addis Ababa, Ethiopia.
- Ekesa, B., Blomme, G., and Garming, H. (2011). Dietary diversity and nutritional status of pre-school children from musa-dependent households in Gitega (Burundi) and Butembo (Democratic Republic Of Congo). *African Journal of Food, Agriculture, Nutrition and Development*, 11(4).
- Gemeda, D., Fekadu, B., Wondu, G. & Habtamu, F. (2013). Assessment of nutritional practices of pregnant mothers on maternal nutrition and associated factors in GutoGidaWoreda, East Wollega Zone, Ethiopia. *Science, Technology and Arts Research Journal*, 2(3): 105-113.
- González, W., Jiménez, A., Madrigal, G., Muñoz, L.M., and Frongillo, E. A. (2008). Development and validation of measure of household food insecurity in urban Costa Rica confirms proposed generic questionnaire. *The Journal of Nutrition*, 138, 587-592.
- Ivers, L.C., and Cullen, K.A. (2011). Food insecurity: special considerations for women. *American Journal of Clinical Nutrition*, 94(6), 1740S-1744S.

- Keding, G., and Krawinkel, M. (2008). Food diversity from plough to plate: Linking Agro biodiversity, dietary diversity and micronutrient supply. *Sight and Life Magazine*, 3, 23-27.
- Kuche, D., Singh, P. and Moges, D. (2015). Dietary practices and associated factors among pregnant women in Wondo Genet District, Southern Ethiopia. *Journal Pharm Sci Innov.* 4(5): 270-275.
- Lakshmi, A. (2013). Food preference and taboos during ANC among the tribal women. *Journal of community nutrition and health*, 2(2): 33p.
- Lopez, C.M. (2008). Cultural diversity and the renal diet: The Hispanic population. *Nephrology Nursing Journal*, 35(1), 69-72.
- Madhavi, L.H. & Singh, H.K. G. (2011). Nutritional status of rural pregnant women. *People's Journal Science Research*, 4(2): 20-23.
- Marita, L.K. (2013). Dietary diversity and nutritional status of pregnant women aged 15-49 years attending Kapenguria district hospital West Pokot County, Kenya. Foods, Nutrition and Dietetics, School of Applied Human Sciences of Kenyatta University, MSc Thesis, 121 pp.
- Mazur, R.E., Marquis, G.S. and Jensen, HH. (2003). Diet and food insufficiency among Hispanic youths: Acculturation and socioeconomic factors in the third National Health and Nutrition Examination Survey. *American Journal of Clinical Nutrition*, 78(6): 1120-1127.
- Méjean, C., Deschamps, V., Bellin-Lestienne, C., Oleko, A., Darmon, N., Serge, H., and Katia, C. (2010). Associations of socioeconomic factors with inadequate dietary intake in food aid users in France (The ABENA study 2004–2005). *European Journal of Clinical Nutrition*, 64, 374-382. doi:10.1038/ejcn.2009.153
- Murakami, K., Miyake, Y., Sasaki, S., Tanaka, K., Ohya, Y., and Hirota, Y. (2009). Education, but not occupation or household income, is positively related to favorable dietary intake patterns in pregnant Japanese women: the Osaka Maternal and Child Health

- Study. *Nutrition Research*, 29(3), 164-172. doi:10.1016/j.nutres.2009.02.002.
- Muthayya, S. (2009). Maternal nutrition and low birth weight - what is really important? *Indian Journal of Medical Research*, 130, 600-608.
- Nana, A. and Zema, T. (2018). Dietary practices and associated factors during pregnancy in Northwestern Ethiopia. *BMC Pregnancy and Childbirth*, 18: 1-8.
- Nejimu, B.Z. (2015). Food taboos and misconceptions among pregnant women of Shashemene District, Ethiopia. *Science Journal Public Health*, 3(3): 410-416.
- Olajide, T.E., Awoniyi, A.M., Aina, F., Ojo, E.A. and Ope-Babadele, O. O. (2018). Factors influencing dietary practices among pregnant women in Adeoyo Maternity Hospital, Yemetu, Ibadan, Oyo State. *International Journal of Scientific and Research Publications*, 8(10): 384-393.
- Parmar, A. and Khanpara, G.H. (2013). A study on taboos and misconceptions associated with pregnancy among rural women of Surendranagar district. *Healthline*, 2: 40pp.
- Patil, R., Mittal, A., Vedapriya D.R., Khan, M.I., and Raghavia, M. (2010). Taboos and misconceptions about food during pregnancy among rural population of Pondicherry. *Calicut Medical Journal*, 8 (2).
- Ponce, X., Ramirez, E. and Delisle, H. (2006). A more diversified diet among Mexican men may also be more atherogenic, *The Journal of Nutrition*, 136, 2921-2927.
- Shah, S., Sharma, G., Shris, L., Shah, S.K., Sharma, M. and Sapoka, N. K. (2017). Knowledge on dietary patterns among pregnant women attending antenatal care check-up in Narayani hospital, Nepal. *International Journal of Community Medicine and Public Health*, 4(5): 1466-1472.
- Taleb, S., Kaibi, M. and Deghboudj, N. (2011). Assessment of nutritional status of pregnant women attending the City Tebessa PMI. *Natl Journal Physiol Pharm Pharmacol*, 1(2): 97-105.

- Tena, M. and Bacalo, J. (2011). Malnutrition and poverty. *Ann Rev Nutr.* 22: 241-253.
- Tenaw, Z., Arega, M. and Tachbele, E. (2018). Nutritional knowledge, attitude and practices among pregnant women who attend antenatal care at public hospitals of Addis Ababa, Ethiopia. *International Journal of Nursing and Midwifery*, 10(7): 81-89.
- United Nations Children's Fund. (1998). *The State of the World's Children*. New York: Oxford University press.
- Wollelaw, G., Wubie, A. and Taddele, 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*, article ID 9198076, 6pp. <https://doi.org/10.1155/2018/9198076>.