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A Comprehensive Review of Nutritional Requirements for Women's Health

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Abstract
Nutrition is the key aspect of a healthy life; a man or woman both equally need nutrition to stay healthy. The diet helps keep nutrition intake in check. It makes it so that the human body intakes most nutrition to stay healthy and keep life prosper. The study aims to understand the diet and nutritional needs of women in their day-to-day life during pregnancy and while birthing a new life. Several of the past literature were studied to understand and find the descriptive review regarding the topic. These reviews were taken from places like google scholar, web of science, and Scopus database to find the best possible analysis. Various authors' research is reviewed and interpreted to draw the conclusion that breastfeeding moms may promote their own and their children's health by adhering to a nutritious diet. Many diverse diets are available at various points in time. Eating a healthy, balanced diet, as outlined in the Balance of Good Health model, is the primary piece of advice.

Keywords: Diet; Nutrition; Women; Pregnancy

Introduction

There is a correlation between a woman's social standing and her physical well-being. Female infanticide, a higher mortality rate, a lower sex ratio, a low level of literacy, and a lower level of work for women in the non-agricultural sector are all manifestations of the demographic consequences on women. Women's nutritional status is often determined by cultural traditions and social and economic issues at the home level. Though malnutrition affects people of all ages, women have a higher risk of being undernourished from a young age onward. (Chatterjee, 1990; Desai, 1994).

The future of conventional medicine is nutrition. The creation of biologically active additives and the modification of the human diet in response to the appearance of new food items are only a few potential applications for this specialty. Generally speaking, a pregnant or nursing woman must consume food sensibly to ensure her unborn child's health, her body's resistance to infections and other harmful elements, and their capacity to study at all ages. One of the key contributors to the development of nutritionally dependent conditions in an unborn child, which might include the following, is the lack of micronutrients in the diet of a pregnant or nursing mother. Rickets, food allergies, iron deficiency anem-

ia, and malnutrition are all common in young children (Sultaniyazovich et. al., 2022).

Pregnancy is a unique situation that naturally has its unique requirements and characteristics in women. The entire growth of the unborn child in the womb and the health of the pregnant woman's body, which is under a double burden at this time, depends on proper nutrition. While waiting for the crumbs for nine months, following the right diet will prevent from gaining more weight than the prescribed 10-15 kilos. The expecting mother's good attitude will consequently be affected, and she will heal more quickly and not worry as much about how she looks after giving birth.

Pregnant women should eat meals high in carbs, lipids, and proteins. Any of the aforementioned food components consumed in excess might cause health issues. As a result, a shortage of proteins raises the possibility of miscarriage and the likelihood of iron deficiency anemia. Lack of fat in the diet might have a negative impact on a child's growth and weight. The chance of the baby dying within the mother's womb increases with excessive carbohydrate intake, while the absence of carbs causes the embryo's growth to be delayed. It is crucial to meet the enhanced vitamin demand.

All necessary vitamins from all vitamin groups, as well as “folic acid, iodine, iron, calcium, potassium, magnesium, and other nutrients,” must be present in the food ingested. Woman can deliver a healthy baby if she follows a balanced diet consistently throughout your pregnancy and prepare for it to start.

1.1 Food Security and Nutritional Status of Women

The population's health is closely correlated with nutritional status. Education levels, living conditions, and social standing are the three main elements that have an impact on women's nutritional status (Vatsala et. al., 2017). One factor that significantly affects how well-nourished women are is thought to be education. The nutritional status improves with increased education levels. Women who have more education will know more about and be more conscious of the factors that are crucial for the maintenance of nutrition and health. Women who lack education, however, must seek advice from others, especially regarding ideas and tactics.

Living standards are another crucial factor. Women who come from rich families and have a good education properly maintain their living standards. They have access to the necessary resources and conveniences and cook in a spotless, sanitary atmosphere. However, it is women who live in underprivileged, disadvantaged, and economically underdeveloped areas of society who lack facilities and amenities and cook their meals on mud, wood, and earthenware stoves.

Another significant aspect that significantly impacts nutritional status, health and well-being is the social position of women. Women work in a variety of occupations. The jobs can be divided into well-known and underrepresented groups. Women with higher social standing are those with higher levels of education and who work for reputable organizations and businesses. Women are gaining possibilities for empowerment and contributing significantly to raising their social position. The women who work as physicians, attorneys, educators, researchers, administrators, and directors are the ones who are happy and conscious of what has to be done to better their quality of life overall. These ladies are skilled at putting into practice the steps required to improve one's health and well-being.

1.2 Nutrition of pregnant Women

While it is true that pregnant women do not need to "eat for two," it is nevertheless vital for both the mother and the baby to consume a diet that is balanced and rich in nutrients (Williamson 2006). Because the placenta is the only route for nutrition delivery to the growing fetus, the mother's diet must provide for both her own needs and those of the developing fetus, as well as allow her to build up reserves of nutrients necessary for the baby's growth and for breastfeeding after birth. Birth outcomes can be impro-

ved by enhancing pregnant women's nutritional status (Caan et al. 1987).

With a few exceptions, healthy dietary recommendations for pregnant women are not quite different from those for women who are not pregnant. Eating a diet rich in starchy carbs, including bread, rice, pasta, and potatoes, as well as fruits and vegetables, is highly encouraged as part of the Balance of Good Health paradigm (eat-well-plate-booklet; Barton, 2000). A healthy diet consists mostly of "low-fat or fat-free dairy products and protein-containing foods such as lean meat, fish, eggs, and pulses (beans and lentils)," with smaller quantities of other items rich in sugar or fat. Because of pregnancy-related metabolic changes that improve nutrient use and absorption, many nutrients, including calcium, do not necessitate an increase in food consumption above that which is ordinarily required. However, there are nutrients for which a higher consumption is encouraged.

Maternal undernutrition is one of the leading causes of poor birth outcomes in low-income nations. However, given the increasing frequency of high-calorie meals and the accompanying overweight and obesity concerns in industrialized nations, the influence of this overnutrition scenario on pregnancy outcomes is highlighted as a contributing factor to unfavorable metabolic outcomes in children later in life. Although low or excessive food intake per se is vital to prenatal development, the role of the placenta in nutrient metabolism and overall nutritional delivery to the embryo in these situations is not well established (Morrison & Regnault 2016).

1.3 Diet of Pregnant Women

With a few notable differences, the dietary guidelines for adults are quite similar to those for women before and throughout pregnancy. The first piece of advice is to follow the Balance of Good Health's recommendations for a healthy, balanced diet (eat-well-plate-booklet; Barton 2000). Certain precautions should be taken during pregnancy, however, such as taking folic acid supplements to lessen the danger of neural tube abnormalities (NTDs) (Botto et al. 1999; Greene & Copp2014). To reduce the likelihood of becoming sick from eating something contaminated with hazardous germs, it is recommended that one must follow specific guidelines for food safety, such as avoiding the aforementioned items.

Figure 1: The Balance of Good Health model

(Source: Nelson, M., Lowes, K., & Hwang, V. (2007). The contribution of school meals to food consumption and nutrient intakes of young people aged 4–18 years in England. *Public health nutrition*, *10*(7), 652-662.)

Distinct nutrients have different prenatal requirements. Both the population's dietary customs and its nutritional state have a role in the discrepancies between the two. The World Health Organization's (WHO) document on prenatal standards includes 39 suggestions covering 5 categories of interventions.

Those who wish to avoid GWG should adopt a healthy diet and regular exercise routine (Kominiarek & Peaceman 2017). Low birth weight (LBW) (Paneth 1995), small for gestational age (SGA) (Saenger 2007), and stillbirths (Frøen et al. 2011) are all conditions that can be prevented with a healthy diet and enough protein intake but are more common in the undernourished population. Depending on the situation, iron and folate supplements may be administered daily, weekly, or monthly. It is recommended that vitamin A supplements be given only in regions where a severe lack of nutrients poses a significant threat to public health. Only people who get extraordinarily little calcium from their diets should take supplements. Routine supplementation with vitamin D, vitamin B6, zinc, or multivitamins is not recommended. Women who use a lot of caffeine should cut back or stop their usage (World Health Organization. 2016).

Review of Literatures

Sultaniyazovich, Y. M., et. al., (2022) found that vitamins that guarantee the fetus develops uniformly to the genera are considered when creating a sensible diet for expectant mothers. Pregnant women's daily requirements for the three primary nutrients—proteins, fats, and carbohydrates—were calculated. Timeline of the day. Women's physiological needs for energy and nutrition have been standardized. The fetal development dynamics were examined, considering the food's saturation with minerals and vitamins. The primary nutrient categories in foods that offer pregnant women a healthy diet have been determined after researching the major elements influencing the fetus' development.

Afrin, S., et. al., (2021) stated that in order to promote and sustain homeostatic functioning and avoid a variety of chronic and incapacitating illnesses, a healthy lifestyle and a balanced diet are crucial. The development of “gynecological diseases, such as uterine leiomyoma, endometriosis, polycystic ovary syndrome, and gynecological malignancies,” is influenced by nutritional variables and dietary habits, according to observational and epidemiological studies. While lipids and coffee may promote the onset of gynecological disorders, diets high in “fruits and vegetables, Mediterranean diets, green tea, vitamin D, and plant-derived natural substances” may have a long-term favorable influence on them.

Marshall, N. E., (2021) showed that the vast majority of American women fall short of ideals for prenatal nutrition and weight. Pregnancy problems and unfavorable child health outcomes may be reduced in women who report "prudent" or "health-conscious" eating practices before and/or during pregnancy. Human milk offers individualized nutrients and has been linked to positive effects on newborn and maternal health. Breastfeeding women may help ensure their own and their babies' health by following a nutritious diet.

Sunuwar, D. R., et al. (2019) analyzed the impact of nutrition education on pregnant women's nutritional understanding, hemoglobin levels, and food consumption. The author discovered that providing nutrition education and an iron-rich food-based diet plan during pregnancy was significantly connected to improved hemoglobin levels, better dietary intake, and increased knowledge of anemia and iron-rich foods.

Bailey, R. L., et al. (2019) compared nutrient intakes of pregnant US women to the Dietary Reference Intakes developed by the “National Academies of Science, Engineering, and Medicine” to see whether or not they were adequate or exceeded recommended levels. The majority of the 1003 pregnant women in this cross-sectional study of the United States did not get enough of several essential nutrients, including “vitamins A, C, D, E, K, and B6, and the B vitamins folate and choline, and the minerals iron, potassium, calcium, magnesium, and zinc.” The majority of pregnant women consumed too much salt,

while others ran the risk of getting too much folic acid and iron.

Ługowska, K., & Kolanowski, W. (2019) studied polish pregnant women's eating habits. The results showed that the participants overate sweets and white bread and underate fish, milk, and fermented milk beverages. In addition, participants favored fruit over vegetables and white bread over whole grain. According to the results, pregnant women tend to have poor eating habits.

Savard, C., et al. (2019) looked at how mothers' diets vary throughout the course of pregnancy and what factors are linked to each trimester's diet quality. The author concludes that less educated, younger, urban women may be at increased risk of poor food quality in late pregnancy and might benefit from public health interventions.

Diddana, T. Z., et al. (2018) evaluated the impact of Health Belief Model-based nutrition education on pregnant women's nutritional knowledge and dietary behavior. Pregnant women benefit from receiving nutritional education that is grounded on the Health Belief Model, as shown by the results given. Therefore, the Health Belief Model concept should be included in existing nutrition education initiatives by the government, non-government organizations, health extension workers, and other health-care providers.

Symington, E. A., et al. (2018) analyzed the nutritional intake and status of pregnant women in metropolitan areas, looking for links to birth outcomes, mother health, and child development. When agreeing that one of the most important things parents can do for their children is to make sure they have a healthy diet while they are pregnant.

Danielewicz, H., et al. (2017) stated that both the mother's and the baby's health depend on a combination of high food quality and proper consumption of macro- and micronutrients throughout pregnancy. Recent research suggests it may have positive or negative implications for the future health of the whole human population. Most adult-onset diseases and disorders, according to the developmental origins of the health and disease concept, have their start in the womb. In addition, dietary modifications of epigenetic processes can have a lasting effect on future generations. Nonetheless, the guidelines in most nations are neither well publicized nor very comprehensive. While it is clear that guiding dietary trends toward a healthy lifestyle is crucial, it is not yet clear how to avoid conditions like diabetes or asthma.

Rao, K. M., et. al., (2010) examined that female infanticide, a higher mortality rate, a lower sex ratio, poor literacy rates, and a lower level of work for women in the non-agricultural sector as opposed to males are only a few examples of how the demographic consequences of women manifest themselves. The degree of women's nutritional status is often determined at the home level by socioeconomic variables, cultural norms and traditions, and other factors. Women in rural and tribal communities ate less calories than they should have, with the exception of those found in vegetables, roots, and tubers. It was discovered that pregnant women and nurses had inadequate dietary consumption, especially of micronutrients (hidden hunger).

Kelly, M. T., et. al., (2009) investigated the relationships between the portion sizes of food types consumed and markers of adiposity. Anthropometric measures exercise diaries, and seven-day weighted nutrition records were also employed. Thirty distinct food categories were given to the foods consumed, and analyses were done separately for men and women. Each food group's average daily portion size was computed. According to the current study, excessive levels of UR may hide the real impact of larger meal portions on obese status. Alternatively, these findings could point to a general rise in the variety of meals and food groups consumed rather than a link between an increased risk of obesity and any particu-

lar foods or food groups.

Research Questions

Based on the literature evaluation regarding diet and nutrition for women, which was done as per the above recommendation. Parameters like age, health, pregnancy, and money significantly impact how people choose a good diet and nutrition for women.

In light of the nature of the study, the following are the research questions:

- Do doctors or health consultants influence women to have a good diet and nutrition?
- Does health consciousness influence women to have a good diet and nutrition?
- Do women have the proper knowledge of good diet and nutrition?
- How does pregnancy make women aware of good diet and nutrition?

Methodology

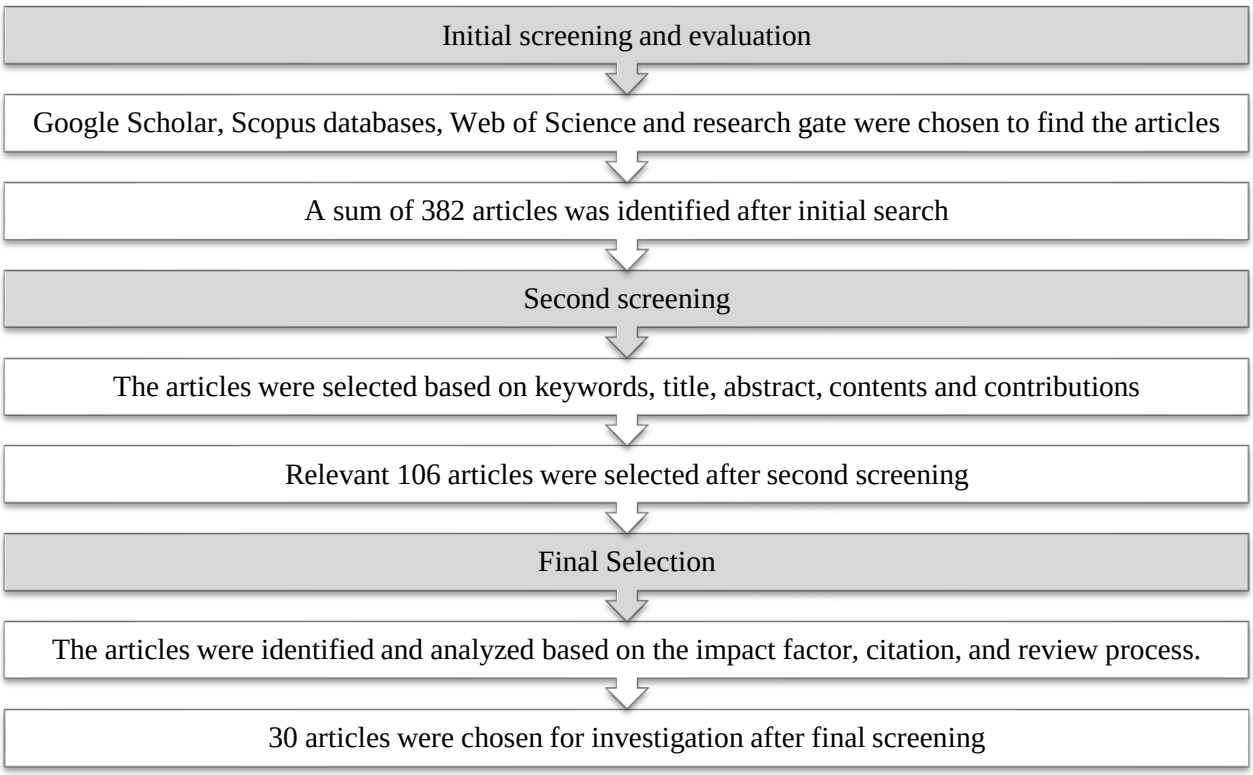

Figure 2: Review Method

Discussion

Maintaining a healthy body and mind requires a focus on diet and nutrition. Diet and nutrition are essential from birth till death. Everyone, male or female, requires a dietary supplement to provide enough nourishment. During the time leading up to giving birth, women, in particular, require a shift in their dietary habits and overall nutrition. According to Afrin et al., (2021), a healthy lifestyle and a balanced diet are vital for promoting and maintaining homeostatic functioning and avoiding a range of chronic and incapacitating disorders. In a similar vein, Danielewicz et al. (2017) wrote that both the mother's and the fetus' health depend on consuming a diet rich in high-quality foods when pregnant. Sunuwar et al. (2019) analyzed the effects of nutrition education on the dietary habits, nutritional

literacy, and hemoglobin levels of pregnant women with anemia. Specifically, Kelly et al. (2009) looked at how different food group serving sizes correlated with different measures of body fat. The author also used anthropometric measurements, activity diaries, and seven-day weighed food diaries. Female infanticide, higher death rates, lower sex ratios, lower levels of education, and fewer jobs in the non-agricultural sector for women compared to men are only some of the demographic implications of women that Rao et al., (2010) looked at. The food consumption and nutritional status of urban pregnant women were evaluated by Symington et al. (2018), and relationships with birth outcomes, maternal health measures, and child health and development were found. Similarly, Ługowska & Kolanowski (2019) looked into how pregnant women's diets changed over time. Savard et al. (2019) looked at how mothers' diets changed throughout the course of pregnancy and determined whether maternal traits were linked to changes in diet quality across each trimester. Nutritional adequacy and excess were assessed by comparing the diets of pregnant women in the United States to the Dietary Reference Intakes established by the "National Academies of Science, Engineering, and Medicine" (2019). Most American women do not eat well enough or maintain a healthy weight before becoming pregnant, as proven by Marshall (2021). It has been found by Sultaniyazovich et al. (2022) that while planning a healthy diet for pregnant moms, it is important to account for vitamins that ensure the fetus grows consistently throughout all of the genesis. Last but not least, Diddana et al. (2018) assessed the impact of Health Belief Model-based nutrition education on pregnant women's nutritional knowledge and dietary habits.

Conclusion

After reviewing the available research, numerous conclusions may be drawn about the role that food and nutritional factors play in the etiology and progression of gynecological disorders such as "uterine leiomyoma, endometriosis, polycystic ovary syndrome, and gynecological malignancies." The developmental origins of health and illness theory postulate that the majority of adult-onset diseases and disorders have their roots in prenatal development. Improved hemoglobin levels increased dietary intake, and increased awareness of anemia and iron-rich foods were all substantially correlated with the provision of nutrition education and an iron-rich food-based diet plan. The true effect of increased meal amounts on obesity status may be obscured by high UR levels. Women from rural and tribal areas, on the whole, ate fewer calories than they should have, but they made up for it by eating more vegetables, roots, and tubers than they should have. Younger, less-educated women living in metropolitan areas may be more likely to have a poor diet later in pregnancy, suggesting that these women may benefit from public health initiatives. One of the most important things that can be done to help a kid thrive in the early years of life is to make sure the mother has a healthy diet throughout pregnancy. Women who were expecting babies ate too much sugar and white bread and not enough fish, milk, and fermented milk products. "Vitamins A, C, D, E, K, and B6; folate; choline; and minerals, including iron, potassium, calcium, magnesium, and zinc," were not consumed in enough amounts throughout pregnancy. Pregnancy problems and unfavorable child health outcomes may be reduced in women who report "prudent" or "health-conscious" eating practices before and/or during pregnancy. Breastfeeding women may help ensure their own and their babies' health by following a nutritious diet. Many diverse diets are available at various points in time. Eating a healthy, balanced diet, as outlined in the Balance of Good Health model, is the primary piece of advice.

References

1. Afrin, S., AlAshqar, A., El Sabeh, M., Miyashita-Ishiwata, M., Reschke, L., Brennan, J. T., ... & Borahay, M. A. (2021). Diet and nutrition in gynecological disorders: A focus on clinical studies. Nutrients, 13(6), 1747.
2. https://www.researchgate.net/publication/330364478_Factors_Influencing_Health_and_Nutrition_among_Women
3. Kelly, M. T., Rennie, K. L., Wallace, J. M., Robson, P. J., Welch, R. W., Hannon-Fletcher, M. P., & Livingstone, M. B. E. (2009). Associations between the portion sizes of food groups consumed and measures of adiposity in the British National Diet and Nutrition Survey. British journal of nutrition, 101(9), 1413-1420.
4. Rao, K. M., Balakrishna, N., Arlappa, N., Laxmaiah, A., & Brahmam, G. N. V. (2010). Diet and nutritional status of women in India. Journal of Human Ecology, 29(3), 165-170.
5. Sultaniyazovich, Y. M., Alisherovna, S. G., & Jurabekovna, S. M. (2022). Definition of a Rational Diet Woman's Nutrition during Pregnancy. European Multidisciplinary Journal of Modern Science, 4, 466-471.
6. Sultaniyazovich, Y. M., Alisherovna, S. G., & Jurabekovna, S. M. (2022). Definition of a Rational Diet Woman's Nutrition during Pregnancy. European Multidisciplinary Journal of Modern Science, 4, 466-471.
7. Sultaniyazovich, Y. M., Alisherovna, S. G., & Jurabekovna, S. M. (2022). Definition of a Rational Diet Woman's Nutrition during Pregnancy. European Multidisciplinary Journal of Modern Science, 4, 466-471.
8. Vatsala, L., Prakash, J., & Prabhavathi, S. N. (2017). Food security and nutritional status of women selected from a rural area in South India. Journal of Food, Nutrition and Population Health, 1(2), 1-8.
9. Chatterjee, M. (1990). Indian women, health, and productivity (Vol. 442). World Bank Publications.
10. Desai, S. (1994). Gender inequalities and demographic behavior: India.
11. Williamson, C. S. (2006). Nutrition in pregnancy. Nutrition bulletin, 31(1), 28-59.
12. Caan, B., Horgen, D. M., Margen, S., King, J. C., & Jewell, N. P. (1987). Benefits associated with WIC supplemental feeding during the interpregnancy interval. The American journal of clinical nutrition, 45(1), 29-41.
13. Morrison, J. L., & Regnault, T. R. (2016). Nutrition in pregnancy: optimising maternal diet and fetal adaptations to altered nutrient supply. Nutrients, 8(6), 342.
14. https://www.torbayandsouthdevon.nhs.uk/uploads/eat-well-plate-booklet.pdf
15. Barton, R. (2000). A12. The effect of nutrition intervention, using the Balance of Good Health Model, on the composition of the packed lunches of 10–11-year-old schoolchildren. Journal of Human Nutrition and Dietetics, 13(5), 363-371.
16. Botto, L. D., Moore, C. A., Khoury, M. J., & Erickson, J. D. (1999). Neural-tube defects. New England journal of medicine, 341(20), 1509-1519.
17. Greene, N. D., & Copp, A. J. (2014). Neural tube defects. Annual review of neuroscience, 37, 221.
18. Kominiarek, M. A., & Peaceman, A. M. (2017). Gestational weight gain. American journal of obstetrics and gynecology, 217(6), 642-651.
19. Paneth, N. S. (1995). The problem of low birth weight. The future of children, 19-34.
20. Saenger, P., Czernichow, P., Hughes, I., & Reiter, E. O. (2007). Small for gestational age: short stature and beyond. Endocrine reviews, 28(2), 219-251.

21. Frøen, J. F., Cacciatore, J., McClure, E. M., Kuti, O., Jokhio, A. H., Islam, M., ... & Lancet's Stillbirths Series Steering Committee. (2011). Stillbirths: why they matter. The Lancet, 377(9774), 1353-1366.
22. World Health Organization. (2016). WHO recommendations on antenatal care for a positive pregnancy experience. World Health Organization.
23. Marshall, N. E., Abrams, B., Barbour, L. A., Catalano, P., Christian, P., Friedman, J. E., ... & Thornburg, K. L. (2021). iThe Importance of Nutrition in Pregnancy and Lactation: Lifelong Consequences. American journal of obstetrics and gynecology.
24. Sunuwar, D. R., Sangroula, R. K., Shakya, N. S., Yadav, R., Chaudhary, N. K., & Pradhan, P. M. S. (2019). Effect of nutrition education on hemoglobin level in pregnant women: A quasi-experimental study. PloS one, 14(3), e0213982.
25. Bailey, R. L., Pac, S. G., Fulgoni, V. L., Reidy, K. C., & Catalano, P. M. (2019). Estimation of total usual dietary intakes of pregnant women in the United States. JAMA network open, 2(6), e195967-e195967.
26. Ługowska, K., & Kolanowski, W. (2019). The nutritional behaviour of pregnant women in Poland. International journal of environmental research and public health, 16(22), 4357.
27. Savard, C., Lemieux, S., Carbonneau, É., Provencher, V., Gagnon, C., Robitaille, J., & Morisset, A. S. (2019). Trimester-specific assessment of diet quality in a sample of Canadian pregnant women. International journal of environmental research and public health, 16(3), 311.
28. Diddana, T. Z., Kelkay, G. N., Dola, A. N., & Sadore, A. A. (2018). Effect of nutrition education based on health belief model on nutritional knowledge and dietary practice of pregnant women in Dessie Town, Northeast Ethiopia: A cluster randomized control trial. Journal of Nutrition and Metabolism, 2018.
29. Symington, E. A., Baumgartner, J., Malan, L., Zandberg, L., Ricci, C., & Smuts, C. M. (2018). Nutrition during pregnancy and early development (NuPED) in urban South Africa: a study protocol for a prospective cohort. BMC pregnancy and childbirth, 18(1), 1-12.
30. Danielewicz, H., Myszczyszyn, G., Dębińska, A., Myszkal, A., Boznański, A., & Hirnle, L. (2017). Diet in pregnancy—more than food. European journal of pediatrics, 176(12), 1573-1579.