

The Effects of Various Diets During the Postnatal Stage on the Symptoms of Postpartum Depression

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Abstract

Postpartum depression is a condition that women all over the world suffer from. One factor that leads to these symptoms is diet. The foods you eat can impact your emotional state in both a positive and negative way. When women maintain a healthier diet through higher vegetable and whole food intake, they decrease their risk of severe postpartum depression symptoms because those foods reduce inflammation and other biological factors affecting PPD. Six articles were used to support our hypothesis, and each helped to explain the effects different foods have on PPD. These articles consist of studies that clearly identify different dietary patterns. The results show that healthy food options can reduce the risk of depressive symptoms. Although more research is warranted, it was shown that by avoiding unhealthy diets that are typically offered in the western hemisphere, women have a greater chance of mental wellness and fewer PPD symptoms.

Introduction

Postpartum depression (PPD) is the most commonly occurring condition in the first year after childbirth and typically begins a week or a month post-delivery (1)(2). During pregnancy, women experience a number of hormonal, physical, emotional, and psychological changes which create different a multitude of different emotions (3). While it is common to have feelings of sadness after birth, symptoms of postpartum depression involve "...diminished pleasure, marked change in appetite and sleep, agitation, fatigue, feelings of worthlessness, decreased concentration, and recurrent thoughts of death or suicide..." (1)(3). Therefore, untreated postpartum depression poses a large risk for the health of both the mother and baby and can have detrimental long and short term effects (1). While treatments do exist, women who breastfeed are often reluctant to consume pharmacological treatments due to the fear that what they ingest may be transmitted to their infants through breastfeeding (2). Thus, other solutions must be sought out. In general, diet is believed to have an effect on the symptoms of depression. This is because some "nutritional factors" may regulate some of the "potential biological pathways" connected with mental disorders like inflammation, oxidative stress, the gut microbiome, epigenetic modifications, and neuroplasticity (2). Therefore, it is believed that diet may also have an effect on symptoms of postpartum depression. Changes to diet and dietary habits show promise in lowering the risk of postpartum depression, specifically in the areas of vegetable, fruit, and red meat intake (3). The available research, while minimal, on diet and postpartum depression explores diets and dietary habits found in different countries (1). The studies also include information on risk factors and other possible treatments and preventions. Research in the area of postpartum depression and its relation specifically to postpartum diet has been underexplored; therefore, it is critical to understand these possible treatment tactics for postpartum depression (1). Our research focuses on understanding the connection between postpartum depression and postpartum diet and how that connection can be used.

Results

Table 4
Results of Multiple logistic regression in relation of high PPD symptoms and Dietary pattern

Dietary pattern	Model	T1	T2	T3	P
		OR (95% CI)	OR (95% CI)	OR (95% CI)	
Prudent Pattern	#1	1(Reference)	0.50(0.36-0.72)	0.46(0.32-0.65)	<0.001
	#2	1(Reference)	0.52(0.37-0.74)	0.52(0.36-0.75)	<0.001
	#3	1(Reference)	0.53(0.37-0.76)	0.55(0.37-0.85)	<0.001
	#4	1(Reference)	0.53(0.37-0.75)	0.55(0.37-0.85)	<0.001
Sweet and Dessert Pattern	#1	1(Reference)	1.06(0.75-1.50)	0.95(0.66-1.35)	0.517
	#2	1(Reference)	1.15(0.81-1.65)	1.19(0.81-1.74)	0.428
	#3	1(Reference)	1.13(0.79-1.60)	1.14(0.78-1.68)	0.495
	#4	1(Reference)	1.11(0.78-1.59)	1.13(0.77-1.66)	0.548
Junk Food Pattern	#1	1(Reference)	0.99(0.70-1.41)	1.06(0.75-1.51)	0.721
	#2	1(Reference)	0.97(0.68-1.38)	1.23(0.86-1.77)	0.865
	#3	1(Reference)	0.98(0.69-1.41)	1.21(0.84-1.74)	0.943
	#4	1(Reference)	0.99(0.69-1.42)	1.17(0.81-1.69)	0.402
Western Pattern	#1	1(Reference)	1.56(1.08-2.25)	1.78(1.24-2.56)	<0.001
	#2	1(Reference)	1.70(1.17-2.47)	2.54(1.71-3.78)	<0.001
	#3	1(Reference)	1.81(1.24-2.66)	2.73(1.82-4.10)	<0.001
	#4	1(Reference)	1.79(1.22-2.63)	2.67(1.78-4.02)	<0.001

Figure 1. Empirically derived dietary patterns and postpartum depression symptoms in a large sample of Iranian women (3).

It was also shown that "A high adherence to the western pattern was associated with a higher risk of PPD symptoms than a low adherence" but more studies are needed to understand the relationship between this pattern, the inflammation process, and depression (3). Following the Prudent pattern (which consists of high intake of vegetables, fruit and juice, nuts and beans, low-fat dairy products, liquid oil, olives, eggs, fish, and whole grains) for diet was connected with a lower risk of PPD symptoms. While there was a connection, there are still risk factors to consider for PPD such as age, socioeconomic status, and education level (3).

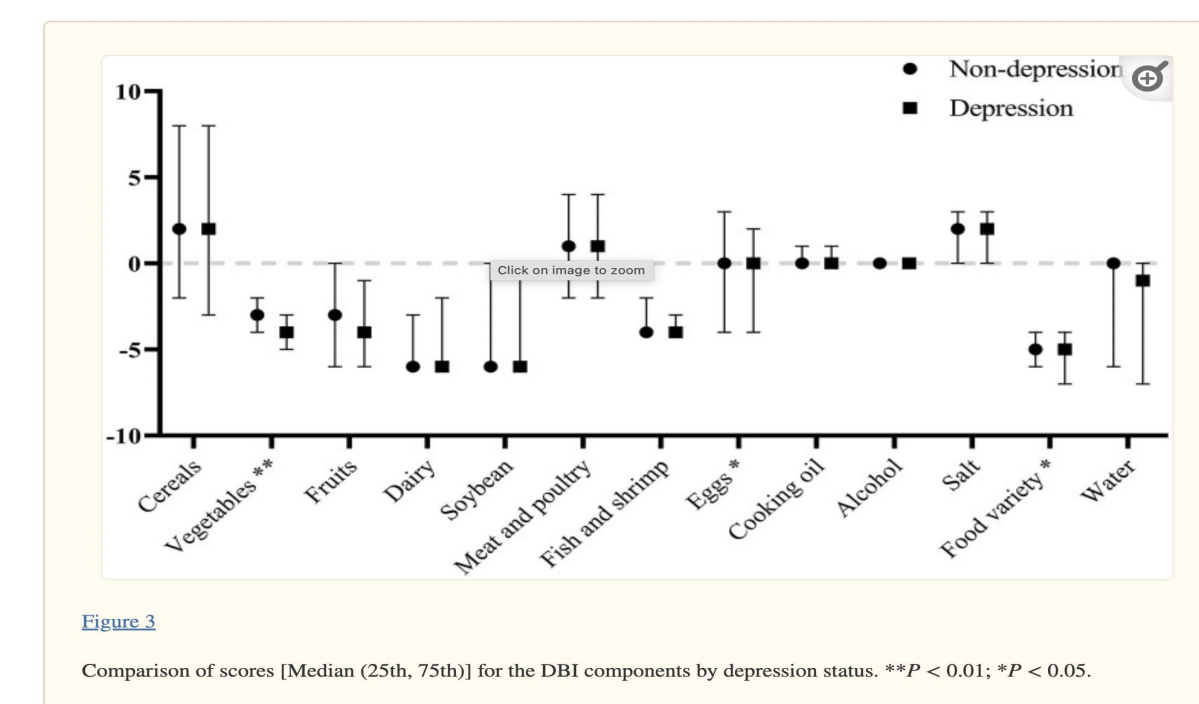


Figure 2. Association Between Dietary Quality and Postpartum Depression in Lactating Women: A Cross-Sectional Survey in Urban China (2).

As shown in Figure 2, depressed women tend to have a more inadequate intake of vegetables and an insufficient food variety (2). Legumes and breads also reduce PPD symptoms (4). Fruits, vegetables, and soup also reduce anxiety and depression symptoms. "Our results are in line with the Rhea cohort study that reported an association between adherence to 'health conscious' dietary pattern during pregnancy and less PPD symptoms" (5).

Materials & Methods

This is a literature review, meaning that extensive reading and research were conducted to come to the conclusion. The following key terms were used in academic search engines like Google Scholar and EBSCO, "postpartum depression and diet", "postnatal diet", and "dietary effect on PPD". All of the articles were within a range of five to ten years to keep the information relevant and consistent. The articles we selected specifically discussed the possible connections between diet and postpartum depression. The articles discussed how dietary quality in the postnatal stage can affect the symptoms of postpartum depression. The studies in these articles were of women all around the world and included diets from different countries and cultures. This provided a larger amount of information and the studies proved to be helpful in supporting our hypothesis because of this.

Discussion & Conclusion

The data gathered from the research demonstrates that there may be a correlation between a healthy diet and the symptoms and postpartum depression (3). This is because adhering to a healthier diet helps regulate inflammation and other factors that affect the symptoms of PPD (3). Diet can offer a simpler solution to reduced symptoms of PPD. The data also demonstrated diets that should be avoided, such as the western pattern diet, which increases inflammation (2). While adherence to a prudent diet, that consists of a high intake of vegetables, fruit, nuts and beans, low-fat dairy products, liquid oil, eggs, fish, and whole grains showed a decrease in symptoms of PPD (3). While these results show promise, there are still other factors that should be considered. For example, the research articles used different scales to measure the severity of depression and different scales to measure food health, which could possibly have an effect on what symptoms are considered depressive symptoms and which are not. Some of the research did not also factor in things like diet and sleep. This could also skew the final results of the study. It must also be noted that "...there may be a bidirectional association in that depressive symptoms and diet quality could be dependent on one another" (2). This means that suffering from depression may affect your dietary patterns which is why depressed women reported insufficient diet. However, a regulated and healthy diet still offers a possible solution to symptoms of postpartum depression and should not be discounted. Based on the results of the research, postnatal diet may have an effect on the symptoms of postpartum depression (1). It was also found that following a prudent diet and high vegetable diet reduces the symptoms of postpartum depression, while a western diet increases those symptoms (3). Future studies should consider outside factors and take more time to better understand dietary habits (2). Increased research in this area is both warranted and necessary in order to create new strategies for treatment (1).

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References

- Opie, R. S., Uldrich, A. C., & Ball, K. (2020). Maternal postpartum diet and postpartum depression: A systematic review. *Maternal and Child Health Journal*, 24(8), 966-978. <https://doi.org/10.1007/s10995-020-02949-9>
- Yang, C., Zhao, A., Lan, H., Ren, Z., Zhang, J., Szeto, I. M., Wang, P., & Zhang, Y. (2021). Association Between Dietary Quality and Postpartum Depression in Lactating Women: A Cross-Sectional Survey in Urban China. *Frontiers in nutrition*, 8, 705353. <https://doi.org/10.3389/fnut.2021.705353>
- Dehghan-Banadaki, S., Hosseinzadeh, M., Madadzadeh, F., & Mozaffari-Khosravi, H. (2023). Empirically derived dietary patterns and postpartum depression symptoms in a large sample of Iranian women. *BMC psychiatry*, 23(1), 422. <https://doi.org/10.1186/s12888-023-04910-w>
- Teo, C., Chia, A.-R., Colega, M., Chen, L.-W., Fok, D., Pang, W., Godfrey, K., et al. (2018). Prospective Associations of Maternal Dietary Patterns and Postpartum Mental Health in a Multi-Ethnic Asian Cohort: The Growing up in Singapore towards Healthy Outcomes (GUSTO) Study. *Nutrients*, 10(3), 299. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/nu10030299>
- Lin, Y.-H., Chen, C.-M., Su, H.-M., Mu, S.-C., Chang, M.-L., Chu, P.-Y., & Li, S.-C. (2019). Association between Postpartum Nutritional Status and Postpartum Depression Symptoms. *Nutrients*, 11(6), 1204. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/nu11061204>
- McDowell M, Cain MA, Brumley J. Excessive Gestational Weight Gain. *J Midwifery Womens Health*. 2019 Jan;64(1):46-54. doi: 10.1111/jmwh.12927. Epub 2018 Dec 12. PMID: 30548447.