

Seafood consumption, the DHA content of mothers' milk and prevalence rates of postpartum depression: a cross-national, ecological analysis

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This study is quite long, 14 pages with 125 references.

FROM ABSTRACT

Background:

Mothers selectively transfer docosahexaenoic acid (DHA) to their fetuses to support optimal neurological development during pregnancy.

Without sufficient dietary intake, mothers become depleted of DHA and may increase their risk of suffering major depressive symptoms in the postpartum period.

We postulated that the DHA content of mothers' milk and seafood consumption would both predict prevalence rates of postpartum depression across countries.

Methods:

Published prevalence data for postpartum depression were included that used the Edinburgh Postpartum Depression Scale (14,532 subjects in 41 studies).

These data were compared to the DHA, eicosapentaenoic acid (EPA) and arachidonic acid (AA) content in mothers' milk and to seafood consumption rates in published reports from 23 countries.

Results:

Higher concentrations of DHA in mothers' milk and greater seafood consumption both predicted lower prevalence rates of postpartum depression.

The AA and EPA content of mothers' milk were unrelated to postpartum depression prevalence.

Conclusions:

Both lower DHA content in mothers' milk and lower seafood consumption were associated with higher rates of postpartum depression.

These results do not appear to be an artifact of cross-national differences in well-established risk factors for postpartum depression.

THIS AUTHOR ALSO NOTES:

Mothers can become depleted of critical nutrients during pregnancy with adverse consequences for both mother and infant.

Mothers have a “higher risk of suffering postpartum depression when they become depleted of omega-3 essential fatty acids, in particular docosahexaenoic acid (DHA).”

“Maternal DHA status can be reduced by half during pregnancy and not fully restored at 26 weeks postpartum.”

“An adequate supply of maternal DHA is necessary to support optimal neurological development of both fetus and infant.”

“DHA is highly concentrated in synaptic neuronal membranes and has unique membrane biophysical properties critical to synaptic function.”

“When supplied in infant formula at adequate doses, DHA and arachidonic acid (AA) improve infant cognitive development and visual acuity.”

DHA and AA cannot be synthesized by either the mother or the fetus.

Production of DHA and AA from essential precursors is inadequate to support the developmental needs of infants; thus preformed sources are required.

[This means that flax seed oil is inadequate]

“Fish and seafood are prominent dietary sources of preformed omega-3 fatty acids DHA and eicosapentaenoic acid (EPA).”

“DHA and or EPA depletion due to pregnancy may have adverse neuropsychiatric consequences for mothers.”

“Inadequate intake of omega-3 fats is associated with major depression and other affective disorders.”

“Seafood consumption greater than twice/week is associated with a lower risk of both depression and suicidal ideation,” and “a lower lifetime prevalence rates of major depression.”

The size of this analysis was 14,532 subjects from 23 countries described in 41 studies.

“The prevalence of postpartum depression varied nearly 50-fold from a low of 0.5% in Singapore to a high of 24.5% in South Africa.”

Singapore	.5%
Japan	2.0%
Iceland	2.5
Malaysia	3.0
Chile	5.5
Hong Kong	5.5
Sweden	8.3
Switzerland	10.2
France	11.0
Ireland	11.0
USA	11.5
Israel	12.4
Canada	12.7
Spain	13.6
Netherlands	14.0
UK	14.4
Italy	15.0
New Zealand	17.4
United Arab Emirates	18.0
Australia	18.6
W. Germany	20
Brazil	24.1
South Africa	24.5

The mean prevalence rate for postpartum depression world-wide was 12.4% (22 countries).

“Higher national seafood consumption predicted lower prevalence rates of postpartum depression.”

“Higher DHA content in mothers' milk also predicted lower prevalence rates of postpartum depression.”

“Greater apparent seafood consumption predicted DHA content of mothers' milk.”

The AA and EPA content of mothers' milk were unrelated to rates of postpartum depression.

“In conclusion, these regression models described substantial associations between lower prevalence rates of postpartum depression and both higher rates of seafood consumption and the higher content of DHA in mothers' milk.”

DISCUSSION

“Inadequate dietary intake of omega-3 fats and the subsequent maternal depletion of omega-3 fats during pregnancy are associated with an increased risk of major postpartum depressive symptoms.”

"Both lower concentrations of DHA in mothers' milk and lower national rates of seafood consumption were robustly correlated with higher rates of major postpartum depressive symptoms."

"The nearly 50-fold difference in prevalence rates of major postpartum depressive symptoms across countries is substantially associated with omega-3 fatty acid nutritional status."

"The finding that the AA content of breast milk was unrelated to the prevalence of postpartum depression suggests a specific relationship to omega-3 fatty acid status."

"These findings are also similar to the cross-national relationships between seafood consumption and lifetime prevalence rates of bipolar spectrum disorder."

"Supplementation with omega-3 fatty acids from both marine and algae sources during pregnancy is not only safe but has several important benefits during pregnancy including longer gestational times and greater birth weights."

"Supplementation with 2.7 g/day of EPA plus DHA during the last trimester increased mean birth-weight and gestation time up to an average of 7 days among infants whose mothers had a poor baseline omega-3 status."

In a trial of 898 women, there was a decreased risk of preterm delivery, and no significant adverse side effects after supplementation with doses ranging from 2.7 g/day to 6.1 g/day of EPA plus DHA.

"No adverse side effects, specifically no increased bleeding times or hemorrhage during parturition, were observed in a treatment study of 223 women with high-risk pregnancies including gestational diabetes and pre-eclampsia."

The current recommendation is that "pregnant women should consume a minimum of 650 mg/day of EPA plus DHA with a minimum of 300 mg/day as DHA."

KEY POINTS FROM DAN MURPHY

- (1) DHA is necessary for the neurological development of both fetus and infant.
- (2) Inadequate intake of omega-3 fats is associated with major depression and other affective disorders, including bipolar disorders.
- (3) The prevalence rates of major postpartum depressive symptoms are related to DHA omega-3 fatty acid consumption from fish.
- (4) Supplementation with omega-3 fatty acids during pregnancy is safe and beneficial.

(5) Pregnant women should consume a minimum of 650 mg/day of EPA/DHA with a minimum of 300 mg/day of DHA.