

Lack of fish in diet linked to anxiety in pregnancy

July 15 2013



Women who do not eat fish during pregnancy are more likely to experience high levels of anxiety at that time. Researchers from Children of the 90s at the University of Bristol and the Federal University of Rio de Janeiro, Brazil, have found a link between the types of diet eaten, particularly whether this includes fish, and anxiety in pregnancy. They suggest that eating fish during pregnancy could help reduce stress levels.

Most women experience some stress during pregnancy but excessive anxiety is not good for the mother's long-term health and can result in their baby being born prematurely and/or having a [low birth weight](#).

As well as looking at [fish](#) intake the study of more than 9,500 [pregnant women](#) categorised women's diets by the frequency with which different

types of foods were eaten and identified five [dietary patterns](#). They are roughly described as: health-conscious (1), traditional (2), processed (3), confectionery (4) and vegetarian (5).

The researchers found that women who never ate seafood had a 53 per cent greater likelihood of having high levels of anxiety at 32 weeks of pregnancy when compared to women who ate seafood regularly. The results suggest that two meals of white fish and one meal of oily fish each week would be an adequate amount of fish to consume. This was the case after taking into account 14 different factors that could affect anxiety, including drinking, smoking and family adversity during pregnancy.

When the researchers investigated the dietary patterns, women in the top third of the vegetarian type of diet pattern were 25 per cent more likely to experience anxiety than women in the bottom third.

There was also evidence that women in the top third of the health-conscious dietary pattern were 23 per cent less likely to have high levels of anxiety when compared to women in the bottom third.

Women in the top third of the [traditional diet](#) pattern were 16 per cent less likely to have high [levels of anxiety](#) when compared to women in the bottom third.

These findings, the researchers suggest, may be due to the lack of fish and meat in a vegetarian type of diet and because a pregnant woman's nutritional requirements increase during pregnancy, due to the demands of the growing fetus, which gets all its nutrients from the mother.

Dr Juliana Vaz, the report's senior author, said: "An important message from this research is that in order to have a healthy pregnancy, women need to follow a healthy diet and not something special for pregnancy. It

means a diet containing whole cereals, vegetables, salad, fruit, dairy foods, meat, poultry, pulses and including fish – three portions per week with at least one of oily fish, such as salmon, sardine or tuna. Sweets and fast-foods should be kept to a minimum because they are low in nutrients."

Dr Pauline Emmett, senior dietician at Children of the 90s, and a co-author of the report, said: "It is possible, but not proved, that this association with fish is due to the omega-3 fatty acid content of the fish. For vegetarians there are dietary sources of omega-3 fatty acids especially flax oils, algae oils and nuts and seeds such as walnuts. There are also products such as omega-3 eggs and milk on the market which they could choose. Some vegetarians are happy to eat fish from time to time and we would encourage this especially as we are not sure what ingredient in fish is the most effective."

Professor Jean Golding, one of the report's authors and founder of Children of the 90s, added: "Previous research from Children of the 90s has shown the beneficial effects of eating oily fish during pregnancy on a child's IQ and eyesight. This new paper highlights the importance of oily fish for a mother's mental health and consequently the health and development of her baby.

"Any pregnant woman who is concerned about her diet should seek advice from her midwife or GP."

These are the foods that most characterise the different types of diet (they are not the only foods eaten).

1. Health-conscious pattern: salad, fruit, fruit juice, rice, pasta, oat/bran based breakfast cereal, fish, pulses, cheese, whole-grain bread.
2. Traditional pattern: red meat, poultry, vegetables, potatoes.
3. Processed pattern: meat pies, sausages, burgers, fried foods, pizza,

chips, white bread, eggs, baked beans.

4. Confectionery pattern: chocolate, sweets, biscuits, cakes, puddings

5. Vegetarian pattern: meat substitutes, pulses, nuts, herbal tea

6. A detailed factsheet on omega-3 fatty acids is available to download from the British Dietetic Association's (BDA) website

www.bda.uk.com/foodfacts/omega3.pdf.

7. The BDA recommends that everyone should try to eat two portions of fish per week, one of which should be oily. Their guideline portion amounts are for 18 months to three years: a quarter to one small fillet or 1-3 tbsps; four to six years: half to one small fillet or 2-4 tbsps; seven to eleven years: one to one and a half small fillets or 3-5 tbsps; 12 years to adult: 140g (5 oz) fresh fish or 1 small can [oily fish](#).

More information: The paper, 'Dietary patterns, n-3 fatty acids intake from seafood and high levels of anxiety symptoms during pregnancy: findings from the Avon Longitudinal Study of Parents and Children' by Juliana S. Vaz, is published today (13 July 2013) in *PLOS ONE* dx.plos.org/10.1371/journal.pone.0067671

Provided by University of Bristol

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