

# Diet for Mental Health In Pregnancy: Nutrients of importance based on large observational cohort data

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## Background

A strong body of evidence supports the relationship between diet and mental well-being in non-pregnant populations. However, there is a paucity of data on this topic in pregnant cohorts. Considering that both maternal diet and well-being significantly impact fetal development, this is a high priority research area.

## Objectives

To determine the association between dietary intake and well-being in pregnancy.  
To assess if women were meeting recommended dietary intakes set out by the FSAI.

## Methods

This retrospective Cohort analysis (n=1521) combined 3 studies;  
1. The ROLO Study; a Randomised cOntrol trial of a LOw glycaemic index diet to reduce recurrence of macrosomia (birthweight >4kg) (n=796)<sup>1</sup>  
2. The PEARS Study; Pregnancy Exercise And nutrition Research Study with smartphone application support (n=565)<sup>2</sup>  
3. The probiotic in pregnancy study, a double blind, randomised control trial (N=160).

All data was collected prior to intervention (approx. 12-16 weeks gestation).  
Well-being was measured using the WHO-5 Well-being index<sup>3</sup>.  
Dietary intakes were assessed using 3-day food diaries (2x weekday and 1x weekend day).  
Participants were categorised as either meeting or not meeting daily recommended intakes of key nutrients as described by the FSAI for the antenatal period<sup>4</sup>.

### Statistical analysis

Initial associations were determined using Pearson Correlations. Significant Pearson Correlations were further inputted into Multiple Regression Analysis adjusted for BMI (kg/m<sup>2</sup>), age, HP deprivation index<sup>4</sup> and metabolic activity level (METs).

Benjamini-Hochberg procedure was used to correct for multiple testing.

## Results

Amongst the participants, average age was 32±4yrs, average BMI was 27kg/m<sup>2</sup> (IQR 17-56), average HP index was 6±11, average METs was 438 (IQR 0-21390) and average well-being % score was 59±16.

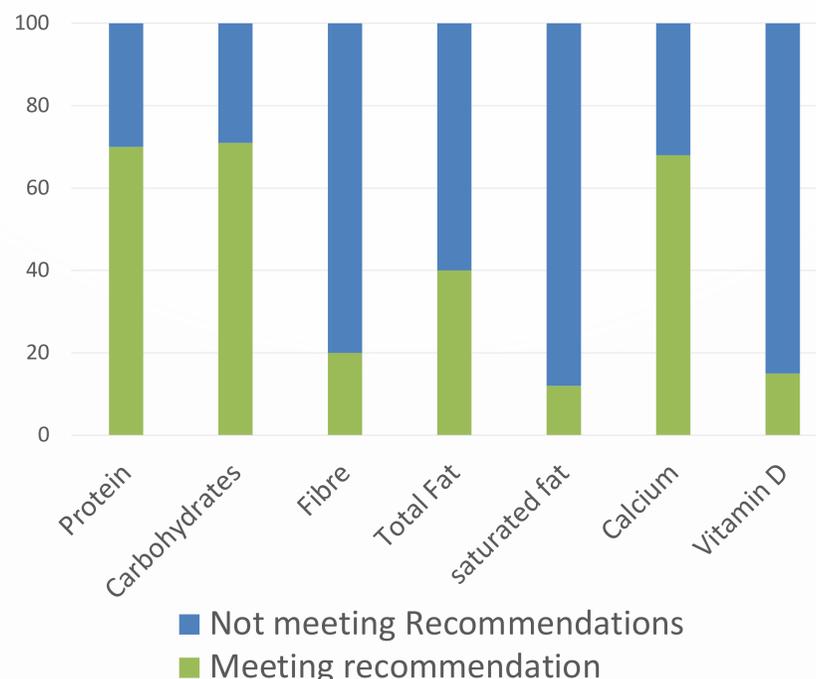
The following table shows significant associations between dietary intakes and well-being percentage score following adjusted analysis.

Models	B	p	95% CI	R <sup>2</sup> Adj.
Fibre (g)	0.07	0.02	0.03, 0.32	0.05
Magnesium (mg)	0.08	<0.01	2.12, 14.75	0.05
Niacin (mg)	0.09	<0.01	2.60, 13.18	0.05
Thiamine (mg)	0.07	0.02	0.91, 9.86	0.05
Folate (mg)	0.08	0.02	1.01, 14.33	0.05

Significant p value set at p<0.05, CI; confidence interval. R2 Adj.; R2 adjusted

The above nutrients remained significantly associated with well-being following the benjamini-Hochberg procedure to adjust for multiple testing.

The preceding graph indicates proportion of participants (%) meeting dietary recommendations set out by the FSAI.



## Conclusion

Nutrition during early pregnancy is related to maternal well-being. Our findings suggest that fibre, magnesium and B vitamins are of dietary importance for promoting positive mental well-being during pregnancy. Our data suggest that it is important to optimise maternal dietary intakes and encourage women to adhere to dietary guidelines established for pregnancy. In doing so, improved well-being in early pregnancy may be achieved, which in turn could potentially optimise health outcomes for both mother-child dyads.

## References

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