



# Short inter-pregnancy interval and its association with women's body mass index in the subsequent pregnancy

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## Introduction

Length of the interpregnancy interval (IPI) is known to be associated with adverse pregnancy outcomes for both mother and her baby.<sup>1-4</sup> There is also increasing evidence that starting pregnancy being overweight or obese puts women at greater risk of adverse pregnancy outcomes.<sup>5-7</sup>

### The aim of this study

was to examine whether IPI was associated with body mass index (BMI) at the subsequent pregnancy. If a relationship exists then interventions could be developed to target IPI as well as BMI.

## Methods

- Cohort of 14,661 women who had at least two subsequent singleton births at the Royal Prince Alfred hospital in Sydney in period 1990-2014.
- 17,394 IPIs
- Mixed linear models

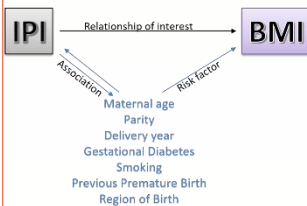


Figure 1. Possible confounders of the association between interpregnancy interval and BMI

## Results

Women with shorter IPIs (<6 months) had higher BMI at the start of pregnancy (0.28kg/m<sup>2</sup>; 95% CI: 0.09, 0.47) in comparison to women with IPIs of 18 to 23 months. The BMI for women with IPI greater than two years had higher BMI (0.39kg/m<sup>2</sup> (0.27, 0.51) and 1.08kg/m<sup>2</sup> (0.90, 1.26) for IPI of 24-59 months and ≥60 months respectively). Sensitivity analysis which removed outlying observations reduced the difference for women with shorter IPI (0.14kg/m<sup>2</sup> (-0.03, 0.31)) but the difference remained for longer birth intervals.

Table 1. Results of regression analysis of the relationship between IPI and mother's BMI in the subsequent pregnancy adjusted for possible confounders and results of sensitivity analysis.

Mixed linear model	Complete data N=17394			Without 22 outlying observations N=17372		
IPI	Est. diff. in mean BMI	95% CI	P-value	Est. diff. in mean BMI	95% CI	P-value
<6 mths	0.28	(0.09, 0.47)	0.01	0.14	(-0.03, 0.31)	0.10
6-11 mths	0.05	(-0.09, 0.18)	0.48	0.05	(-0.07, 0.17)	0.41
12-17 mths	-0.09	(-0.22, 0.04)	0.17	-0.07	(-0.19, 0.04)	0.21
18-23 mths	Ref			Ref		
24-59 mths	0.39	(0.27, 0.51)	<0.0001	0.36	(0.25, 0.46)	<0.0001
≥60 mths	1.08	(0.90, 1.27)	<0.0001	1.08	(0.92, 1.24)	<0.0001

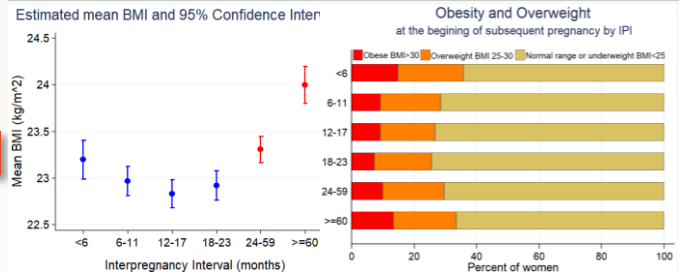


Figure 2. Estimated BMI at subsequent pregnancy for an Australia-born woman aged beginning of a subsequent pregnancy 30 with socioeconomic status of 3 and one among women with at least two previous full-term birth, with no gestational diabetes and normal BMI of 22kg/m<sup>2</sup> at previous pregnancy, not smoking at first booking, who delivered her 2<sup>nd</sup> child in 2010-2014.

## Conclusions

- Birth intervals of 24 months or longer were significantly associated with increased BMI in subsequent pregnancy when compared to recommended IPIs of 18-23 months.
- We did not find strong evidence that shorter IPI was associated with higher BMI.
- Education about maintaining a healthy weight between pregnancies could help avoid adverse pregnancy outcomes.

## References

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