

# Preconception folic acid uptake in diabetic women of childbearing age: Findings from the RCGP Research Surveillance Cohort

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## Aim

To audit uptake of 5mg prescription folic acid in women with diabetes of childbearing age (WDM) using the Royal College of General Practitioners Research Surveillance Cohort (RCGP RSC) dataset, and identify factors influencing uptake to minimise risk of neural tube defects.

## Background

Women who have diabetes are more likely to have pregnancy complications, including incidence of neural tube and other congenital defects<sup>1</sup>. Such incidences can be mitigated by preconception high dose folic acid use (5mg per day)<sup>2</sup>. Current figures from the National Pregnancy in Diabetes Audit (NPIDA)<sup>1</sup> indicate uptake of this aspect of preconception care is low (34%), varies greatly between services, and is influenced by age, diabetes type and index of multiple deprivation, but this is based only on WDM receiving maternity care.

The RCGP RSC dataset collects primary care prescription data across England, and can provide information on factors influencing folic acid uptake for a population of WDM of childbearing age who are not currently pregnant.

## Methods

The proportion of non-pregnant WDM, aged 18-45 years, prescribed 5mg folic acid between January 1st 2015 and 31st December 2015, were identified from the RCGP RSC dataset (data from 128 GP practices across England). Women with hazardous alcohol consumption were excluded to avoid confounding folic acid prescriptions in association with hepatic disease. Likelihood of prescription was modelled against diabetes type and duration, age, ethnicity, multiple deprivation index, BMI, smoking status and alcohol consumption using binomial logistic regression.

## Results

In 3,393 WDM (1,095 type 1, 2,298 type 2), uptake of 5mg folic acid was low (8.2%, n = 279). Table 1 & Figure 1 show significant characteristics from regression analysis affecting odds ratios for folic acid uptake.

Uptake was less likely below 25 years of age (OR = 0.44, 95% CI 0.26-0.73, p = 0.002) or above 40 years (OR = 0.52, 95% CI 0.39-0.69, p < 0.001). Uptake was more likely when BMI was above 30 (OR = 1.49, 95% CI 1.06-2.11, p = 0.024), but less likely in those with type 2 diabetes (OR = 0.64, 95% CI 0.48-0.85, p = 0.002). No other variables were found to significantly alter uptake likelihood.

## Discussion

Uptake of high dose folic acid (5mg/day) amongst non-pregnant WDM of child-bearing age was low in this cohort (8%). This contrasts with recent NPIDA figures (34%), suggesting preconception folic acid use is even less routine amongst WDM not engaging with maternity services.

Women aged under 25 or over 40 were less likely to have a folic acid prescription. This correlates with existing literature indicating that younger WDM have limited knowledge of the impact diabetes can have on pregnancy, and that primary care contacts are not focused on preconception care for this age group<sup>3</sup>.

Women with type 2 diabetes were also less likely to have a folic acid prescription – at odds with the higher OR for BMI >30, given the known association between type 2 diabetes and high BMI. However, BMI >30 is a risk factor for neural tube defects independently of diabetes mellitus - standard RCOG guidelines stipulate all women with BMI >30 considering pregnancy should be offered folic acid<sup>4</sup>. Yet a low OR still exists for type 2 diabetes. This disparity indicates WDM with type 2 diabetes can be a hard-to-reach group to raise awareness of preconception folic acid use.

## Conclusion

Only 8% of WDM in the cohort had records of engagement with this aspect of preconception care, known to reduce adverse fetal outcomes. Young women (< 25 years), and those >40 years, particularly with type 2 diabetes, are less likely to engage, highlighting the need to actively reach out to patients with these characteristics with preconception care information. Targeting these groups of WDM could improve preconception care engagement and therefore maternal outcomes.

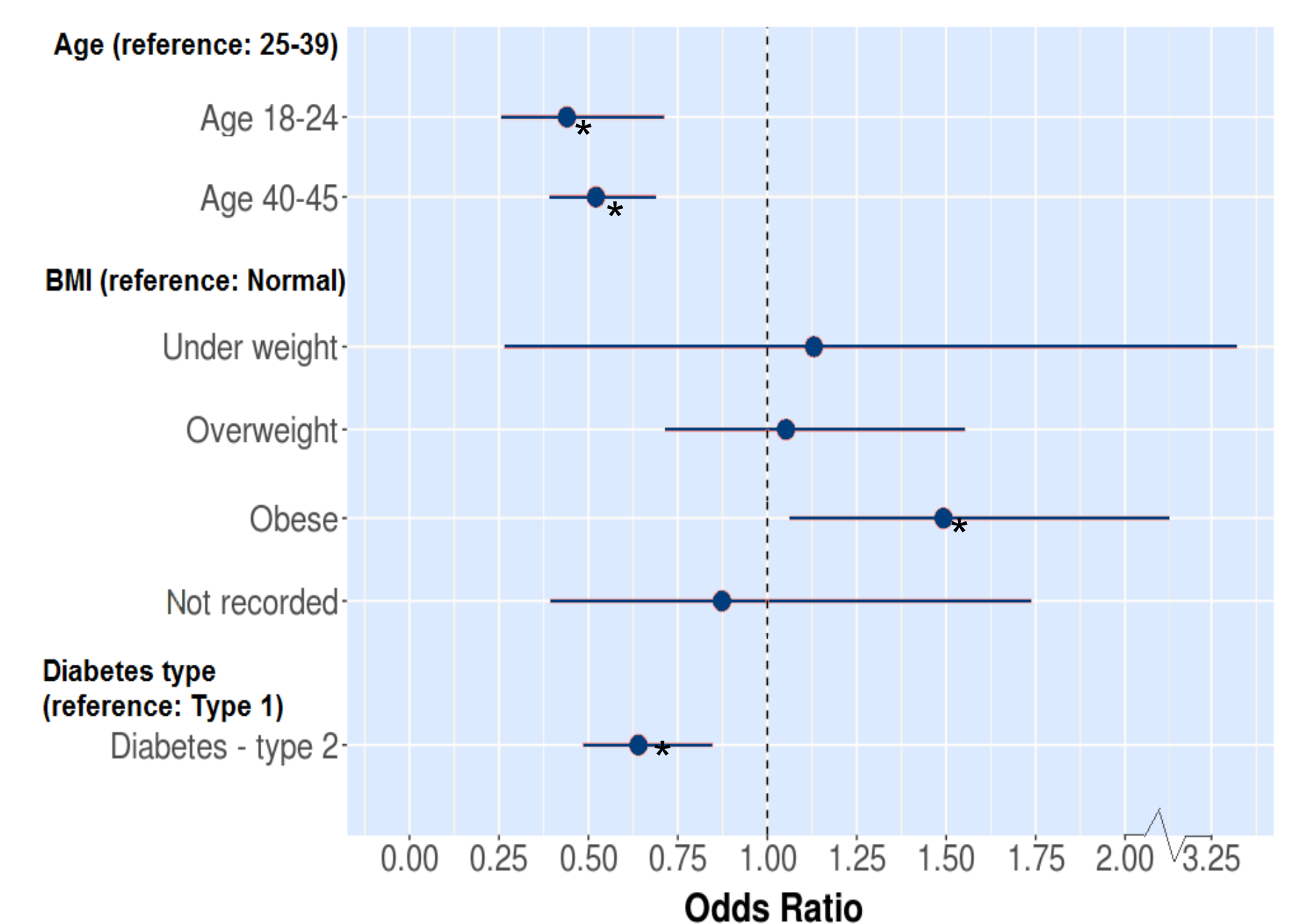


Figure 1. Forest plot of odds ratios & 95% CI  
\* Statistically significant characteristic

Characteristic	Sample n (%)	OR (95% CI)	p value
<b>Age group (years)</b>			
18-24	336 (9.9%)	0.44 (0.26 to 0.73)	0.002
25-39	1,699 (50.1%)	1.00 [reference]	-
40-45	1,358 (40.0%)	0.52 (0.39 to 0.69)	<0.001
<b>BMI (kg/m<sup>2</sup>)</b>			
<18.5	36 (1.1%)	1.13 (0.33 to 3.84)	0.844
18.5-24.9	721 (21.2%)	1.00 [reference]	-
25.0-29.9	809 (23.8%)	1.05 (0.71 to 1.55)	0.797
>30	1,682 (49.6%)	1.49 (1.06 to 2.11)	0.024
Not recorded	145 (4.3%)	0.87 (0.42 to 1.82)	0.718
<b>Diabetes type</b>			
Type 1	1,095 (32.3%)	1.00 [reference]	-
Type 2	2,298 (67.7%)	0.64 (0.48 to 0.85)	0.002

Table 1. Odds ratios for possessing a folic acid prescription by population characteristic

## Key findings

- Amongst non-pregnant WDM, only 8% take folic acid at the required dosage to minimise risk of neural tube defects
- Uptake of folic acid is lower amongst the younger age group (18-24) and those over 40
- Uptake of folic acid is lower in Type 2 diabetes than Type 1.
- This information could be used to target preconception care awareness interventions to WDM with these characteristics

## References

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