

Effect of maternal multimorbidity on the risk of preterm birth: A record-linkage study

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Objective

One in five pregnant women and birthing people lives with multiple long-term health conditions (multimorbidity). Preterm birth is a leading cause of neonatal morbidity and mortality. In this study, which is part of the larger MuM-PreDiCT Consortium research programme, we aimed to quantify the association between maternal multimorbidity (MM) and preterm birth in pregnant women and birthing people in Tayside and Fife (Scotland).

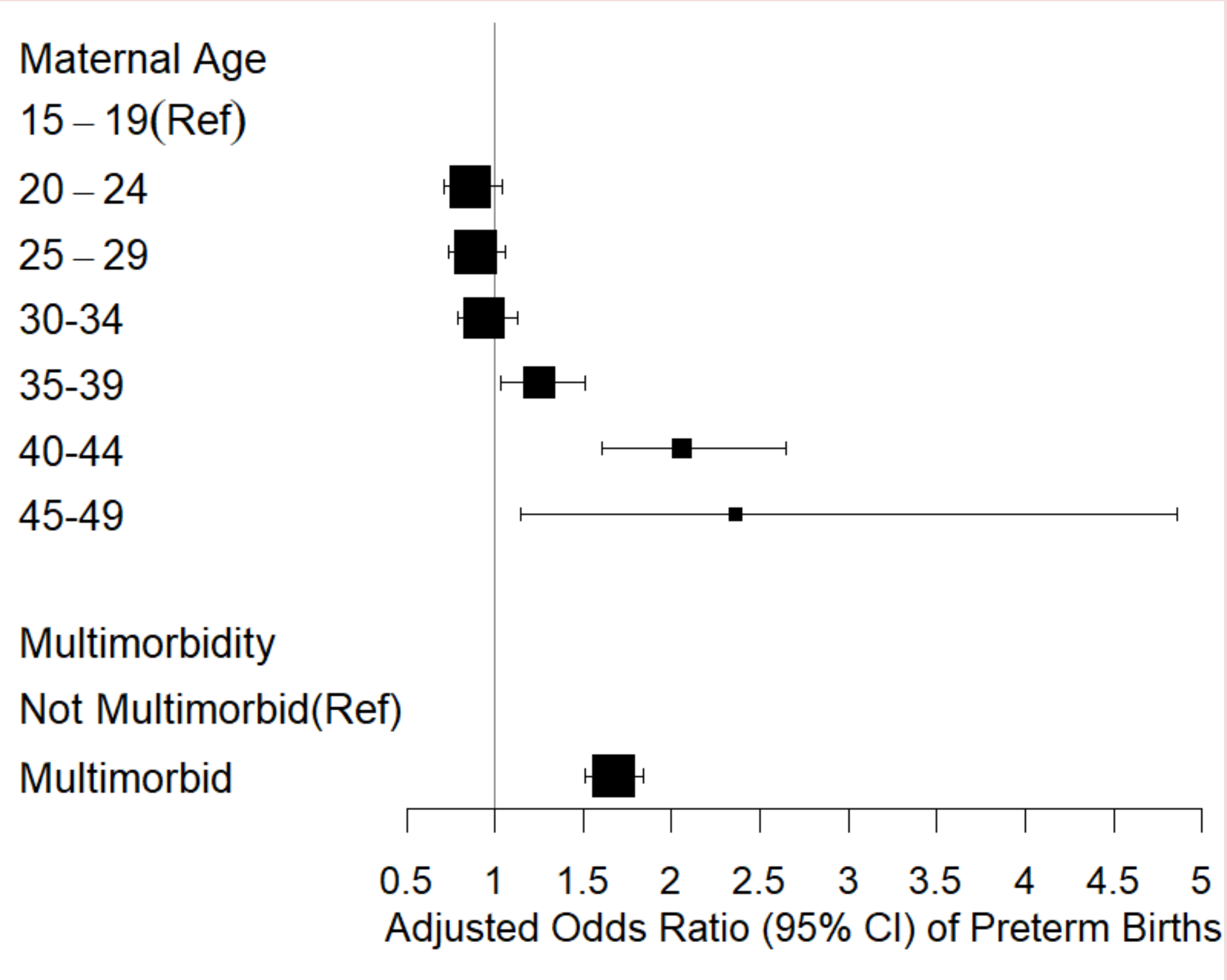
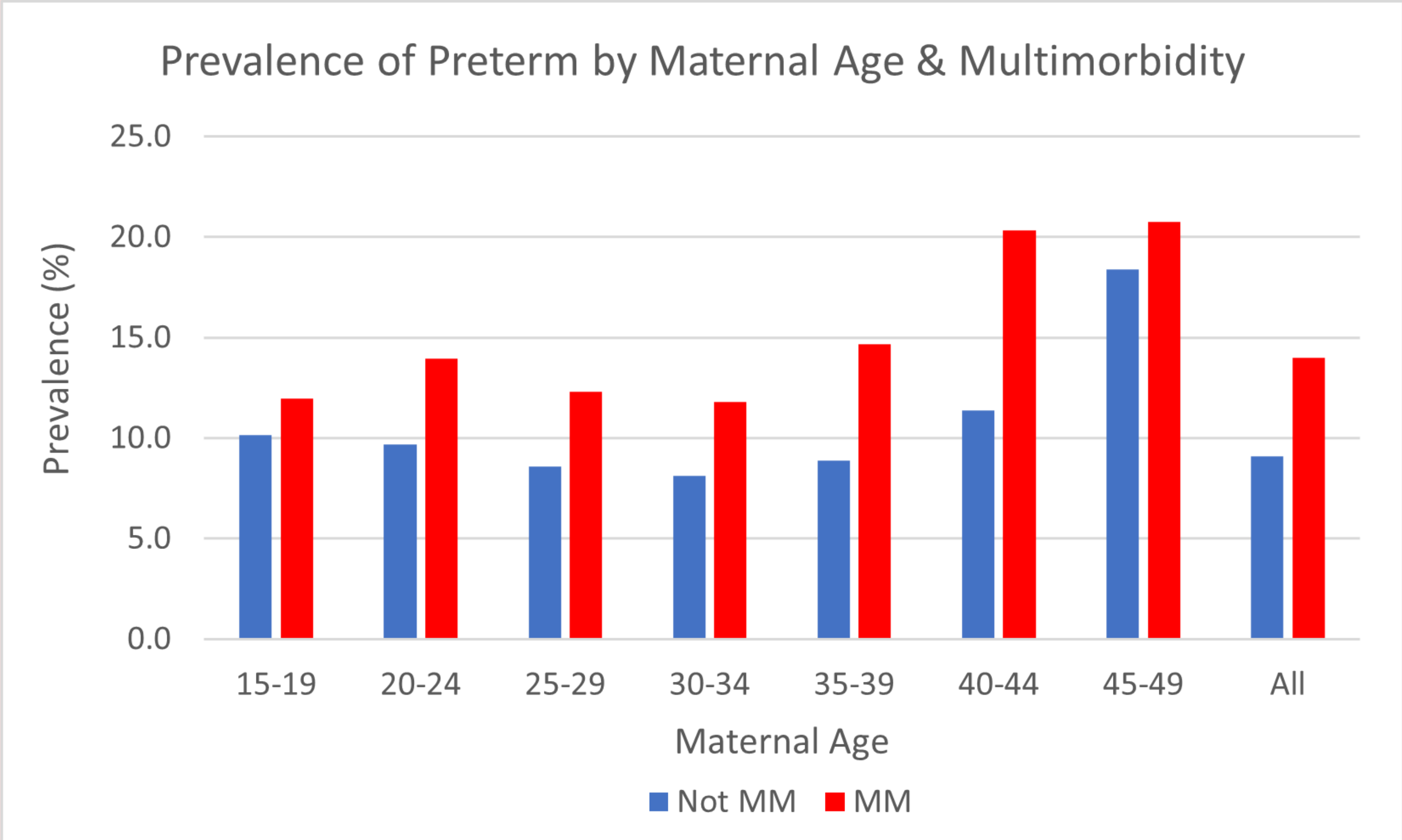
Method

Population-based observational record-linkage study using the Maternity Inpatient and Day Case - Scottish Morbidity Record (SMR02). All pregnancies identified from women aged 15-49 years with a recorded or estimated conception date between 1st January 2014 and 31st of December 2018 in Tayside and Fife regions were included. Multimorbidity (MM) was defined based on the presence of two or more pre-existing long-term conditions prior to each pregnancy. A list of 79 health conditions, previously approved by the MuM-PreDiCT consortium using the International Classification of Disease 10th version (ICD-10 codes) and community prescriptions, was used. Babies born <37 weeks of gestation were classified as preterm. A multiple regression analysis was conducted. The overall proportion of preterm births by MM with 95% CI was reported.

Results

26,328 singleton births were identified during the study period. Of which **2,614 (9.9%) were preterm**. Of these, 1,991 (76.2%) infants were born to women with no identified MM and **623 (23.8%) to women with MM**. The prevalence of preterm among mothers with MM and without MM were **14.4% vs 9.1% (<37weeks)**; 9.9% vs 5.5 % (32-<37 weeks) 1.0% vs 0.7% (28-32 weeks) and 3.4% vs 2.9% (<28 weeks).

When adjusted for age , **MM was significantly associated with preterm birth <37 weeks (aOR=1.67 95% CI: 1.51-1.84)**, 32-<37 weeks aOR= 1.89(1.68-2.12); 28-32 weeks aOR= 1.48(1.06-2.07) and <28 weeks aOR= 1.16(0.96-1.39).



Conclusions

Multimorbidity at the time of conception was associated with an increased risk of preterm birth across all ages. Multimorbidity presents a significant health burden to women and their offspring. Routine and comprehensive evaluation of women with multimorbidity during pregnancy is needed as our findings suggest significant associations with adverse birth outcomes.

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