

Systematic Review of Childbearing Patterns and Maternal Mortality

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Outline

- Background
- Research aims and rationale
- Search methods and results
- Meta-analysis methods and results
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Family Planning and the 5th MDG

- 5th Millennium Development Goal – reduce the maternal mortality ratio by 75% between 1990 and 2015.
- Utilising family planning as a strategy to reduce maternal mortality ratio through a reduction in high risk pregnancies.
 - Births that are “too soon, too close, too many or too late”.

Research aims and rationale

- Aims – To produce a systematic literature review to investigate the population based associations between maternal mortality and: i) maternal age, ii) the number of previous pregnancies/births.
- Rationale – these associations have not been systematically studied previously. More recent studies may have used improved maternal mortality ascertainment methods unavailable in the past.

Search Methods

- We searched for citations in English or Chinese in Pubmed, Embase and POPLINE.
- Inclusion criteria:
 - Study definition of maternal death that falls within the ICD10 definitions of pregnancy or late pregnancy related death.
 - Number of previous pregnancies/births as measured by the study definitions.

Search Methods

- Exclusion criteria:
 - Study estimates were solely derived from modelling of other variables/populations.
 - Studies that used potentially biased selection methods.
 - Insufficient data (to calculate the strata-specific ORs, <3 exposure categories, $\geq 20\%$ missing exposure, ≤ 20 maternal deaths).

Search Results

7841 citations
identified

930 full text
examined

1 additional study
identified from
references.

61 studies included
in review
(62 cohorts)

61 studies on
maternal age
(62 cohorts)

38 studies on previous
pregnancies/births
(38 cohorts)

42 duplications population/period

366 non eligible method,
participants or outcome types or
selection methods.

458 insufficient data

3 used matched designed without
appropriate analyses or information
for one.

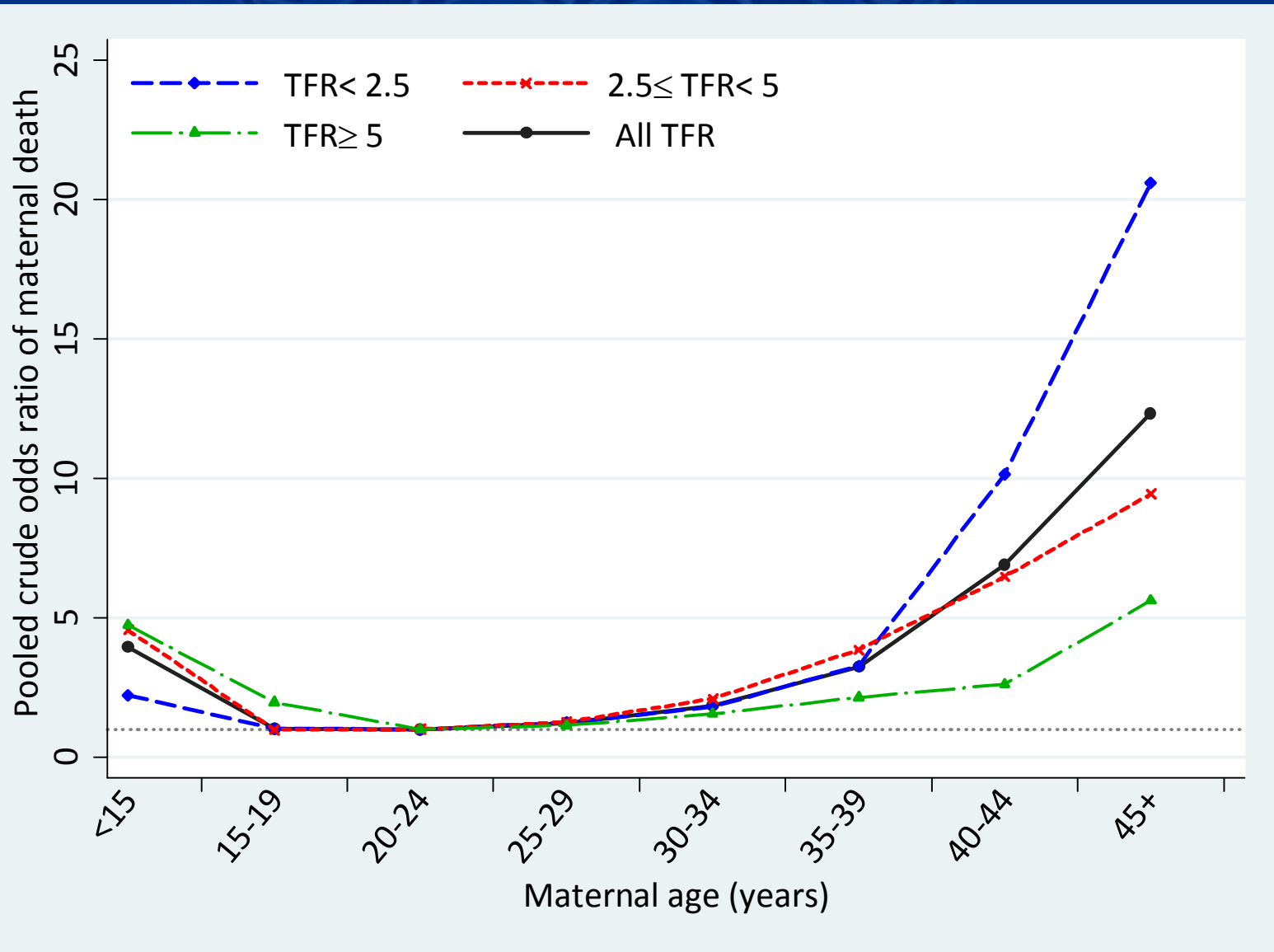
Meta-analysis methods

- An *a priori* subgroup analysis by region-specific TFR¹ levels.
- Study odds ratios were combined using:
 - Fixed effect model for low/medium heterogeneity.
 - Random effects model for high heterogeneity.

¹TFR= total fertility rate

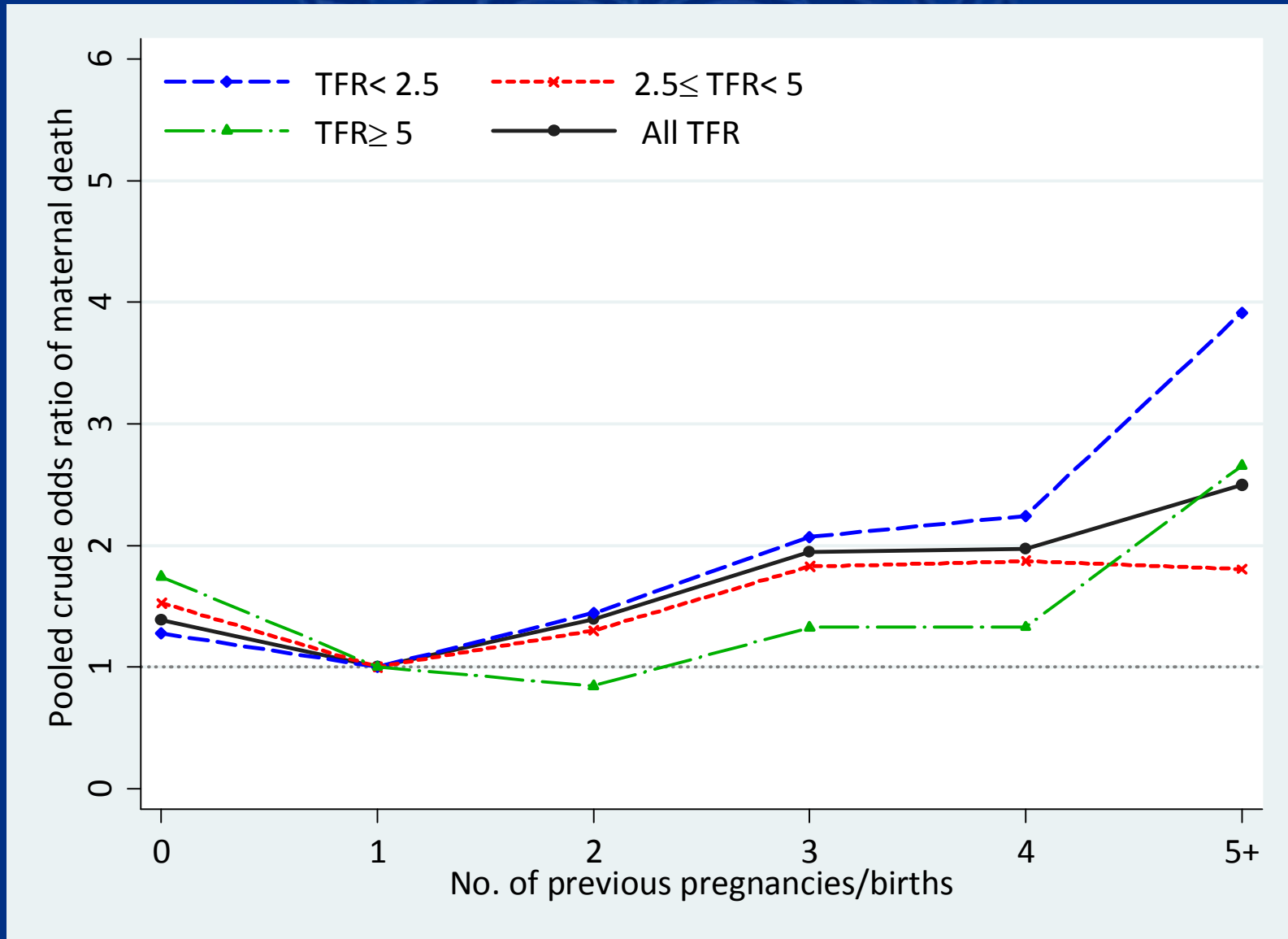
Maternal age:

older mothers have the lowest ORs in high fertility regions



Previous pregnancies:

adverse effect of high number of previous pregnancies differed by fertility levels



Limitations of the review

- Examinations of the crude associations only.
- Language restrictions.
- Lack of consistent and explicit definitions of the number of previous pregnancies/births in the studies.

Main Findings

- Very young adolescents (<15 years old) and primiparas were found to be at increased odds of maternal death across all fertility groups.
- Women aged 30 or older were at increased odds of maternal deaths independent of fertility levels.
 - Lowest crude ORs in the highest fertility group for older mothers.

Main Findings

- The threshold number of previous pregnancies at which increased odds of maternal death began varied by fertility levels.
 - Higher TFR = higher threshold.
- There were too few studies that adjusted for confounders to draw conclusions about the causality of any of the associations.

Implications

- Pregnant adolescents should be considered as two separate, heterogeneous groups.
- Delaying childbearing to 25 or 30 years old could carry increased risk of adverse effect to the mother.
- The use of family planning:
 - Can reduce maternal mortality rate.
 - Changing the childbearing patterns is unlikely to reduce the maternal mortality ratio by very much.

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