

DATA VISUALIZATION:

Predict date of birth based on CDC Natality file of 2018

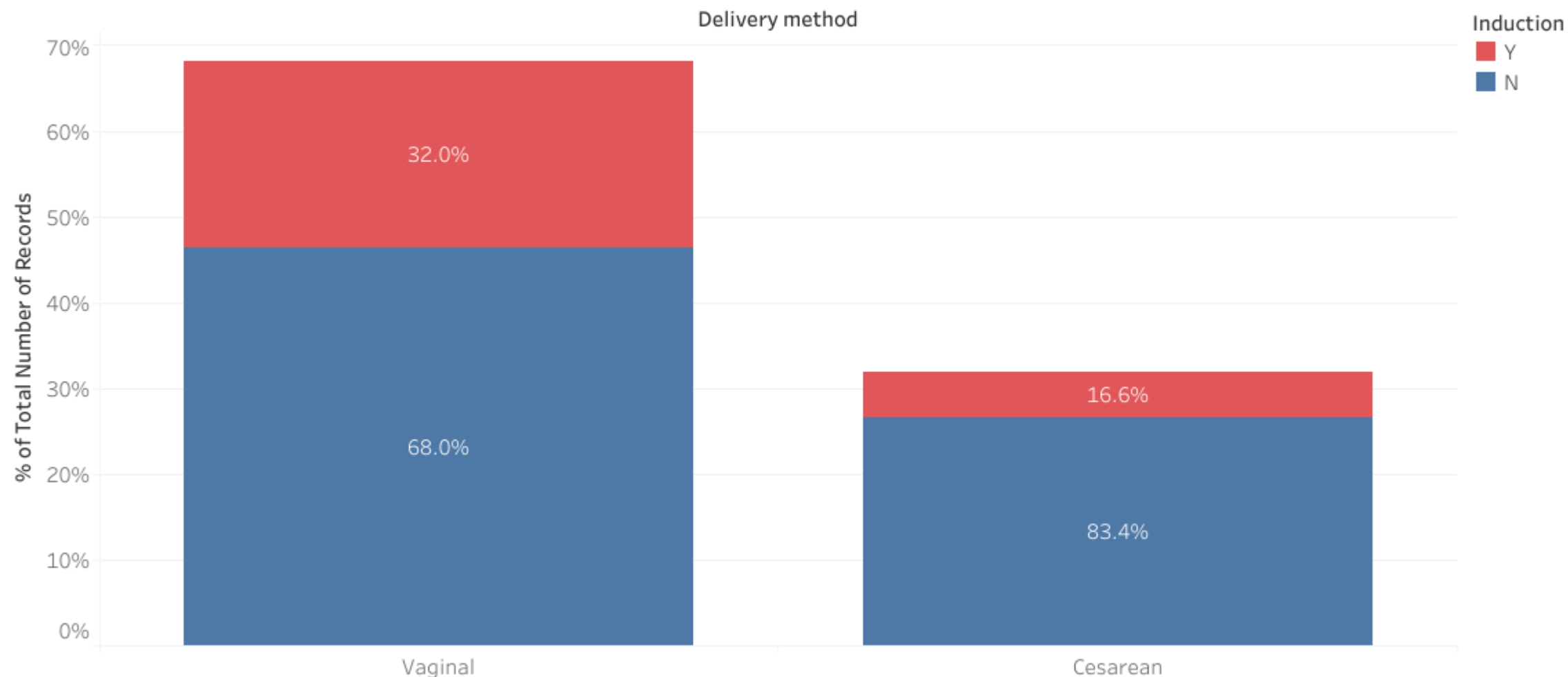
Springboard Capstone project 1

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Berenice Dethier

Filtering for spontaneous births only

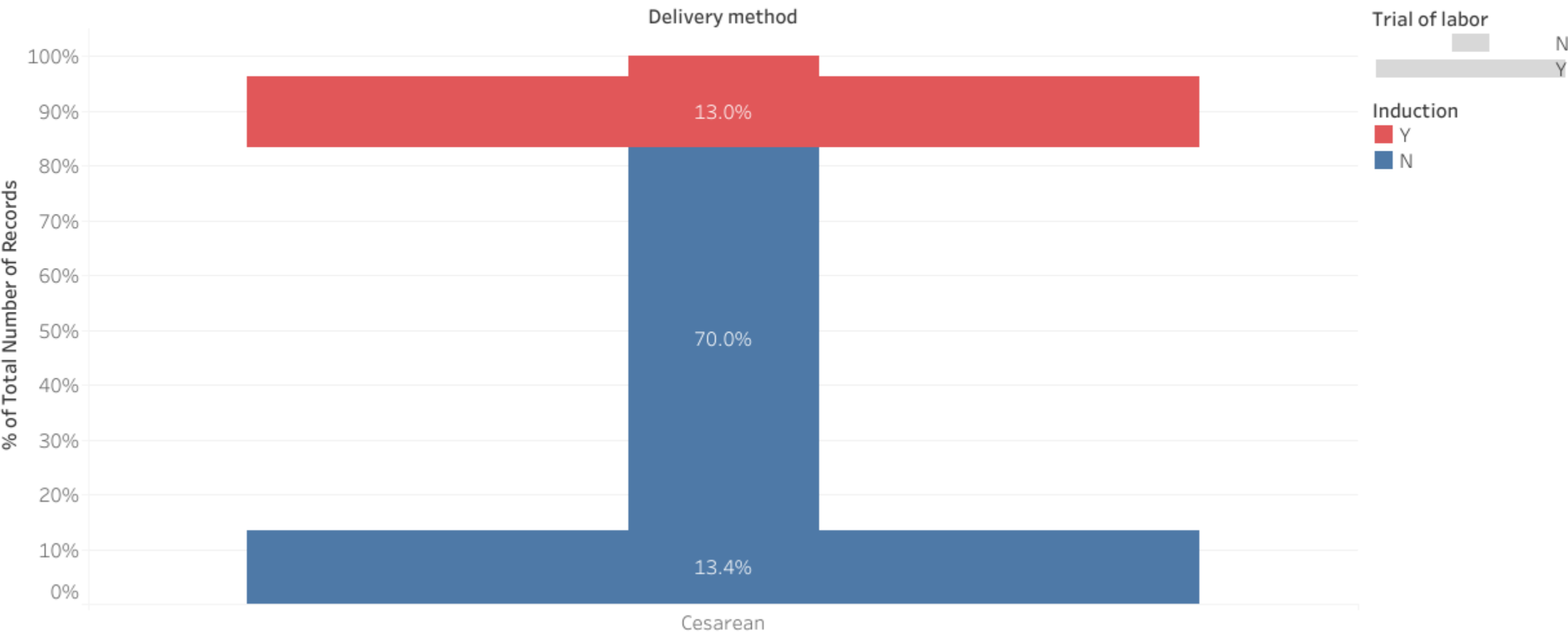
Births that were induced medically need to be filtered out. We keep vaginal births with no induction (68.0% of the dataset). Cesarean deliveries can be scheduled or not (emergency, complications), we will deal with them next.



Filtering for spontaneous births only (2)

Most C-sections are scheduled, therefore not spontaneous.

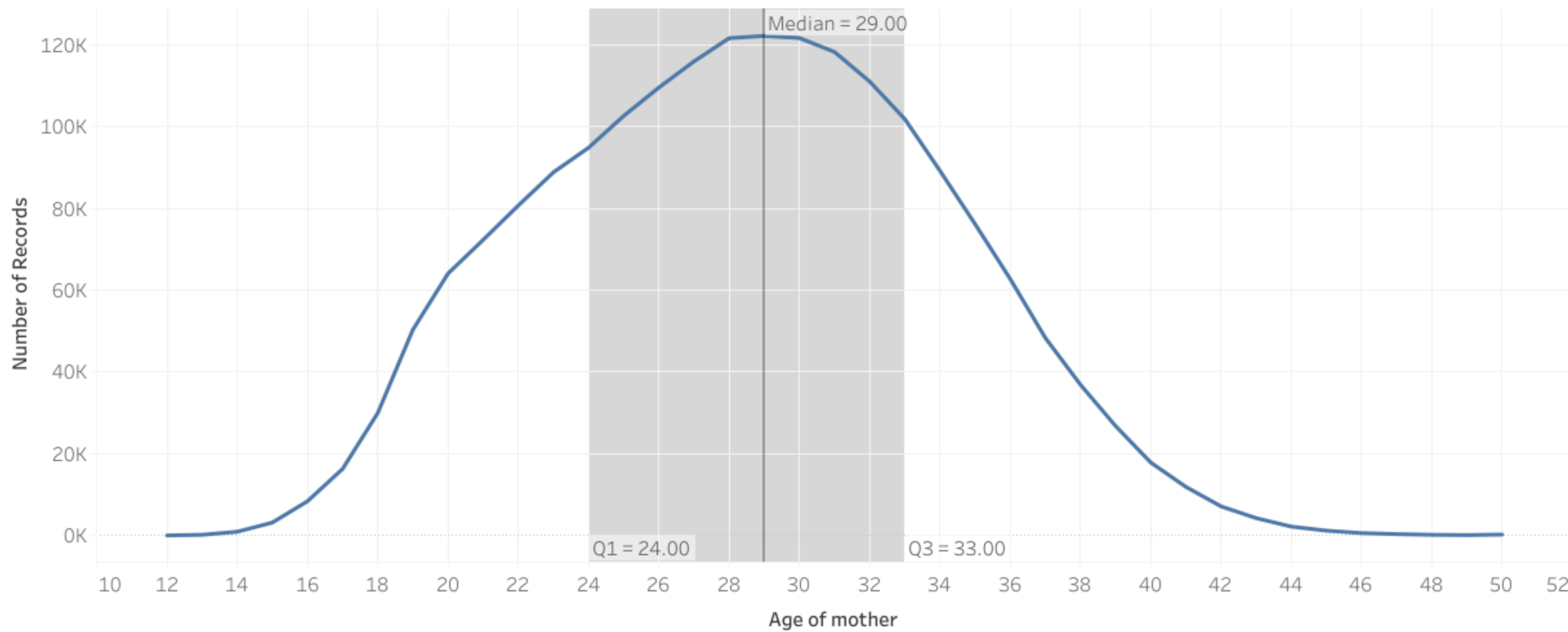
If labor was attempted (large trace) with no induction (blue part), we consider the birth spontaneous (the woman went into labor naturally). That represents 13.4% of the C-sections.



Distribution of births per mother age

The median age of mothers (gray line) is 29 years old.

The gray area encompasses the second and third quartile: 25% of mothers are younger than 24 and 75% are younger than 33.

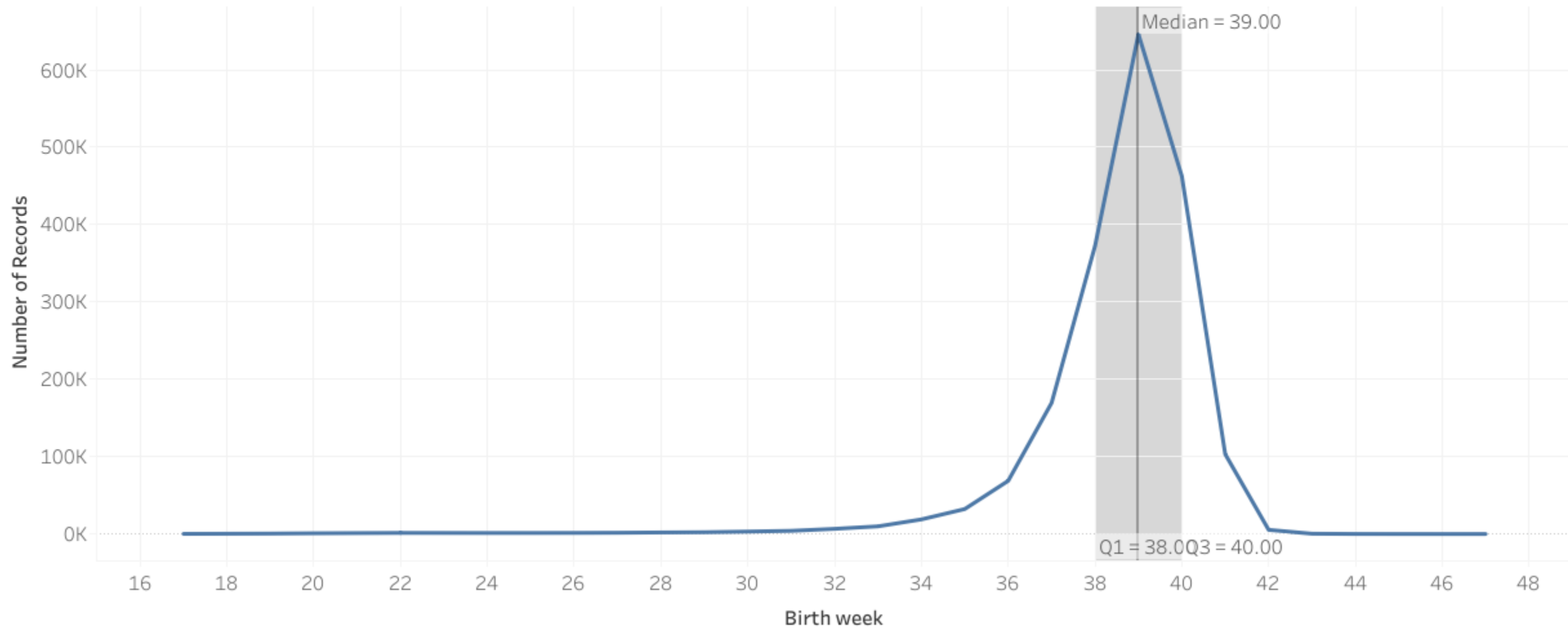


Distribution of births per delivery week

The median delivery week with regards to the obstetric estimate is 39 weeks (gray line).

The gray area encompasses the second and third quartile: 25% of babies are born before 38 weeks and 75% before 40.

In the future, data before 30 weeks and after 42 will be omitted as they represent extreme cases of premature babies and probable mistakes in obstetric estimates, respectively.

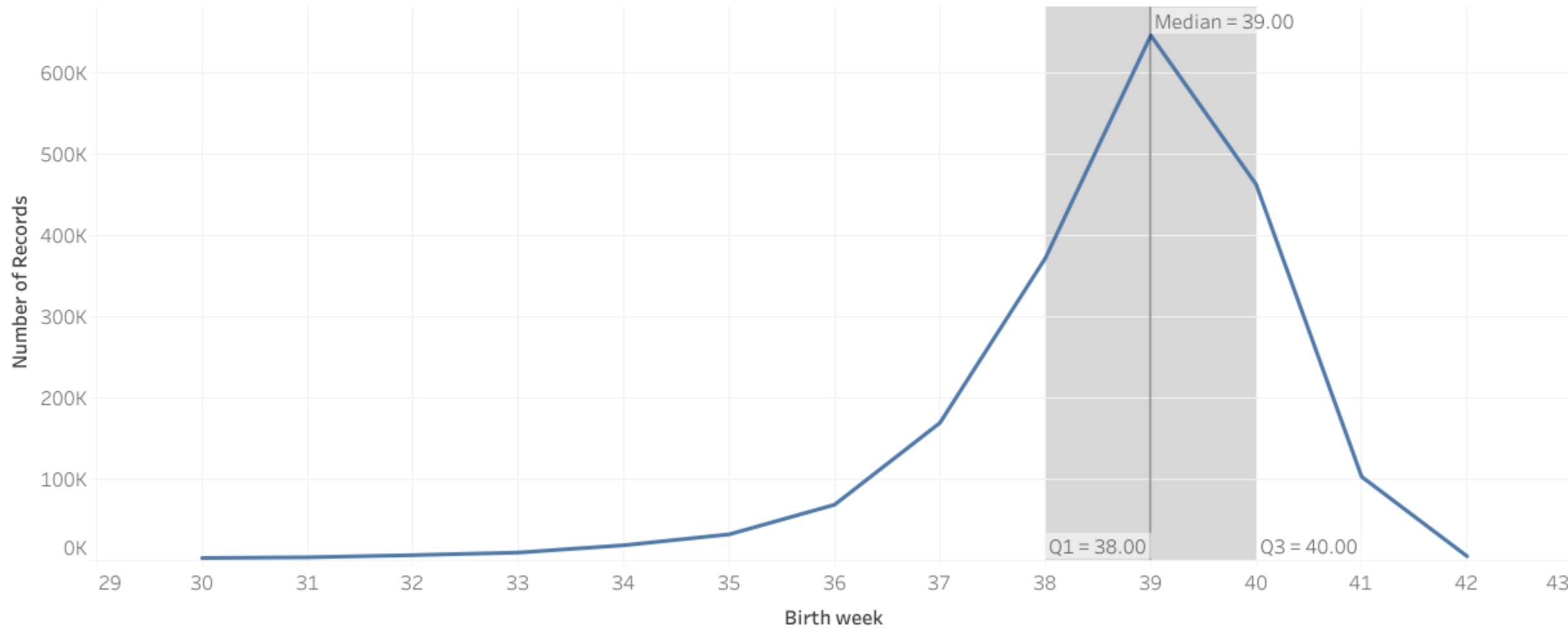


Distribution of births per delivery week (2)

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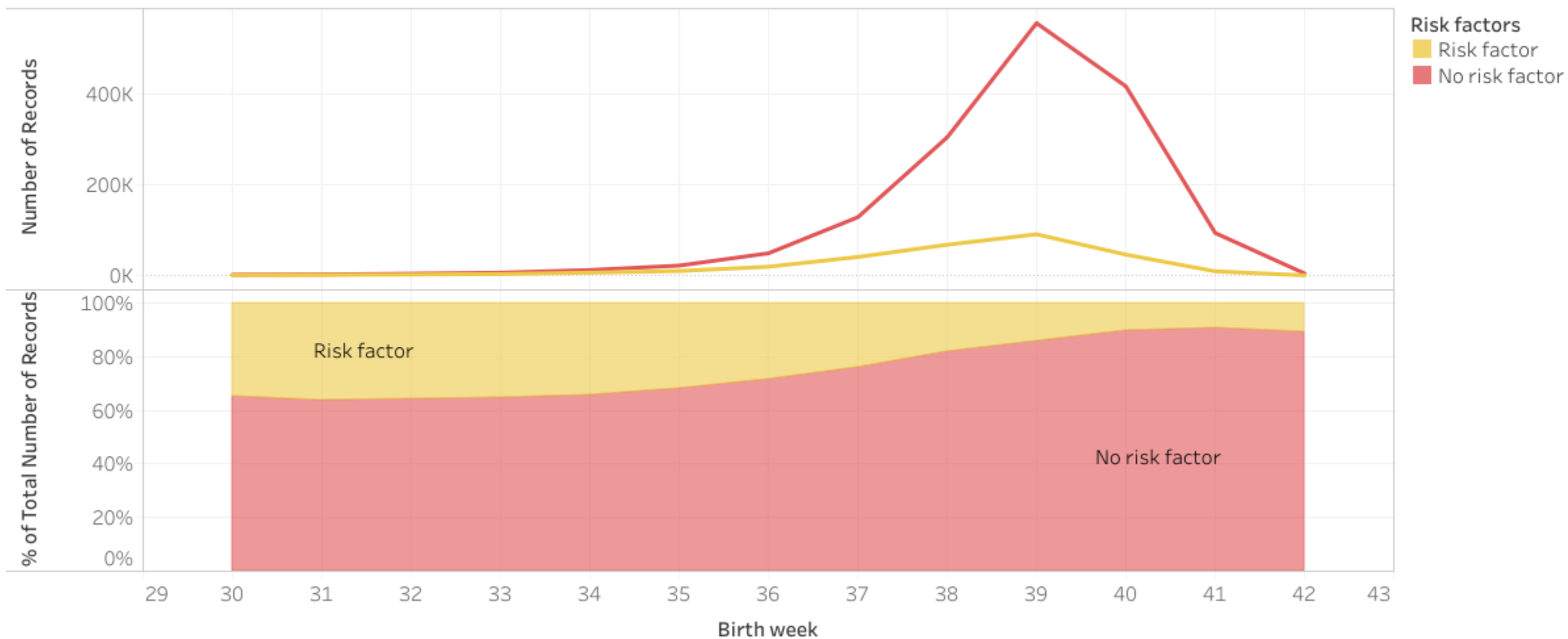
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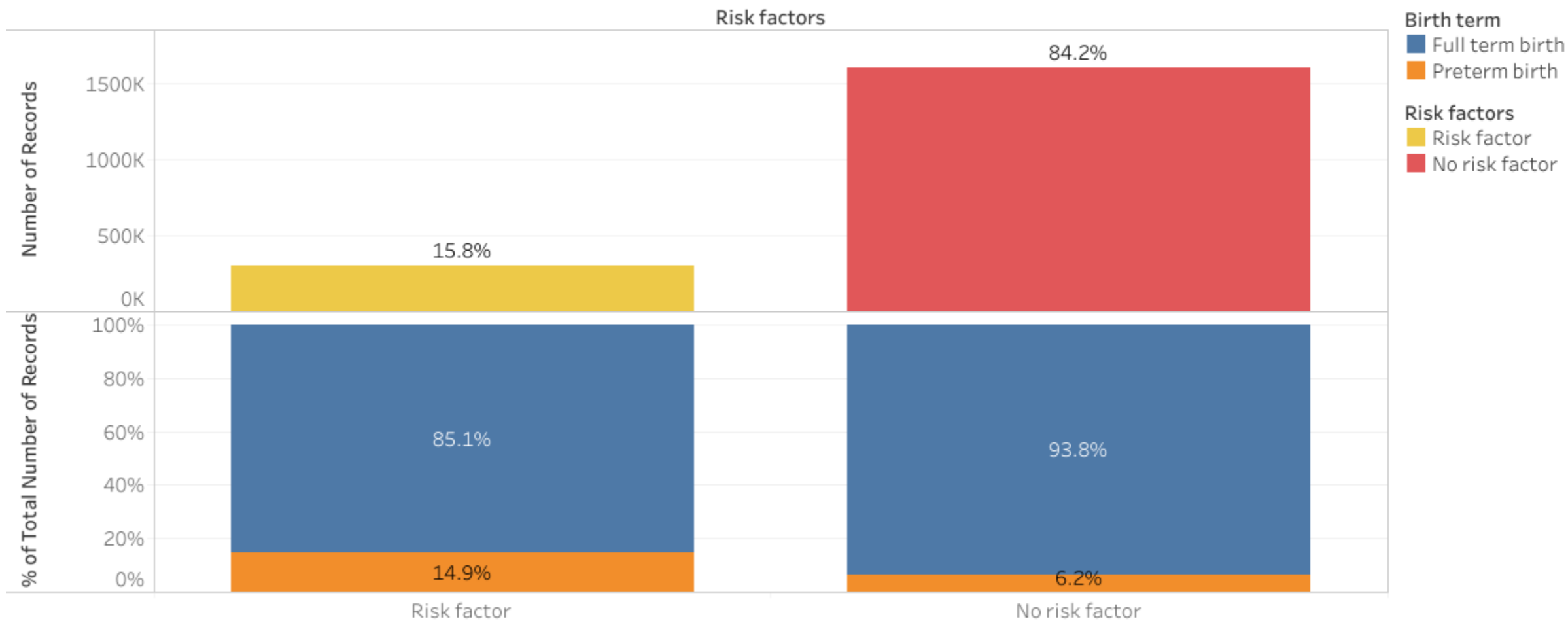


Risk factors lead to earlier deliveries

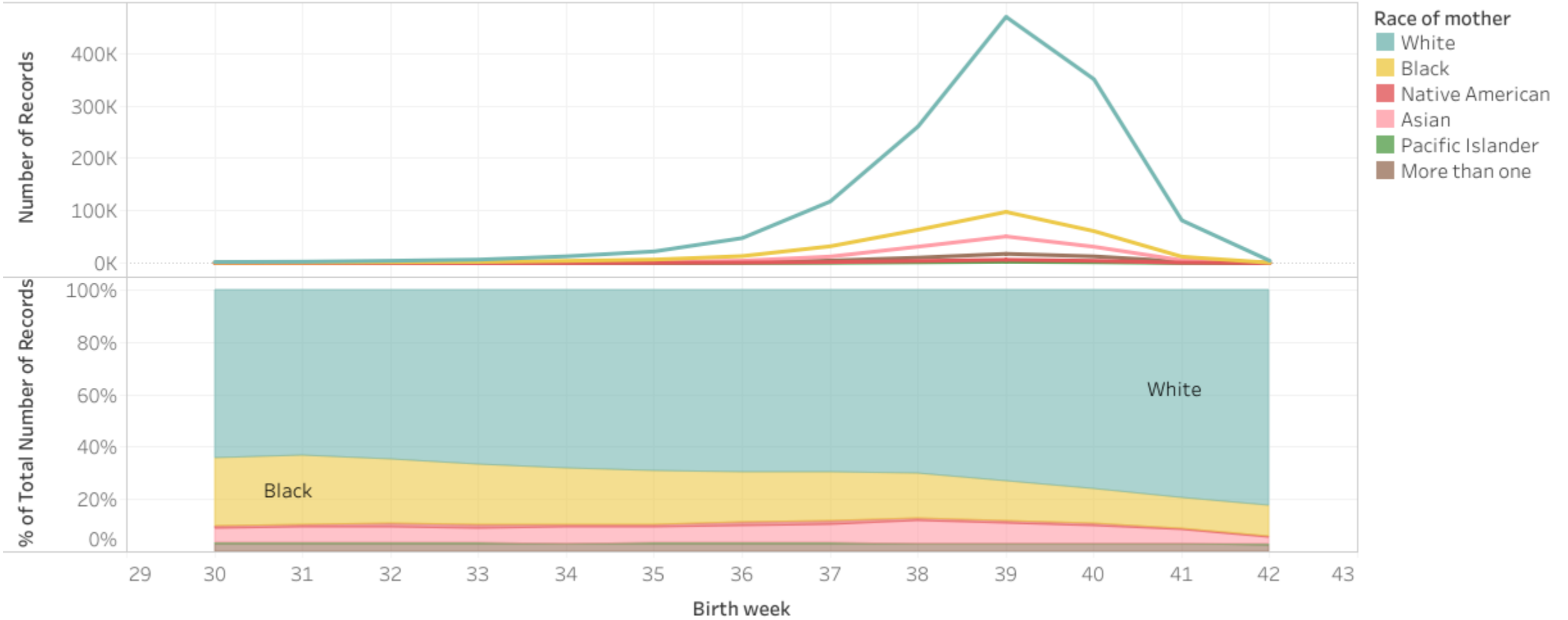
Risk factors include diabetes, pre-eclampsia, etc.



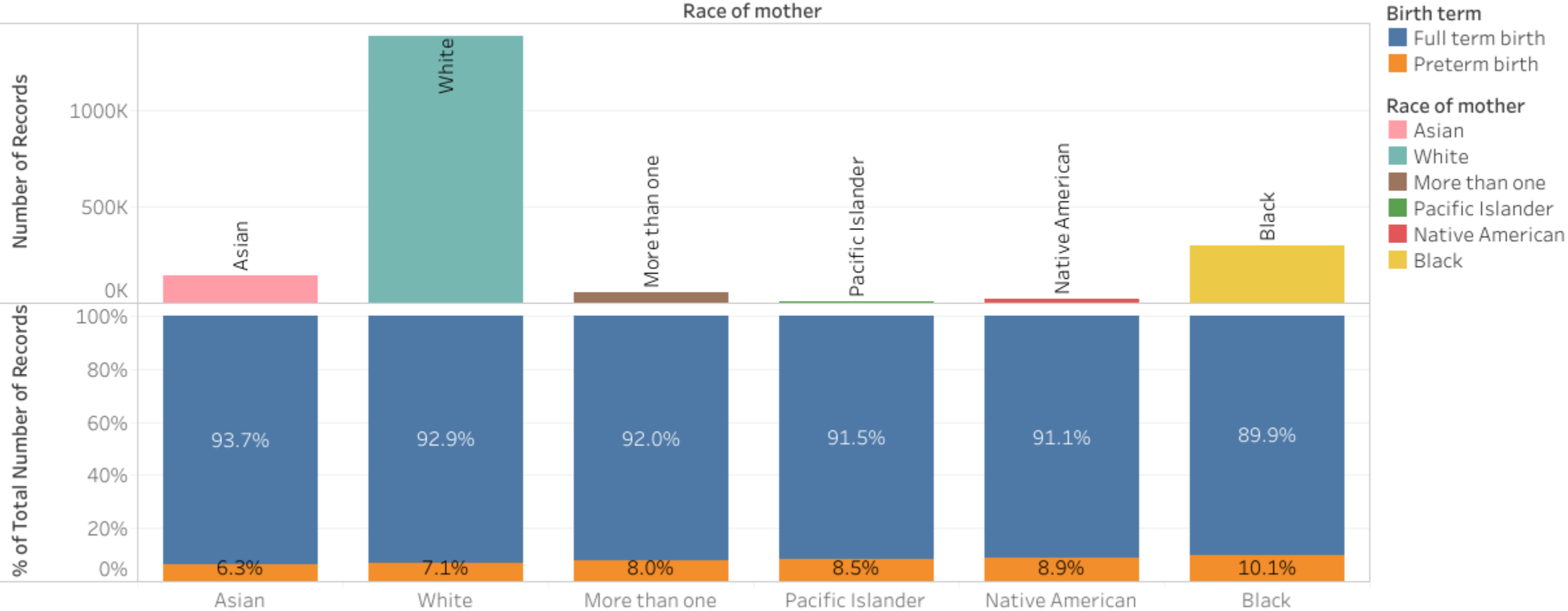
Risk factors lead to a higher proportion of premature births



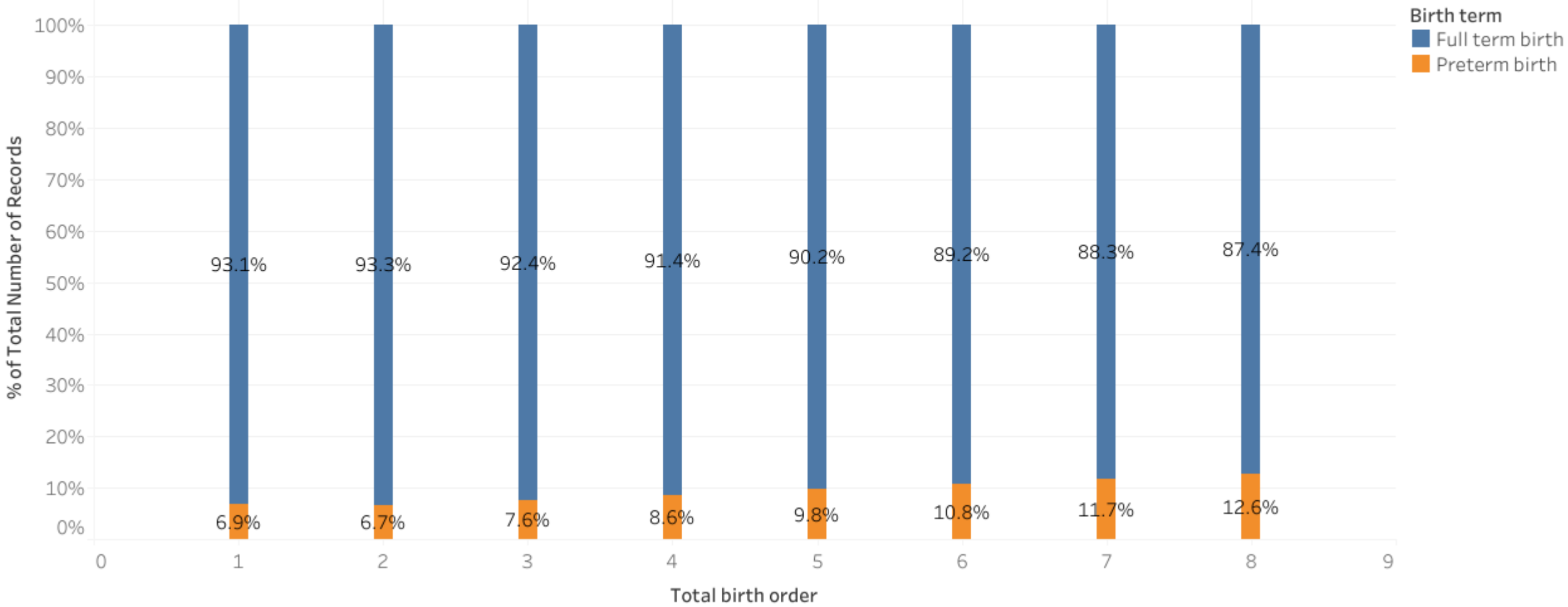
Does the race of the mother impact the likelihood of premature birth?



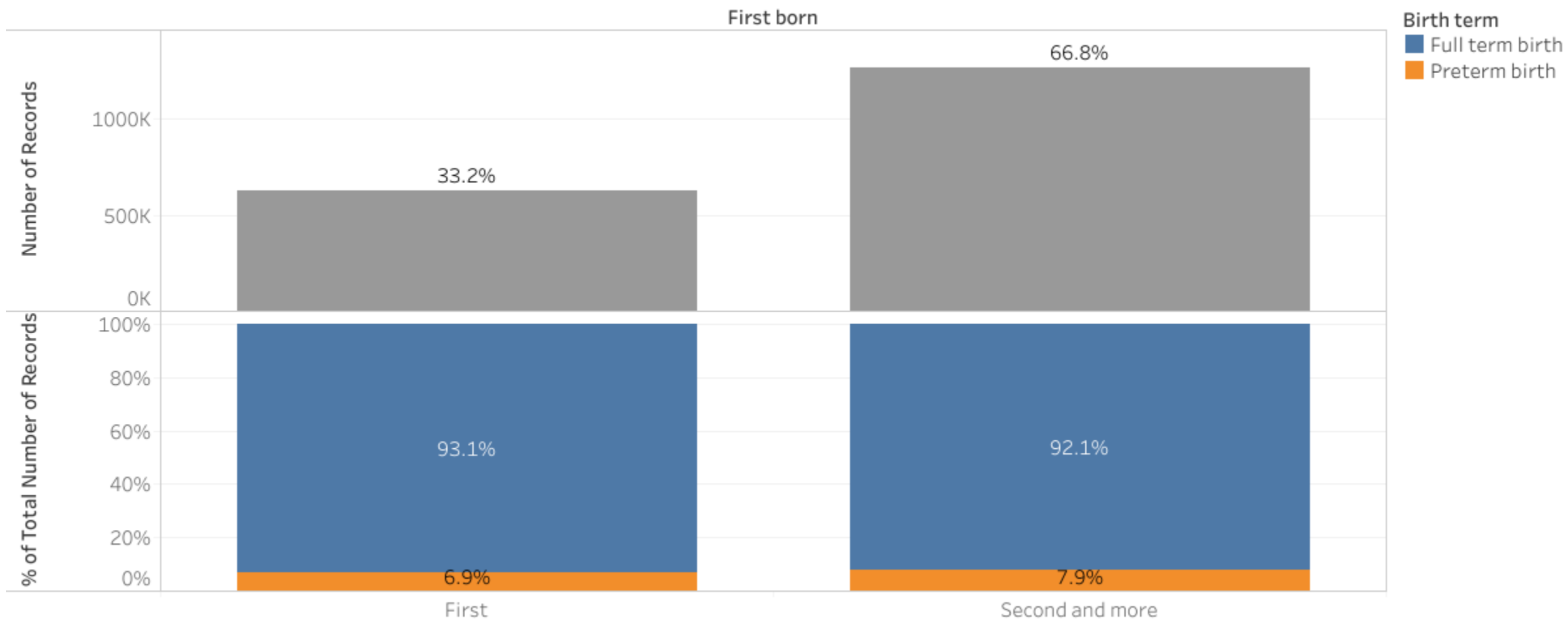
Does the race of the mother impact the likelihood of premature birth?



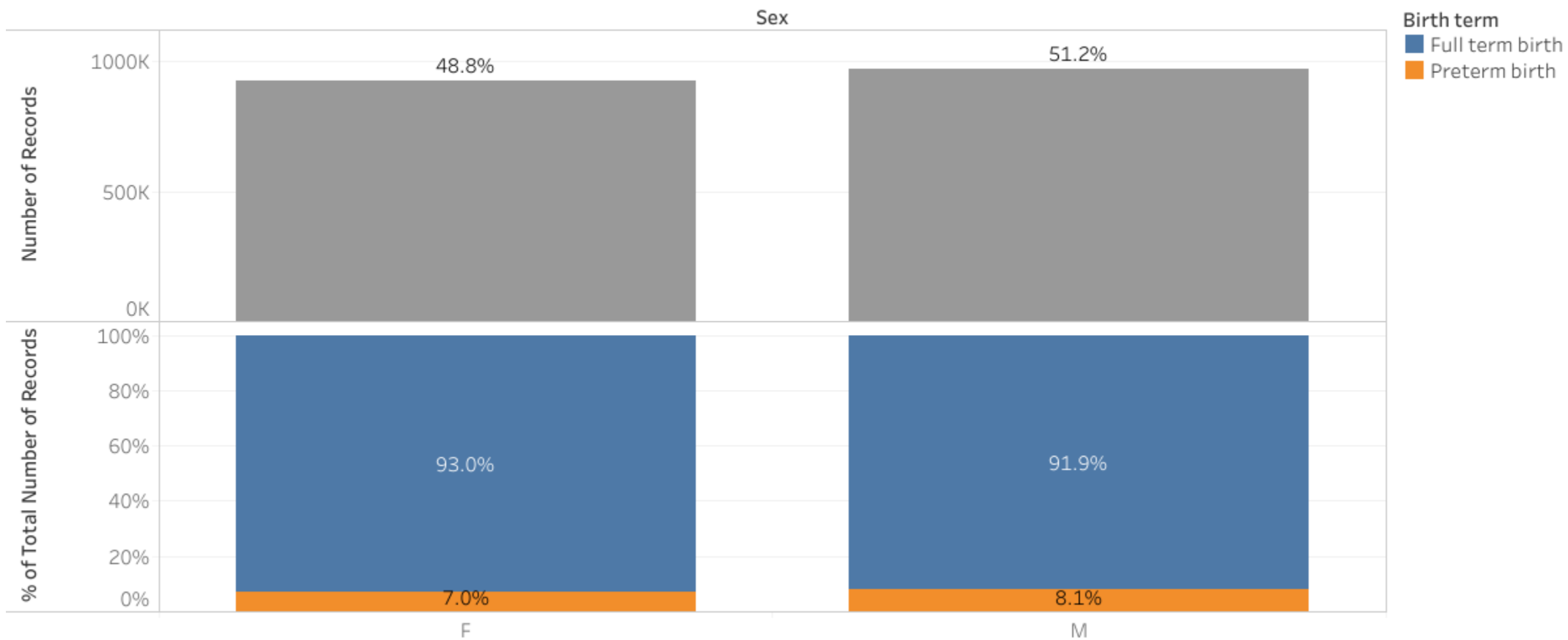
Does the birth order impact the date of birth?



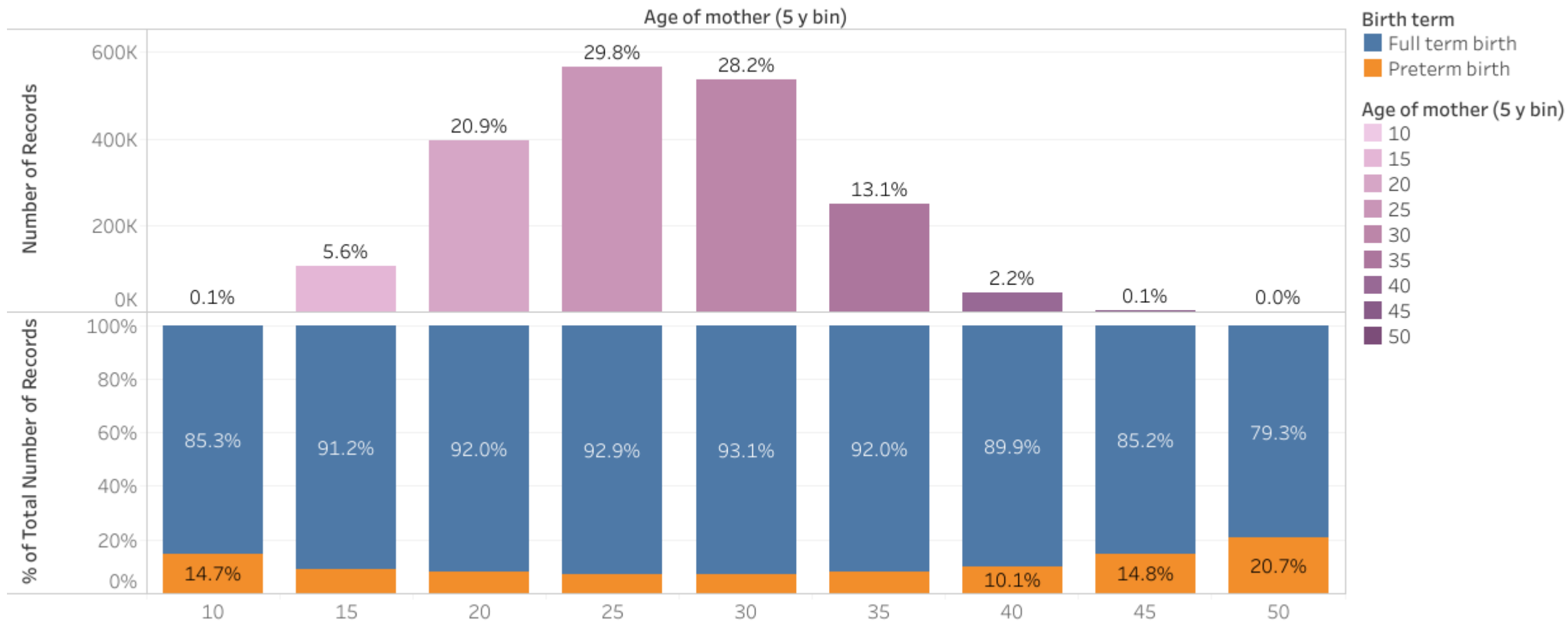
Does the birth order impact the date of birth?



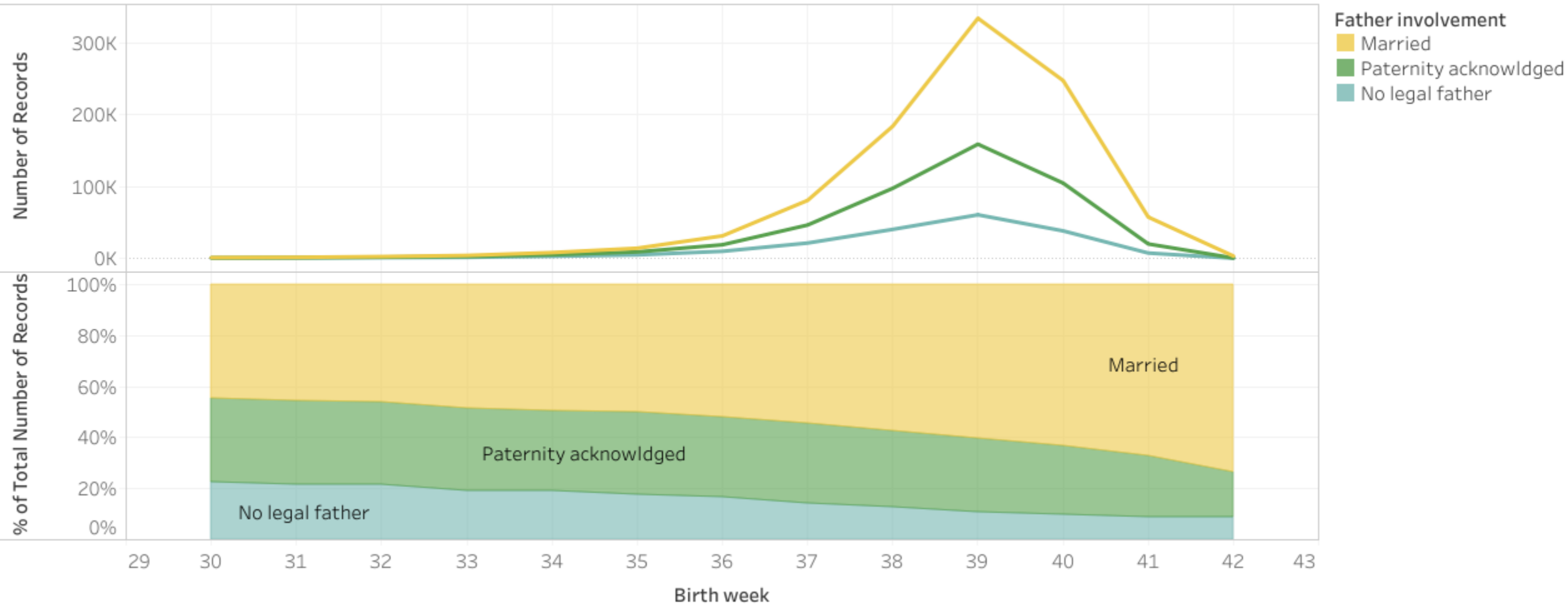
Does the sex of the baby impact the date of birth?



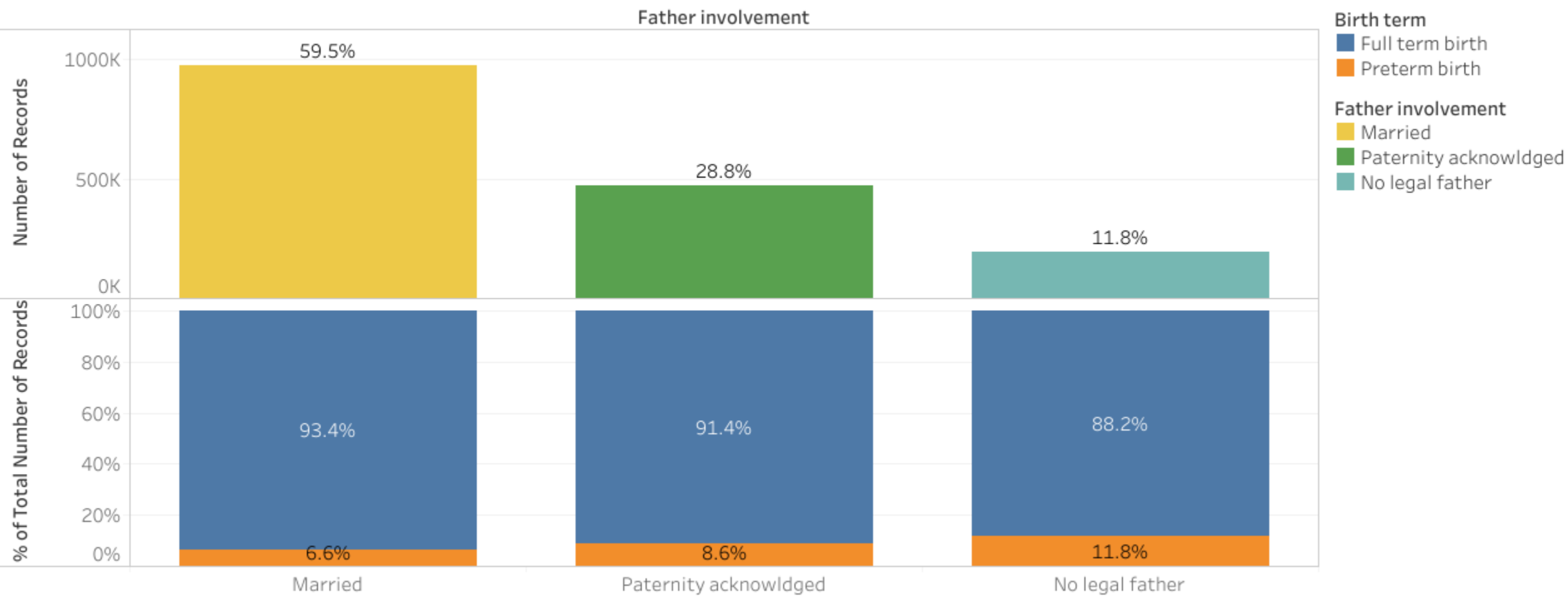
Does the age of the mother impact the likelihood of premature birth?



Does the marital status and father's presence impact the likelihood of premature birth?

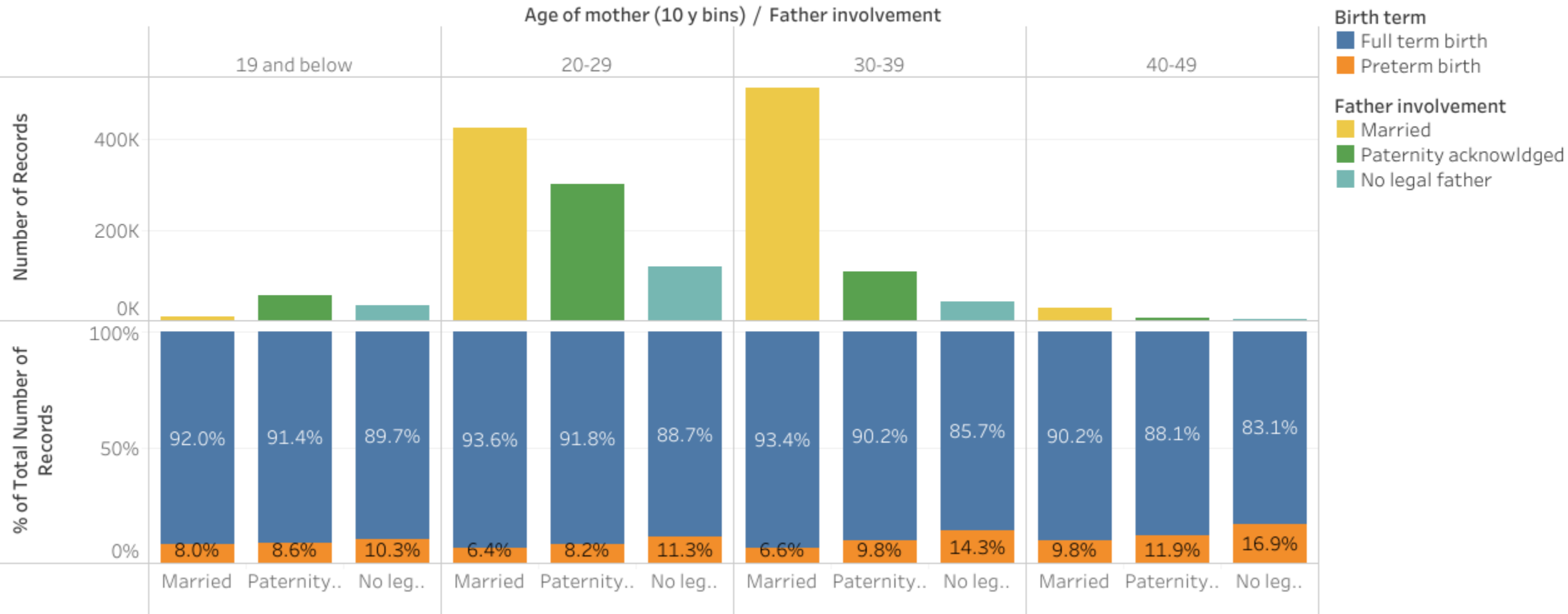


Does the marital status impact the likelihood of premature birth?

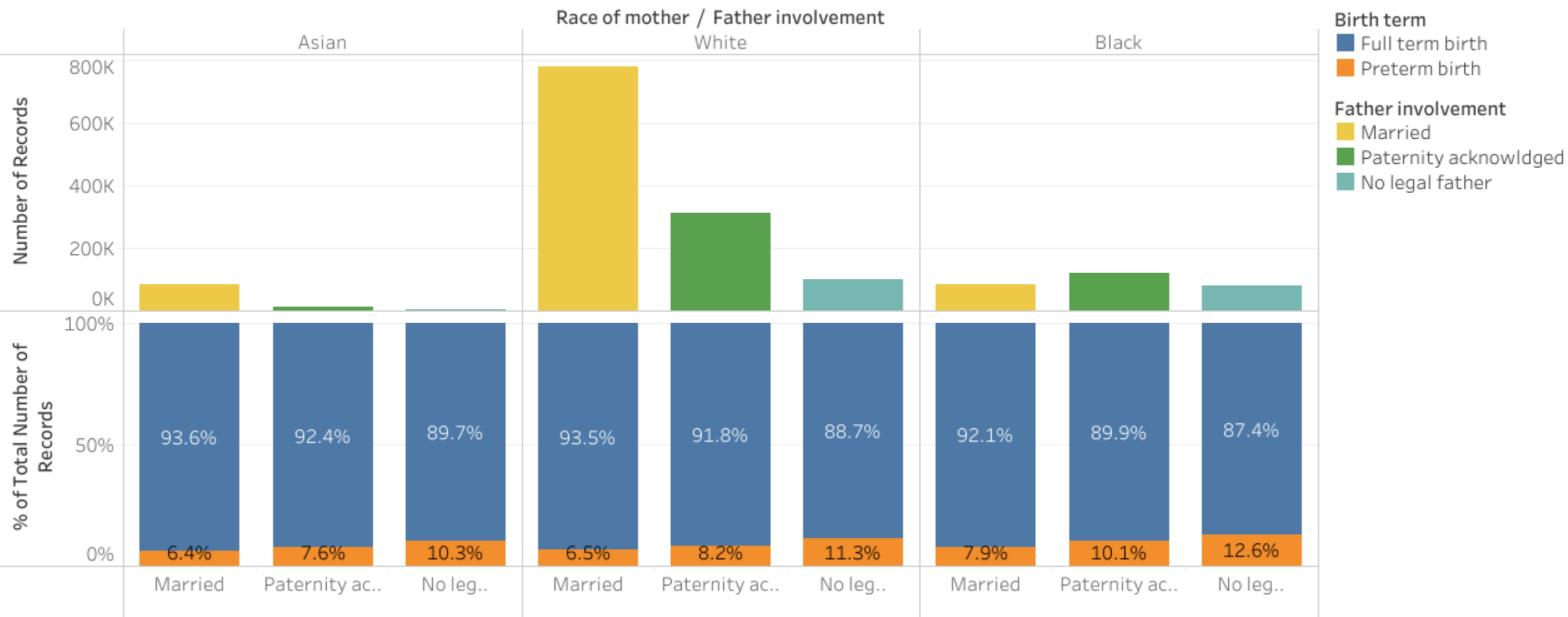


Is the trend seen in all age groups?

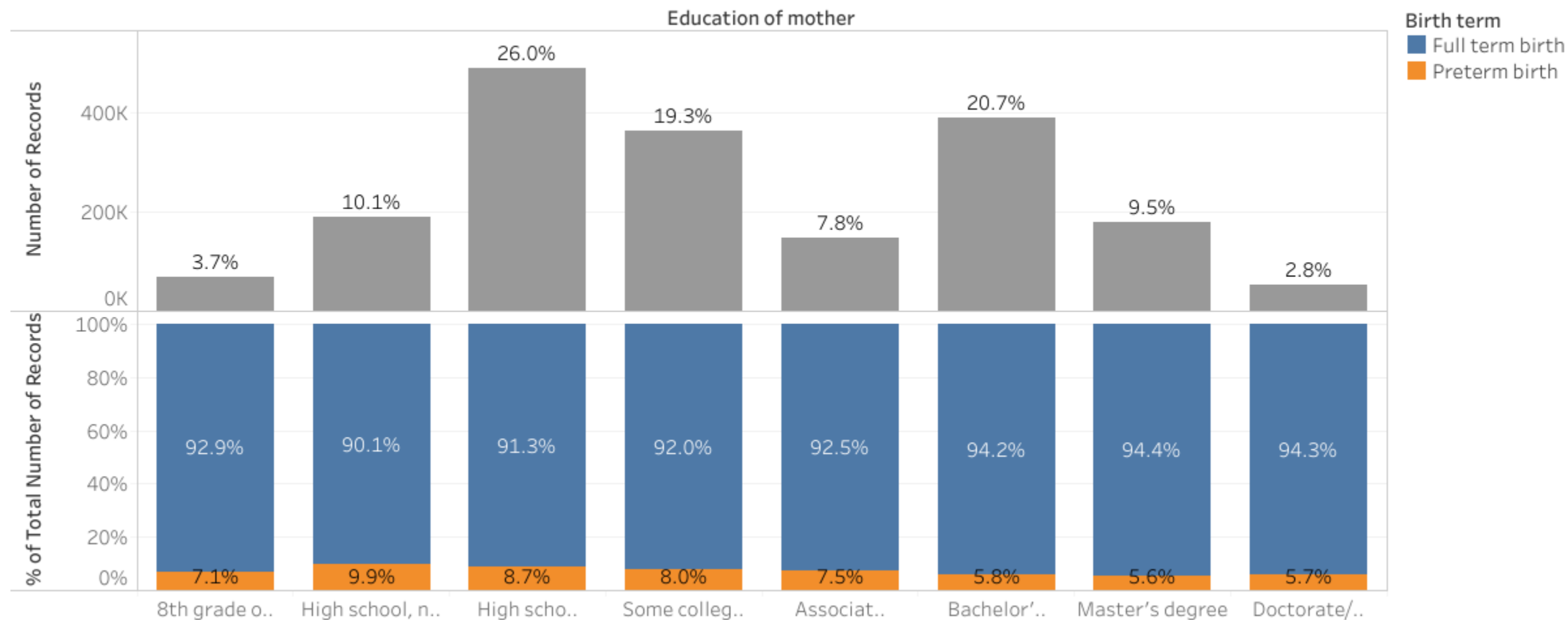
People usually get married in their 20s-30s. Is the trend related to a difference of age in the three populations (married, paternity acknowledged, no legal father), or does the marital status impact the likelihood of premature birth similarly at all ages?



Is the trend seen across races?

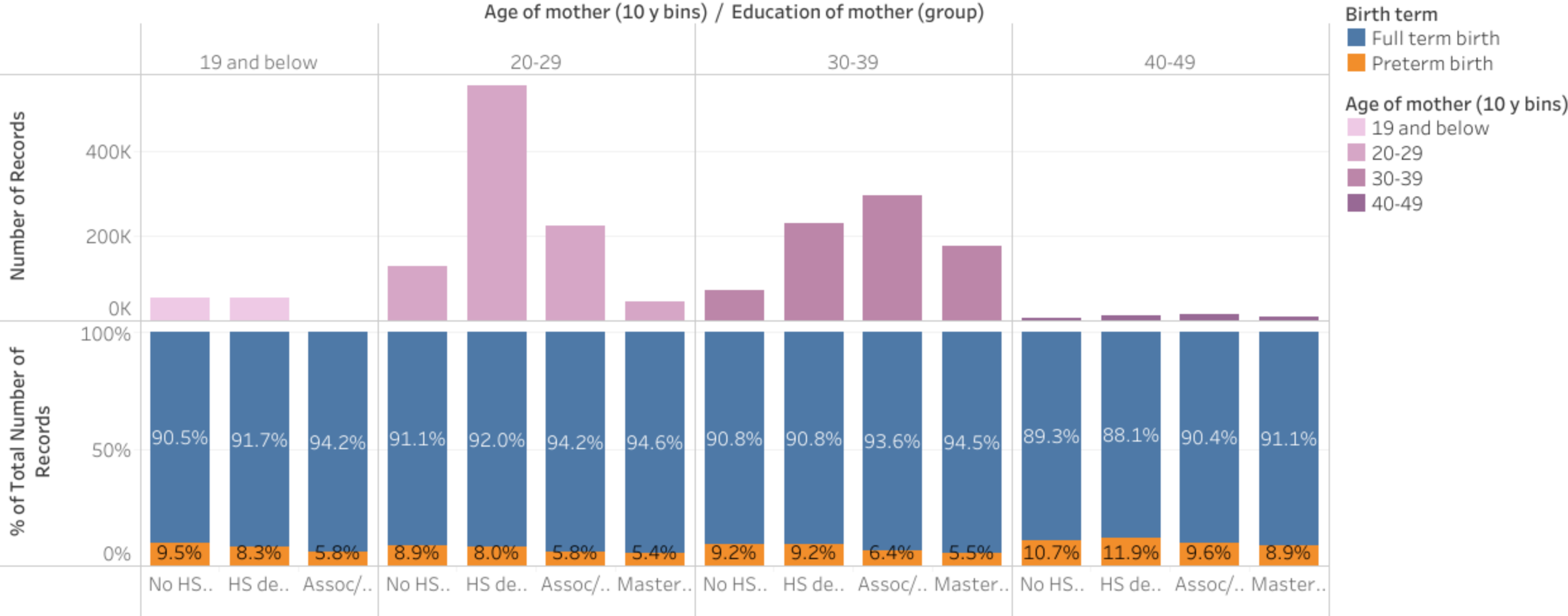


Does the level of education of the mother correlate with premature birth?



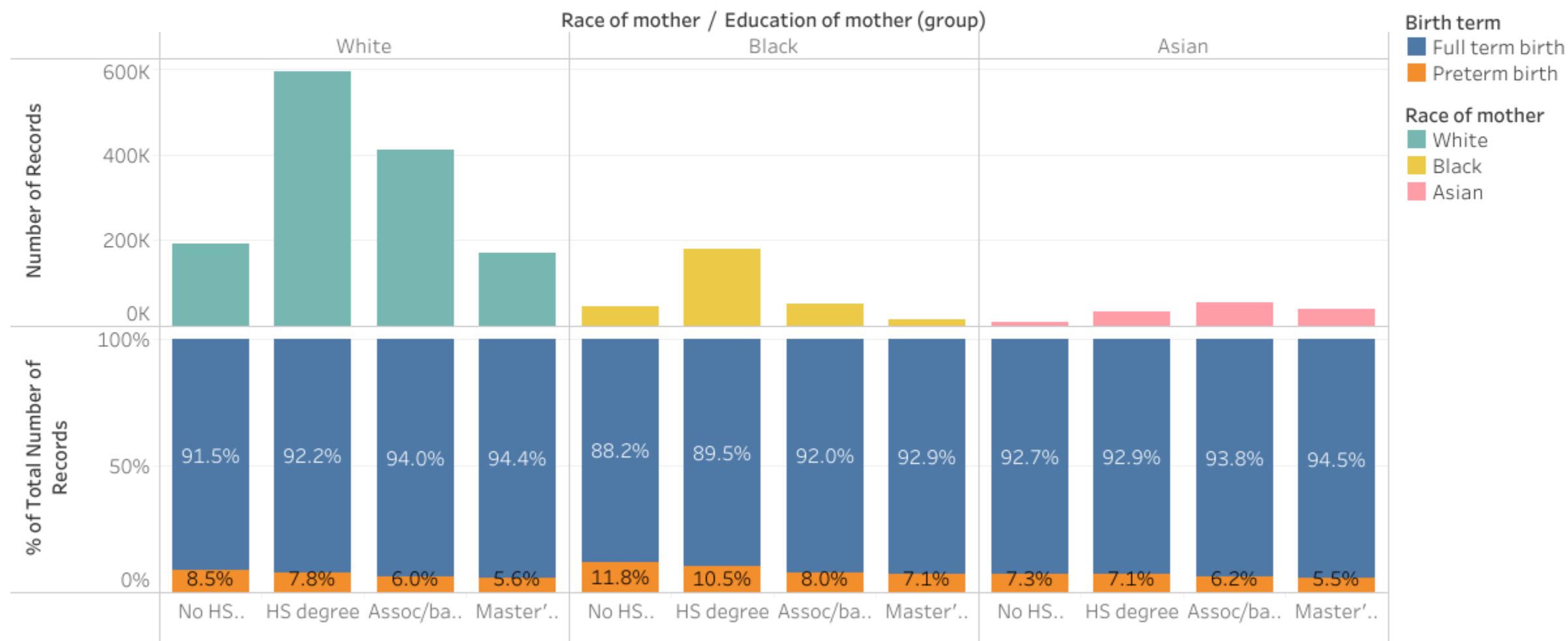
Is the trend only due to the difference in age proportions?

People are more educated at a later age, and we know age can be linked to premature births.

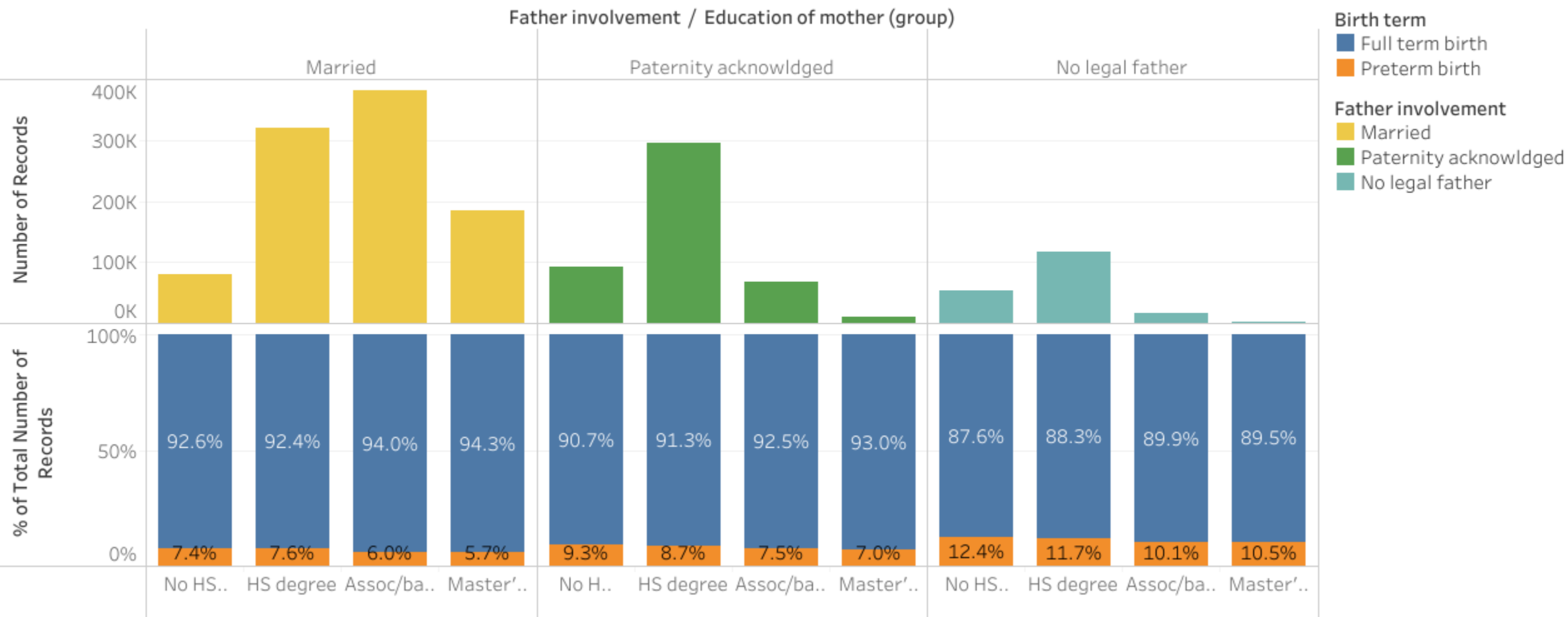


Education level is distributed differently in each race. Is the trend only due to the difference in race proportions?

Data shown only for the three races with the highest number of records. The others races exhibit the same trend.

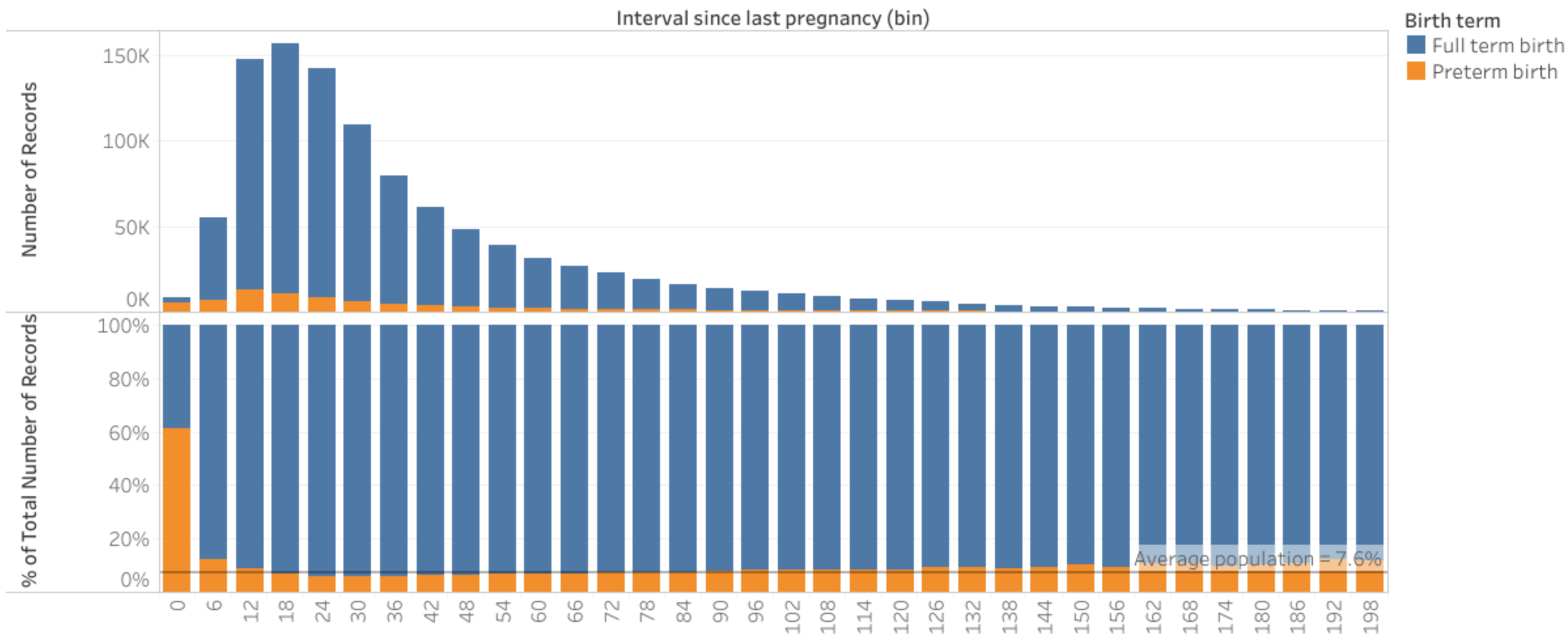


Is the trend similar for all marital statuses?

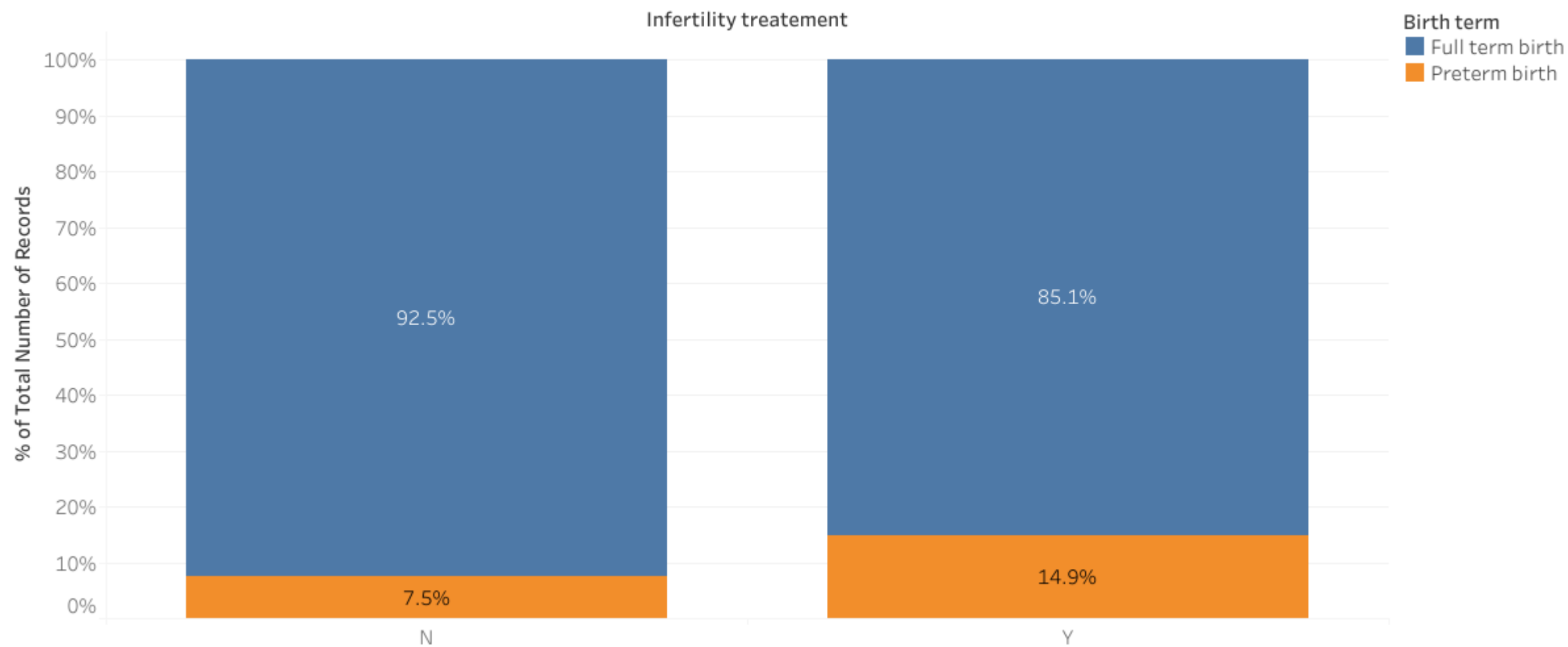


Does the interval since the last pregnancy correlate with premature birth?

Intervals grouped in 6-month bins. Bin 0-6 months represents plural births. First babies are not represented.

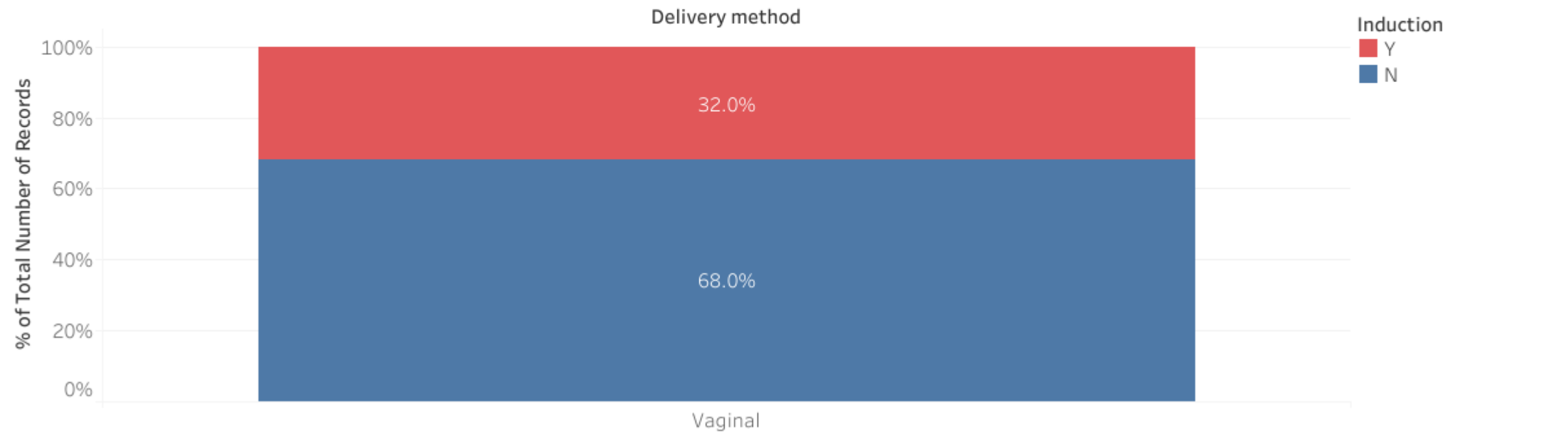


Do infertility treatments correlate with premature births?

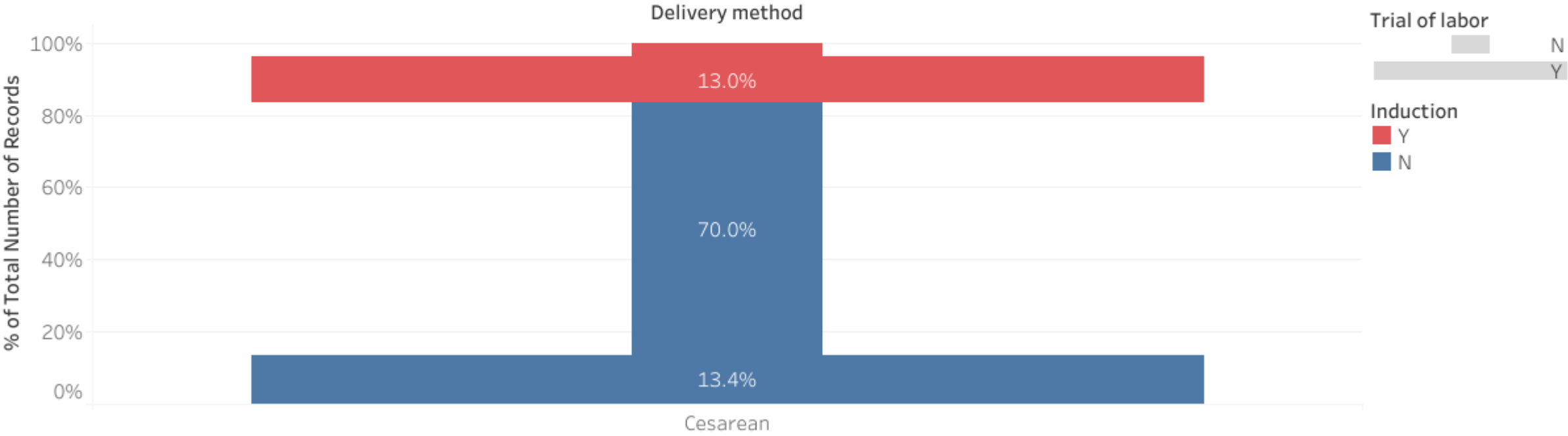
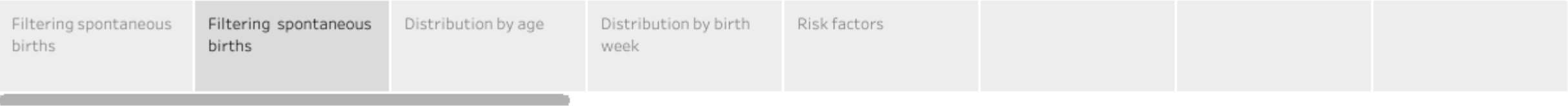


Story 1

Filtering spontaneous births	Filtering spontaneous births	Distribution by age	Distribution by birth week	Risk factors			
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Story 1



Story 1

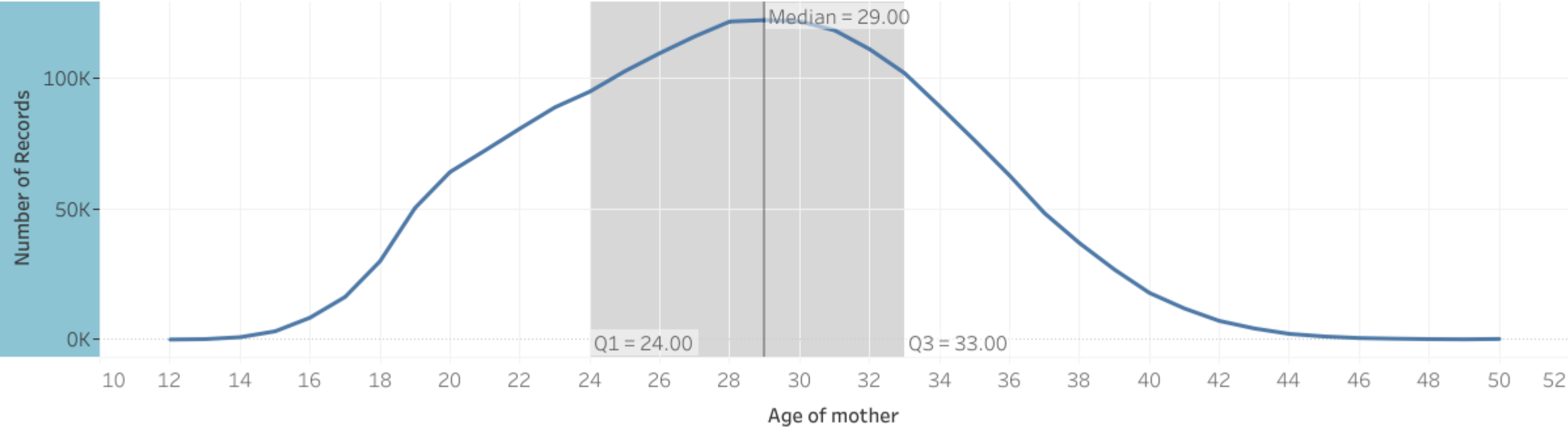
Filtering spontaneous births

Filtering spontaneous births

Distribution by age

Distribution by birth week

Risk factors



Story 1

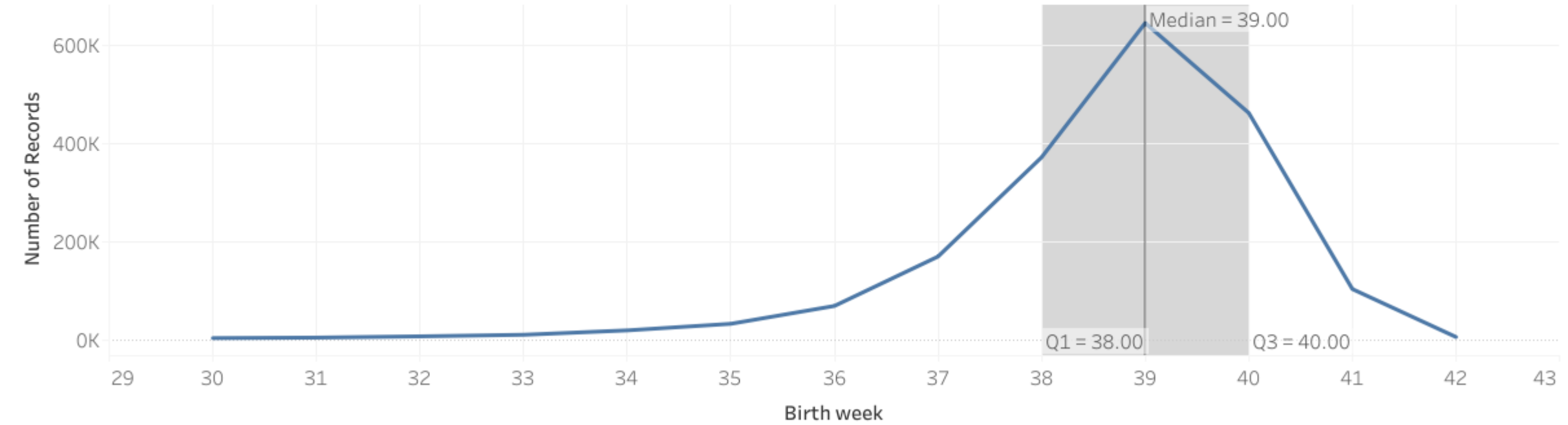
Filtering spontaneous births

Filtering spontaneous births

Distribution by age

Distribution by birth week

Risk factors



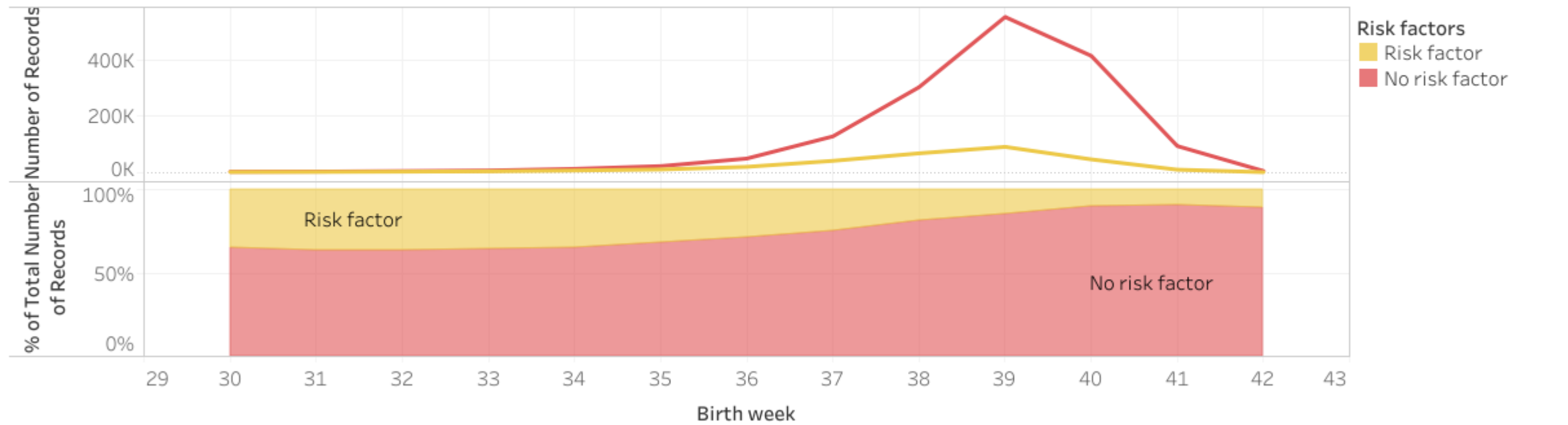
Story 1

Filtering spontaneous births

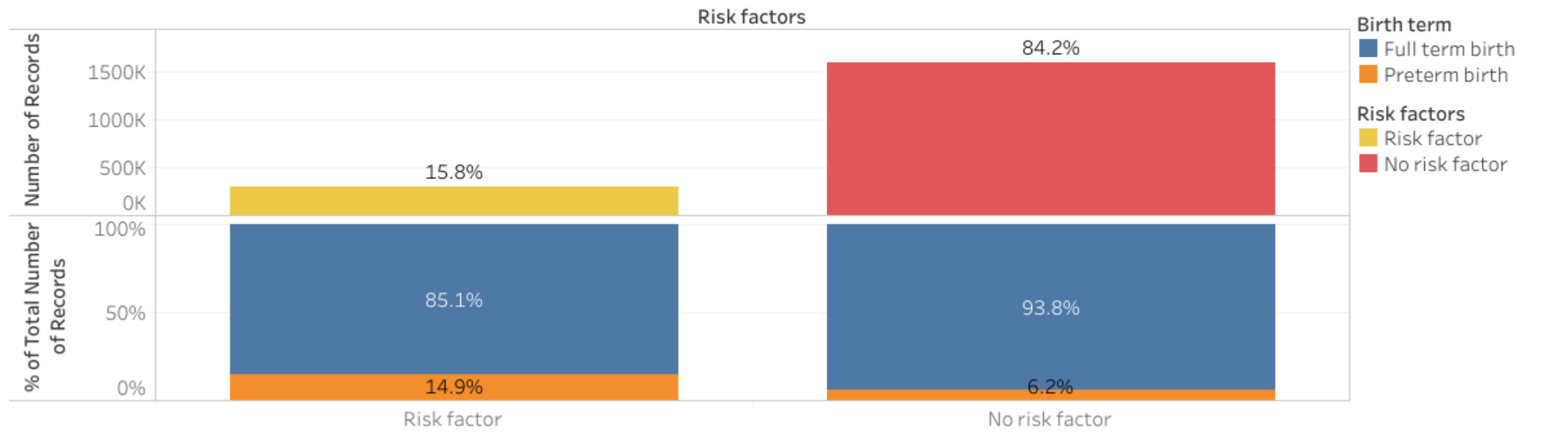
Distribution by age

Distribution by birth week

Risk factors

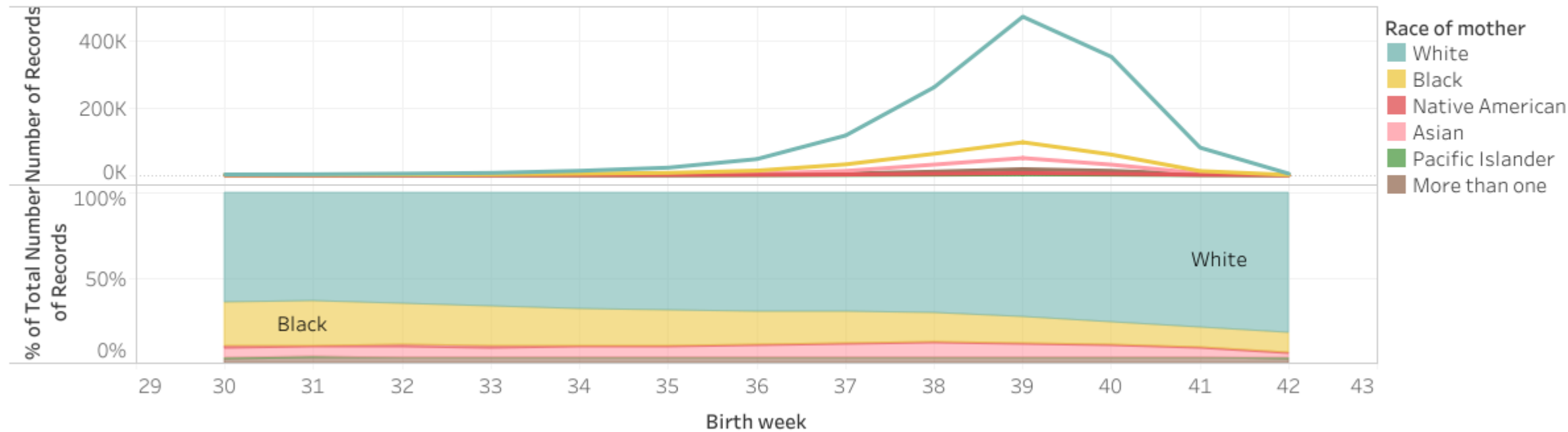


Story 1

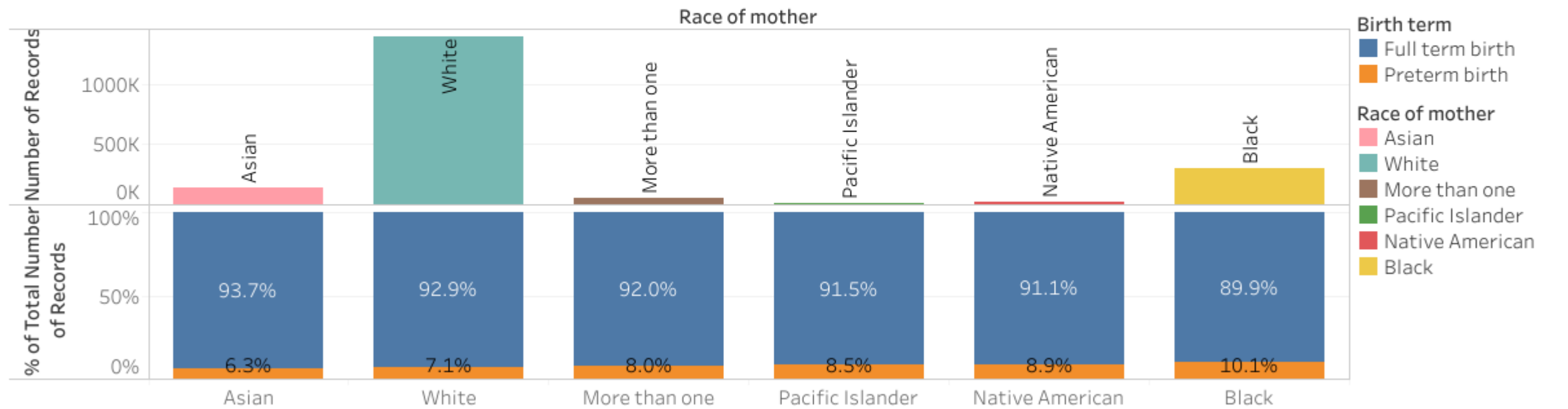


Story 1

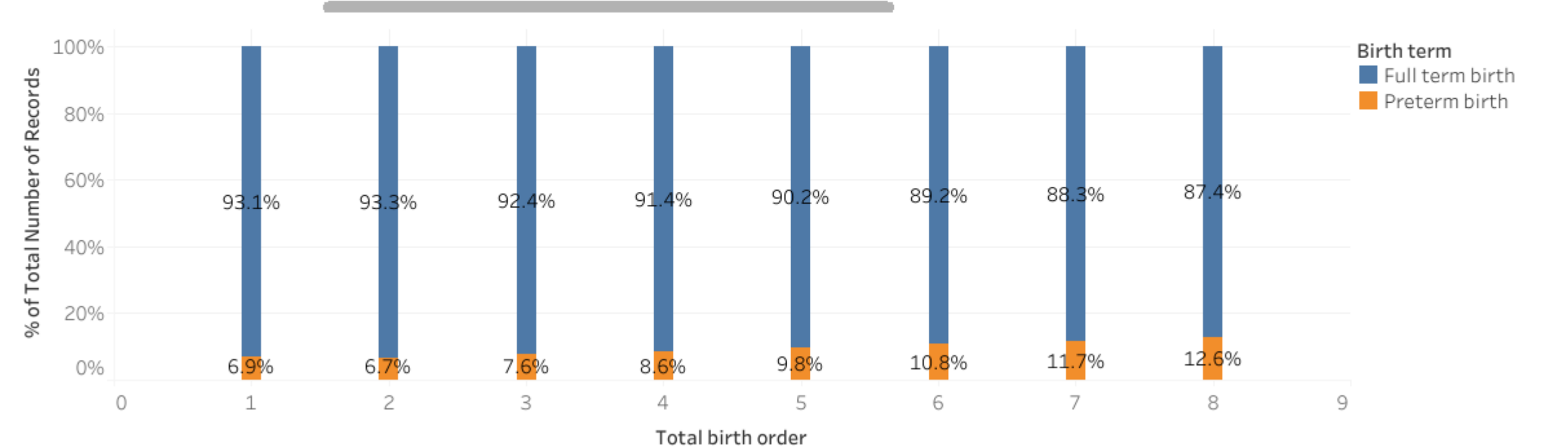
Distribution by age	Distribution by birth week	Risk factors							Sex
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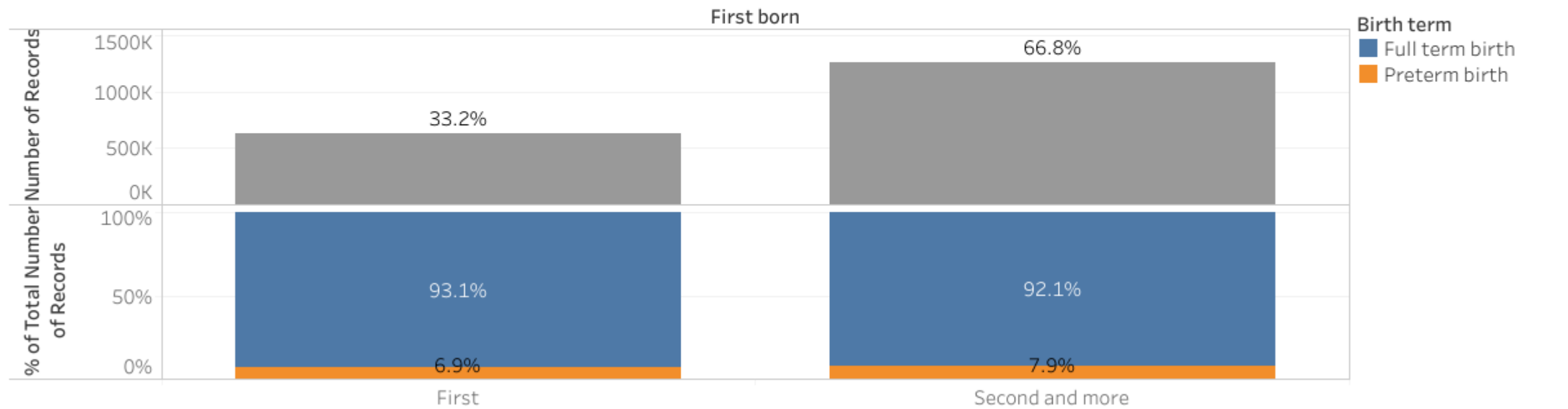
Story 1



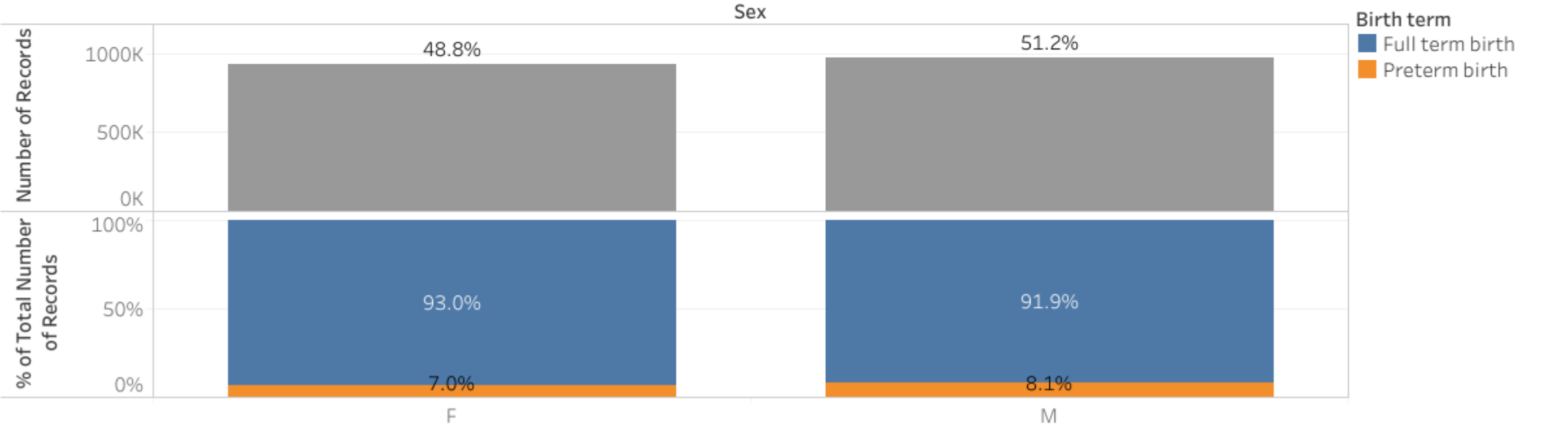
Story 1



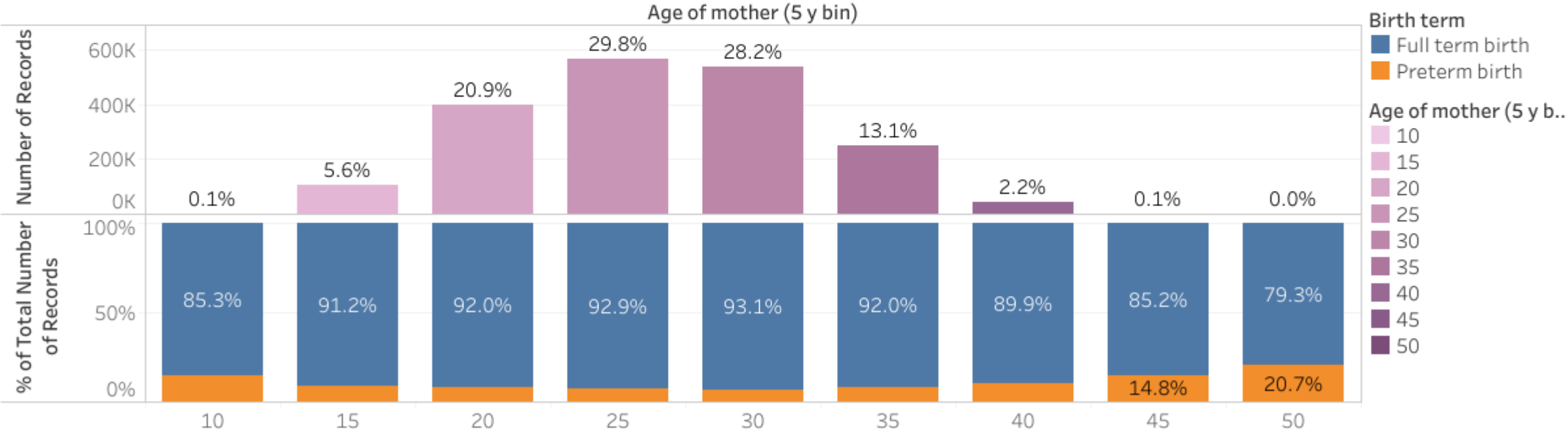
Story 1



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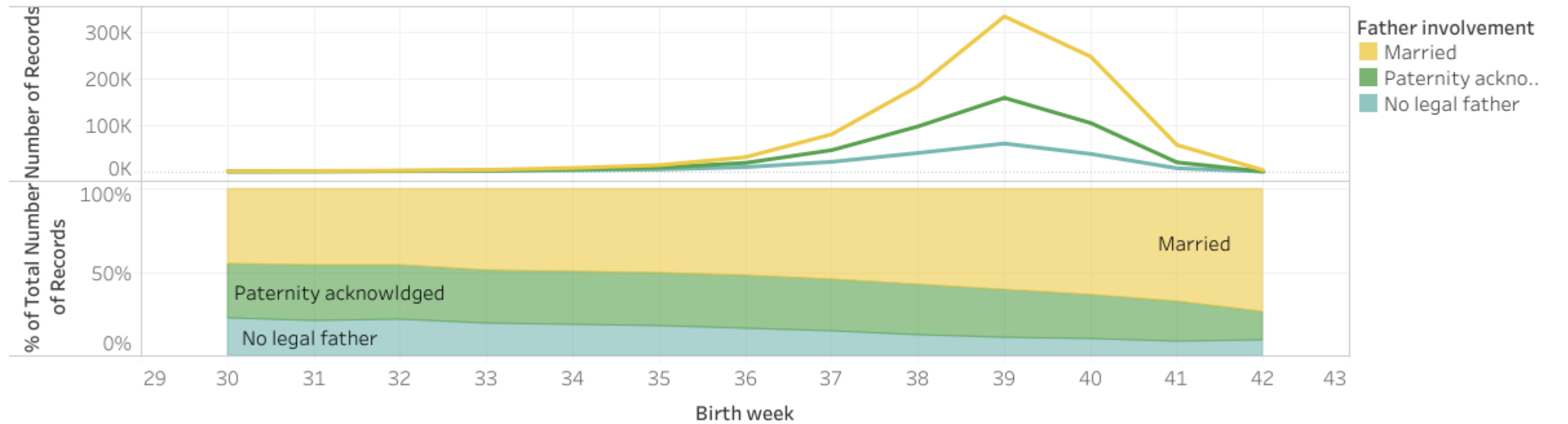


Story 1



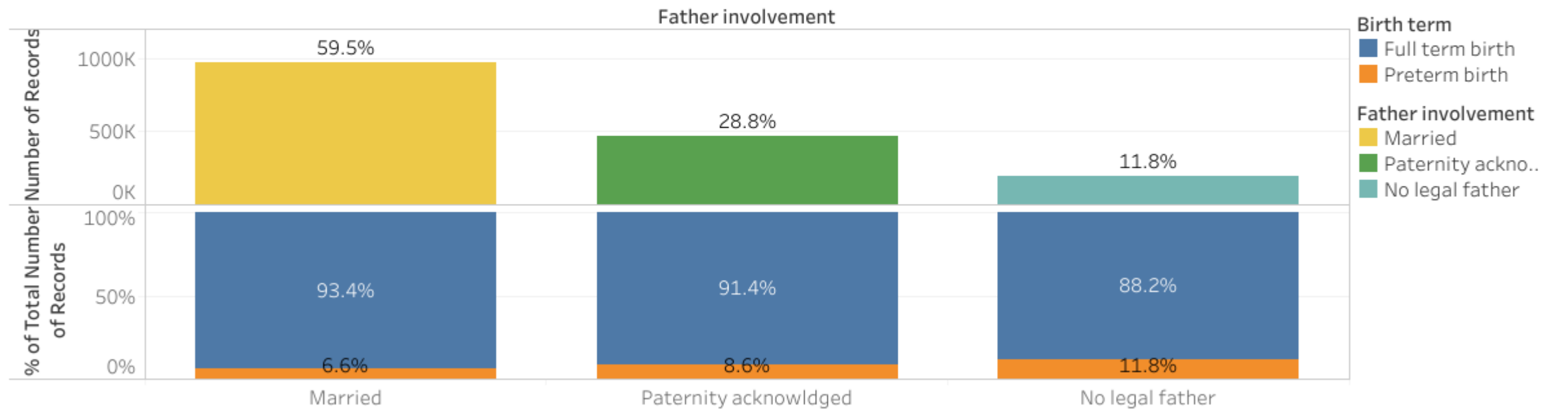
Story 1

		Sex	Mother age	Father involvement	Father involvement	Age + father	Race + father	Education
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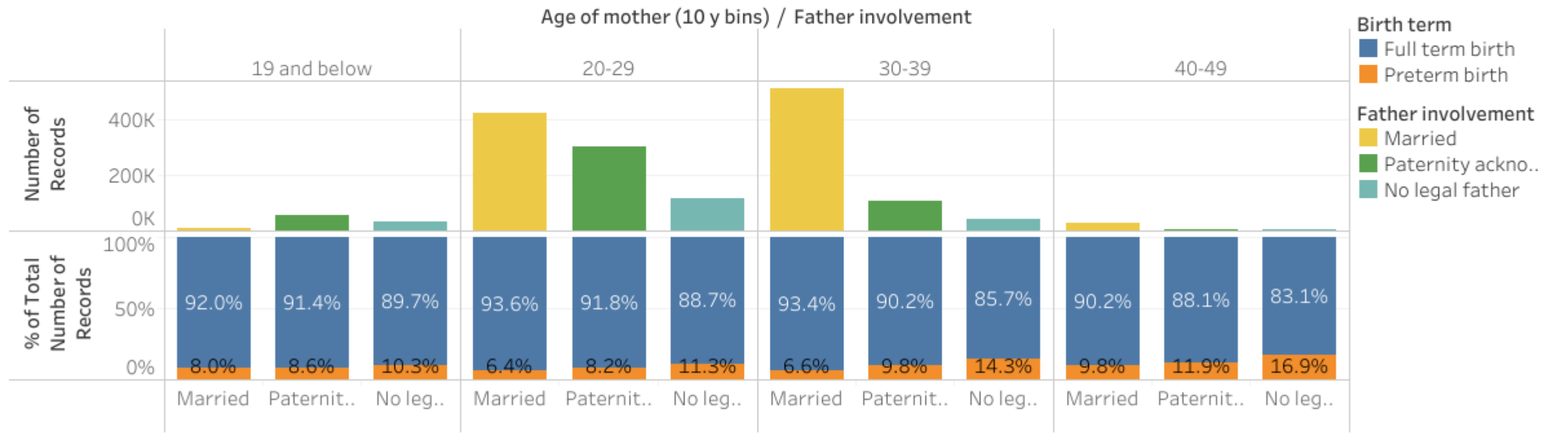
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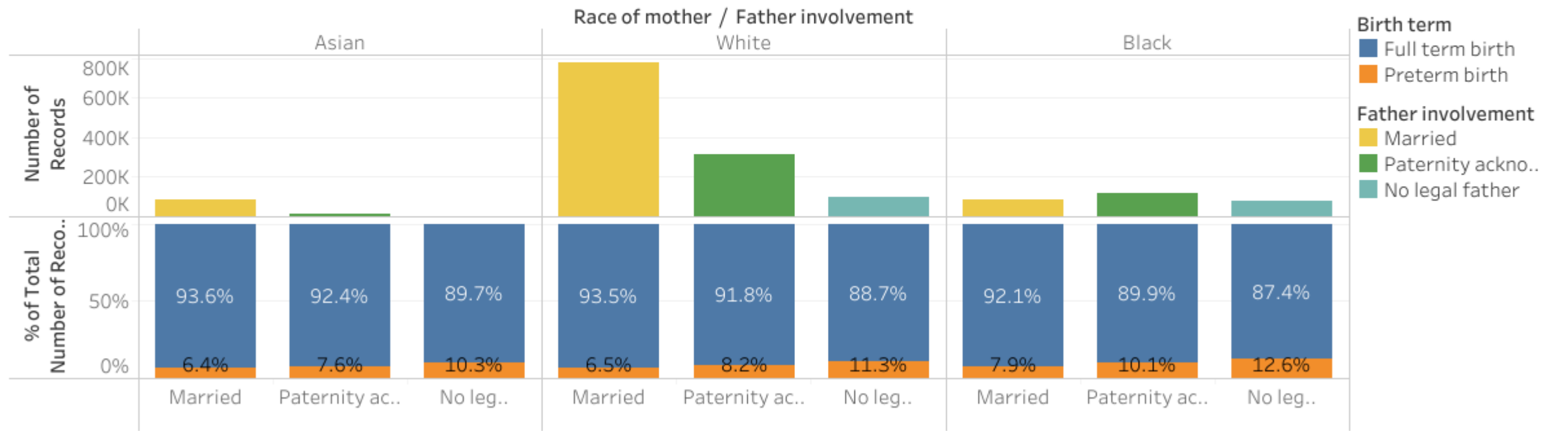
Story 1

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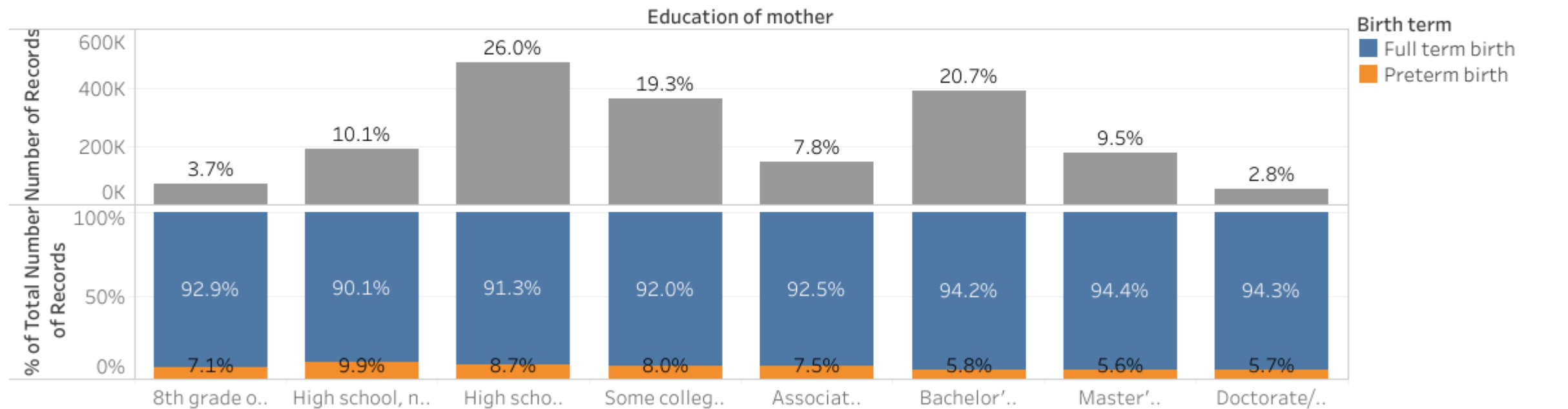
Story 1

Mother age	Father involvement	Father involvement	Age + father	Race + father	Education	Age + education	Race + education	Father + education
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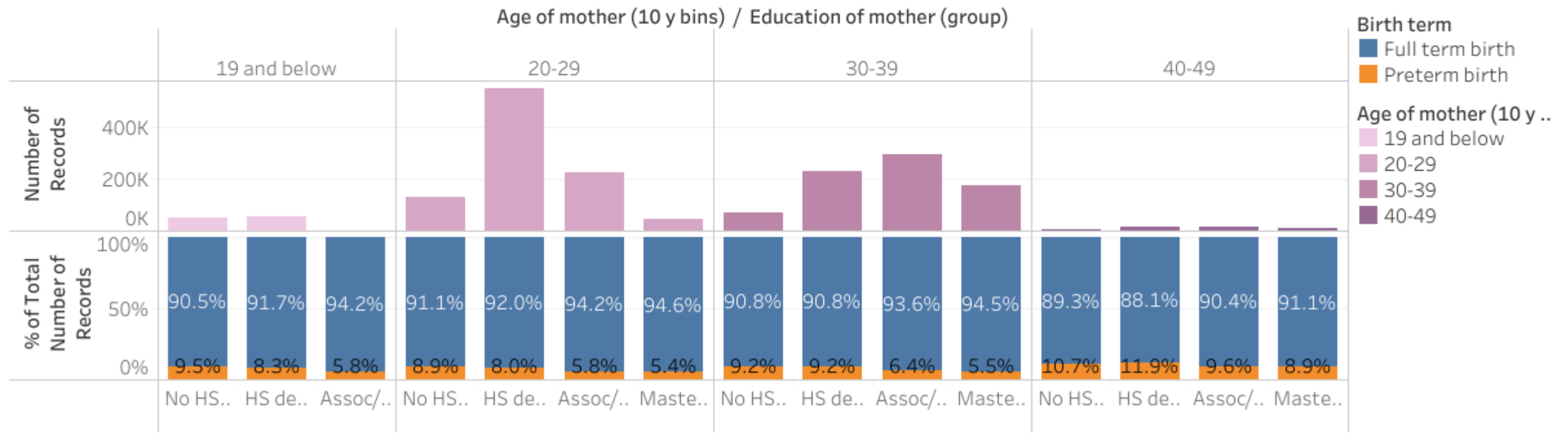
Story 1

Father in involvement	Father involvement	Age + father	Race + father	Education	Age + education	Race + education	Father + education	Interval since last pregnancy
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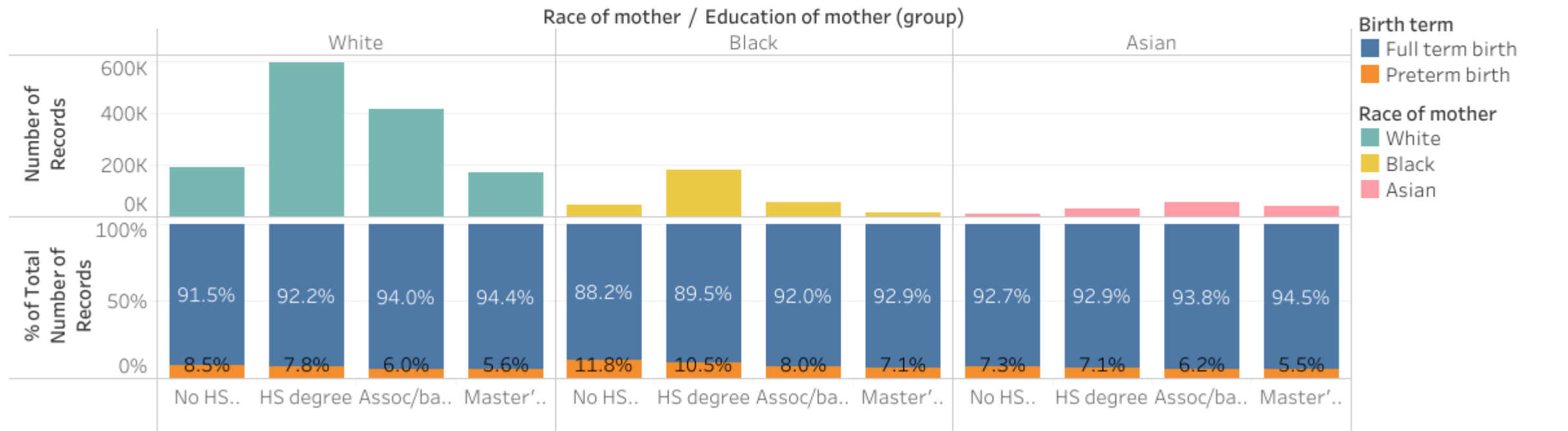
Story 1

Father in involvement	Age + father	Race + father	Education	Age + education	Race + education	Father + education	Interval since last pregnancy	Infertility treatment
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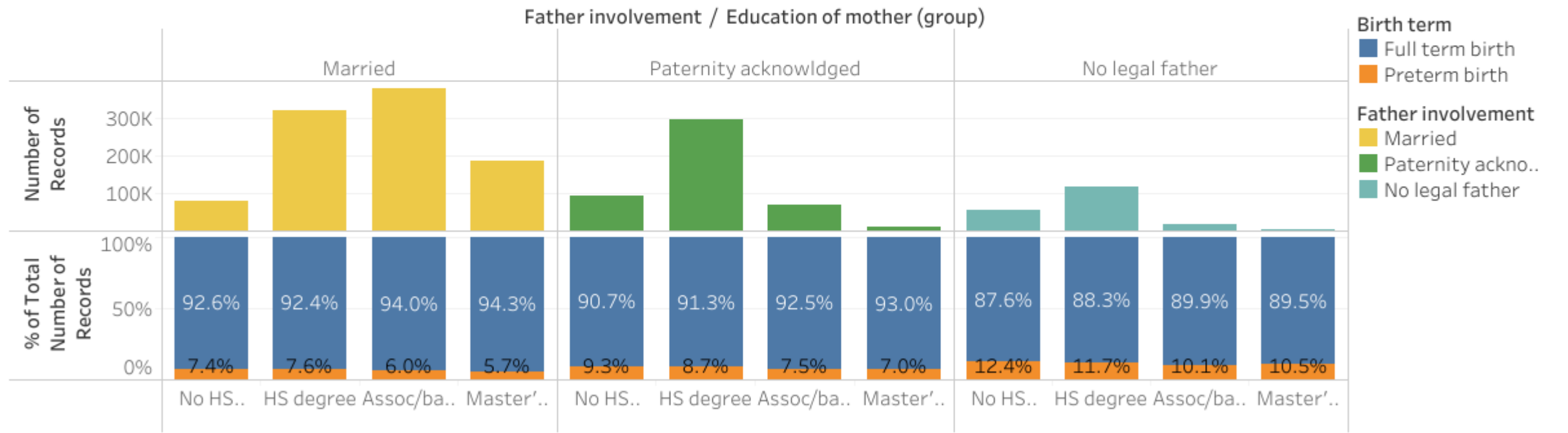
Story 1

Age + father	Race + father	Education	Age + education	Race + education	Father + education	Interval since last pregnancy	Infertility treatment
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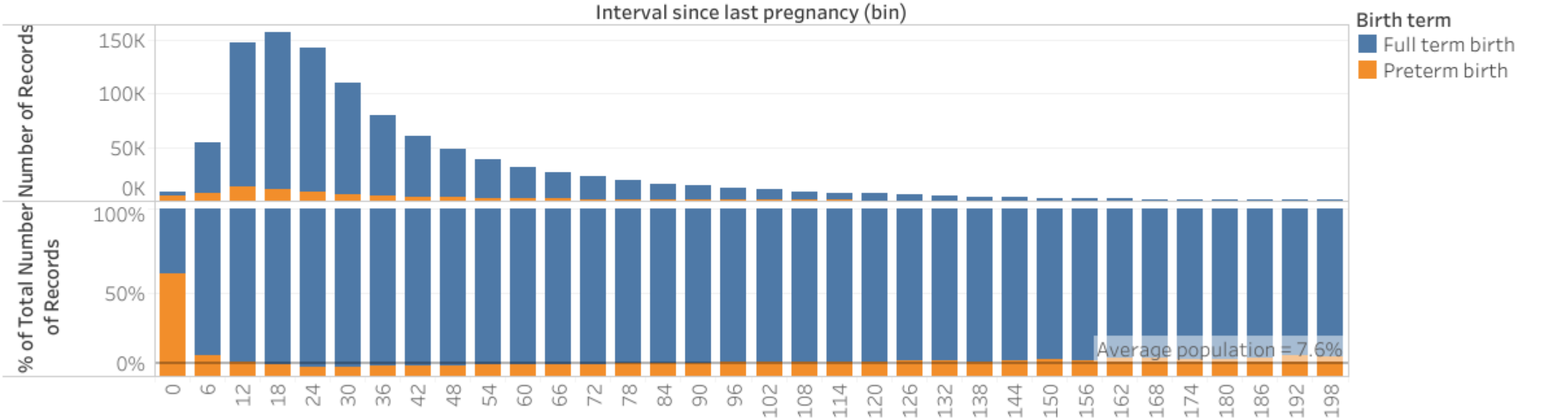
Story 1

Age + father	Race + father	Education	Age + education	Race + education	Father + education	Interval since last pregnancy	Infertility treatment
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Story 1

Age + father	Race + father	Education	Age + education	Race + education	Father + education	Interval since last pregnancy	Infertility treatment
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Age + father	Race + father	Education	Age + education	Race + education	Father + education	Interval since last pregnancy	Infertility treatment
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