Agenda

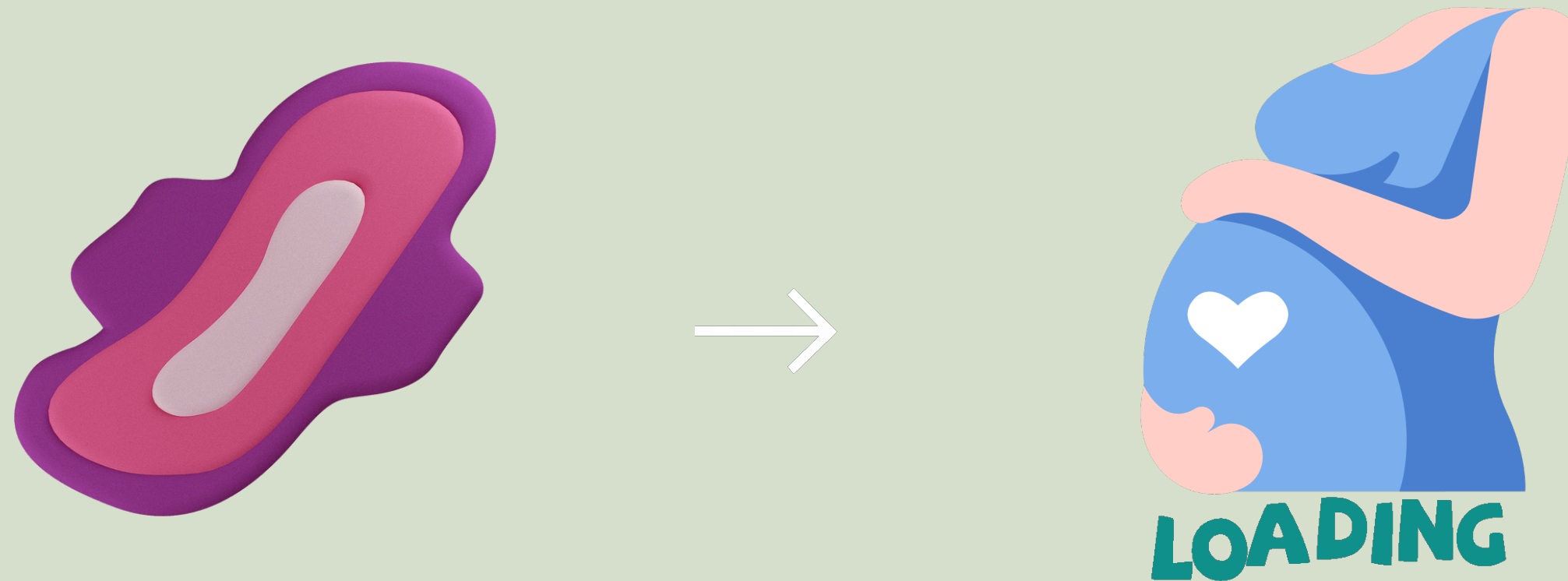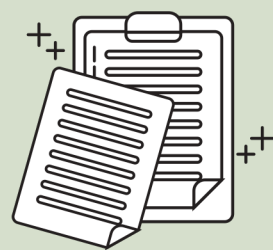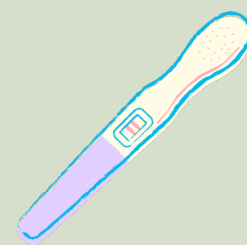|	
1	Introduction
2	Methods
3	Results
4	Discussion

Introduction

Material and methods

The Norwegian Mother, Father and Child Cohort Study

N=110.777

N=95.135

N=83.116

N= 68.209

Women who answered Q1 in one or more pregnancies

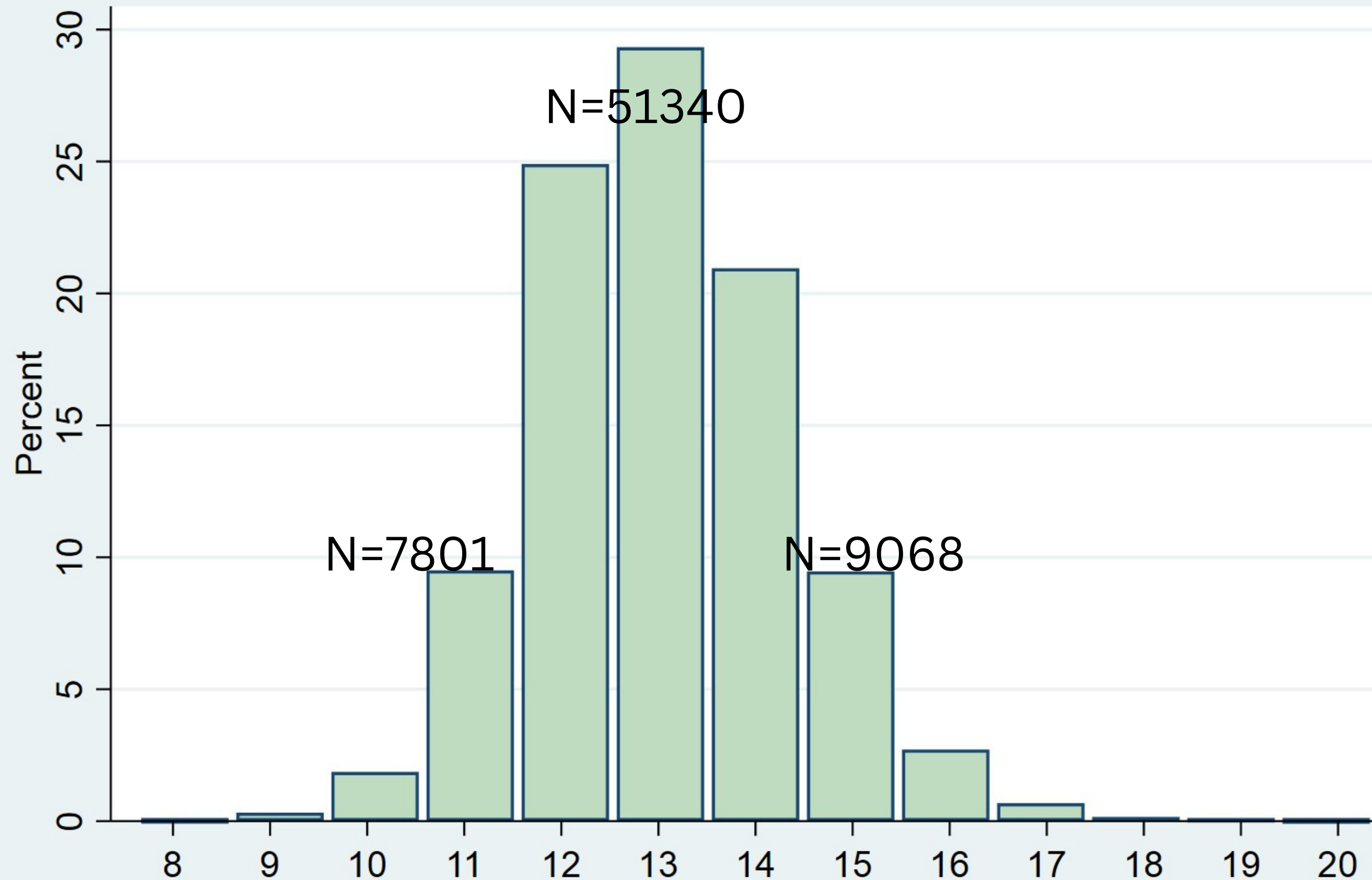Women participating in MoBa for the first time

Complete information on time to pregnancy and menarche

Planned pregnancies

Results

Age at menarche (AAM)

Table 1

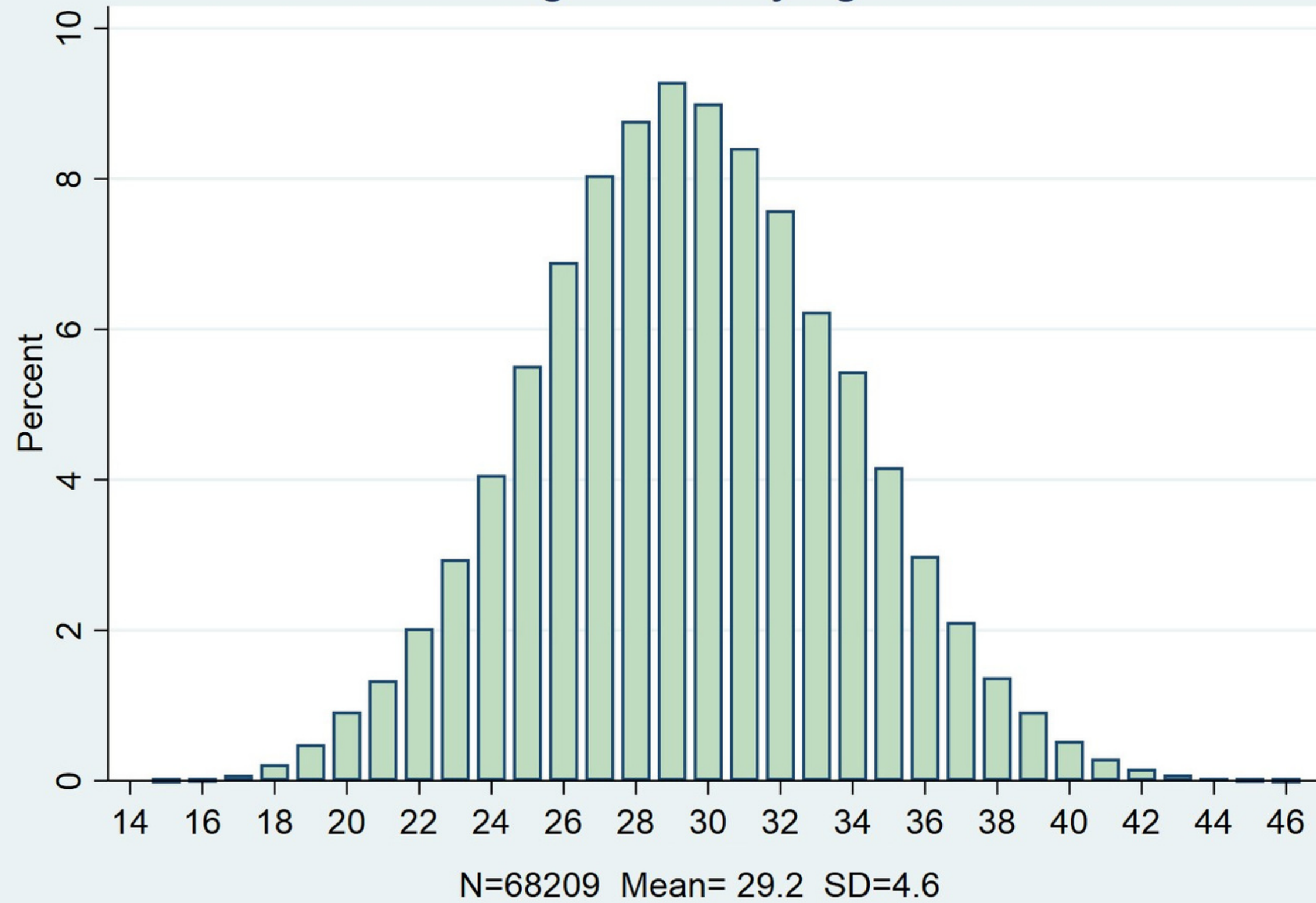## Age at menarche (AAM)

Table 1 Background characteristics of the study population according to age at menarche *N = 68209*

	Total	<11	11	12 to 14	15	>15	Missing, n (%)
Total n, (%)	68209 (100)	1435 (2.10)	6366 (9.33)	51340 (75.27)	6550 (9.60)	2518 (3.69)	0 (0.00)
Mean AAM (SD)	*13.02 (1.3)*						
Mean age when trying to concieve (SD)	29.5 (4.3)						
Age when trying to concieve*, n (%)							
<20	551 (0.81)	23 (0.04)	84 (0.12)	402 (0.59)	30 (0.04)	6 (0.01)	
20-24	7709 (11.30)	231 (0.34)	869 (1.27)	5853 (8.58)	582 (0.85)	174 (0.26)	
25-29	26278 (38.53)	576 (0.84	2517 (3.69)	19880 (29.15)	2482 (3.64)	823 (1.21)	
30-34	25019 (36.68)	460 (0.67)	2197 (3.22)	18755 (27.50)	2532 (3.71)	1075 (1.58)	
35-39	7887 (11.56)	128 (0.29	640 (0.94)	5892 (8.64)	827 (1.21)	400 (0.59)	
>40	765 (1.12)	11 (0.02)	59 (0.09)	558 (0.82)	97 (0.14)	40 (0.06)	
Total	68209	1435	6366	51340	6550	2518	(0.00)
Mean pre-pregnancy BMI (SD)	24 (4.2)						
Pre-pregnancy BMI, n (%)							
<18.5	1907 (2.85)	17 (0.03)	83 (0.12)	1366 (2.04)	296 (0.44)	145 (0.22)	
18,5-24.9	44073 (65.93)	633 (0.95)	3406 (5.09)	33352 (49.89)	4777 (7.15)	1905 (2.85)	
25-29.9	14710 (22.00)	414 (0.62)	1763 (2.64)	11193 (16.74)	1010 (1.51)	330 (0.49)	
30-34.9	4514 (6.75)	218 (0.33)	702 (1.05)	3286 (4.92)	248 (0.37)	60 (0.09)	
>35	1647 (2.46)	112 (0.17)	271 (0.41)	1161 (1.74)	79 (0.12)	24 (0.04)	
Total	66851	1394	6225	50358	6410	2464	1358 (1.99)

Maternal age when trying to concieve

N=68209 Mean= 29.2 SD=4.6

Table 1

Table 1 Background characteristics of the study population according to age at menarche *N = 68209*

	Total	<11	11	12 to 14	15	>15	Missing, n (%)
Total n, (%)	68209 (100)	1435 (2.10)	6366 (9.33)	51340 (75.27)	6550 (9.60)	2518 (3.69)	0 (0.00)
Mean AAM (SD)	*13.02 (1.3)*						
Infertility treatment, n (%)**							
Yes, ever treated, n (%)	6406 (9.52)	166 (0.25)	638 (0.95)	4700 (6.89)	599 (0.88)	303 (0.44)	
- Yes, treated prior to this pregnancy, n (%)	*4758*	*110*	*473*	*3511*	*436*	*228*	
No, never treated, n (%)	60863 (90.48	1249 (1.86)	5622 (8.36)	45945 (68.30)	5870 (8.73)	2177 (3.24)	
Total	**67269**	**1415**	**6260**	**50645**	**6469**	**2480**	940 (1.38)
Ever smoker*, n (%)**							
No	33788 (51.40)	657 (1.00)	3145 (4.78)	25315 (38.51)	3284 (5.00)	1387 (2.11)	
Yes	31942 (48.60)	725 (1.10)	2991 (4.55)	24138 (36.72)	3040 (4.62)	1048 (1.59)	
Total	**65730**	**1382**	**6136**	**49453**	**6324**	**2435**	2479 (3.63)
Parity, n (%)							
0	36710 (53.82)	785 (1.15)	3550 (5.20)	27628 (40.50)	3452 (5.06)	1295 (1.90)	
1	21427 (31.41)	452 (0.66)	1899 (2.78)	16118 (23.63)	2117 (3.10)	841 (1.23)	
2	8472 (12.42)	170 (0.25)	765 (1.12)	6384 (9.36)	824 (1.21)	329 (0.48)	
>=3	1600 (2.35)	28 (0.04)	152 (0.22)	1210 (1.77)	157 (0.23)	53 (0.08)	
Total	**68209**	**1435**	**6366**	**51340**	**6550**	**2518**	0 (0.00)
Menstrual cycle characteristics, n (%)							
Short cycle <21 days	2854 (4.30)	59 (0.09)	233 (0.35)	2144 (3.23)	288 (0.43)	130 (0.20)	
Normal cycle 21-35 days	59886 (90.31)	1277 (1.93)	5710 (8.61)	45293 (68.30)	5587 (8.42)	2019 (3.04)	
Long cycle >35 days	3575 (5.39)	58 (0.09)	274 (0.41)	2535 (3.82)	446 (0.67)	262 (0.40)	
Total	**66315**	**1394**	**6217**	**49972**	**6321**	**2411**	1894 (2.78)
Education, n (%)							
< highschool	4570 (6.73)	143 (0.21)	418 (0.63)	3448 (5.08)	401 (0.59)	160 (0.24)	
Highschool	19458 (28.64)	449 (0.66)	1910 (2.81)	14733 (21.69)	1753 (2.58)	613 (0.90)	
Up to 4 yrs of college	28191 (41.50)	533 (0.78	2630 (3.87)	21222 (31.24)	2782 (4.10)	1020 (1.50)	
> 4 yrs of college	15710 (23.13)	306 (0.45)	1380 (2.03)	11742 (17.29)	1570 (2.31)	712 (1.05)	
Total	**67930**	**1431**	**6338**	**51145**	**6511**	**2505**	279 (0.41)

Time to pregnancy

Number of months of trying to concieve (n=68209)

Main analysis

Table II Relative Risk (RR) of achieveing pregnancy in each cycle up tp 12 cycles according to age at menarche (AAM) N=68209

AAM (years)	Participants N (%)	Crude RR (95% CI)	P-value	Fecundability ratio Model 1 RR (95% CI)	P-value	Model 2 RR (95% CI)	P-value
< 11	1435 (2.10)	0.88 (0.84-0.93)	<0.001	0.93 (0.89-0.98)	0.016	0.93 (0.89-0.98)	0.017
11	6366 (9.33)	0.97 (0.94-0.99)	0.016	0.99 (0.97-1.02)	0.715	0.99 (0.97-1.02)	0.721
Reference 12-14	51340 (75.27)	1.0		1.0		1.0	
15	6550 (9.60)	1.00 (0.98-1.00)	0.633	0.98 (0.96-1.00)	0.160	0.98 (0.96-1.00)	0.157
> 15	2518 (3.69)	0.97 (0.93-1.01)	0.170	0.94 (0.91-0.98)	0.003	0.94 (0.91-0.98)	0.003

Crude is unadjusted analysis

Model 1 is adjusted for bmi, education

Model 2 is adjusted for bmi, education and maternal age

Sensitivity analysis I (S-I) Excluded those who ever recieved treatment for infertility N=61803

Table S-I Relative Risk (RR) of achieveing pregnancy in each cycle up tp 12 cycles according to age at menarche (AAM)

AAM (years)	Participants N (%)	Fecundability ratio					
		Crude		**Model 1**		**Model 2**	
		RR (95% CI)	P-value	RR (95% CI)	P-value	RR (95% CI)	P-value
< 11	1269 (2.05)	0.90 (0.85-0.94)	<0.001	0.94 (0.89-0.99)	0.032	0.94 (0.89-0.99)	0.031
11	5728 (9.27)	0.99 (0.96-1.01)	0.459	1.01 (0.98-1.03)	0.338	1.01 (0.98-1.03)	0.345
Reference 12-14	46640 (75.47)	1.0		1.0		1.0	
15	5951 (9.63)	1.00 (0.97-1.02)	0.799	0.98 (0.95-1.00)	0.129	0.98 (0.95-1.00)	0.133
> 15	2215 (3.58)	1.00 (0.96-1.03)	1.000	0.97 (0.93-1.00)	0.148	0.97 (0.93-1.01)	1.153

Discussion

Strenghts

Recall bias

Large size

Weaknesses
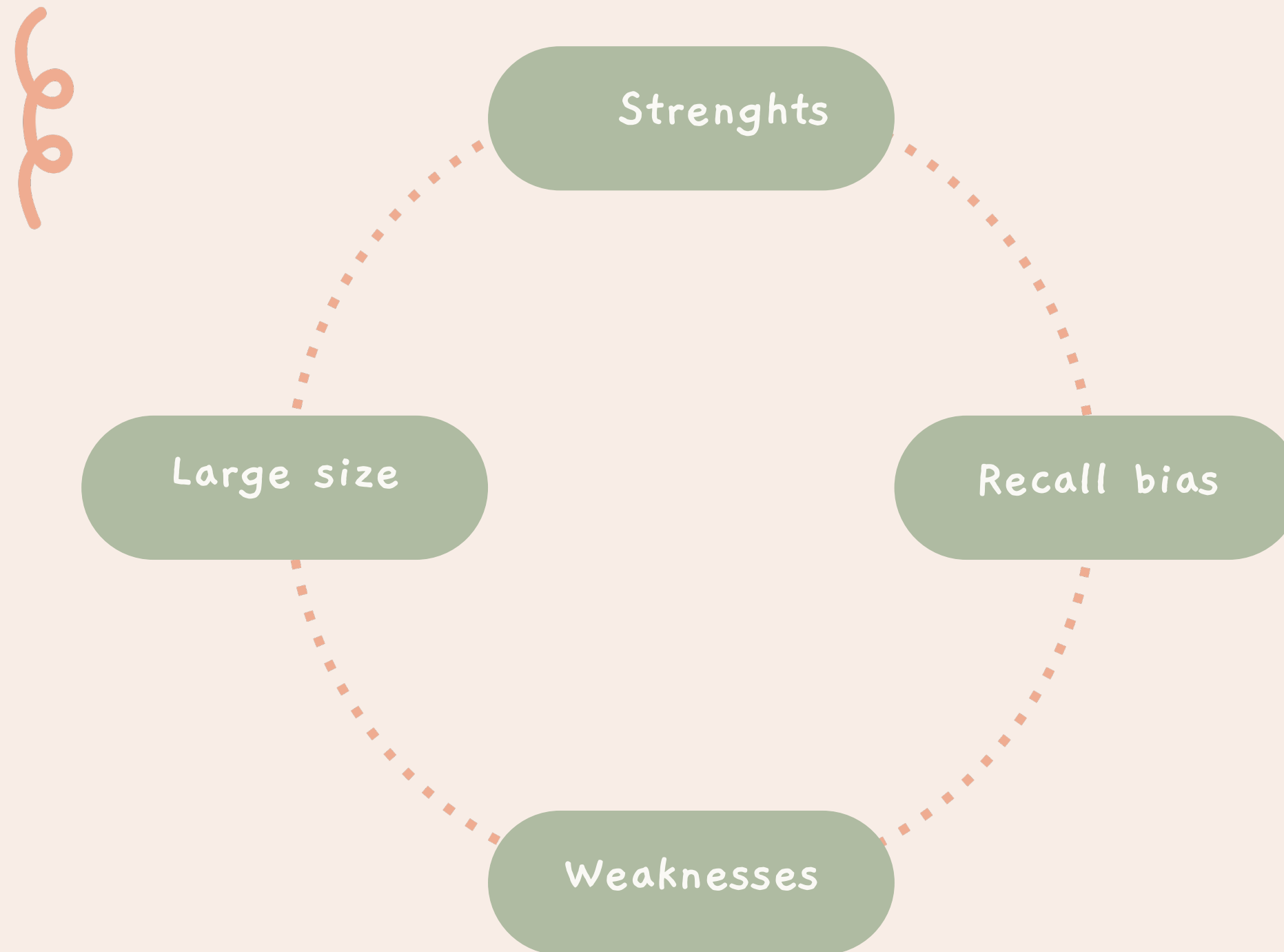
Conclusion

Both early (<11) and late (>15) menarche is associated with reduced fecundability

Questions?

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All MoBa mothers included with index pregnancy in Moba.
Dropped due to no info on menarche: 1011
Dropped if NO info on planning pregnancy OR TTP: 763
Dropped planners if NO info on TTP: 854 (Total Dropped due to pregnancy planning or TTP missing: 1617)
Dropped if age at menarche is over 20 or under 8: 168
N= 83116
Dropped due to not planned pregnancy: 14907
N=68209