

## Obstetric outcomes of teenagers and older mothers: experience from Saudi Arabia

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### Abstract

**Background:** Extremes of maternal age adversely affect pregnancy outcomes. Teenage pregnancy is a public health problem and is known to be associated with adverse pregnancy outcomes. Advanced maternal age is a risk factor for pregnancy outcome. Saudi Arabia suffers the dual burden of teenage pregnancy and older pregnancy.

**Objectives:** To explore the effects of maternal age on pregnancy and its outcome among mothers adequately covered with maternity care.

**Methods:** A retrospective record-based comparative study was carried out in Northern region of Saudi Arabia. We compared the obstetric outcomes of mothers aged less than 20 years (teenage pregnancy); mothers aged 35 years and more (older mothers) with mothers aged 20 to 34 years (reference group). Data was abstracted from family files, and maternity cards kept at primary health care centers.

**Results:** Teenage pregnancy and older mothers accounted for 9.0% and 16.8% of the total registered mothers. Antenatal morbidity, mode of delivery and neonatal outcomes did not differ between teenage mothers and the reference group. On the other hand, gestational diabetes mellitus, pregnancy induced hypertension, and caesarean section were more frequent among older mothers, compared to the reference group.

**Conclusion:** teenage pregnancy in Saudi Arabia is not associated with bad obstetric outcomes. In the contrary older mothers experienced more prenatal morbidity and caesarean section. Adequate antenatal and natal care mitigated the adverse effects of younger and advanced maternal age.

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**Keywords:** Adolescent mothers – maternal age - teenage pregnancy – older mothers – adverse pregnancy outcomes

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## **Introduction**

Extremes of maternal age adversely affect pregnancy outcomes (Rajaei et al, 2010). Teenage pregnancy is regarded as a serious public health problem and often occurs in the context of poor social support and maternal well-being (Cunningham and Boulton, 1996). Teenage pregnancy is known to be associated with adverse pregnancy outcomes such as preterm births, low birth weight deliveries and increased risk of caesarean delivery (Magill and Wilcox, 2007; Rajaei et al, 2010). However, other studies have suggested that these effects are related to some other confounders. Two recent studies revealed that teenage mothers with adequate antenatal care and full social and family support does not show any increased risk of adverse pregnancy outcomes, and even had lower rates of caesarean delivery (El-Gilany and Hammad, 2009; Hoque and Hoque, 2010).

Teenage pregnancy, pregnancy within 19 years of age, is a public health concern both in developed and developing countries (Chedraui et al, 2004; Lowlor and Shaw, 2004). Evidence in developing world indicates that one-third of women become mothers within 19 years of age (Viegas et al, 1992). Relatively the situation in Saudi Arabia is severe as there are higher proportions of teenage pregnancies due to the common practice of early marriage and social expectation to have a child soon after marriage.

Advanced maternal age, defined as age 35 years and older at estimated date of delivery, has become increasingly common (Martin et al, 2002). Effective birth control, advances in assisted reproductive technology, delayed marriage, increasing rate of divorce and remarriage, and women's pursuit of higher education and career advancement all contribute to this trend (Berkowitz et al, 1990; Bianco et al, 1996) Mother's high age is always considered as a risk factor for pregnancy outcome (Delbaere et al, 2006). Although many studies found an association between delayed childbirth and adverse maternal and fetal outcomes (Bell et al, 2001; Martin et al, 2002; Seoud et al, 2002; Jahromi et al, 2008; Rajaei, et al, 2010; Yogev et al, 2010), one study challenges these findings (Ales et al, 1990).

Saudi Arabia suffers the double burden of teenage pregnancy due to early marriage and older pregnancies due to high fertility rates. Many women continue childbearing up to the end of their reproductive age. This study was undertaken to explore the effects of both young and old maternal age on pregnancy and its outcome among women registered for prenatal care.

## **Population and methods**

This study was carried out in the Northern region of Saudi Arabia. Maternal care is provided through a network of 40 primary health care centers. The study included all Saudi mothers registered for antenatal care in these centers and gave birth during the year 2010. Data were collected from the family file and the maternity cards maintained at the PHCCs and also from the hospital discharge forms. The traditional antenatal care with 13 routine visits is the implemented maternity care in Saudi Arabia. Pregnant women can visit the health center at any time if there complication. Saudi citizens enjoy good quality free health services at all levels of health care. Teenage mothers enjoy a similar degree of care to their older peers in public health facilities. The Ministry of Health has developed special guidelines for the maintenance of the maternity card, with clear explanations of its contents and of how it is to be used; the various measurements and investigations have also been described. The card is shared by the health centers and the hospital.

There is continuous stress on the need to keep this card complete and up-to-date (Ministry of Health, Saudi Arabia, 1994).

According to age study population was divided into three groups: teenage mothers (<20 years), old age mothers (35 years and more) and a reference group (age between 20 and 34 years). The age group 20-34 years was considered as the safest childbearing period. While the two groups represent the extremes of reproductive age period. Each of the young and old age groups was compared to the reference group regarding socio-demographic characteristic, antenatal care, maternal morbidities as well as pregnancy outcome.

A total of 5142 of mothers were registered in all primary health care centers of the region. Teenage mothers and older mothers accounted for 9.0% and 16.8% of the total, respectively. After exclusion of files with incomplete data the number remained for the analysis were 3691,404 and 777 files for the reference, teenager and older age groups, respectively.

The study protocol was approved by the Health Directorate of the Northern Region, Saudi Arabia.

Data was analyzed using SPSS version 16. Chi-squared and Fisher exact tests as well as t- test were used to test difference between groups, as appropriate. A  $P \leq 0.05$  was considered to be statistically significant.

## **Results**

Table (1) shows that in comparison to the reference group young mothers are more likely to be of rural residence, working or students, primigravidae and non-spacers. On the other hand, old age mothers are more likely to be from urban areas, housewives, of high parity and spacers.

Table (2) shows that young mothers are more likely to initiate prenatal care early and attend more visits than the reference group. Renal diseases were more frequent among young age compared to the reference group. Gestational diabetes and pregnancy induced hypertension are more likely to be encountered among old age group than the reference group (table 3).

Both age groups are comparable to the reference group regarding place of delivery. Caesarian section is more encountered among old age mothers. Stillbirth, low birth weight and preterm labor between young and old age groups were comparable to the reference group (table 4).

No maternal mortality was recorded during the study period.

## **Discussion**

In this study 9.4% of pregnant women were teenagers. This is much higher than rates reported from Riyadh (6%) (Mesleh et al, 2001) and Eastern Province (0.8% and 3.7%) of Saudi Arabia (Abu-Heija et al, 2002; El-Gilany and Hammad 2009). The Northern region is more traditional with less civilization than Riyadh and Eastern Province of the Kingdom. Lower rates of teenage pregnancy were reported from other developing countries e.g. 6% in Iran (Rajaei et al, 2010) and 1.3% in India (Malviya et al, 2003) and developed countries e.g. 0.7% in Sweden, 0.9% in France, 2% in Canada and 4.9% in USA (Darroch et al, 2001).

Some developing countries reported much higher rates. In South Africa 16% of deliveries were teenage mothers (Hoque and Hoque, 2010). In Bangladesh, 72.5% of women experienced first marital pregnancy during their teenage (Sayem and Nury, 2011).

Although early childbearing has often been regarded as a social issue, there is mounting evidence that young maternal age may be linked to adverse infant outcomes (Chen et al, 2007). Debate remains as to whether the excess risks are due to biologic immaturity or are the consequences of deleterious social and environmental factors (Fraser et al, 1995; Chen et al, 2007).

This study revealed that teenage mothers did show any significant increase in the rates of all maternal and neonatal morbidities. This confirms a previous result of El-Gilany and Hammad (2009) who concluded that teenage pregnancy is not associated with bad obstetric outcomes when adequate antenatal care is received. A recent study in South Africa reported that teenage pregnancy is not associated with excess stillbirth, preterm, low birth weight, but even associated with significant decrease of caesarean section rate (Hoque and Hoque, 2010).

Many studies in both developed and developing countries reported association between younger maternal age and adverse maternal and neonatal outcomes (Seoud et al, 2002; Magill and Wilcox, 2007; Rajaei et al, 2010).

There are many possible explanations for these differences. First, all Saudi women in our study were married with legal pregnancy and benefit from full social, economic and family support during pregnancy. In addition to this good quality maternity care services are available free in the Kingdom, resulting in a high utilization rate of antenatal and natal care. We found that teenage mothers attended more antenatal visits with early booking in the first trimester of pregnancy. The majority of these young mothers are educated as a relatively higher proportion of them were either working or still in school. In other cultures young mothers are more likely to be poor and less educated and have inadequate prenatal care and less social support than older mothers. Socioeconomic and lifestyle factors often have been cited as the main explanatory variables for disparities in reproductive outcomes (Ketterlinus et al, 1990). In their analysis of adolescent's use of maternal and child health services in developing countries other than Saudi Arabia, Reynolds et al, (2006), found that in five of the fifteen countries, younger women were less likely, than middle aged women to use antenatal care. Moreover, it was commented that age-related biologic factors alone are not associated with an increased risk of fetal death (Hillis et al, 2004) and in infants of teenage mothers, much of the risk factors of low birth weight are related to behavioral and psychosocial factors (Reichman and Pagnini, 1997).

It has been widely documented that maternal age in pregnancy is increasing in the world. Nowadays, many women delay their pregnancy even up to the 40<sup>th</sup> year of their life because of different reasons, such as occupational, educational and economical (Heffner, 2004; Aghamohammadi and Nooritajer, 2011).

In this study, older pregnant women of 35 years and more accounted for 16.8% of the total women registered for antenatal care. A slightly lower proportion (14.3%) was reported from Iran (Rajaei et al, 2010). However, a much higher percent was reported in USA. Cleary-Goldman, et al, (2005) revealed that about 21% of pregnant women were in age of 35 years and more.

There are numerous studies assessing the effect of advancing maternal age on pregnancy outcome, but the results varied. The study presented here is optimistic with regard to the studied neonatal outcomes. However, there was a significant increase of some maternal morbidity during pregnancy. However, the adequate prenatal and natal care mitigated the adverse effects of this morbidity on maternal and neonatal health.

Previous research showed that gestational diabetes and hypertensive disorders are the only pregnancy outcomes seen with an increase under the influence of age (Delbaere et al, 2007; Jahromi and Hussein, 2008). Our results support these findings.

Advanced maternal age was found to be associated with an increased risk of gestational diabetes mellitus. This is in agreement with all previous reports (Bianco et al, 1996; Chibber, 2004; Cleary-Goldman, et al, 2005; Rajaei et al, 2010; Yogev et al, 2010; Aghamohammadi and Nooritajer, 2011). There are a lot of reasons, which explain the increase of gestational diabetes with an increase in age of women. Destruction of the inter blood vessels of cells is one of them (Ziadeh et al, 2001). A previous study showed that there is a decrease in the function of  $\beta$  cells of pancreas and cell sensitivity to insulin with age increase (Al-Turki et al, 2003). The function and structure of hemoglobin and the means of glaciations is changed with the increase in age and it can be another reason for the increasing of gestational diabetes under the influence of age (Jacobsson et al, 2004).

We found that advanced maternal age is associated with an increased risk of hypertensive disorder of pregnancy. This is in agreement with other reports (Berkowitz et al, 1990; Bianco et al, 1996; Jahromi et al, 2008; Rajaei et al, 2010; Yogev et al, 2010). On the other hand, there were some studies suggesting that advanced maternal age may not be associated with a statistically significant increased risk for hypertensive complications; these reports were limited with small number of women, especially those over 45 years of age where chronic hypertension is more common (Kozinszky et al, 2002; Cleary-Goldman et al, 2005).

In agreement with previous studies, this study demonstrated that older women are at increased risk of cesarean delivery (Bianco et al, 1996; Rosenthal and Paterson-Brown, 1998; Chibber, 2004; Cleary-Goldman et al, 2005; Luke and Brown 2007; Jahromi and Hussein, 2008; Yogev et al, 2010). Older women may be at increased risk for abnormalities of the course of labor, perhaps secondary to physiology of aging. It is possible that decreased myocardial efficiency occurs with aging (Bianco et al, 1996; Main et al, 2000). Nonetheless, maternal age alone may be a factor influencing physician decision making (Peipert and Bracken, 1993).

It is worth mentioning the possible interaction between older age and parity for the observed increased risks of gestational diabetes, pregnancy induced hypertension and caesarean delivery as most of our elderly mother were of sixth parity or more. However, none of them were primiparae and small proportion was in their second to fifth parity.

The strength of this study is that morbidity was based on professional diagnosis of primary health care doctors in collaboration with obstetricians in hospitals.

Study limitations: Study was done in one region so its results cannot be generalized to the whole Kingdom. Also women receiving care in private health sectors and those not receiving care at all were not included in the study.

Recommendation: Health education and counseling of women before pregnancy about adverse pregnancy outcomes associated with maternal age with due stress on the importance of early and adequate prenatal care in case of teenage or elderly pregnancy. Maintenance and upgrading of the quality of maternity care with high coverage is the cornerstone to mitigate the potential adverse effects of teenage and older pregnancies. Good record keeping with completeness of data deserves more attention from supervisors of primary health care. Of particular importance to the Saudi community is shift from the control to prevention of pregnancy at extremes of maternal age so as to decrease the number of pregnancies at older maternal age and give extra maternity care for this high risk group.

## References

- Aghamohammadi A, Nooritajer M. Maternal age as a risk factor for pregnancy outcomes: Maternal, fetal and neonatal complication. *African J Pharmacy Pharmacology* 2011;5(2):264-269
- Abu-Heija A, Ali AM, Al-Dakjeil S. Obstetric and perinatal outcome of adolescent nulliparous pregnant women. *Gynecol Obstet Investigation* 2002;53(2):90-92
- Ales K, Druzin M, Santibi D. Impact of advanced maternal age on the outcome of pregnancy. *Surg Gynecol Obstet* 1990;171:209-216
- Al-Turki HA, Abu-Heija AT, Al-Sibai MH. The outcome of pregnancy in elderly primigravidas. *Saudi Med J* 2003;24(11):1230-1233
- Bell J, Campbell D, Graham W, Penny G, Ryan M, Hall M. Can obstetric complications explain the high levels of obstetric interventions and maternity services use among older women? A retrospective analysis of routinely collected data. *Brit J Obstet Gynecol* 2001;108:910-918
- Berkowitz GS, Skovron ML, Lapinski RH, Berkowitz RL. Delayed childbearing and the outcome of pregnancy. *N Engl J Med* 1990;322:659-64
- Bianco A, Stone J, Lynch L, Lapinski R, Berkowitz G, Berkowitz R. Pregnancy outcome at age 40 and older. *Obstet Gycecol* 1996;87:917-22
- Chedraui P, Hidalgo L, Chavez Z, Glenda SM. Determinant factors in Ecuador related to pregnancy among adolescents aged 15 or less. *J Perinatal Med* 2004;32:337-341
- Chen X, Wen SW, Fleming N, Demissie K, Rhoads GG, Walker M. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *International J Epidemiol* 2007;36(2):368-373
- Chibber R. Problems of older maternal age and pregnancy outcome. *Bahrain Med Bull* 2004;26:1-9
- Cleary-Goldman J, Malone FD, Vidaver J, et al. Impact of maternal age on obstetric outcome. *Obstet Gynecol* 2005;105(5):983-90
- Cunningham PW, Boulton BE. Black teenage pregnancy in South Africa: Some considerations. *Adolescence* 1996;31:294-299
- Darroch JE, Singh S, Frost JJ, et al. Differences in teenage pregnancy rates among five developed countries: The roles of sexual activity and contraceptive use. *Fam Plann Perspect* 2001;33(6):244-250,281
- Delbaere I, Verstraelen H, Goetgeluk S, Martenes G, Backer GD, Temmerman M. Pregnancy outcome in primiparae of advanced maternal age. *Euro J Obstet Gynecol Reproductive Biology* 2007; 135(1):41-46
- El-Gilany A, Hammad S. Teenage pregnancy: proportion and outcome in Al-Hassa, Saudi Arabia. *Paediatrics.me* 2009;14(2):42-46
- Fraser AM, Brockert JE, Ward RH. Assessment of young maternal age with adverse reproductive outcomes. *N Engl J Med* 1995;332(17):1113-1117
- Heffner IJ. Advanced maternal age- How old is too old? *N Engl J Med* 2004;351:1927-9
- Hillis SD, Anda RF, Dube SR, Felitti VJ, Marchbanks PA, Marks JS. The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial consequences, and fetal death. *Pediatr* 2004;113:320-7
- Hoque M, Hoque S. A comparison of obstetrics and perinatal outcomes of teenagers and older women: Experiences from rural South Africa. *African J Primary Health Care and Family Med* 2010; 2(1). Art. #171, 5 pages

- Jacobsson B, Ladtors L, Milsom I. Advanced maternal age and adverse perinatal outcome. *Obstet Gynecol* 2004;104(4):727-733
- Jahromi BN, Husseini Z. Pregnancy outcome at maternal age 40 and older. *Taiwanese J Obstet Gynecol* 2008;47(3):318-321
- Keterlinus RD, Henderson SH, Lamb ME. Maternal age, sociodemographics, prenatal health and behavior: influences on mental risk status. *J Adolesc H Care* 1990;11(5):423-431
- Kozinszky Z, Orvos H, Zoboki T, Wayda K, Pat A, Kovacs I. Risk factors for cesarean section of primiparous women aged over 35 years. *Acta Obstet Gynecol Scand* 2002;81:313-6
- Lowlor DA, Shaw M. Teenage pregnancy rates: high compared with where and when? *J Royal Society Med* 2004;97:121-123
- Luke B, Brown MB. Elevated risks of pregnancy complications and adverse outcomes with increasing maternal age. *Human Reproduction* 2007;22(5):1264-1272
- Magill M, Wilcox R. Adolescent pregnancy and associated risks: not just a result of maternal age. *Am Fam Physician* 2007;75(9):1310-1311
- Main DM, Elliott KM, Moore DH. The relationship between maternal age and uterine dysfunction. *Am J Obstet Gynecol* 2000;182(6):1312-1320
- Malviya MK, Bhardwaj VK, Chansoria M, Khare S. Anthropometric profile and perinatal outcomes of babies born to young women (<18 years). *Indian Pediatrics* 2003;40(10):971-976
- Martin HA, Hamilton BE, Ventura SJ, Menacker F, Park MM, Sutton PD. Births: final data for 2001. *Nat Vital Stat Rep* 2002;51(2):1-102
- Mesleh RA, Al-Aql AS, Kurdi AM. Teenage pregnancy. *Saudi Med J* 2001;22(10):864-867
- Ministry of Health, Saudi Arabia. Quality assurance in primary health care manual. 1<sup>st</sup> ed. WHO-EMR/PHC/81-A/G/93. El-Hilal Press: Riyadh; 1994. p. 241-315.
- Peipert JF, Bracken MB. Maternal age: an independent risk factor for cesarean delivery. *Obstet Gynecol* 1993;81:200-5
- Rajae M, Amirzadeh S, Mirblook F, Soltani MA. The effect of maternal age on pregnancy outcome. *Asian J Med sci* 2010;2(3):159-162
- Reichman NE, Pagnini DL. Maternal age and birth outcome: data from New Jersey. *Fam Plann Perspect* 1997;29:268-72,295
- Reynolds H, Wong EL, Tucker H. Adolescents' use of maternal and child health services in developing countries. *International Fam Plann Perspect* 2006;32(1):6-16
- Rosenthal AN, Paterson-Brown S. Is there an incremental rise in the risk of obstetric intervention with increasing maternal age? *Br J Obstet Gynecol* 1998;105:1064-1069
- Sayem A, Nury A. Factors associated with teenage marital pregnancy among Bangladeshi women. *Reproductive Health* 2011;8:16
- Seoud M, Nasser Ah, Usta IM, Melhem Z, Kazma A, Khalil AM. Impact of advanced maternal age on pregnancy outcome. *Am J Perinatol* 2002;19:1-7
- Viegas OA, Wiknsosastro G, Sahagun GH, Chaturachinda K, Ratnam SS. Safe childbirth needs more than medical services. *World Health Forum* 1992;13:59-65
- Yogev K, Melamed N, Bardin R, et al. Pregnancy outcome at extremely advanced age. *Am J Obstet Gynecol* 2010;203(6):558e1-558e7
- Ziadeh S, Yahaya A. Pregnancy outcome at age 40 and older. *Arch Gynecol Obstet* 2001;265:30-33

**Table 1:** Socio-demographic characteristics of study population

	<b>Reference group</b> n(%)	<b>Young age</b> n(%)	<b>Old age</b> n(%)
Age (years)	20-34	<20	35 & more
Total	3691	404	777
Residence: Urban	2606(70.6)	260(64.4)**	609(78.4)***
Rural	1085(29.4)	144(35.6)	168(21.6)
Occupation: Housewife	3363(91.1)	335(82.3)***	773(99.5)***
Working/Student	328(8.9)	69(17.1)	4(0.5)
Gravidity: Primigravida	329(8.9)	212(52.5)***	0***
2-5	1763(47.8)	188(46.5)	41(5.3)
6 & more	1599(43.3)	4(1.0)	736(94.7)
Spacing <sup>#</sup> : <1 year	1939(57.7)	148(77.1)***	345(44.4)***
1-3	1131(33.6)	40(20.8)	304(39.1)
>3	292(8.7)	4(2.1)	128(16.5)

<sup>#</sup>Primigravidae were excluded.

\*\*P≤0.01, \*\*\*P≤0.001 compared to the reference group

**Table 2:** Comparison between the three groups regarding antenatal care.

	<b>Reference group</b> n(%)	<b>Young age</b> n(%)	<b>Old age</b> n(%)
Total	3691	404	777
First antenatal visit: 1 <sup>st</sup> trimester	2556(69.2)	340(84.2)***	541(69.6)
2 <sup>nd</sup> trimester	1026(27.8)	56(13.9)	216(27.8)
3 <sup>rd</sup> trimester	109(2.9)	8(2.0)	20(2.6)
Number of visits: Mean ± SD	8.3 ± 3.1	9.3 ± 3.0***	8.6 ± 3.0

\*\*P≤0.01, \*\*\*P≤0.001 compared to the reference group

**Table 3:** Morbidity encountered during antenatal care

	<b>Reference group</b> n(%)	<b>Young age</b> n(%)	<b>Old age</b> n(%)
Any morbidity	2176(59.0)	226(55.9)	456(58.7)
Gestational diabetes mellitus	31(0.8)	2(0.5)	64(8.2)***
Pregnancy induced hypertension	30(0.8)	2(0.5)	76(9.8)***
Cardiac disease	11(0.3)	1(0.2)	2(0.4)
Renal diseases	120(3.3)	13(3.2)	18(3.9)
Pre-eclampsia	50(1.4)	5(1.2)	9(1.2)
Hemorrhage in early Pregnancy	102(2.8)	14(3.5)	25(3.2)
Antepartum hemorrhage	68(1.8)	12(3.0)	12(1.5)
Infections <sup>#</sup>	172(4.7)	17(4.2)	32(4.1)
Anemia at 1 <sup>st</sup> visit	582(15.8)	74(18.3)	133(17.1)
Anemia at any visit	1694(46.0)	191(47.3)	351(45.2)

<sup>#</sup>Respiratory tract infections, skin infection, vaginal moniliasis, etc.

\*\*P≤0.01, \*\*\*P≤0.001 compared to the reference group

**Table 4:** Natal and neonatal outcomes.

	<b>Reference group</b> n (%)	<b>Young age</b> n (%)	<b>Old age</b> n (%)
<b>Total mothers<sup>#</sup></b>	<b>3562</b>	<b>391</b>	<b>751</b>
Place of delivery: Home	139(3.8)	8(2.0)	20(2.6)
Hospital/health center	3552(96.2)	396(98.0)	757(97.4)
Mode of delivery:			
Vaginal	3526(95.5)	380(94.1)	677(87.1)***
Caesarean section	164(4.4)	24(5.9)	100(12.9)
<b>Total births</b>	<b>3616</b>	<b>392</b>	<b>757</b>
Stillbirth <sup>§</sup>	37(1.0)	3(0.7)	8(1.0)
Low birth weight <sup>§</sup>	229(6.2)	27(6.6)	52(6.7)
Preterm <sup>§</sup>	87(2.4)	9(2.2)	21(2.7)

<sup>#</sup> Natal outcomes were not known for further 168 mothers.

<sup>§</sup> Percentages were calculated from the total births

\*\*\*P≤0.001 compared to the reference group