# Advanced maternal age and perinatal outcomes in two tertiary care maternity hospitals in Colombo, Sri Lanka

***Tharanga Jayatunge[1], Saman Kumara[2], Nishani Lucas[3]**

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**Abstract**

***Introduction:*** Advanced maternal age (AMA) is associated with adverse outcomes. Therefore, it is crucial to identify the maternal and perinatal outcomes among women with AMA.

***Objectives:*** To describe the obstetric and perinatal outcomes of women with AMA, compare them with women in the 20-34-year age group and determine the adverse outcomes associated with AMA.

***Method:*** A prospective cohort study was conducted from 1st March to 31st July 2018 at the Castle Street Hospital for Women and the De Soysa Hospital for Women, Colombo, Sri Lanka. Pregnant women >20 years old, with a gestation of >22 weeks, admitted for delivery were included. Sample size was calculated as 648. Mother-baby pairs were followed up till 7-days-of-age. Data were collected via an interviewer-administered questionnaire. Sociodemographic factors, maternal and perinatal outcomes were compared between AMA and 20–34-year age groups. Chi-square test, bivariate and multivariable logistic regression were used to determine the association of maternal and perinatal outcomes with AMA using SPSS version 23.

***Results:*** A total of 648, with 326 AMA and 322 who were 20-34 years old were included. Mean ages were 37 ± 1.9 years and 28 ± 3.6 years in the AMA and 20-34 years age groups respectively. Comparatively, women in AMA had a higher income (AOR=0.47, 95% CI 0.305-0.747, p=0.001), higher risk of postponement of the current pregnancy (AOR=0.176, 95% CI 0.08–0.38, p=0.000), higher risk of subfertility (AOR=0.25, 95% CI 0.14–0.47, p=0.000), higher risk of undergoing a caesarean delivery (AOR=1.58, 95% CI 1.1–2.3, p=0.016), and higher risk of pre-term delivery (AOR=1.6, 95% CI 1.0-2.6, P=0.49) after adjusting for confounders.

***Conclusions:*** AMA was associated with adverse obstetric and perinatal outcomes compared to women in the 20-34-year age group.

(Key words: Advanced maternal age, Gestational diabetes mellitus, Perinatal outcome, Pregnancy-induced hypertension, Stillbirth)

[1]*Acting Consultant Neonatologist, Teaching Hospital, Ratnapura, Sri Lanka,* [2]*Consultant Neonatologist, Castle Street Hospital for Women, Colombo, Sri Lanka,* [3]*Consultant Neonatologist, Professorial Unit, De Soysa Hospital for Women, Colombo and Senior Lecturer, Department of Paediatrics, Faculty of Medicine, University of Colombo.*
**Correspondence:* tharanga272@yahoo.com
https://orcid.org/0000-0003-0339-5418

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## Introduction

Advanced maternal age (AMA) is defined as a pregnancy in women aged 35 years or older at the time of the booking visit[1]. A survey in 29 countries including Africa, Asia, Middle East and Latin America reported that AMA was seen in 12.3%[1]. From 1970-2006 pregnancies with AMA increased eight times in the United States (US)[2] and three times in Canada[3]. In Sri Lanka 15.8% pregnancies with AMA were reported in 2013[4]. Over the past few decades there was a rising trend in women delaying childbearing for educational and socio-economic reasons in all countries[1,5]. Maternal and fetal adverse outcomes of AMA include gestational diabetes mellitus (GDM), pregnancy induced hypertension (PIH), iron deficiency anaemia, assisted vaginal or caesarean section deliveries, preterm birth, stillbirth and low birth weight (LBW)[5,6]. Furthermore, a higher incidence of Down syndrome was found in pregnancies with AMA[6]. Maternal and perinatal outcomes in pregnancies with AMA differed from country to country, according to availability and accessibility of healthcare facilities and underlying sociodemographic factors[7,8,9-13]. Studies in Sri Lanka on AMA have mainly focused on maternal outcomes. They have not described perinatal outcomes or underlying factors[4,7]. This study was undertaken to bridge this gap by concentrating on maternal and perinatal outcomes and associated factors of women with AMA.

**Objectives**

To describe maternal and perinatal outcomes of women with AMA, compare them with women in the 20-34 age group and determine the adverse outcomes associated with AMA.

**Method**

A prospective cohort study was conducted from 1st March to 31st July 2018 to appraise the association of AMA pregnancy with adverse obstetric and perinatal outcomes in Castle Street Hospital for Women (CSHW), Colombo, Sri Lanka and De Soysa Hospital for Women (DSHW), Colombo, Sri Lanka.

***Inclusion and exclusion criteria:*** All pregnant women aged 20 years or more on the date of booking visit, admitted to CSHW or DSHW for confinement or in labour at time of admission, with a gestation of 22 weeks or more were included in the study. Gestation was calculated based on the ultrasound scans done from 8-13 gestational weeks. Pregnant women admitted following trauma (falls, severe unintentional burns, road traffic accidents, attempted suicide, homicide etc.), which may adversely affect pregnancy outcomes and those unable to produce a valid identity card or other form of identification to determine their age were excluded from the study.

***Sample size*** was calculated as 648 based on 14% preterm births in expecting women, aged 35 years or more at date of booking visit which was taken as the exposed population and 17% preterm births in pregnant women aged 20 to 34 years at date of booking visit which was taken as the un-exposed population[14]. A one-to-one ratio of exposed to non-exposed group, 95% confidence level, power of 80% and 20% non-response rate was assumed.

***Study population:*** All women admitted to the study setting, fulfilled the eligibility criteria and gave informed written consent from time of initiation of data collection (01st March 2018), were selected consecutively until fulfilment of the required sample size.

Postnatal women and newborns were followed up during hospital stay and at the end of seven days of age. If mother or baby was discharged before day 7, they were given the option to visit the clinic at the same hospital or the Medical Officer of Health (MOH) office. During this visit baby was assessed by the principal investigator (PI), data collector or the MOH for weight gain, breast feeding and other concerns.

A data extraction sheet and an interviewer-administered questionnaire were used to collect data after pre-testing. Data collection was done by the PI and data collectors trained by PI. Data regarding sociodemographic factors, maternal and perinatal outcomes were compared between women with AMA and those aged 20-34 years.

***Ethical issues:*** Approval to conduct the study was obtained from the Ethics Review Committee of the Sri Lanka College of Paediatricians (Ref. No. SLCP/ERC/2018/05) and from CSHW and DSHW prior to data collection. All participants gave informed written consent prior to participation in the study.

***Statistical analysis:*** Data were analysed using Statistical Package for Social Sciences version 23. Sociodemographic and pregnancy-related characteristics and perinatal outcomes in the two groups were presented as frequency distributions. Crude odds ratio (OR) (95% CI) was calculated using bivariate analysis. Both groups were compared using Chi-square test and $p<0.05$ was considered significant. Multivariable logistic regression was done to assess association of independent variables with dependent variables adjusted for confounders. Adjusted odds ratio (AOR) was presented.

**Results**

A total of 648 pregnant women participated in the study. Socio-demographic factors, maternal and perinatal outcomes were compared between 326 women who were 35 years or older and 322 women who were in the 20-34 age group. Mean age of women in the 35 years or older group was $37 \pm 1.9$ years and it was $28 \pm 3.6$ years in the 20-34-year age group. Comparison of socio-demographic characteristics among women with AMA and 20-34 years age group is given in Table 1. There was no significant difference in ethnicity, employment status, marital status or highest educational level between the 2 groups. However, a monthly family income of more than Rs. 50,000.00 was 1.46 times more likely with the AMA women compared to the 20–34-year age group ($p = 0.02$).

Comparison of obstetric characteristics among women with AMA and 20-34 years age group is given in table 2. A notably greater proportion of women with AMA had subfertility, postponed the current pregnancy and delivered their baby via a caesarean delivery in this pregnancy compared to those aged 20-34 years. Moreover, women with AMA were 3.45 times more likely to have PIH ($p=0.005$) and 1.9 times more likely to have GDM ($p = 0.002$) compared to those aged 20-34 years.

Factors associated with advanced maternal age after adjusting for confounders are given in table 3.

**Table 1:** ***Comparison of socio-demographic characteristics in women 35 years or more (advanced maternal age) vs 20-34 year age group***

| Characteristic | 35 years or more | 20-34 years | Statistics | | |
|---|---|---|---|---|---|
| | n (%) | n (%) | Odds ratio | 95% CI | Significance |
| *Ethnicity* | | | | | |
| Tamil[a] | 37 (11.5) | 18 (05.6) | | | $X^2$=1.13 |
| Muslim[a] | 34 (10.6) | 42 (13.1) | 1.23 | 0.840-1.799 | df=1 |
| Burgher[a] | 02 (0.6) | 02 (0.6) | | | p=0.287 |
| Sinhalese[b] | 248 (77.3) | 259 (80.7) | 1.00 | | |
| Total | 321 (100.0) | 321 (100.0) | | | |
| *Employment status* | | | | | |
| Employed | 113 (35.1) | 112 (34.8) | 0.98 | 0.71-1.36 | $X^2$=0.007 |
| Unemployed | 209 (64.9) | 210 (65.2) | 1.00 | | df=1 |
| Total* | 322 (100.0) | 322 (100.0) | | | p=0.934 |
| *Monthly family income* | | | | | $X^2$=5.38 |
| More than Rs. 50,000.00 | 204 (64.2) | 177 (55.1) | 1.46 | 1.06-2.00 | df=1 |
| Rs. 50,000.00 or less | 114 (35.8) | 144 (44.9) | 1.00 | | **p=0.020** |
| Total* | 318 (100.0) | 321 (100.0) | | | |
| *Marital status* | | | | | |
| Married | 323 (99.1) | 321 (99.7) | 2.981 | 0.30-28.81 | $X^2$=0.982 |
| Single | 03 (0.9) | 01 (0.3) | 1.00 | | df=1 |
| Total | 326 (100.0) | 322 (100.0) | | | p=0.624 |
| *Highest level of education* | | | | | |
| Postgraduate qualification [a] | 08 (02.5) | 04 (01.2) | | | |
| Degree [a] | 28 (08.8) | 12 (03.7) | 0.94 | | |
| Diploma/vocational education [a] | 48 (15.0) | 50 (15.5) | | | $X^2$=0.150 |
| Passed G.C.E. (A/L)[a] | 103 (32.2) | 127 (39.5) | | 0.686-1.287 | df=1 |
| Passed G.C.E. (O/L)[b] | 93 (29.1) | 89 (27.7) | | | p=0.699 |
| Secondary education (Grade 6-10)[b] | 35 (10.9) | 39 (12.1) | 1.00 | | |
| Primary education (Grade 1-5)[b] | 05 (01.6) | 01 (0.3) | | | |
| Total | 320 (100.0) | 322 (100.0) | | | |

*a, b rows were amalgamated to form one category for calculation of p value*
** Difference in total of 326 women who were 35 years or older and 322 women who were in 20-34 age group was owing to missing data.*

**Table 2:** ***Comparison of obstetric characteristics among women with advanced maternal age (35 years or more) vs 20-34 years age group***

| Characteristic | 35 years or more | 20-34 years | Statistics | | |
|---|---|---|---|---|---|
| | n (%) | n (%) | Odds ratio | 95% CI | Significance |
| *Previous Stillbirth* | | | | | |
| Yes | 09 (02.8) | 03 (0.9) | 0.32 | 0.088-1.22 | $X^2$=3.03 |
| No | 313 (97.2) | 318 (99.1) | 1.0 | | df=1 |
| Total* | 322 (100.0) | 321 (100.0) | | | p=0.142 |
| *Previous miscarriage* | | | | | |
| Yes | 88 (27.3) | 54 (16.8) | 0.54 | 0.367-0.788 | $X^2$=10.31 |
| No | 234 (72.7) | 267 (83.2) | 1.0 | | df=1 |
| Total* | 320 (100.0) | 321 (100.0) | | | **p=0.001** |
| *Postponing the current pregnancy* | | | | | |
| Yes | 39 (12.2) | 10 (03.1) | 4.33 | 2.1-8.8 | $X^2$=18.68 |
| No | 281 (87.8) | 311 (96.9) | 1.0 | | df=1 |
| Total* | 320 (100.0) | 321 (100.0) | | | **p=<0.001** |
| *Subfertility* | | | | | |
| Yes | 61 (19.2) | 16 (05.0) | 4.52 | 2.5-8.04 | $X^2$=30.38 |
| No | 257 (80.8) | 305 (95.0) | 1.0 | | df=1 |
| Total* | 318 (100.0) | 321 (100.0) | | | **p=<0.001** |
| *Multiple pregnancy* | | | | | |
| Singleton | 321 (98.5) | 317 (98.4) | 1.0 | 0.29-3.5 | $X^2$=0.000 |
| Multiple | 05 (01.5) | 05 (01.6) | 1.0 | | df=1 |
| Total* | 326 (100.0) | 322 (100.0) | | | p=0.984 |
| *Gestational diabetes mellitus* | | | | | |
| Present | 67 (20.6) | 38 (11.8) | 1.9 | 1.2-2.99 | $X^2$=9.24 |
| Absent | 258 (79.4) | 284 (88.2) | 1.0 | | df=1 |
| Total* | 325 (100.0) | 322 (100.0) | | | **p=0.002** |
| *Pregnancy induced hypertension* | | | | | |
| Present | 20 (06.2) | 06 (01.9) | 3.45 | 1.3-8.7 | $X^2$=7.72 |
| Absent | 305 (93.8) | 316 (98.1) | 1.0 | | df=1 |
| Total* | 325 (100.0) | 322 (100.0) | | | **p=0.005** |
| *Mode of delivery* | | | | | |
| Elective caesarean section [a] | 107 (33.6) | 52 (16.4) | 2.03 | | |
| Emergency caesarean section [a] | 40 (12.5) | 42 (13.2) | | 1.4-2.8 | $X^2$=18.48 |
| Spontaneous vaginal delivery [b] | 160 (50.2) | 206 (64.8) | | | df=1 |
| Forceps delivery [b] | 03 (0.9) | 04 (01.2) | 1.0 | | **p=<0.001** |
| Vacuum delivery [b] | 09 (02.8) | 14 (04.4) | | | |
| Total* | 319 (100.0) | 318 (100.0) | | | |

[a, b] *Rows were amalgamated to form one category for calculation of p value*
** Difference in total of 326 women who were 35 years or older and 322 women who were in 20-34 age group was owing to missing data.*

**Table 3:** ***Factors associated with advanced maternal age after adjusting for confounders***

| Independent variable | B | S.E. | Wald | df | p | Exp (B) | 95% CI for Exp (B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Subfertility | -1.3 | 0.3 | 18.9 | 1 | 0.000 | 0.25 | 0.14 | 0.47 |
| Postponing the current pregnancy | -1.7 | 0.4 | 19.6 | 1 | 0.000 | 0.176 | 0.082 | 0.38 |
| Pregnancy induced hypertension | -1.02 | 0.558 | 3.4 | 1 | 0.066 | 0.35 | 0.12 | 1.07 |
| Gestational diabetes mellitus | -0.382 | 0.25 | 2.3 | 1 | 0.127 | 0.68 | 0.42 | 1.11 |
| Caesarean delivery | 0.459 | 0.19 | 5.8 | 1 | 0.016 | 1.58 | 1.1 | 2.3 |
| Monthly income | -0.74 | 0.2 | 10.4 | 1 | 0.001 | 0.47 | 0.305 | 0.747 |
| Preterm delivery | 0.48 | 0.2 | 3.9 | 1 | 0.049 | 1.6 | 1.0 | 2.6 |
| Constant | -0.327 | 1.9 | 0.029 | 1 | 0.864 | 0.72 | | |

PIH and GDM during current pregnancy were not significant among the two age groups after adjusting for confounders (Table 3). Women with AMA were noted to have a significantly higher income, significantly higher rate of postponement of the current pregnancy, significantly higher risk of subfertility, significantly higher risk of undergoing a caesarean delivery, and significantly higher risk of pre-term delivery after adjusting for confounders (Table 3).

Comparison of perinatal outcomes between women with AMA and the 20-34-year age group is given in table 4.

There was a significantly higher rate on neonatal unit admissions in women with AMA compared to the women in 20–34-year age group (p=0.011). There were no significant differences between birth weight, 5-minute Apgar scores, still births, early neonatal deaths, congenital abnormalities, or re-admissions during early perinatal period between the two groups.

Reasons for neonatal unit admission and re-admission during the early perinatal period are given in the table 5.

**Table 4:** ***Comparison of perinatal outcomes among women with advanced maternal age (35 years or more) vs 20-34 years age group***

| Characteristic | 35 years or more | 20-34 years | Statistics | | |
|---|---|---|---|---|---|
| | n (%) | n (%) | Odds ratio | 95% CI | Significance |
| *Birth weight* | | | | | |
| Low | 65 (19.9) | 49 (15.2) | 1.388 | 0.923-2.086 | $X^2$=2.49 |
| Normal | 261 (80.1) | 273 (84.8) | 1.0 | | df=1 |
| Total* | 326 (100.0) | 322 (100.0) | | | p=0.115 |
| *Maturity* | | | | | |
| Preterm | 92 (28.2) | 58 (18.0) | 1.79 | 1.23-2.59 | $X^2$=9.49 |
| Term | 234 (71.8) | 264 (82.0) | 1.0 | | df=1 |
| Total* | 326 (100.0) | 322 (100.0) | | | **p=0.002** |
| *Presence of congenital abnormalities* | | | | | |
| No | 312 (96.0) | 302 (94.4) | 0.699 | | $X^2$=0.931 |
| Yes | 13 (04.0) | 18 (05.6) | 1.0 | 0.337-1.452 | df=1 |
| Total* | 325 (100.0) | 320 (100.0) | | | p=0.335 |
| *Delivery outcome* | | | | | |
| Still birth | 02 (0.6) | 01 (0.3) | 0.506 | 0.46-5.611 | $X^2$=0.320 |
| Live birth | 324 (99.4) | 320 (99.7) | 1.0 | | df=1 |
| Total* | 326 (100.0) | 321 (100.0) | | | p=1.000 |
| *Early new-born death* | | | | | |
| Yes | 02 (0.6) | 01 (0.3) | 1.9 | 0.17-22.02 | $X^2$=0.326 |
| No | 321 (99.4) | 319 (99.7) | 1.0 | | df=1 |
| Total* | 323 (100.0) | 320 (100.0) | | | p=1.000 |
| *5 Minute Apgar* | | | | | |
| Abnormal (<7) | 03 (0.9) | 01 (0.3) | 2.981 | 0.308-28.813 | $X^2$=0.982 |
| Normal (≥7) | 323 (99.1) | 321 (99.7) | 1.0 | | df=1 |
| Total* | 326 (100.0) | 322 (100.0) | | | p=0.624 |
| *Neonatal unit admission* | | | | | |
| Yes | 67 (20.6) | 42 (13.0) | 1.7 | 1.1-2.62 | $X^2$=6.52 |
| No | 259 (79.4) | 280 (87.0) | 1.0 | | df=1 |
| Total* | 326 (100.0) | 322 (100.0) | | | **p=0.011** |
| *Re-admission during early perinatal period* | | | | | |
| Yes | 19 (05.9) | 13 (04.0) | 1.48 | 0.7-3.06 | $X^2$=1.16 |
| No | 304 (94.1) | 309 (96.0) | 1.0 | | df=1 |
| Total* | 323 (100.0) | 322 (100.0) | | | p=0.281 |

** Difference in total of 326 women who were 35 years or older and 322 women who were in 20-34 age group was owing to missing data.*

**Table 5:** ***Reasons for neonatal unit admissions and re-admission during the early perinatal period in the study group***

| Characteristic | 35 years or more | 20-34 years | Statistics | | |
|---|---|---|---|---|---|
| | n (%) | n (%) | Odds ratio | 95% CI | Significance |
| **Reason for neonatal unit admissions** | | | | | |
| *Respiratory distress* | 13 (19.7) | 10 (23.3) | 1.235 | 0.486-3.137 | $X^2$=0.198 df=1 p=0.656 |
| *Hyperbilirubinaemia* | 13 (19.7) | 07 (16.3) | 0.793 | 0.288-2.180 | $X^2$=0.203 df=1 p=0.652 |
| *Prematurity* | 11 (16.7) | 03 (07.0) | 0.375 | 0.098-1.432 | $X^2$=2.184 df=1 p=0.240 |
| *Sepsis* | 08 (12.1) | 10 (23.3) | 2.197 | 0.790-6.112 | $X^2$=2.341 df=1 p=0.126 |
| *Feeding support* | 08 (12.1) | 03 (07.0) | 0.544 | 0.136-2.176 | $X^2$=0.759 df=1 p=0.522 |
| *Congenital abnormalities* | 02 (03.0) | 01 (02.3) | 0.762 | 0.067-8.670 | $X^2$=0.048 df=1 p=1.000 |
| *Intra uterine growth restriction (IUGR)* | 02 (03.0) | 0 (0.0) | 0.598 | 0.512-0.699 | $X^2$=1.327 df=1 p=0.518 |
| *Hypoglycaemia* | 01 (01.5) | 01 (02.3) | 1.548 | 0.094-25.420 | $X^2$=0.095 df=1 p=1.000 |
| *Cyanotic heart disease* | 01 (01.5) | 01 (02.3) | 1.548 | 0.094-25.420 | $X^2$=0.095 df=1 p=1.000 |
| *Other* | 07 (10.6) | 07 (16.3) | 1.639 | 0.531-5.057 | $X^2$=0.749 df=1 p=0.387 |
| **Reason for re-admission** | | | | | |
| *Feeding problems* | 09 (47.4) | 04 (30.8) | 0.494 | 0.112-2.175 | $X^2$=0.882 df=1 p=0.471 |
| *Hyperbilirubinaemia* | 05 (26.3) | 05 (38.5) | 1.750 | 0.385-7.951 | $X^2$=0.530 df=1 p=0.467 |
| *Maternal reasons* | 03 (15.8) | 01 (07.7) | 0.444 | 0.041-4.820 | $X^2$=0.463 df=1 p=0.629 |
| *Heart disease* | 01 (05.3) | 0 (0.0) | 0.581 | 0.431-0.783 | $X^2$=0.706 df=1 p=1.000 |
| *Excessive crying* | 0 (0.0) | 01 (07.7) | 0.387 | 0.249-0.603 | $X^2$=1.509 df=1 p=0.406 |
| *Other* | 01 (05.3) | 02 (15.4) | 3.273 | 0.265-40.469 | $X^2$=0.931 df=1 p=0.552 |

Respiratory distress was the commonest indication for admission to a neonatal unit, while feeding problems were the commonest indications for re-admission. There was no significant difference between the reasons for admission or re-admission among the AMA and the 20–34-year age group.

## Discussion

Our study showed that pregnant women with AMA were more likely to undergo a caesarean delivery (AOR=1.58, 95% CI 1.1–2.3), than women 20-34 years of age. This is supported by studies in Northern Ethiopia (OR 2.7), Malaysia (OR 2.21), India (OR 2.4) and UK (OR 1.95)[15-18]. This may be due to higher prevalence of PIH, GDM or bad obstetric history, like previous miscarriages or subfertility[19].

PIH was not significantly different between the 2 groups in the current study similar to a study in India[16]. Studies in Northern Ethiopia, Malaysia and UK[15,17,18] demonstrated significantly higher PIH in AMA group. A study in 2003 in Sri Lanka reported greater incidence of PIH (27.3% vs. 12%) in pregnancies at 40 years and over[7]. Risk for GDM was 1.71 times higher among pregnant women above 40 years in a multivariate analysis in a study conducted in the Obstetrics and Gynaecology Clinic in Santa Maria in California[20]. However, our study did not show a significant difference between the two groups.

Current study reported a significantly higher risk of preterm delivery in women with AMA. Similar findings were seen in Brazil, South Africa, South Korea and a multi-country survey by the World Health Organization[1,21-23]. However, studies in Malaysia and UK revealed no significant association between maternal age and preterm delivery[17,18]. Our study showed that AMA was not a significant risk factor for LBW. This is in line with studies in Jordan and Malaysia which revealed no significant association between maternal age and LBW[17,23]. However, studies in Brazil and South Africa reported that maternal age was a significant risk factor for LBW[18,21,22]. There was no significant difference in the 5-minute Apgar score between the AMA group and the 20-34-year age group in our study population similar to studies in Jordan, Malaysia and the multi-country survey held in twenty-nine countries[1,17,24]. However, studies in Turkey, India, and Brazil reported significantly lower 5-minute Apgar scores with AMA[6 22,25].

With expanding opportunities for higher education, careers and economic independence, more young women tend to delay childbearing age above 35 years[1,5]. Our study showed that 12.2% women in AMA delayed their current pregnancy compared to 3.1% in the 20-34 group (p= 0.000); however, the commonest reason for postponement was the partner being away for work.

A retrospective study by Kahveci B, *et al*[28] demonstrated that babies who needed Neonatal Intensive Care Unit (NICU) admission were more likely to be born to mothers with AMA. Another study in the United States revealed that neonates needing NICU admission were greater in 45 years or older mothers compared with the 35-44 years age group, although the readmission rate within 28 days was not significantly different[29]. In our study, a significantly greater rate of neonatal unit admissions was noted in the AMA group compared to the 20–34-year age group with no significant difference in readmission. This is the first Sri Lankan study to describe neonatal morbidity in mothers with AMA.

Awareness must be raised about complications associated with AMA to ensure that women make an informed choice about timing of their pregnancy. Importance of contraception must be emphasised in women with AMA to prevent unwanted pregnancies. Pregnant women with AMA should be educated about the higher risk of complications, how to identify them, when to seek help and the importance of meticulous antenatal care to improve the maternal and perinatal outcome.

**Conclusions**

AMA was associated with adverse obstetric and perinatal outcomes compared to women in the 20-34-year age group.

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