

Early Teenage Pregnancy: Is it Safe?

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About the Author



Adel Abu-Heija was born in Jordan on November 10, 1955. In 1974, he was admitted to Benghazi Medical School. He obtained his MBBS degree in 1980. In 1983, he went to the United Kingdom where he was trained in Obstetrics and Gynecology and obtained MRCOG diploma in 1987. He worked in the United Kingdom for 3 years post MRCOG qualification. He returned to Jordan and worked as an assistant professor at Jordan University of Science and technology. He was promoted to associate and full professor and was appointed as the Dean of Mutah University Medical College in Jordan. He has been working in Oman as a professor and head of the department of Obstetrics and Gynecology since September 2013.

Abstract

Aim To compare obstetric and perinatal outcomes of early and late teenage pregnancies of Omani nulliparous women with singleton pregnancies cared for and delivered at a tertiary teaching hospital.

Method In this retrospective study, we reviewed obstetric and perinatal outcomes of early teenage pregnancies (14–16 years), ($n = 20$) delivered at Sultan Qaboos University Hospital, Muscat, Oman, between 1 July 2006 and 30 June 2013 and compared their outcomes with outcomes

of late teenage pregnancies (17–19 years), ($n = 287$) delivered at the same hospital during same period.

Results When compared with late teenage pregnant women, early teenagers were found to have no significant differences in prevalence of very preterm delivery <32 weeks ($P = 0.62$), preterm rupture of membranes ($P = > 0.99$), and anemia ($P = 0.34$). When compared to late teenagers, early teenagers had similar cesarean sections rates ($P = > 0.99$), instrumental delivery rates ($P = 0.56$) and spontaneous vaginal delivery rates ($P > 0.99$). Both groups had similar birth weights ($P = 0.87$), low birth weights, ($P = 0.55$), and very low birth weights babies ($P = 0.56\%$). Perinatal mortality rate was similar in both groups.

Conclusion We may conclude that early teenage pregnant Omani women are not at increased risk of obstetric and perinatal complication compared to older teenagers.

Keywords Adolescence · Teenagers · Pregnancy · Complications · Pre-term delivery

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Introduction

It had been estimated that about 16 million women aged 14–19 years give birth yearly worldwide, this is about 11 % of total births. Majority (95 %) of those births occurred in developing countries and 5 % only occurred in developed countries. Teenage pregnancy ranged from 2 % in China to about 18 % in Latin America and the Caribbean [1]. Birth rates of teenage women in developing countries can be up to 20 times higher than that in developed countries and these birth rates ranged from 1 % in Japan to over 20 % per annum in Congo [2]. One in 7 girls in Arab region married before their 18th birthday. Teenage mothers and their babies are at high risk of developing health problems such as obesity, eclampsia, anemia, and very preterm delivery [3]. Prevalence of low birth weight (LBW) or very low birth weight (VLBW) is high in teenage mothers; this low birth weight may have adverse long-term effect on babies health and development [4]. Maternal mortality rate is nearly 5 times higher for teenager compared to older women [5].

Majority of previous studies addressed teenage pregnancy, compared their obstetric and perinatal outcomes with that of older women >20 years.

The aim of this study is to compare obstetric and perinatal outcomes of Omani very young nulliparous mothers aged 14–16 years, with outcomes of relatively older Omani nulliparous pregnant women aged 17–19 years cared for and delivered at Sultan Qaboos University Hospital.

Materials and Methods

This is a retrospective study, during the study period there were 21,424 deliveries and 391 were by teenage pregnant Omani women aged between 14 and 19 years (1.83 %), 84 teenage women were excluded from the study. Main reasons for exclusion were multiparity ($n = 67$), women with multiple pregnancies ($n = 5$), thalassemia ($n = 1$), sickle cell anemia ($n = 6$), heart diseases ($n = 2$), diabetes mellitus, and renal disorders (3), which may adversely affect the perinatal outcome. The remaining 307 nulliparous teenage pregnant Omani women with singleton pregnancies aged 14–19 years were studied and are the subject of this study. Early teenage women aged 14–16 years comprised the study group ($n = 20$), and late teenage women aged 17–19 comprised the control group ($n = 287$). All women delivered at Sultan Qaboos University hospital, Muscat, Oman, between 1 July 2006 and 30 June 2013. Data were collected from maternity register and hospital database.

Maternal parameters reviewed were, maternal ages at delivery, mode of delivery, and antenatal complications. Antenatal complications studied were, PROM, post-partum hemorrhage (PPH) (blood loss >500 ml following vaginal delivery, >1,000 ml following cesarean delivery), polyhydramnios, when amniotic fluid index (AFI) >250 mm), oligohydramnios, when AFI <50 mm), pregnancy induced hypertension (PIH) (blood pressure $\geq 140/90$ mmHg in women who were normotensive at booking), preeclampsia (PET) (blood pressure $\geq 140/90$ mmHg and proteinuria >0.30 g/24 h urine collection in women who were normotensive at booking), and anemia (hemoglobin concentration <11 g/dl). Perinatal outcome studied were, birth weights and gestational ages. Pregnancies ended with LBW (1,500–2,500 g), VLBW babies (<1,500 g) were identified. Preterm delivery (delivery before 37 completed weeks of gestation and ≥ 24 weeks gestation) and very preterm delivery (delivery before completed 32 weeks of gestation and ≥ 24 weeks gestation) were reviewed. Other variables reviewed were, 5 min Apgar scores, admission to neonatal intensive care unit (NICU), stillbirths, early neonatal deaths and congenital malformations.

Statistical Analysis

Statistical analysis was performed using Chi-square test, Mann–Whitney test, and Fisher's exact test as appropriate, the difference between values was considered significant when $P \leq 0.05$.

Results

During the study period, there were 307 teenage pregnant Omani nulliparous women aged between 14 and 19 years with singleton pregnancies. Women aged 14–16 years ($n = 20$) represented 6.5 % while women were aged 17–19 years represented 93.5 %.

Table 1 shows that there were no significant differences in prevalence of preterm delivery (32–36 weeks) (20.0 vs. 14.9 %, $P = 0.52$), very preterm deliveries (<32 weeks) (10.0 vs. 6.9 %, $P = 0.62$), polyhydramnios (5.0 vs. 3.1 %, $P = 0.49$), oligohydramnios (5.0 vs. 5.9 %, $P \geq 0.99$), PIH (25 vs. 11.8 %, $P = 0.15$) PET (15.0 vs. 7.7 %, $P = 0.21$), and PPH (5.0 vs. 3.5 %, $P = 0.52$) between the two groups. When compared with late teenage women, the prevalence of PROM was (5.0 vs. 5.9 %, $P \geq 0.99$), and anemia was (70.0 vs. 56.8 %, $P = 0.34$). The rates of cesarean, instrumental, and spontaneous vaginal deliveries

Table 1 Comparison of obstetrical outcomes between the two groups

Outcome	Teenage women (14–16 years) <i>n</i> = 20	Teenage women (17–19 years) <i>n</i> = 287	<i>P</i> value
Preterm delivery <i>n</i> (%)			
32–36 weeks	4 (20.0)	43 (14.9)	0.52
<32 weeks	2 (10.0)	20 (6.9)	0.62
Preterm prelabor rupture of membrane <i>n</i> (%)	1 (5.0)	17 (5.9)	>0.99
Post-partum hemorrhage <i>n</i> (%)	1 (5.0)	10 (3.5)	0.52
Polyhydramnios <i>n</i> (%)	1 (5.0)	9 (3.1)	0.49
Oligohydramnios (without PROM) <i>n</i> (%)	1 (5.0)	17 (5.9)	>0.99
Pregnancy induced hypertension <i>n</i> (%)	5 (25.0)	34 (11.8)	0.15
Preeclampsia <i>n</i> (%)	3 (15.0)	22 (7.7)	0.21
Anemia (hemoglobin <11 g/dl) <i>n</i> (%)	14 (70.0)	163 (56.8)	0.34
Mode of delivery			
Spontaneous vaginal delivery <i>n</i> (%)	17 (85.0)	238 (82.9)	>0.99
Instrumental delivery <i>n</i> (%)	1 (5.0)	11 (3.8)	0.56
Cesarean section <i>n</i> (%)	2 (10.0)	38 (13.3)	>0.99

Table 2 Comparison of perinatal outcomes between the two groups

Outcome	Teenage women (14–19 years) <i>n</i> = 20	Women aged 20–25 years <i>n</i> = 287	<i>P</i> value
Birth weight (g)	2,742 ± 691 ^a	2,764 ± 583	0.87
Low birth weight (g) (1,500–2,500) <i>n</i> (%)	5 (25.0)	54 (19.4)	0.55
Very low birth weight (g) (<1,500)	1 (5.0)	11 (3.9)	0.56
5 min Apgar score < 7	1 (5.0)	4 (1.4)	0.28
Congenital malformation <i>n</i> (%)	1 (5.0)	10 (3.5)	0.52
Admission to NICU <i>n</i> (%)	2 (10.0)	22 (7.7)	0.66
Stillbirths <i>n</i> (%)	1 (5.0)	3 (1.04)	0.23
Early neonatal deaths <i>n</i> (%)	0 (0.0)	1 (0.33)	>0.99
Uncorrected perinatal mortality rate per 1,000 live births	100	13.9	0.28
Corrected perinatal mortality rate per 1,000 live births	0	3.5	>0.99

^a Values are mean ± SD

did not differ significantly between the two groups, (10.0 vs. 13.3 %, *P* > 0.99, 5.0 vs. 3.8 %, *P* = 0.56, 85.0 vs. 82.9 %, *P* ≥ 0.99, respectively).

Table 2 compared perinatal outcomes between the two groups. When compared with late teenagers, younger women did not have significant differences in the prevalence of birth weights (*P* = 0.87), LBW, (25.0 vs. 19.4 %, *P* = 0.55), VLBW, (5.0 vs. 3.9 %, *P* = 0.56 %), 5 min Apgar score <7 (5.0 vs. 1.4 %, *P* = 0.28), fetal malformation (5.0 vs. 3.5 %, *P* = 0.52), admission to NICU (10.0 vs. 7.7 %, *P* = 0.66).

Stillbirths, early neonatal deaths and prenatal mortality rates did not differ significantly between the two groups (*P* = 0.23, *P* > 0.99, *P* > 0.99, respectively).

Discussion

Early marriage is still common in Oman because it is acceptable socially; in this study, 2 women had their first child before their 15th birthday. Young age at marriage is associated with early onset of sexual activity and fertility [6]. In Oman; pregnancies outside marriage have the risk of termination unsafely and often do not reach hospitals. All teenage women in this study were married. Although this study showed a high prevalence of anemia among early teenagers when compared with late teenagers (70.0 vs. 56.8 %), this difference was not statistically significant (*P* = 0.34). Other researchers reported that anemia was noted in 68.7 % in teenagers [7]. Low iron stores common

in these young women before pregnancy increase the risk of developing iron deficiency anemia during pregnancy which is influenced by their insufficient dietary intakes [8]. Teenage women were at increased risk of complications such as PROM but this complication did not differ significantly between the groups, similar findings reported by other investigators [4]. Premature rupture of membranes has been attributed to biological immaturity of the uterus as well as the shortness of the cervix, which leads to increase the risk of ascending infections and PROM, which may be due to poor hygiene in this group of women [9]. The prevalence of PIH and PET in early teenagers was nearly double that observed in late teenagers (25.0 vs. 11.8 %, and 15.0 vs. 7.7 %, respectively), although this difference did not reach statistical significance, those obstetric complications should be diagnosed and managed early during pregnancy in those very young mothers who may not realize the seriousness of this problem, others reported similar findings [10]. Obstetric complications such as PPH, oligohydramnios, and polyhydramnios were similar in the two groups, so maternal ages did not show any influence on the prevalence of such complications [11]. In this study, delivery before 32 weeks was higher in early teenage women (10.0 vs. 6.9 %), but this difference did not reach a significant level ($P = 0.62$). The risk of preterm delivery is 1.9 times more among teenagers [12, 13]. There are no significant differences in birth weights between the two groups; this is due to similar prevalence of preterm delivery 32–36 weeks and very preterm delivery <32 weeks, PROM, PIH and PET which adversely affect birth weights. The collective prevalence of preterm and very preterm deliveries was high in both groups (30.0 vs. 21.8 %) which could be attributed to high rate of PROM among teenagers, or immaturity of the uterine or cervical blood supply which may predispose teenage mothers to subclinical infection, and preterm delivery, or psychological instability of young mothers [12, 14]. Since there were no significant differences in the prevalence of obstetric complications between the two groups of teenage women, the rates of CS, was similar. Majority of early and late teenage women in this study delivered vaginally (85.0 vs. 82.9 %). These findings are supported by others, this may be due to the presence of more functional myometrium, greater connective tissue elasticity, and lower cervical compliance that allowed for more spontaneous vaginal deliveries in young age group [4, 7]. Five minutes Apgar score, which is more relevant in assessing newborn health was similar in the two groups, 5 min Apgar score considered as a predictor for post-neonatal hospitalization, a Canadian study showed that with decreasing of 5 min Apgar score, the risk of hospitalization in the first 10 years of life is increased [10]. During pregnancy, early and late teenage women attended antenatal clinics at a tertiary teaching hospital and any

obstetric complication which may affect prenatal outcomes was diagnosed and managed immediately, this resulted in very low prenatal mortality rates in both groups. The limitation of this study is the small sample size of early teenagers, it is extremely difficult to get a reasonable sample size in this group of pregnant women.

Conclusion

Early teenagers who had their care during pregnancy and delivery at a tertiary teaching hospital are not at increased risk of obstetric and prenatal complications.

Compliance with ethical requirements and conflict of interest We confirm that this paper has been neither published or under consideration for publication elsewhere. There is no conflict of interest to declare.

References

- Keller T, Morgan A, Guerreiro A, et al. International HBSC study group. Addressing the socioeconomic determinants of adolescent health: experiences from the WHO/HBSC Forum 2007. *Int J Public Health*. 2009;54:278–84.
- Alouini S, Randriambololona D, Randriamboavonjy R. Risk factors of teenage pregnancies, deliveries and post-partum in the department of Loiret. *J Gynecol Obstet Biol Reprod (Paris)*. 2014;4:168–9.
- Huang CC, Lin YC, Huang YT, et al. Comparison of medical issues in antenatal and perinatal periods in early youth, adolescent, and young adult mothers in Taiwan: a 10-year nationwide study. *BMC Pregnancy Childbirth*. 2014;14:260–3.
- Paranjothy S, Broughton H, Adappa R, et al. Teenage pregnancy: who suffers? *Arch Dis Child*. 2009;94:239–45.
- Craine N, Midgley C, Zou L, et al. Elevated teenage conception risk amongst looked after children; a national audit. *Public Health*. 2014;128:668–70.
- Debras E, Revaux A, Bricou A, et al. Obstetric and neonatal outcomes of adolescent pregnancies: a cohort study in a hospital in Seine-Saint-Denis France. *Gynecol Obstet Fertil*. 2014;42:579–84.
- Malabarey OT, Balayla J, Klam SL, et al. Pregnancies in young adolescent mothers: a population-based study on 37 million births. *J Pediatr Adolesc Gynecol*. 2012;25:98–102.
- Dutta I, Joshi P. Maternal and perinatal outcome in teenage versus vicenarian primigravidae—a clinical study. *J Clin Diagn Res*. 2013;7:2881–4.
- Penfield C, Cheng Y, Caughey A. Obstetric outcomes in adolescent pregnancies: a racial/ethnic comparison. *J Matern Fetal Neonatal Med*. 2013;26:1430–4.
- Ganchimeg T, Ota E, Morisaki N, et al. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. WHO Multicountry Survey on Maternal Newborn Health Research Network. *BJOG*. 2014;121:40–8.
- Shrim A, Ates S, Mallozzi A. Is young maternal age really a risk factor for adverse pregnancy outcome in a Canadian tertiary referral hospital? *J Pediatr Adolesc Gynecol*. 2011;24:218–22.
- Shuaib A, Frass K, Al-Harazi A, et al. Pregnancy outcomes of mothers aged 17 years or less. *Saudi Med J*. 2011;32:166–70.

13. Kurth F, Bélard S, Mombo-Ngoma G. Adolescence as risk factor for adverse pregnancy outcome in Central Africa—a cross-sectional study. *PLoS One*. 2010;5:1436–9.
14. Haldre K, Rahu K, Rahu M, et al. Individual and familial factors associated with teenage pregnancy: an interview study. *Eur J Public Health*. 2009;19:266–70.