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Obstetric outcomes for teenage and adult pregnancy: a comparative study

Abstract

Background: Teenage pregnancy represents an important social and public health problem in many countries. From a medical point of view, several morbid situations have been associated with pregnancy in adolescents.

Aim: compare pregnancy outcomes among teenage and adult women.

Subject & methods: design: A descriptive design is used.

Sample: A purposive sample of 200 recently parturient women was selected; they were divided into 2 groups, the first (100) their ages more than 20 years, while the second (100) their age not recessed 20 years.

Setting: labor unit affiliated to the department of obstetrics and gynecology, Beni-Suef General Hospital.

Tools: A structured interview questionnaire, Summary of labor sheet, and Neonatal assessment sheet.

Results: The results showed that teenage women were more likely to have a consanguineous relation with their husbands and living in rural areas. As well as they were less likely to be working women and to have high education. Teenage women were more likely to be primipara and had a history of abortion compared to adult women. Concerning maternal and fetal complication encountered, women in the teenage group had a statistically higher percentage of preeclampsia and anemia and others such as preterm labor and deliver low birth weight babies. Teenage women were more likely to have perineal tears and postpartum hemorrhage, birth injuries, and perinatal death.

Conclusion: High incidence of maternal and fetal complications was associated with adolescent pregnancies.

Recommendations: Outreach programs to rural areas in Upper Egypt to enhance population awareness regarding proper age of marriage and distribute booklets, pamphlets which illustrate the maternal and fetal complications of teenagers' marriage.

Keywords: obstetric, fetal, outcomes, teenage, adults, pregnancy

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Abbreactions: PIH, pregnancy-induced-hypertension; EDHS, Egypt demographic and health survey; PT, perineal trauma; PPH postpartum hemorrhage

Introduction

Teenage pregnancy, also known as adolescent pregnancy, is one of the real problems and a disadvantage of early marriage is that it is often associated with early pregnancy. It has become an important health issue in a great number of countries.[1] It emerged as a national social problem in the developed countries, for its social and medical implications, this did not appear to be a problem in conservative Islamic countries where teenage woman's are married and receiving full financial social, and emotional support. However, this support didn't protect them from the adverse outcome of young age and the obstetric complications.[2]

Teenage pregnancy is defined as the state of fertility in a young age from 15-19 years; the term is restricted to those under the age threshold of legal adulthood, which is 18 in most of the United States, and 16 in much of the rest of the world.[3] The view of the risks associated with early childbearing adolescent involved maternal and fetal health problems. These include; anemia, pregnancy-induced-hypertension (PIH), obstructed labor, and other sexually transmitted infections, obstetric fistula, postpartum hemorrhage and mental disorders, such as depression.[4] It is also associated with social outcome as failure to fulfill the functions of adolescence (failure to remain in school, failure to limit family size, failure to establish stable family, and failure to be self-supporting.[5]

Obstetric complications of teenage pregnancy are associated with a psychological outcome such as dependency and loss of self-direction, interruption of the normal maturational process of adolescence and depression, worry and confusion. As well as, it is associated with sexual outcome involved such as loss of libido associated with tiredness and negative body image, vaginismus, and dyspareunia associated with pressure on the abdomen or penile thrusting against the cervix and anorgasmia associated with lack of arousal or pain.[6]

Early motherhood can affect the psychosocial development of the infant. It is also associated with the adverse outcome as low birth weight, preterm delivery, and small for gestational age, malformations and infant deaths. Moreover, babies born to adolescent women have a substantial risk of dying within the first month after delivery.[7]

According to Egypt Demographic and Health Survey (EDHS) in 2000, the current adolescent fertility rate for the three years preceding the survey is 51 per thousand.[8] This means that fertility in the age group 15-19 compromises 7.2 percent of the cumulative total fertility rate. In 2015 about 47 females per 1,000 had children well under the age of 20. Rates are higher in Africa and lower in Asia. In the

developing world, about 2.5 million females under the age of 16 and 16 million females 15 to 19-year-old have children each year. Another 3.9 million have abortions. It is more common in rural than in urban areas. Worldwide, complications related to pregnancy are the most common cause of death among females 15 to 19-year-old.[9]

Health risks associated with pregnancy and childbearing are more pronounced among adolescents than among older women, due to the adolescents' physiological/psychological immaturity, lack of adequate antenatal care and safe delivery. Health problems experienced by adolescent mothers are confounded by parity because prime parity and low age often occurs simultaneously.[10]

Additionally, the infant mortality and morbidity rates are higher for infants delivered by teenage mothers than infants delivered by older ones. Also, as studies have been shown early motherhood is associated with low educational achievement, long term benefit receipt, low or no income, low occupational status, or unemployment and, therefore, it can affect teenage girls' well-being.[11,12]

Maternity nurse's role in early marriage and teenage pregnancy is very important. The nurse as a health care provider is in an excellent position to identify physical, psychosocial as well as sexual problems early before individual and family functioning begins to deteriorate.[13–20] Maternity nurse can assess, plan and implement the necessary nursing care according to teens' needs and problems through the primary, secondary and tertiary levels of prevention. She is not only concerned with the prevention of pregnancy in adolescence but also care of pregnant adolescents during their pregnancy and labor.

The aim of this study

The present study was conducted to compare obstetric outcomes (fetal, maternal, and neonatal) for teenage and adult pregnancy.

Research questions

a. Regarding maternal outcome; is there are differences between teenagers and adult women?

b. Regarding fetal and neonatal outcome; is there are differences between teenagers and adult women?

Subjects and methods

Research design

The descriptive study design was utilized in this study.

Research Setting

Labor unit affiliated to the department of obstetrics and gynecology, Beni-Suef General Hospital.

Subjects

A sample of 200 women whether primipara or multipara in their second to fourth stage of labor; 100 women whose age ranged between 16 and less than 20 years (namely teenage group) compared with 100 women whose age ranged from 20 to 35 years (namely adult group) during the period between the 15th April 2019 till the 15th July, 2019.

Tool of data collection

Data collection passed to 3 tools

Tool (I): Structured interview questionnaire to compare obstetric outcomes for teenage and adult pregnancy. A structured-knowledge-questionnaire was designed and used; it includes the data regarding women's general characteristics, and obstetrical history (age, occupation, parity, mode of last delivery and utilization of antenatal care).

Tool (II): Summary of labor sheet which includes data about the duration of labor, the mode of delivery, the condition of the woman during the fourth stage of labor as well as the condition of the uterus and perineum.

Tool (III): Neonatal assessment sheet which includes data about APGAR score at the 1st minute and 5th minutes, birth weight, the need for resuscitation, presence of birth injuries, admission to intensive care unit and neonatal death.

Validity/reliability of the tool

A panel of 3 experts in the field of maternity, obstetrics and gynecologic nursing reviewed the tool to test its content validity. Modifications were done accordingly based on their judgment. The reliabilities of the tool were based on Cronbach Alpha (0.88).

Administrative/ethical considerations

Official permission was obtained by submission of an official letter from the Faculty of Nursing, Beni-Suef University to the responsible authorities of the study setting (Beni-Suef General Hospital) to obtain their permission for data collection for the study. All ethical issues were taken into consideration during all the phases of the study; the researcher maintained the anonymity/confidentiality of the women. The researcher introduced herself to every woman and briefly explained nature, and the objectives of the study before participation. Participant women were enrolled voluntarily after the oral informed consent.

Pilot study

The pilot study was carried out on 10% of the studied women in the study setting (that were excluded from the main study sample).

Statistical analysis

All data were collected, tabulated and statistically analyzed using SPSS 20.0 for windows (SPSS Inc., Chicago, IL, USA). Chi-square test was used for comparing the frequency and percentage of the qualitative variable. Column and 3-D Pie charts were used for graphic presentation. For all statistical tests done the threshold of significance was fixed at the 5 % level; P-value >0.05 indicates significance results and the P-value is the degree of significance. The smaller the P-value obtained, the more significant is the results, the P-value being the probability of error of the conclusion.

Results

Table 1 presents the general characteristics of parturient women in the two study groups. The table demonstrates statistically significant differences between the two groups as regards education, job status, income, consanguinity, and residence. It is evident that nearly half of the teenage women were illiterate or could read and write (50.0%), compared to 43.0% of the adult women. They also had a higher percentage of housewives (83.0%) and rural residence (69.0%). Consanguinity was present in around two-thirds (62.0%) of the adolescent group compared to only 23.0% in adult ones.

Table 2 points a statistically significant difference between the two studied groups as regards parity and a history of abortion. Adolescent women were more likely to be primipara and have history of abortion (72.0% & 31.0%, respectively) than adult ones.

Citation: Farg DSS, Hassan HE. Obstetric outcomes for teenage and adult pregnancy: a comparative study. *Nurse Care Open Acces J.* 2020;7(1):1–10. DOI: 10.15406/ncoaj.2020.07.00208

Table 3 shows the distribution of parturient women according to the occurrence of minor discomforts and the problems encountered during the last pregnancy. Teenage women were more likely to suffer from nausea vomiting, and ptyalism (91.0%), Fatigue, backache & cramp (89.0%), flatulence (18.0%), varicose veins (76.0%), compared to the adult group. Moreover, women in the teenage group had significantly ($P < 0.05$) higher percentages of preeclampsia and anemia (12.0% and 11.0%) compared to the adult group (9.0% and 3.0%), respectively.

Table 4 illustrates a statistically significant difference between the two study groups as regards the pattern of the antenatal care that was received and the onset of ANC. It is obvious that, more than one fourth (29.0%) in the adolescent group had no antenatal care during their last pregnancy compared to 16.0% in the adult group. Moreover, 35.2 % of them who received antenatal care and begin their initial visit in the first trimester and more than two fifth (42.3%) started their antenatal care after the appearance of the danger signs of pregnancy. Meanwhile, the numbers of antenatal visits were unideal in 39.5% of the adolescent group compared to 85.7% in the adult group.

Table 5 shows that the difference observed was statistically significant between the two study groups concerning the details of the intrapartum data; it is obvious that more women in the teenage group had their gestational weeks from 37 to 40 weeks. On the other hand, mal-presentation was encountered by 12.0% and 9.0%, respectively, in both teenagers and adult group.

Table 1 Distribution of parturient women according to their general characteristics in the two studied groups

General characteristics	Group				X^2 Test	p-value
	Teenage (n=100)		**Adults (n=100)**			
	No.	%	No.	%		
Education:						
Illiterate	29	29.0	19	19.0		
Read/write	21	21.0	24	24.0		
Primary/Preparatory	33	33.0	12	12.0	43.13	0.000 (*)
Secondary	16	16.0	10	10.0		
University	1	1.0	35	35.0		
Job status:						
Housewife	83	83.0	69	69.0		
Working	6	6.0	27	27.0	5.67	0.015 (*)
Student	11	11.0	4	4.0		
Family income:						
In debt	33	33.0	7	7.0		
Just sufficient	54	54.0	65	65.5	10.6	0.002 (*)
Saving	13	13.0	28	28.0		
Consanguinity:						
Yes	62	62.0	23	23.0	43.7	0.000 (*)
No	38	38.0	77	77.0		
Residence:						
Urban	31	31.0	44	44.0	10.7	0.001 (*)
Rural	69	69.0	56	56.0		

(*) Statistically significant at P<0.05

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Table 2 Distribution of the parturient women according to their obstetric history

Obstetric history	Group				X^2 Test	p-value
	Teenage (n=100)		Adults (n=100)			
	No.	%	No.	%		
Parity:						
Primiparous	72	72.0	28	28.0		
2-3	27	27.0	33	33.0	84.6	0.000 (*)
3+	1	1.00	39	39.0		
History of abortion:						
No	70	70.0	86	86.0	6.1	0.0243 (*)
Yes	31	31.0	14	14.0		

(*) Statistically significant at P<0.05

Table 3 Distribution of the parturient women according to minor discomforts and complications encountered during the last pregnancy

Item	Group				X^2 Test	p-value
	Teenage (n=100)		Adult (n=100)			
	No.	%	No.	%		
Presence Minor discomforts						
Yes	100	100.0	94	94.0	4.41	0.0188
No	0	0.0	6	6.0		
Types of minor discomforts						
Nausea, vomiting and Ptyalism	91	91.0	80	85.1		
Fatigue, Backache & Cramp	89	89.0	81	86.2		
Heart burn	76	76.0	90	95.7		
Flatulence	1 8	18.0	12	12.8		
Constipation	44	44.0	47	50.0		
Varicose veins	76	76.0	70	74.5		
Action taken :						
Take medication	46	46.0	39	39.0	0.20	0.631
No action	54	54.0	61	61.0		
Complications during pregnancy						
Gestational diabetes	6	6.0	4	4.0		
Preeclampsia	12	12.0	9	9.0		
Cardiac diseases	4	4. 0	1	1.0	22.230	0.000 (*)
Anemia	11	11.0	3	3.0		
Others	20	20.0	5	5.0		

(*) Statistically significant at P<0.05

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Table 4 Distribution of the parturient women according to pattern of received antenatal care during the present pregnancy

Items	Group				X^2 Test	p-value
	Teenage (n=100)		Adult (n=100)			
	No.	%	No.	%		
Antenatal care:						
Done	71	71.0	84	84.0	3.477	0.0322 (*)
Not done	29	29.0	16	16.0		
Time of onset of ANC:-						
During 1st trimester	25	35.2	37	44.1		
During 2nd trimester	37	52.2	40	47.6	2.18	0.323
During 3rd trimester	9	12.6	7	8.3		
Onset of ANC:-						
Before appearance of danger signs	41	57.7	61	72.6	13.96	0.001 (*)
After appearance of danger signs	30	42.3	23	27.4		
Number of ANC visits:-						
Less than 4 times	43	60.5	12	14.3	15.5	0.000 (*)
More than 4 times	28	39.5	72	85.7		

(*) Statistically significant at P<0.05

Table 5 Distribution of the parturient women according to their gestational age, fetal presentation

Item	Group				X^2 Test	p-value
	Teenage (n=100)		Adult (n=100)			
	No.	%	No.	%		
Gestational age on admission/weeks:						
< 36	7	7.0	3	3.0		
37-40 weeks	59	59.0	67	67.0	7.05	0.017
> 40 weeks	34	34.0	30	30.0		
Presentation :						
Cephalic (normal presentation)	88	88.0	91	91.0	6.55	0.005
Others (mal presentation)	12	12.0	9	9.0		

Figure 1 describes the mode of delivery among parturient women in the two study groups. It shows that 30.0% in the teenage group had a cesarean section, compared to 23.0% in the adult group. Moreover, total normal vaginal delivery (NVD) in adolescent was 70.0% and in adults was 77.0%. The difference observed was statistically insignificance.

Figure 2 describes perineal trauma among parturient women in the two study groups. It shows that 80.0% in teenage group had a perineal trauma, compared to 20.0% in the adult group.

Figure 3 describes postpartum hemorrhage among parturient women in the two study groups. It shows that 81.0% in the teenage group had a perineal trauma, compared to 19.0% in the adult group.

Table 6 points to that the Apgar scores at the first and fifth minutes after labor were statistically significantly lower among the newborns of the adolescent women (P<0.05). The relation between newborn weight for single gestation was statistically significant concerning women's age since 27.0% of the newborn of the teenage women weighted < 2500gm and 3.0% weighted > 4000gm in contrast to 6.0% of the newborn of the adult group weighted < 2500gm and 12.0% weighted >4000gm.

Table 7 shows that women in the teenage group had statistically significantly higher percentage of birth injuries, newborn admission to NICU, need for resuscitation and perinatal death, compared to the adult group, P<0.05.

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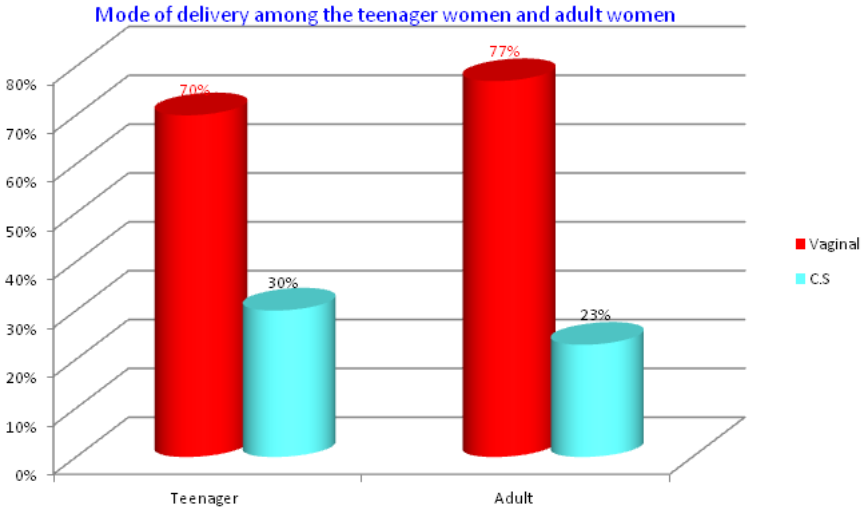

Figure 1 Mode of delivery among the teenager women and adult women.

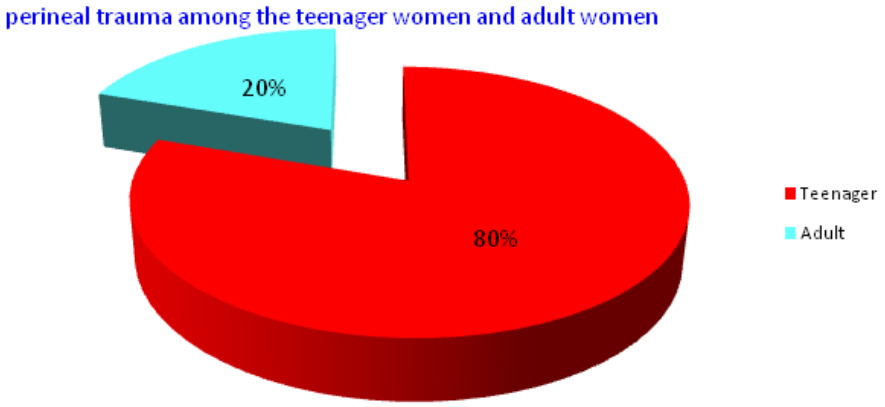

Figure 2 perineal trauma among the teenager women and adult women.

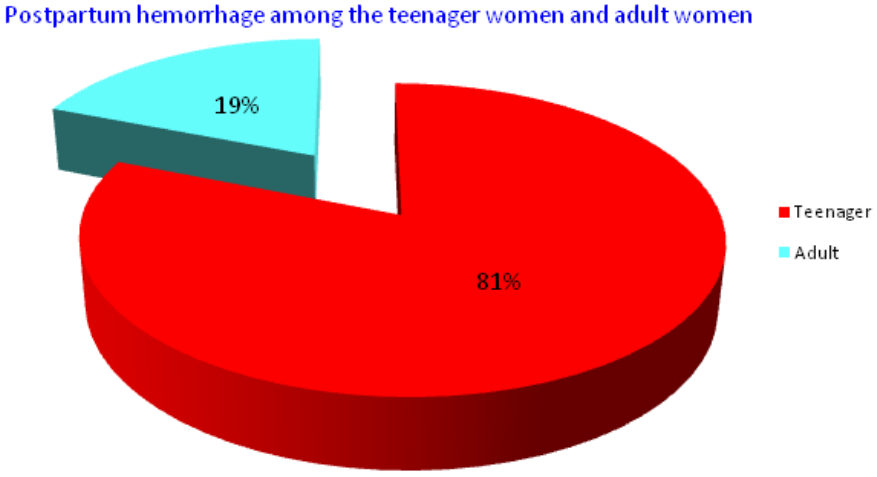

Figure 3 Postpartum hemorrhage among the teenager women and adult women.

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Table 6 Distribution of the parturient women according to neonatal outcomes

Neonatal outcomes	Group				X^2 Test	p-value
	Teenage (n=100)		Adults (n=100)			
	No.	%	No.	%		
Apgar score (1 min):						
<7	18	18.0	5	5.0		
7-	75	75.0	91	91.0	20.2	0.002 (*)
9+	7	6.4	4	4.0		
Apgar score (5 min):						
<7	19	19.0	8	8.0		
7-	38	38.0	56	56.0	16.11	0.003 (*)
9+	43	43.5	36	36.0		
Baby weight (gm):						
<2500	27	27.0	6	6.0		
2500- < 4000	70	70 .0	82	82.0	10.6	0.000 (*)
>4000	3	3.0	12	12.0		

(*) Statistically significant at P<0.05

Table 7 Distribution of the parturient women according to newborn problems

Fetal outcomes	**Group**				**X^2 Test**	**p-value**
	Teenage (n=100)		**Adult (n=100)**			
	No.	%	No.	%		
Birth injuries:						
Yes	11	11.0	7	7.0	0.37	0.37
No	89	89.0	93	93.0		
Need for resuscitation:						
Yes	29	29.0	18	18.0	5.14	0.011 (*)
No	71	71.0	82	82.0		
NICU admission:						
Yes	14	14.0	8	8.0	4.55	0.016 (*)
No	86	86.0	92	92.0		
Perinatal death:						
Yes	10	10.0	2	2.0	7.54	0.002 (*)
No	90	90.0	98	98.0		

(*) Statistically significant at P<0.05

Citation: Farg DSS, Hassan HE. Obstetric outcomes for teenage and adult pregnancy: a comparative study. *Nurse Care Open Acces J.* 2020;7(1):1–10. DOI: 10.15406/ncoaj.2020.07.00208

Discussion

Teenage pregnancy is an important public health problem as it often occurs in the context of poor social support and maternal wellbeing. Many maternal, fetal and infant health problems are particularly associated with negative outcomes of pregnancy during teenage. The present study finding indicates that there were statistically significant differences between the two studied groups regarding socio-demographic characteristics. Thus, teenage women were more likely to have a consanguineous relation with their husbands and living in rural areas. As well as they were less likely to be working women and to have high education. These results may be related to the fact that early marriage prohibits women's education either due to the responsibilities they have to take on at a very early age or due to lack of motivation for schooling after marriage.[21–23]

These characteristics are in the same line with El-Zanaty & Way[8] in Egypt who have reported that approximately 57 percent of married adolescent women in Egypt are married to a relative. Additionally, Ibrahim & Wassef[24] reported that adolescent fertility in Egypt is mainly a rural phenomenon and is mainly restricted to women with limited or no education. In this respect, Adekanle et al.,[25] in southwestern Nigeria mentioned that and found that teenage mothers were statistically less educated (secondary education 55.2%), less employed and had more unplanned pregnancies than the adult mothers. As well as Abdel-Wahed & Abdel- Rahman[26] showed that early marriage hinders women's education either due to lack of motivation for schooling after marriage or due to the responsibilities they have to take on at a very early age. Meanwhile, Abdou Sallam, et al.,[27] eported that Egypt has a high rate of consanguineous marriages compared to most countries and about one-fifth of the women in his study were married to a first cousin.

In the present study, teenage women were more likely to be primipara and had a history of abortion compared to adult women. This result is congruent with the explanation that made by El-Zanaty & Way.[8] They indicated that these findings may be related to that; the couples are under social pressure to begin childbearing immediately after marriage. There is a great emphasis placed on couples to prove their fertility due to social pressure once marriage occurs.

These findings are corroborated with Jacqueline[28] in United Kingdom, who mentioned that there was an increase in both the number of abortions in young women with a previous abortion and the number of abortions to young women with a previous birth. Also, this finding is convergent with that reported by Mahavarkar & Madhu[2] in India, and Adekanle et al.,[25] in Nigeria. They reported that there was a significant proportion of teenage pregnant mothers in their first pregnancies (79.3%) than non-teenagers (31.8%). It reflects either lack of care and experience at this early age or incomplete maturity of the reproductive system age. It also underscores the importance of the provision of quality antenatal care to this group, being nulliparous, and having no previous experience with labor and is exposed to abortions. It also reflects either an incomplete maturity of the reproductive system or lack of care and experience at this early age.

Regarding the complications encountered during the last pregnancy, the present study has revealed that women, in the teenage group, had a statistically higher percentage of preeclampsia and anemia. The findings are in congruence with Sevgi[29] who have similarly reported that adolescent pregnancy was associated with higher rates of anemia and preeclampsia. Furthermore, Mahavarkar & Madhu[2] have demonstrated that teenage mothers were nearly three times more at risk of developing anemia, pregnancy-induced-hypertension (PIH) during pregnancy and pre-term labor. On the same line, Vorapong & Keng[30] have reported that adolescent pregnant women were more likely to develop anemia, preterm delivery, and preeclampsia and deliver low birth weight babies. Also, Shruti et al.,[31] have reported a higher incidence of iron deficiency anemia in teenage pregnancy.

As for pattern of received antenatal care, the present study results revealed that nearly two-thirds of teenage women had antenatal care visits less than four times during their pregnancy compared to almost one-fifth in adult women. The low utilization of antenatal care services could be related to lack of power to take decisions as well as women's experience and perceptions of pregnancy care, labor and birth. The same finding also reported by Treffers et al.[32] in Ireland, who showed that the proportion obtaining antenatal care late, or not at all among adolescent women, was at least twice as high as that for older women. This finding was in agreement with the study conducted by Vorapong & Keng[30] who reported that more cases in the young adolescent group did not have antenatal care. The total number of antenatal visits and neonatal birth weight were significantly lower in the study group than the control group. The same finding also reported by Mesleh;[33] He reported that 9.0% of adolescents did not receive any antenatal care as compared to 7.0% in adults group. These differences were statistically significant.

Investigating gestational age among the two studied groups, the present study findings revealed that women in the teenage group had a higher proportion of gestational age less than 36 weeks. One possible cause is the immaturity of the organs of young women. On the other hand, the share of various ethnic groups is often disproportional, especially in developed countries. Many adolescents are socially deprived, or they may be physically abused, some use or abuse various substances and many receive less than optimum care during pregnancy. All these social and behavioral factors may have a negative influence on pregnancy outcome. In a similar study conducted by Vorapong & Keng[30] they reported that the mean gestational age at delivery was lower in the teenager group than the adult group. Moreover, Maryam & Ali[34] reported that proportions of preterm birth were highest among the infants of mothers aged 19 years or less compared with women aged 20-29 years. Mesleh et al.,33 reported that the gestational age at delivery was 36 weeks or less in 3.0% of adolescents as compared to 1.0% of the adults.

Regarding mode of delivery, the present study findings point to no statistically significance differences between the two studied groups, however, the rate of cesarean section was higher in adolescent women than the adult women. In the same line with the current results, Shruti et al.,[31] in Bombay study about teenage pregnancy have reported that the incidence of section was high in teenage pregnancy compared to the general population. In agreement Yildirim et al.,[35] in their study, in Turkish population have reported that, an elective or emergency CS was required in 34.6 % of adolescent deliveries. In the disagreement with the present study findings Maryam & Ali[34] reported that cesarean was not higher among mothers aged 19 years or less compared with women aged 20-29 years. Also, Vorapong & Keng[30] reported that adolescence women significantly less likely than adults women to deliver by cesarean section. The discrepancies between the present study and these studies might be related to differences in socioeconomic factors and the levels of educations between the study groups.

Maternal complications proved to be significantly higher among teenage mothers, compared to adult mothers. Thus, a high percentage of teenage women had perineal tears and postpartum hemorrhage compared to adult women. This may be related to blood loss during labor and delivery which may increase the risk of postpartum hemorrhage and puerperal infection; furthermore, teenage women are more at risk of anemia in the postpartum period. In agreements with the previous finding, Shruti et al.,[31] points out that severe anemia can lead to preterm labor, postpartum hemorrhage. Also, Treffers et al.,[32] have indicated that many health problems are particularly associated with negative outcomes of pregnancy during adolescence such as postpartum hemorrhage.

Concerning the birth weight of the baby, the present study findings show a statistically significant difference between the two groups as regards the birth weight. Teenage women had a higher percentage of low birth weight compared to adult women. This finding is in agreement with Mesleh et al.,[33] in Kingdom of Saudi Arabia (KSA) have reported that adolescent mothers were found to be more likely to deliver low birth weight infants even after controlling for major risk factors.

Another important finding of the present study was fetal outcomes and its relation to adolescent pregnancy. Teenagers' newborns were more significantly likely to birth injuries, and perinatal death. There was a high percentage of babies of adolescence mothers need resuscitation, NICU admission compared to adult women's babies. This is in agreement with Nili et al.,[36] who reported that prenatal resuscitation and/or ventilator care were needed in 9.8% and 3.9% of neonates of babies of the adolescent mother, respectively. Neonatal mortality occurred in 6.9 % of babies. Complications of teenage pregnancies were higher than total deliveries.

Conclusion

Teenage women were less likely to have antenatal care; however, they are more likely to operative deliveries, perineal trauma, and postpartum hemorrhage (PPH) as well compared to the adult group. Moreover, teenagers' baby is more likely to have mal-presentation, low birth weight, a higher percentage of birth injuries, need for resuscitation and admission to NICU, and perinatal death as well, compared to the adult group.

Recommendations

1. Teenage couples need to be educated about the health benefits to mother and child throughout the activated antenatal class that can help large slid couples in our society.
2. Training programs are needed for nurse midwives in antenatal care units to increases their awareness about components of antenatal care and how to give health teaching for teenager pregnant women.
3. Outreach programs to rural areas in Upper Egypt to enhance population awareness regarding proper age of marriage and distribute booklets, pamphlets which illustrate the maternal and fetal complications of teenagers' marriage.

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None.

Conflicts of interests

The authors have no conflicts of interest to declare.

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