



OUTCOMES OF TEENAGE PREGNANCY IN MOSUL CITY, IRAQ

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ABSTRACT

Background: Teenage pregnancy is a multifactorial problem with a wide spectrum of health related problems from its origin to later in life. It is one of the important causes of high infant's mortality and morbidity rate in developing countries. **Aim:** The aim of this study is to evaluate the main outcomes associated with teenage pregnancy in Mosul city. **Methodology:** A case-control study design was carried out in four general hospitals (AlKhansaa, Al-Salaam, Al-Mosul and Al-Batool Teaching Hospitals) in Mosul city, Iraq. A total of 100 cases and 100 controls were collected from these four general hospitals from the 1st of January to the end of June 2021. **Results:** Young age (<18 years) was a risk factor for the Teenage mothers to have preterm labour preeclampsia, gestational HT, LBW newborns when compared with older ages mothers. Most of the teenage were from urban and from left side of Mosul city. The study revealed that displaced teenage mothers were more risky than others to pregnancy outcomes with significant association. Primiparity and short interpregnancy interval were risk factors to teenage mother outcomes. The study revealed that teenage mothers come with unplanned pregnancy, pre-term labor and mothers with <150 cm height were more prone to teenage pregnancy outcomes than others. During pregnancy; inadequate ANC visits, inadequate iron supplements, anemia, hypertensive disorders and passive smoking, all were found to be risk factors to teenage pregnancy with significant association. The study revealed that teenage who had previous history of LBW newborns were more risky than others to have another LBW newborn with significant association. **Recommendations:** It is recommended to encourage a close cooperation between the ministry of health, ministry of higher education and ministry of education to educate all young women to Teenage outcomes in teenage pregnancy to minimized the number of such outcomes.

KEYWORDS: Primiparity and short interpregnancy interval were risk factors to teenage mother outcomes.

INTRODUCTION

It is well-known that pregnancy in adolescence has an increased risk of adverse reproductive outcomes. It remains unclear whether this association is due mainly to the unfavorable sociodemographic status or due solely to biological immaturity of pregnant.^[1]

Pregnancy in adolescence is associated with an excess risk of poor outcomes, including low birth weight and prematurity. Whether this association simply reflects the deleterious sociodemographic environment of most pregnant teenagers or whether biologic immaturity is also causally implicated is not known.^[2]

Pregnancy among adolescent girls (aged 15 to 19 years) is often associated, with high risks to both the Teenage mother and the fetus^[3] and can lead to intergenerational cycles of poverty, poor education and unemployment.^[4] In low- and middle-income countries, pregnancy-related complications are major causes of death for girls that aged 15 to 19 years old.^[5]

According to the World Health Organization (WHO) adolescent pregnancy means pregnancy between 10 and 19 years of age. However, statistics comparing the incidence between countries often give rates per 1,000 adolescent aged 15–19 years.^[6] According to WHO, 16 million adolescent mothers give birth annually and nine of every ten adolescent birth belong to low- and middle-

income countries.^[7] multi country study done by WHO in low- and middle-income countries reported that eclampsia, puerperal infection, preterm birth, low-birth weight, still birth, and early neonatal death were significantly higher among the adolescent mothers.^[8,9]

Most studies from developed and developing countries have consistently reported that teenage pregnancy were at increased risk for preterm delivery and low birth weight (LBW).^[10] Some of the complications associated with teenage pregnancy include: preterm labour, intrauterine growth retardation and low birth weight neonatal death, obstructed labour, genital fistula and eclampsia.^[11] The United Nations Children Fund (UNICEF) defines teenage pregnancy as “a teenage girl, usually within the ages of 13-19, becoming pregnant and refers to girls who have not reached legal adulthood which varies across the world.”^[12]

Epidemiology

Births to the adolescent mothers represent 10% of births worldwide, but 23% of the Teenage morbidity and mortality.^[14] Teenage pregnancy is the leading cause of mortality in girls aged 15 to 19 worldwide; worldwide 90% of this deaths occur in poor countries and most of them are preventable.^[14,15] Adolescent pregnancy is also a cause for concern worldwide because with high rates of abortion and poor behaviors, prenatal care, and support.^[16]

Teen mothers are more likely to be depressed, more likely to drop out of school, and at high risk of a repeat pregnancy if they live with the baby's father. Adolescents who choose to have a termination or an adoption have a separate burden to carry, with potential emotional sequelae if they are not support and tools, teen pregnancy can maintain or create a new cycle of poverty, especially if the teen does not complete school or pursue a college degree. Adolescent fathers remain an understudied group, with a need for interventions preventing teen pregnancy that target girls and boys, as well as services to engage and support parenting adolescents of both genders, Every year, 14 million children are born worldwide to women aged 15–19.^[17]

More women are using contraception, and fewer adolescents are becoming mothers every year; however, declines in adolescent birthrates have slowed, and in the least developed countries rates may have even increased slightly.^[18] In developing countries, 15-33% of this pregnant women are younger than 20 years of age.^[18]

Complications from pregnancy and childbirth are leading causes of death in these adolescent women. Each year, approximately 70,000 adolescent women worldwide die from pregnancy-related causes.

Aim: The aim of the study to find out outcomes of teenage pregnancies among mothers in Mosul city.

PATIENT AND METHODS

An official agreement done from the Ministry of Health and Ninawah Health Directorate before done present study. A verbal consent taken from the cases and controls included in this study.

The current study was conducted in Mosul city, in northwestern of Iraq. It is the second biggest city in Iraq and represents the center of Ninawah Government. Sample was taken from the teenage-who attended the obstetrical and gynecological department in (Al-Khansaa, Al-Salam, Al-Battool Teaching Hospitals and Al-Mosul General Hospital) in the left and right banks of the Tigris River respectively.

Ahospotal-based case-control study done in order to achieved the objectives of the present study from the 1st of January to the end of June 2021.

The present study included 100 teenage (<18 years) who attended the obstetric-gynecological Departments if the concerned Hospitals and delivered baby (CASE); and 100 mothers older than 18 years who attended the same place and delivered baby (CONTROL). Both cases and control were selected randomly.

All teen age mothers who delivered a live-born baby by normal vaginal delivery and cesarean section at any gestational age, primipara, multipara, all ages were included at this study, the participation has strictly voluntary. While teenaged who had multiple births, history of placenta previa, abruption placenta and teen-ages who delivered baby with congenital malformation, stillbirth were excluded.

RESULTS

The study sample was grouped into two age groups which covered the mother's age in the sample of the study population. This is shown in Table 1 (OR=4.1, P=(0.001). The majority of population were housewives; with no significant difference between cases and control (73% of cases and 68% of control). Also majority (30% of cases and 30% of control) were illiterate with no significant association (P0.05<) opposite to 24% of cases and 37% of control were university level of education with significant association (p<0.05).

Most of cases and controls were from right side of Mosul city with no significant association between them (P=0.001) and mainly from urban areas. On the other hand, the study shows that displaced teenage mothers were 7 times risky than other groups to present with teenage out comes significant association (OR=7.37, P=0.0001).

Table (1): Socio-demographic characteristics of studied sample.

| Socio-demographic characteristics of studied sample | Cases | | Controls | | OR | CI %95 | value-p |
|---|-------|------|----------|------|-------|------------|---------|
| | No | % | No | % | | | |
| Age groups (years) | | | | | | | |
| 18 > | 59 | 59.0 | 26 | 26.0 | 4.1 | 7.45- 2.25 | 0.001 |
| 18 ≤ | 41 | 41.0 | 74 | 74.0 | | | |
| Occupation | | | | | | | |
| Housewife | 73 | 73.0 | 68 | 68.0 | 1.27 | 2.34- 0.69 | 0.438 |
| Employed | 16 | 16.0 | 26 | 26.0 | 0.54 | 1.09- 0.27 | 0.083 |
| Student | 11 | 11.0 | 6 | 6.0 | 1.94 | 5.56- 0.69 | 0.205 |
| Level of Education | | | | | | | |
| Illiterate | 30 | 30.0 | 32 | 32.0 | 0.911 | 1.66- 0.50 | 0.760 |
| Primary | 30 | 30.0 | 17 | 17.0 | 2.09 | 4.11- 1.07 | 0.030 |
| Secondary | 16 | 16.0 | 14 | 14.0 | 1.17 | 2.55--0.54 | 0.692 |
| University | 24 | 24.0 | 37 | 37.0 | 0.54 | 0.99 -0.29 | 0.046 |
| Residence | | | | | | | |
| Right side | 62 | 62.0 | 28 | 28.0 | 4.20 | 7.60- 2.32 | 0.001 |
| Left side | 38 | 40.0 | 72 | 72.0 | | | |
| Location | | | | | | | |
| Urban | 57 | 57.0 | 69 | 69.0 | 0.60 | 1.06-0.33 | 0.079 |
| Rural | 11 | 11.0 | 25 | 25.0 | 0.37 | 0.80 -0.17 | 0.010 |
| Displaced | 32 | 32.0 | 6 | 6.0 | 7.37 | 2.92-18.61 | 0.0001 |

x² - test was used

Table 2 shows the primiparity is associated with the occurrence of teenage outcomes (OR=1.54) with no significant risk (P=0.220). Distribution of study population according to inter-pregnancy interval which is shown in the table is excluding primigravidas. The

results show that teenage mothers with unplanned pregnancy was 5 times riskier than to others mothers with planned pregnancy with strong significant association (R=5.39, P=0.0001).

Table 2: Distribution of study population according to obstetric characteristics of mothers.

| obstetric characteristics | Cases | | Controls | | OR | CI %95 | value-p* |
|---------------------------|-------|------|----------|------|------|------------|----------|
| | No. | % | No | % | | | |
| Parity | | | | | | | |
| Primi | 24 | 24.0 | 17 | 17.0 | 1.54 | 3.09-0.77 | 0.220 |
| Multi | 76 | 76.0 | 83 | 83.0 | | | |
| Inter pregnancy interval | | | | | | | |
| months 12> | 30 | | 8 | | 7.05 | 16.75-2.97 | 0.0001 |
| months 24-12 | 21 | | 30 | | 0.78 | 1.53-0.40 | 0.475 |
| months 24 < | 21 | | 49 | | 0.32 | 0.62-0.17 | 0.001 |
| Total | 72 | | 87 | | | | |
| Current pregnancy | | | | | | | |
| Unplanned pregnancy | 63 | 63.0 | 24 | 24.0 | 5.39 | 9.95-2.92 | 0.0001 |
| planned pregnancy | 37 | 37.0 | 76 | 76.0 | | | |

x² - test was used

Table 3 shows that teenage mothers of preterm babies (<37 weeks) riskier than mothers of full term babies (>37

weeks) to developed teenage outcomes pregnancy with significant association (OR= 12.9, P=0.0001).

Table 3: Distribution of study population according to Gestational age of teenage mothers.

| (weeks) Gestational age | Cases | | Controls | | OR | CI %95 | value-p* |
|-------------------------|-------|-------|----------|-------|-------|------------|----------|
| | No. | % | No. | % | | | |
| 37 > | 35 | 35.0 | 4 | 4.0 | 12.92 | 38.10-4.38 | 0.0001 |
| 37 ≤ | 65 | 65.0 | 96 | 96.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

x² - test was used

Table 4 shows that teenage with inadequate ANC visits during pregnancy (less than 8) were significantly 3 times riskier to develops out comes pregnancy-than other mothers, (OR= 4.85, p=0.001)

Table 4: Distribution of study population according to ANC age of teenage mothers.

| ANC* | Cases | | Controls | | OR | CI %95 | value-P** |
|-------|-------|-------|----------|-------|------|-----------|-----------|
| | No | % | No | % | | | |
| 8 > | 63 | 63.0 | 26 | 26.0 | 4.85 | 8.86-2.65 | 0.0001 |
| 8 ≤ | 37 | 37.0 | 74 | 74.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

x² - test was used

The 2016 ANC guidelines include a significant recommendation to the pregnant women have eight contacts with the health system through each pregnancy.(90)

Height of teenage mothers
The results revealed that teenage mothers of less than 150 cm in height were 4 times risky to have out comes pregnancy than mothers of 150 cm height or more with significant association (OR=4.02, P=0.0001).

Table 5: Distribution of study population according to height of mothers.

| Height (in cm) | Cases | | olsContr | | OR | CI %95 | value-P** |
|----------------|-------|-------|----------|-------|------|------------|-----------|
| | No | % | No | % | | | |
| 150 > | 32 | 32.0 | 10 | 10.0 | 4.24 | 9.21- 1.95 | 0.0001 |
| 150 ≤ | 68 | 68.0 | 90 | 90.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

x² - test was use

Table 6 shows that teenage mothers with Hb of less than (11g/dl) during pregnancy were 4.55more risky than mothers with Hb ≥ 11g/dl with significant association (OR=4.55, P=0.0001).

Table 6: Distribution of study population according to Hb status in teenage.

| Hb status (in g/dl) | Cases | | Controls | | OR | CI %95 | value-P** |
|---------------------|-------|-------|----------|-------|------|------------|-----------|
| | No | % | No | % | | | |
| 11 > | 65 | 65.0 | 29 | 29.0 | 4.55 | 8.25 -2.51 | 0.0001 |
| 11 ≤ | 35 | 35.0 | 71 | 71.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

x² - test was use

Table 7 show that inadequate taking of iron during teenage mother pregnancy increases the risk of teenage pregnancy out comes by (2.6) times with significant association (OR=2.42, P=0.004).

Table 7: Teenage pregnancy Distribution of study population according to taking Iron during.

| Iron Supplement* | Cases | | Controls | | OR | CI %95 | value-P** |
|------------------|-------|------|----------|------|------|------------|-----------|
| | No. | % | No | % | | | |
| Inadequate | 42 | 42.0 | 23 | 23.0 | 2.42 | 4.47 -1.32 | 0.004 |

| | | | | | | | |
|----------|-----|-------|-----|-------|--|--|--|
| quateAde | 58 | 58.0 | 77 | 77.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

Table 8 shows hypertensive mothers during pregnancy more prone to have risky outcomes pregnancy, more than others with significant association (OR=2.55, P=0.059)

Table 8: Distribution of study population according to history of hypertensive disorders through pregnancy.

| HT during pregnancy | Cases | | Controls | | OR | CI %95 | value-P* |
|---------------------|-------|-------|----------|-------|------|-----------|----------|
| | No | % | No | % | | | |
| Present | 14 | 14.0 | 6 | 6.0 | 2.55 | 6.93-0.94 | 0.059 |
| Absent | 86 | 86.0 | 94 | 94.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

x²-test was used

Table 9 revealed that smoker mothers carried a higher risk when compared with non smoker mothers with significant association (OR=2.16, P= 0.007).

Table 9: Distribution of study population according to history of smoking.

| Smoking | Cases | | Controls | | OR | CI %95 | value-P** |
|------------|-------|-------|----------|-------|------|------------|-----------|
| | No | % | No | % | | | |
| Active | 0 | 0.0 | 0 | 0.0 | 2.16 | 3.80- 1.23 | 0.007 |
| Passive | 58 | 58.0 | 39 | 39.0 | | | |
| Non smoker | 42 | 42.0 | 61 | 61.0 | | | |
| Total | 100 | 100.0 | 100 | 100.0 | | | |

x²-test was used

Table 10 shows the teenage who had previous history of LBW neonates were (4.79) more 4.7924)times more risky than others to have another LBW neonates with significant association (OR=4.7924, P=0.0001).

Table 10: Distribution of study population according to previous history of LBW.

| Previous history of LBW | Cases (n=100) | | ontrolsC (n=100) | | OR | CI %95 | Value-P* |
|-------------------------|---------------|------|------------------|------|--------|-----------------|----------|
| | NO | % | NO | % | | | |
| Present | 37 | 51.4 | 15 | 18.1 | 4.7924 | 9.8988 - 2.3202 | 0.0001 |
| Absent | 35 | 48.6 | 68 | 81.9 | | | |
| Total | 72 | 100 | 83 | 100 | | | |

-excluding primigravida's x²-test was used

DISCUSSIONS

The present study analysis confirms the influence of sociodemographic factors on reproductive outcome; inadequate prenatal care, in particular, was associated with a marked increase in prematurity. This finding is consistent with the results of many previous studies, indicating that sociodemographic factors and the adequacy of prenatal care have important effects on the outcomes of pregnancy among teenagers.

Risk Factors of teenage pregnancy

1 Age of teenage mother

The association between teenage mother's age and pregnancy outcomes significantly. Similar to finding of

case control study in Al-Galaa maternity teaching hospital, Cairo (2015) significant increase in prevalence of teenage pregnancy (46.9%, P<0.05).^[6] comprehensive study in Jordan 2012 teenage age (<20) (OR=1.5, 95% CI=1.2, P<0.05)^[29] another agreement with cross section study in central Africa^[7,8] and cross sectional study in Sulaymaniyah maternity teaching hospital-Kurdistan(2019).^[9] Cross section study maternity hospital Rast, Iran (2018) (P<0.05).^[10] ^[10] (0.005), This result disagreement with case control study at maternity teaching hospital in Erbil city 2014 eveled out comes within 20-24 years.^[11]

2 Occupation of teenage mothers

Highest frequency of occupation was house wife which was (73%) for cases and (68%) for controls and it was similar to cross sectional study in sub-Saharan Africa.^[12] disagree to cohort study done in Riyadh, Saudi Arabia which revealed that highest frequency of occupation was employed^[13] and case control study in tertiary care hospital in north-east India), that due to hard work of them (2014).^[14]

3 Level of teenage mother education

In this study, (30%) of cases and (32%) of controls were illiterate with no significant association. It was similar to the case-control study which was done in KSA 2015 ($P < 0.05$)^[15] and case-control study (2010) in Colombia ($OR = 2.25, 95\% CI = 1.45-4.51$)^[16] and case control study in tertiary care hospital India^[17] On the other hand, results revealed that 24% cases and 37% of controls were with university level with significant association ($P = 0.046$) similar to cohort study in Saudi more educate^[13] and disagreement with case control study in KSA (2015) (< 0.05).^[15]

4 Teenage Residency

In this present study, 62% of cases were from right side of Mosul city compared to 40% from left side with no significant association ($P = 0.001$) also this study revealed that 57% of cases were from urban areas compared to 11% from rural areas and 32% were displaced. The result of this study was in agreement with a case-control study which was done in Irbil city revealed 93% were from urban^[11] and disagreement with cross-section study in Sulaymaniyah maternity teaching hospital – Kurdistan Region-Iraq 2019^[9] 59.3% from rural area and cross section study from sub-saharan Africa 2018.^[12]

5 Parity

This study revealed that primiparity associated with pregnancy outcomes with no significant risk ($OR = 1.54, P = 0.220$), and this is the same result of a case-control study conducted in Malaysia 2012 ($OR = .47, P = 0.101$).^[18]

Another case-control study, at Al-Galaa maternity teaching hospital, Cairo Egypt 2015, show prim parity high risk need special medical attention to avoid risk of out comes disagreed with this result which revealed that primiparity was of significant risk for Out comes ($P > 0.05$).^[6]

6 Inter pregnancy interval in teenage pregnancy (excluding primigravid)

The present study show there was significant association with short interval pregnancy ($P = 0.001$) for teenage less than 1 year interval, this result agreement with case control study presented in sheikh zaid^[19] explain Teenage depletion syndrome in short interval pregnancy associated with teenage out comes this result disagreement with case control study in Malaysia 2012 ($P = 0.79, OR = 0.8$).^[18]

7 Type of teenage pregnancy

The present study display that unplanned pregnancy significant association ($P = 0.0001$) this study agree with Case-control study in Zeynabeh hospital in Iran^[20] 2017 that explain unplanned pregnancy less receive antenatal care more to have teenage out come LBW, preterm, preeclampsia, estational hypertension, gestational diabetic.

8 gestational age

This study show significant association between pre-term labor and outcomes those women highly propose 12 times to risk of outcomes than term baby ($OR = 12.9, P = 0.0001$) this study agree with comparative study in tertiary care of maternity hospital between adolescent refugee and local Turkish adolescent 2019 show high pre-term birth in Syrian immigrant adolescent (26.3% $P = 0.001$) pre term in Syrian 2014 adolescent and 19.5 decrease over year^[21] and agree with case-control study in tertiary care in north-east India (2014).

Preterm birth ($OR = 1.655, 95\% CI = 1.039-2.636, P = 0.03$)^[17] another similar case-control study done in Malaysia 2012^[18] pre term usually small due to delivered prematurely.

1 In adequate antenatal care

This study display inadequate ante natal care visit consider risky factor significantly associated ($OR = 4.8, P = 0.001$) regular fetal monitoring. this agreement with study done in Cameron^[4] low ANC < 4 visits (63.3% Vs 76%) in teenage and adult group,^[22] and other – case control study in maternity teaching hospital 2015 lower ANC (63.8%, $p = 0.001$),^[6] another cross section study in Sulaymaniyah maternity teaching Kurdistan-hospital iraq-region 2019, ANC percentage 11.14%^[9] and other study in eastern turkey 2010 Show inadequate ANC (28.4% Vs 17.6%, $P < 0.001$) case control study in KSA 2008 disagree with this study ($p = 0.338$)^[23] and disagree with control-case study in north east– India 2014 $> 80\%$ of adolescent receive ANC and early booking.^[24]

2 smother teenage of Height

This study observed significant, association between height of mothers and teenage pregnancy out comes ($OR = 4.24, P = 0.001$) this explain that shorter mother < 150 cm associated with lower uterine volume and blood flow associated with fetal growth restriction^[25] result agreement with case control study at Maternity and children hospital in Makkah KSA 2014 show significant association between teenage height and out comes^[26] LBW disagree with cross section study done in hospitals of Baghdad city, Iraq 2009 no show significant association ($p = 0.13$).^[26]

3 Anemia in teenage pregnancy

this study display significant association between hemoglobin level in teenage mother and out comes pregnancy ($OR = 4.55, P = 0.001$), this agree with cross section study in Sulaymaniyah Maternity teaching

hospital Iraq 2019^[9] and comparative study at tertiary care of Maternity hospital in Turkey 2019 between Adolescent refugee and local Turkish adolescent show Hb significantly lower in Syrian refugee adolescent ($P=0.001$)^[21] result disagree with control-case study in sheikh Zaid women Hospital, UAE 2009 show not significant association between level of Hb and teenage pregnancy outcomes^[19] this explain that teenage anemia in pregnancy play role in immune suppression and poor fetal growth and elevated Teenage morbidity and urinary tract infection.^[25]

4 iron supplementation in teenage pregnancy

this study display significant between iron supplementation and teenage out comes LBW, mpreter delivery that, agree with study done in Eastern Nepal 2012 ($p=0.001$) and, disagree with other case control study in KSA kingdom of Saudi Arabia show. not significant association.^[15]

5 hyper tension in teenage pregnancy including gestational HT aeclampsia, pre-eclamsia

This study result display significant association between teenage pregnancy and gestational hypertension 2 times risky than others ($OR=2.55$, $P=0.05$) similar to study done Erbil 2014 ($P=0.001$),^[11] and case control study in tertiary care pitalhos in east-north india 2014^[17] this explain association due to reduce placenta blood flow and associated complication IUGR, LBW, abruption placenta, hypertension in pregnancy increase cardiovascular problem in her mother and^[27] offspring and ivecomparat study in tertiary care Hospital of Maternity in Turkey 2019 that revealed gestational hypertension risky in Turkish adolescent group^[21] disagree with section-cross study in Zeynabeieh in iran 2017^[20] that show not significant associated with sionhyperten.

6 smoking in teenage pregnancy

This study revealed the significant association between smoker mother and out comes ($OR=2.16$, $P=0.007$) that explain that passive smoking contain many potentially toxic gases in different concentration that reducing centapla perfusion and lead to IUGR^[28] this result agree with comparative study in tertiary care of Maternity Hospital in Turkey 2019^[21] result disagree with cross sectional study in general hospital of Baghdad Iraq 2009 ($P=0.7$)^[26] show not significant ciationasso.

7 history of Low birth weight

This result revealed significant association between teenage pregnancy and previous history of LBW ($OR=5.05$, $P=0.001$) similar to case control study in north east India 2014 ($P=0.03$, $OR=1.65$, 95% $CI=1.039-2.636$)^[24] nda comparative study at tertiary care of Maternity hospital in Turkey 2019 significant with LBW risky in Turkish ($P=0.01$)^[21] and comprehensive national study in jordan 2011 in maternity Hospital in Jordan ($P=0.005$) more in age < 20 year^[29] and lcontro-case study in Riyadh Hospital Saudi Arabia 2001 incidence of

LBW 21.5% in adolescent as compare to 9% of control^[13] while this result disagree with control-case study in KSA 2015 that revealed not significant association^[15] this result due to inadequate ANC pre term labour, pre eclampsia in previous baby as complication.

CONCLUSION

The following conclusions were obtained from the present study:

1. Very young age group mothers (<18 year) carried a higher risk to Pregnancy out comes: preterm, LBW, pre eclampsia, high admission to intensive care unit, gestational diabetic, gestational hypertension, post partum harmorrhagh, compare to other age groups
2. The majority of participants were housewives, illiterate, from Right side of Mosul city and from urban with no significant associations
3. multi factor affect to the Adolescent pregnancy family social environmental factor
4. Short birth interval of (<1 year) others with unplanned pregnancies mothers with preterm babies and mothers of less than 150 cm height carried a higher risk to adolescent pregnancy out comes with significant association
5. significan association between adolescent pregnancy and gestational hypertension preeclampsia pregnancy induce hypertension
6. significant association between teenage pregnancy out comes and passive smoking
7. prevention strategies and health care role is important in reducing the consequences of teenage pregnancy should receive good ANC and health service to avoid deterioration
8. teenage primigravid carry high risk pregnancy and require special medical attention to avoid Teenage outcomes

Recommendation

Advocate for adolescent pregnancy prevention among all stakeholders through interventions such as: information provision sexuality and health education life, skills building, contraceptive counselling, and service provision and the creation of supportive environments.

Health care providers should adapt their prenatal care for adolescents and offer multidisciplinary care that is accessible to the adolescent in early pregnancy.

Counselling about all available pregnancy outcome options abortion, adoption and parenting should be provided to any adolescent with a confirmed intrauterine gestation.

Testing for sexually transmitted infections (STI) and bacterial vaginosis should be performed routinely upon presentation for pregnancy care teenage mother should have nutritional assessment vitamins and food supplementation if needed and access to a strategy to reduce anemia and low birth weight and to optimize weight gain in pregnancy.

Teenage at risk of intrauterine growth restriction)IUGR and low birth weight an ultrasound to assess fetal well-being and estimated fetal weight at 32 to 34 weeks gestational age is suggested to screen for

IUGR

Postpartum care for teenage uldsho include a focus on contraceptive especially methods acting-long reversible contraception as methods a means to decrease the high rates of repeat pregnancy in this discussion population of contraception should begin before delivery Breastfeeding

and ndedrecomme sufficient support given to this population at high risk for discontinuation.

Basic component of health education of adolescent Adolescent health should be viewed as a package of several components that are complementary within a framework of ulturalc and religious norms prevailing in the Eastern Mediterranean These Region are depicted in Figure 1 and will be discussed below.



Figure 1: Components of adolescent health programmes.

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